Decision **PROPOSED DECISION OF ALJ FARRAR** (Mailed 3/20/2012)

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Examine the Commission's Post-2008 Energy Efficiency Policies, Programs, Evaluation, Measurement, and Verification, and Related Issues.	Rulemaking 09-11-014 (Filed November 20, 2009)

DECISION PROVIDING GUIDANCE ON 2013-2014 ENERGY EFFICIENCY PORTFOLIOS AND 2012 MARKETING, EDUCATION, AND OUTREACH

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Attachment A: Summary of Changes to Database for Energy Efficiency Resources 2011 2
Attachment B: HVAC Emergency Retrofit Protocol
Attachment C: 2013-2014 WE&T Course Listings/Programs
Attachment D: Integrated Pilot Programs (2013-2014)

DECISION PROVIDING GUIDANCE ON 2013-2014 ENERGY EFFICIENCY PORTFOLIOS AND 2012 MARKETING, EDUCATION, AND OUTREACH

1. Summary

In this decision, the Commission directs Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company (collectively, the investor-owned utilities) to file applications no later than July 2, 2012 to establish energy efficiency programs and budgets for 2013 and 2014.

The past several energy efficiency portfolios have been approved on a three-year cycle, which has sometimes been followed by a one-year "bridge" year extending the existing programs to allow plans to be made for the next portfolio cycle. In this decision, rather than have a simple one-year "bridge" year extension following the 2010-2012 portfolio, we establish a two-year "transition" period. This decision takes the best elements of the existing portfolio, gives guidance on some modifications, and signals the way toward broader changes to the energy efficiency portfolio starting in 2015. Rather than make fundamental changes to the California energy efficiency market in this decision, we identify what is working well and build upon it, remove what is not working well, and modify programs that have merit but are not realizing full ratepayer benefit. We primarily give guidance in this decision to support modifications to existing elements of the 2010-2012 programs. Our intent is to have this two-year transition period enable some additional research and provide time to make more fundamental changes to the energy efficiency programs.

This decision gives guidance to the utilities on the 2013-2014 energy efficiency programs, with the overall direction that they should begin a transition away from short-lived energy savings and towards deeper retrofits. The decision also gives guidance on expanding energy efficiency financing, by directing

development of a portfolio of options at a total of $200 million over the two-year period. We also take steps to reduce the number and complexity of energy efficiency programs. In addition to the guidance for 2013-2014, this decision clarifies certain aspects of the 2012 Marketing, Education, and Outreach program, and other changes detailed in this decision, which will impact the 2013-2014 transition period.[1]

Collectively, this decision establishes the parameters by which the Investor-Owned Utilities (IOUs) will design their portfolios and propose program budgets for 2013-2014. Their applications will include an optimization to take the guidance from this decision to simultaneously (a) meet or exceed energy savings goals utilizing adopted ex-ante parameters, (b) demonstrate portfolio cost-effectiveness utilizing updated avoided cost and ex-ante parameters, (c) implement program modifications or new programs directed herein, (d) sustain other existing programs, (e) align their programs with the Strategic Plan, and (f) comply with all relevant decisions and statutes.

This decision is organized to, first, step through the sequence of quantitative issues, from avoided cost and ex-ante parameters, to the potential study, and finally energy savings goals. Once we establish the numerical requirements, we turn to the qualitative aspects of our guidance to the IOUs' portfolio applications, in various sections providing program direction in specific markets and cross-cutting areas. We also make certain improvements to the energy efficiency regulatory process.

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[1] Consistent with the scoping memo for Phase IV of this proceeding, the years 2013 and 2014 will be a transition period for the utilities' energy efficiency programs.

2. Background

2.1. Procedural Background

This decision is the most recent in a series of Commission actions that have sought to change the paradigm for utility energy efficiency programs in California. Public Utilities Code Section 454.5(b)(9)(c), the Energy Action Plan and past Commission decisions have established a policy to procure all cost-effective conservation and energy efficiency resources before adding generation resources.[2] For example, in Decision (D). 04-09-060, we articulated our goal to pursue all cost-effective energy efficiency opportunities in support of the Energy Action Plan commitment that conservation and energy efficiency are first in the "loading order" of electricity and natural gas resources. In accordance with this overarching goal, D.04-09-060 established short- and long-term numerical targets for electricity and natural gas savings. We stated that these targets must be aggressive and must stretch the capabilities and efforts of all those involved in program planning and implementation.

D.04-09-060 specified that the achievement of the goals must reflect actual installations of energy efficiency measures, not simply commitments to install them. We ordered the utilities to reflect our adopted goals in their resource acquisition and procurement plans so that ratepayers do not procure redundant supply-side resources over the short- or long-term.[3] To encourage longer term planning and funding, we authorized a three-year program implementation and funding cycle for electric and natural gas energy efficiency.

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[2] Public Utilities Code Section 454.5(b)(9)(c) states: "The electrical corporation will first meet its unmet resource needs through all available energy efficiency and demand reduction resources that are cost effective, reliable, and feasible."

In D.04-09-060, D.05-01-055 and D.05-04-051, we created a framework for utility-administered energy efficiency programs. These decisions made significant changes to the then-existing programs, including:

- Adoption of aggressive annual and ten-year cumulative goals for measured and verified electricity and natural gas savings by megawatt hour, megawatt, and therm;
- Allowing the utilities to develop their own programs and portfolios. Commission oversight of portfolio design was limited generally to determining whether each portfolio as a whole was cost-effective according to the Total Resource Cost and Program Administrator tests and achieved the utilities' numerical savings goals; and
- Requiring the Commission Staff to develop, launch and implement an extensive evaluation, measurement and verification (EM&V) program to ensure that the utility programs actually produced electricity and natural gas savings that could be relied on to offset the utility's electricity and natural gas purchases. The EM&V program is unprecedented both in the scope and scale of the undertaking and in the nature of the responsibilities placed on this Commission's regulatory Staff.

In D.05-09-043 and D.05-11-011, we committed $2.2 billion in ratepayer funds to procure energy efficiency savings over the 2006-2008 program cycle and approved the utilities' program portfolios, including utility efforts to better integrate their programs at a strategic level. For example, we approved the development of a joint plan on statewide marketing and outreach; a sustainable communities program incorporating higher performance energy efficiency and demand reduction technologies, along with clean on-site generation, water conservation, transportation efficiencies and waste reduction strategies; and

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[3] D.04-09-060, Ordering Paragraph 6.

programs to assist customers in choosing and implementing a package of demand side management measures such as conservation, demand response, and self-generation.

In D.07-10-032, we directed the utilities to prepare a comprehensive, long-term energy efficiency Strategic Plan (discussed below). D.07-10-032 also provided specific policy guidance to the utilities on the development and composition of their 2009-2011 energy efficiency portfolios. D.07-10-032 stated:

> Assuring a more comprehensive, integrated model for energy efficiency will require a significant shift in the utilities' approach to program design, development and implementation. Although we have consistently encouraged the utilities to think and act strategically in designing and delivering energy efficiency programs, the utilities and indeed other leaders in business and government must adopt a conceptual framework that is more comprehensive and forward looking.

In 2008, the Commission adopted the landmark California Energy Efficiency Long-Term Strategic Plan (Strategic Plan).[4] Adopted in D.08-09-040, the Strategic Plan sets forth a statewide roadmap to maximize achievement of cost-effective energy efficiency in California's electricity and natural gas sectors between 2009 and 2020, and beyond. The unifying objective of the Strategic Plan was to compel sustained market transformation to move California towards long-term, deeper savings achievable only through high-impact programs.

More recently, in D.09-09-047 the Commission authorized three years of ratepayer-supported energy efficiency programs in step with California's energy policies and greenhouse gas (GHG) mitigation strategies. Specifically,

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[4] http://www.californiaenergyefficiency.com.

D.09-09-047 approved the 2010-2012[5] energy efficiency programs that would be managed by California's investor-owned utilities, and supported with approximately $3.1 billion of ratepayer funding. D.09-09-047 represented a commitment to streamlining our EM&V efforts with the goal of increasing their usefulness while lessening the contentiousness witnessed in recent times. In D.09-09-047, we committed to holding the savings assumptions used in planning the portfolio constant over the course of the program cycle for the purpose of tracking reported savings against goals, contingent on compliance and consistency in utility-submitted data. In D.09-09-047, the Commission established a general framework for rolling budget cycles, for instances where there was a lag in the regulatory decision making process, so that we could avoid unnecessary market impacts. We also articulated renewed goals for EM&V activities to guide the development of specific EM&V plans for the upcoming program cycle.

In order to set California on course to ensure an effective EM&V framework post-2012, in D.09-09-047 we directed Commission Staff to initiate a comprehensive review of California's current technical and institutional EM&V frameworks and the extent to which they can meet our needs in the future. Commission Staff worked diligently to conduct its comprehensive review of California's current technical and institutional EM&V frameworks.

On November 25, 2009, we initiated R.09-11-014 to address the policies, programs and evaluation, measurement and verification activities related to the post-2008 energy efficiency activities. As the successor to Rulemaking (R.)

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[5] In this decision, we changed the timeframe of this portfolio from 2009-2011 to 2010-2012.

06-04-010, our post-2005 rulemaking on Policies, Programs, Evaluation, Measurement and Verification, and Related Issues, R.09-11-014 sought to address updates to our energy efficiency savings goals based on further studies of energy efficiency potential and consideration of other energy resource and climate action strategies. This Rulemaking also served as the forum for our continued implementation of the Strategic Plan, to consider adjustments to the methodologies used to inform decision-making on investments and budgets, in light of the Strategic Plan and other factors, and as the forum for initiating the next planning cycle for 2013-2015 energy efficiency program plans, funding levels, and related issues.

The assigned Commissioner and Administrative Law Judge issued various rulings over the course of R.09-11-014 in furtherance of the objectives above.

3. Overview of Policy Guidance

In this decision, we give multiple forms of guidance for the 2013-2014 energy efficiency portfolios. In this section, we provide the context and summary of the overall guidance consolidated into one place for ease of understanding the major changes we take today. This decision sets forth guidance for a "transition" portfolio, which is neither a "bridge" (such as the 2009 bridge year), nor a full portfolio cycle. We recognize that time is short for the IOUs to prepare entirely new portfolios through the normal process of issuing competitive solicitations for new third-party programs and government partnerships. Yet, we do not adopt the approach, as in 2009, of simply extending the current portfolio en masse. Thus, this decision directs specific changes across the four major program

categories: statewide programs, third-party programs, government partnerships, and local programs.[6]

In general, this decision provides two types of guidance, relating to: (1) quantitative issues such as avoided cost, ex-ante parameters, and energy savings goals; and (2) qualitative issues, such as portfolio design, program emphasis, research needs, stakeholder engagement, and the process for review and approval of ex-ante parameters. The avoided cost updates and ex-ante parameters adopted in this decision will have both direct and indirect influences on the IOUs' portfolio preparations. They establish the "rules of the road" with regard to the savings the IOUs can claim for specific measures and program activities and the benefits (i.e., avoided costs) that accrue from those savings. These rules directly influence the IOUs' decisions about which specific programs to pursue, expand or eliminate, as well as decisions about how to balance their overall portfolios to meet portfolio-level cost-effectiveness requirements. These

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[6] Statewide programs are implemented consistently statewide, in terms of the program's name, design, incentive structure, etc., with restrictions to limit variation among the IOUs. (The IOUs may, and often do, contract the delivery of these programs to other firms.) Each statewide program has one or more sub-programs targeting specific measure groups, market segments, or program strategies. Third-party programs are those that the IOUs competitively bid to outside firms, which then deliver these programs under performance contracts. Pursuant to D.05-01-055, the IOUs must devote at least 20% of their portfolio budgets to competitively bid third-party implementers. Government partnerships are implemented through state, regional or local government entities; these are typically acquired through open solicitations, as well. Finally, local programs are those that an individual IOU implements exclusively in its service territories, and include such programs as On Bill Financing. The 2010-2012 portfolio budgets are allocated approximately as follows: statewide programs 60%, third-party programs 20%, government partnerships 10%, and local programs 3%. This decision does not speak to local programs, other than On Bill Financing.

same rules have an additional, indirect influence as inputs to the potential study on which the energy savings goals are based.

The potential study adopted in this decision estimates the available energy savings potential, on a measure-specific basis and in the aggregate, which IOU programs can target. The economic potential identified in the potential study is determined based on the avoided cost updates and ex-ante savings parameters adopted in this decision, along with other inputs not specifically addressed in this decision.

We intend for the 2013-2014 portfolio to represent the beginning of a transition in the utilities' energy efficiency portfolios.[7] This transition will be marked by a trending away from an emphasis on programs that deliver individual measures or types of measures with relatively short design lives to programs and initiatives that encourage utility customers to adopt more comprehensive "suites" of measures that are characterized by deeper, longer-lasting savings.

Several factors point to the statewide need to have more comprehensive energy efficiency measures. The factors include the California Air Resources Board's (CARB) Scoping Plan's reliance on large GHG emissions reductions from energy efficiency programs to meet California's GHG emissions reduction mandates set in Assembly Bill (AB) 32. In addition, our 2006-2009 evaluation results highlight the diminishing returns associated with reliance on single-measure programs. We need to deepen and improve the benefits of the utilities' energy efficiency portfolios.

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[7] *See* the Phase IV Scoping Memo.

We acknowledge that the guidance we give in this decision may present challenges, particularly with regard to cost-effectiveness tensions between resource programs (which provide direct energy savings) and non-resource programs (which do not provide direct energy savings). We observe that approximately 20% of the 2010-2012 portfolio budgets were allocated to non-resource programs. Non-resource programs, by definition, do not provide direct energy savings and only have costs, making them not cost-effective on their own. However, non-resource programs – which include marketing, education and outreach, emerging technologies, and workforce, education and training programs – frequently provide necessary support to resource programs. We "offset" this with resource programs accounting for the remaining 80% of the portfolio budget, leading to an overall cost-effective portfolio. We continue this model (though not necessarily this specific ratio) for 2013-2014. We note that some of the resource programs specified today have benefit-cost ratios less than one because they are testing new technologies or program delivery approaches or targeting hard-to-reach markets. The ultimate goal is that they will achieve net benefits over time, as markets develop and programs are fine-tuned. In addition, we expect some non-resource programs to produce resource savings over time, as methodologies to quantify and attribute energy savings are developed. It is paramount that we continue our practice of administering cost-effectiveness requirements on a portfolio basis when considering the large tranche of cost-effective measures that are poised to be absorbed into codes and standards updates.

In addition to continuing our practice of evaluating cost-effectiveness using a portfolio-wide approach, we take additional steps to manage this cost effectiveness challenge. These steps include: (1) directing the consolidation or

simplification of some programs to reduce administrative costs, (2) adopting program changes to "bundle" packages of measures; and (3) identifying a process to consider revisions to the cost-effectiveness evaluation of certain market transformation-oriented programs. These steps complement the overall goal of finding new ways of expanding and/or quantifying benefits attributable to the programs.

In 2013-2014, we direct the IOUs to continue the statewide programs and sub-programs established in D.09-09-047 with some modifications.[8] Specifically, we establish a new statewide Lighting program and subsume the current statewide Lighting Market Transformation program as a subprogram within it. We eliminate the Heating, Ventilation and Air Conditioning (HVAC) and New Construction statewide programs, and distribute these programs (and associated sub-programs) within the Residential, Commercial, Codes & Standards, Emerging Technologies, and Workforce Education and Training statewide programs, as appropriate. We consolidate several sub-programs of the Residential statewide program, including the Business and Consumer Electronics and Home Energy Efficiency Rebates (HEER) sub-programs. We also establish Energy Efficiency Financing as a separate statewide program area.

We provide guidance on the Appliance Recycling Program, the Home Energy Efficiency Rebate Program, and the Business and Consumer Electronics program. For 2013-2014, the IOUs should substantially reorient the Appliance Recycling Program in order to reduce costs and free-ridership levels, to target the highest energy consuming appliances, and to broaden outreach approaches. In the Home Energy Efficiency Rebate program and the Business and Consumer

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[8] Unless otherwise specified in this decision.

Electronics program, the IOUs should more strategically support Title 20 codes and standards improvements. Consistent with the theme to transition away from shorter term savings, we give guidance to the IOUs to establish a statewide Lighting Program, which would result in the removal of both the Basic Compact Fluorescent Lamps and Advanced Lighting Programs from the Statewide Program on Residential Energy Efficiency for 2013-2014.

We give guidance to the IOUs to develop significant changes to their Residential New Construction program. First, we direct IOUs to propose Residential New Construction program incentive levels to improve the support provided by the program to Title 24 codes and standards updates. The California Energy Commission aims to require "Zero Net Energy" (ZNE) homes (homes that produce all the energy they need) through Title 24 standards by 2020. We direct a review of Residential New Construction program and evaluation policies to support this more targeted program direction as needed. Lastly, Commission Staff should establish, and the IOUs should participate in developing, a Zero Net Energy Roadmap that will identify long-term measure improvements likely needed to achieve Zero Net Energy codes by 2020. In this decision, we also give guidance on expansion of programs targeting the water-energy nexus and how all of the overall program changes can interface with the Shareholder Incentive Mechanism currently being contemplated in R.12-01-005.

This decision gives guidance on marketing, education and outreach (ME&O). This decision directs the utilities to discontinue the use of the Engage 360 brand and develop a strategy and budget for transitioning toward the use of Energy Upgrade California as a statewide umbrella brand for energy information and encouraging demand-side management actions by residential and small business consumers. Flex Alerts should continue to be used to call for short-term

conservation in emergency situations. The utilities are directed to utilize unspent funds from the Engage 360 campaign toward expenditures for Energy Upgrade California ME&O, web portal maintenance, and limited augmentation of programs related to Energy Upgrade California during 2012. Remaining statewide ME&O funds from 2010-2012 shall be returned to ratepayers. For 2013 and 2014, the utilities are required to file, by no later than August 3, 2012, a separate application that addresses their planned statewide ME&O activities and expenditures related to all energy education and outreach for demand-side programs, including energy efficiency, demand response, distributed generation, and any other programmatic efforts directed by the Commission.

While we continue to direct the utilities to retain strategic and promising non-resource activities, we also begin to blur this distinction in the 2013-2014 portfolio. We direct the utilities to design a portfolio that can both deliver resources savings and transform markets by finding the synergies between these approaches to maximize opportunities for customers and other actors in the market, and take greater advantage of financing tools, the expertise and commitment of third-party implementers and local governments, and the state's growing "green jobs" sector to offer utility customers cost-effective packages of high-quality energy efficiency measures.

To accomplish this transition, we need to expand programs that support this trajectory and combine, reduce, or eliminate those programs that do not. In making these hard choices, we rely on several themes to direct the utilities in how to refocus their portfolios:

- Continuing the implementation of the Energy Efficiency Strategic Plan;
- Leveraging ratepayer energy efficiency funds with expanded emphasis on financing;

- Expanding deep retrofit strategies for existing building stock, and collaborating with the California Energy Commission on AB 758;
- Increasing the delivery of energy efficiency programs by third parties and local governments;
- Coordinating and improving efficiency product development and adoption processes in the emerging technologies and the codes and standards programs; and
- Refining the process of freezing ex ante savings values and associated data systems, and focusing evaluation and research to provide regular feedback for program and portfolio improvements.

We expand upon several of these themes below.

3.1. Implementation of Energy Efficiency Strategic Plan

Many of the strategic directions emphasized in this decision – deep retrofits, financing, etc. – were first enumerated in the Strategic Plan. In D.07-10-032, the Commission adopted Big Bold Energy Efficiency Strategies (BBEES)[9] and directed the preparation of a long-term strategic plan describing strategies for "achieving all cost-effective energy efficiency through 2020 and beyond" through these programmatic initiatives.[10] D.07-10-032 also recognized that a "new approach that transcends regulatory, programmatic and jurisdictional constraints" is necessary to leverage the IOUs' program activities

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[9] BBEES are programmatic initiatives to accelerate market transformation toward greater adoption of energy efficiency. They are (1) all new residential construction will be Zero Net Energy (ZNE) by 2020; (2) all new commercial construction will be ZNE by 2030; (3) the HVAC industry will be re-shaped to deliver maximum system performance by 2020; and (4) all eligible low-income customers will have an opportunity to participate in the Energy Savings Assistance Program and will be provided all cost-effective energy efficiency measures in their homes by 2020.

[10] D.07-10-032 at 6.

and maximize cost-effectiveness of ratepayer investments. The Strategic Plan provides a roadmap for achieving the state's aggressive energy efficiency goals:

> The Commission recognized that California's very ambitious energy efficiency and greenhouse gas reduction goals require long-term strategic planning to eliminate persistent market barriers and effect lasting transformation in the market for energy efficiency across the economy.[11]

The Big Bold Energy Efficiency Strategies became cornerstones for the 2008 energy efficiency goals, adopted in D.08-07-047, and incorporated into the California Air Resources Board's AB 32 Scoping Plan. In collaboration with the Commission, the California Energy Commission adopted the Zero Net Energy goals as planning targets for energy efficiency codes and standards regulations.[12] Because the state's GHG strategy and energy efficiency goals are now rooted in the Strategic Plan, it is even more critical that the IOUs' 2013-2014 portfolios align themselves with the Strategic Plan.

Since its adoption in 2008, we have pursued implementation of the Strategic Plan through, among other things: (1) guidance for the IOUs' 2010-2012 portfolios; (2) adoption of a lighting chapter,[13] (3) development of Action Plans;[14] and (4) coordination with the California Energy Commission, California Air Resources Board, and other agencies on statewide policies such as AB 758

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[11] Strategic Plan at 1.

[12] CEC 2007 Integrated Energy Policy Report.

[13] *See* D.10-09-047.

[14] These are available on the Commission's webpage at http://ww.cpuc.ca.gov/PUC/energy/Energy+Efficiency/eesp/index.htm.

(Skinner, 2009) and AB 32. The 2010-2012 portfolio included several new "market transformation" programs inspired by the Strategic Plan.[15] The 2013-2014 portfolio will continue this trajectory with an even greater emphasis on deep and persistent energy savings.

In D.10-09-047, the Commission adopted a statewide goal to "achieve a 60-80% reduction in statewide electrical lighting energy consumption by delivering advanced lighting systems to all buildings."[16] Lighting comprises one fourth of California's electricity use and over half the electricity savings achieved in the utilities' 2006-2008 portfolios. To tackle this challenge in the 2013-2014 portfolios, we expect the IOUs to take decisive steps, as directed herein, to phase out Compact Fluorescent Lamps, scale-up advanced lighting technologies and controls, revamp emerging technologies programs, and continuously improve their lighting portfolios to meet these aggressive targets.

By design, the Strategic Plan focuses on high-level strategies over long (10 - 20 year) timeframes. As a result, Commission Staff has engaged with key stakeholders to develop action plans.[17] As described in Commission Staff's October 2011 progress report, action plans are currently completed for

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[15] These include Energy Upgrade California, HVAC quality installation and maintenance, Lighting Market Transformation, and Integrated Demand-side Management, among others.

[16] D.10-09-047 at 3.

[17] Action plans are project-management tools that identify key actions required to achieve near-term milestones, secure leaders to implement these actions, and track and report on progress. (D.10-09-047 at 6).

commercial Zero Net Energy, lighting, and HVAC; and underway for residential Zero Net Energy, research and technologies, and industrial.[18]

Though California has made significant strides to carry out the Strategic Plan, we must continue pursuing its vision on all fronts to achieve our climate and energy savings goals. Therefore, we set forth clear direction in this decision as to how we expect to build on progress made in the 2010-2012 portfolios and continue engaging market and other non-utility actors towards our long-term energy goals.

3.2. Financing

In addition to our desire to achieve deeper, more meaningful energy savings, peak use reduction and GHG amelioration, we must recognize that ratepayers' ability to support energy efficiency measures is not infinite.

The goal of having deeper energy efficiency measures can result in additional costs that some customers may not be able to afford. The current approach to energy efficiency does not yield the largest leverage of ratepayer dollars to achieve savings. In this guidance decision, we place greater emphasis on financing as a strategy to enable customers to deploy more comprehensive energy efficiency measures in an affordable manner.

The Commission is interested in exploring additional energy efficiency financing program options to achieve the following potential major benefits:

- Overcoming the "first cost" of energy efficiency upgrades;
- Leveraging ratepayer funds by bringing in additional private capital;

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[18] D.09-09-047 directs Commission Staff to prepare a progress report. The report is available online at http://www.cpuc.ca.gov/NR/rdonlyres/5D0472D1-0D21-46D5-8A00-B223B8C70340/0/StrategicPlanProgressReportOct2011.pdf.

- Increasing sales of energy efficiency products and services;
- Reaching a broader set of customers and market segments;
- Encouraging customers to invest in projects that will achieve deeper energy savings.

Given this context, this decision offers the following guidance for 2013-2014. The Utilities should propose financing program offerings for 2013-2014 at a level of at least $200 million over the two-year transition period. The financing proposal must include at least the following components:

1. Continuation of and improvement to the on-bill financing (OBF) programs currently in the utility 2010-2012 portfolios for non-residential customers.
2. Continuation of successful financing programs that were originally supported by American Recovery and Reinvestment Act stimulus funding in 2011 and 2012 and implemented by third parties, local governments, and/or via the California Energy Commission.
3. A set of new financing programs to be designed in 2012, and then offered consistently on a statewide basis, in pilot form in 2013, and on a larger scale in 2014.

For the third set of efforts above, SoCalGas and SDG&E are directed to hire, on behalf of all utilities, an expert financing contractor to assist the utilities, Commission Staff, California Energy Commission Staff, and stakeholders in designing at least four new financing programs to address particular market needs identified below. The contractor shall be hired as soon as possible in 2012, to conduct working groups and help launch statewide pilot programs in 2013, to be scaled up further in 2014. The minimum new programmatic areas to be addressed, in addition to continuing OBF and successful existing American Recovery and Reinvestment Act (ARRA)-funded programs, are as follows:

Residential Market

1. A credit enhancement strategy for the single-family residential market.
2. A financing program strategy designed specifically for the multi-family residential market that includes both credit enhancement and an on-bill repayment option and/or tariff-based energy efficiency improvement reimbursement mechanism that may require legislative change to fully implement.

Non-Residential Market

3. A credit enhancement strategy for the small business market.
4. An on-bill repayment (OBR) strategy for all non-residential customers.

We do not require the utilities, at this time, to propose an OBR program for all residential customers, though we encourage them to propose any financing strategies they feel make sense within existing statutory constraints. The requirements we do impose are intended for using 2012-2014 to design and test scalable strategies for bringing much larger amounts of private capital to the overall California market by 2015. Activities in 2013 and 2014 programs should be explicitly designed to gain program experience and data, particularly with respect to debt repayments and project energy savings, which will attract additional capital resources from interested financial institutions and other businesses. To that end, we also require the utilities to develop a database (or contribute to some larger database effort) and protocol for sharing data.

3.3. Deep Retrofit Strategies and AB 758

We expect programs that embrace comprehensive retrofit strategies to be a hallmark of the 2013-2014 portfolios. The Strategic Plan sets bold retrofit targets for the existing building stock, including (a) 40% consumption reduction in residential dwellings by 2020 and (b) 50% of commercial buildings meeting Zero

Net Energy by 2030. These goals will require immediate action to drastically increase the uptake and scale of deep retrofit projects across the building sector. The 2010-2012 portfolios made notable steps towards this undertaking, but more needs to be done to expand deep retrofit programs in multi-family and non-residential buildings, streamline program designs, address cost-effectiveness issues, and incorporate financing into retrofit project transactions. We take steps to address these challenges in this decision.

In 2009, the Legislature passed AB 758, which authorizes the California Energy Commission to develop a comprehensive statewide program, in collaboration with the Commission, to achieve greater energy efficiency in all residential and non-residential buildings in California. In 2010, the California Energy Commission initiated its rulemaking to promulgate the AB 758 program, and the Commission began an investigation of ratepayer-funded financing options to implement the program. As directed by the Legislature, the California Energy Commission utilized Federal stimulus money from the American Recovery and Reinvestment Act to fund AB 758 program development. Deep retrofit strategies are a major emphasis, with $100 million allocated to Energy Upgrade California and an additional $50 million in State Energy Partnership (SEP) funds allocated to comprehensive residential retrofit pilots. We are committed to working with our sister agency to develop and implement the AB 758 programs to meet our shared goals for retrofitting existing buildings. We give guidance in this decision on strategies for how to continue these efforts.

3.4. Expansion of Local Government and Third-Party Delivery

In D.05-01-055, the Commission established the current standard for funding third-party program implementation: the IOUs will identify a minimum of 20% of funding for the entire portfolio that will be put out to competitive bid

to third parties for the purpose of soliciting innovative ideas and proposals for improved portfolio performance.[19] That standard was upheld for the 2010-2012 program cycled by D.07-10-032.[20]

This decision directs IOUs to expand their commitment to third-party program implementation, but declines to set a specific numerical target. The Commission supports expanding the number and quality of energy efficiency programs implemented by third parties, but believes the process of soliciting those programs has not consistently led to the stated purpose – the development of innovative ideas and proposals which improve portfolio performance. As such, we believe it prudent to move forward incrementally by extending existing, effective third-party programs, gathering information to better inform future decision making, and directing IOUs to propose a reformed third-party solicitation process to be used for new solicitations beginning in 2013.

Looking forward to 2015 and beyond, the Commission will consider more sweeping policy changes in support of third-party administered and implemented programs. In procuring supply side resources, it has been the Commission's policy to rely on "competitive markets first." As California energy efficiency markets continue to mature, we may determine that a "competitive efficiency first" standard would help California achieve its energy efficiency objectives while delivering ratepayers greater value. We hesitate in making such significant changes to the third-party programs for the 2013-2014 Transition Period because we recognize the substantial logistical challenges. However,

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[19] D.05-01-055 at 94.

[20] D.07-10-032 at 74.

moving forward, we put stakeholders on notice that we will be seriously considering substantial new third-party energy efficiency opportunities.

In D.05-01-055, the Commission also directed the IOUs to initiate energy efficiency partnerships with local governments. Having continued this practice in the 2010-2012 portfolios we now have two portfolio cycles and almost seven years of experience with increasing levels of local government. In this decision, we consider the expansion of these local government partnerships and of regional partnerships, and direct certain research and planning activities during 2013-2014 in order to be better informed in the next portfolio cycle.

With regard to government partnerships, we direct the IOUs to continue successful partnerships and expand any partnerships that cost-effectively achieve deep retrofits.

3.5. Codes and Standards and Emerging Technologies

The energy efficiency potential study performed to develop utility goals for the 2013-2014 portfolio indicates that the current utility programs have diminishing potential as (1) markets get saturated with the energy efficiency products that are in the existing programs, and (2) measures with remaining potential are adopted into state and/or federal codes and standards and are therefore generally no longer eligible to be included in the utility rebate and incentive programs. Consequently, much of the future efficiency potential identified in the study resides in codes and standards and emerging technologies.

These trends suggest that the transition and future portfolios should place a greater emphasis on both ends of the product development and adoption cycle. At the "front end" of the cycle, we need to improve our processes for identifying and fostering emerging technologies that show promise of producing cost-effective energy savings at scale. At the "tail end" of the cycle, we need to

identify strategies for ensuring that the utilities are targeting the right measures for codes and standards adoption and for increasing compliance levels for measures that are adopted into codes and standards.

3.6. Energy Upgrade California

This decision provides guidance on several improvements to the Energy Upgrade California whole house program, with the intention of ensuring that the program continues to achieve an average of 20% energy savings per home.[21] We expect to make a long-term commitment to the Energy Upgrade California program because we see it as a key market transformation component in California's energy efficiency portfolio. To that end, we direct the IOUs to propose a step-wise declining incentive structure over a 10-year period starting with the 2013-2014 period for Energy Upgrade California.

We emphasize the need for deeper and more integrated contractor and technician training in the Energy Upgrade California program. We direct the IOUs to explore ways to better integrate plug load and appliance education into the Energy Upgrade California program, and to adopt appropriate market transformation targets for 2013-2014. We provide direction on appropriate local government roles in the Energy Upgrade California programs, and direct the IOUs to work with local governments to ensure that local outreach capacities and networks established with American Recovery and Reinvestment Act funding are continued. We direct the IOUs to propose a statewide multifamily program as part of Energy Upgrade California during the 2013-2014 transition period.

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[21] D.09-09-047.

3.7. Ex Ante Savings Values and Utilization of Evaluation Results

Given the challenges associated with the ex post results of the 2006-2008 portfolio cycle, and in particular the impact of the evaluated results on the utility Risk Reward Incentive Mechanism earnings, the Commission has expressed the desire and intent to develop a process of freezing the parameters used by the utilities to plan their portfolios and the savings calculations embedded in them. As we learned in trying to implement this approach in the 2010-2012 portfolio cycle, in which the ex ante parameters were not frozen until July 2011 (nearly two-thirds of the way through the portfolio cycle), the ex ante freezing process can be every bit as contentious as the use of ex post evaluation results. Simply put, the shift from ex post to ex ante only shifts the debate to a different point in the process.

To help clarify roles and further articulate our expectations, this guidance decision provides detail on how we envision the ex ante freezing process to work in this and future portfolios, for all three types of savings calculations (i.e., "DEER"[22] measures, non-DEER workpapers, and custom projects). We expect that the clarifications herein will eliminate ambiguity and produce consistent compliance with the non-DEER workpaper and custom project ex ante review requirements adopted in D.11-07-030.

Our experiences in the 2006-2008 and 2010-2012 portfolio cycles suggest that a tighter and more predictable feedback loop is needed between evaluation findings and program design and improvement. The ex ante freezing process

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[22] DEER stands for Database of Energy Efficient Resources. The DEER website is located online at http://www.deeresources.com/.

improvements referenced above represent one piece of this puzzle. We identify several other portfolio improvements that support this goal, including modifying the current evaluation plan in collaboration with the utilities (rather than developing a new plan for the 2013-2014 portfolio) and directing the IOUs and Commission Staff to make improvements to the data systems which link ex-ante claimed savings estimates and evaluation updates.

4. Energy Savings Goals for the 2013-2014 Applications

4.1. Background

Our guidance for the 2013-2014 energy efficiency applications discusses strategies to implement the Strategic Plan and adopt updated savings goals. Specifically, we want to move toward a new generation of energy efficiency programs for which substantial changes to the goals process are needed. So as to reflect the latest information on energy efficiency potential and to have a successful transitional portfolio for 2013-2014, several changes need to be made with respect to the energy savings goals. The goals for the 2013-2014 transition portfolio should be informed by the 2011 Energy Efficiency Potential Study.[23]

The 2011 Update to Energy Efficiency Potential, Goals and Targets was originally designed along two tracks: Track 1 provided an update to energy efficiency potential analysis, consistent with the approach of the 2008 Potential Study. Track 2 was designed to support the adoption of goals by considering all delivery channels adopted in the Total Market Gross goals in D.08-07-047 and determining the appropriate attribution of savings to IOU specific targets. Since

[23] By Rulings dated November 17, 2011, and December 28, 2011, the Potential Study and Staff's goal proposal were circulated for comment.

Track 2 is not scheduled to be completed until mid-2012, we update the 2013-2014 transition portfolio goals using the Potential Study results from Track 1 to ensure that goals for the transition portfolio are based on the best available information and are consistent with updated DEER planning assumptions.

In order for the IOUs to develop the 2013-2014 transition portfolio, the Commission Staff prepared updates to the avoided costs methodology and the DEER.[24] These updates were intended to assist in designing the 2013-2014 portfolio using the most up-to-date planning assumptions. The final updates of the avoided costs and DEER, discussed below, were incorporated into the final potential study adopted in this decision.

4.2. Avoided Cost and Cost-Effectiveness Guidance for 2013-2014 Applications

In estimating the cost-effectiveness of energy efficiency programs, we compare the actual costs of those programs (e.g., administration and equipment costs) with the avoided costs of providing the energy that would have been needed in the program's absence.[25] The avoided cost estimates also encompass the deferral or avoidance of transmission- and distribution-related costs ~~such as GHG emissions~~, and (beginning with the 2013-2014 portfolio) the reduced need for Renewable Portfolio Standard (RPS) compliance resources.[26]

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[24] Issued by ruling on October 5, 2011 and November 17, 2011, respectively.

[25] The term "avoided costs" refers to the incremental costs avoided by energy efficiency programs when the resulting decrease in demand for electric or gas services defers or avoids generation from existing or new utility supply-side investments or energy purchases in the market.

[26] The energy efficiency avoided costs methodology was adopted in D.05-04-024, and updated in D.06-06-063 and D.09-09-047.

The Total Resource Cost (TRC) and Program Administrator Cost (PAC) cost-effectiveness tests are used to determine the cost-effectiveness of the energy efficiency portfolio and are described in the California Standard Practice Manual.[27] Energy efficiency portfolios as a whole must have a TRC benefit cost ratio greater than one (i.e., the net benefit must be positive).

Pursuant to a December 23, 2010, ruling, Commission Staff prepared a Cost-Effectiveness proposal to update the cost-effectiveness methodology. The Cost Effectiveness proposal was included as an attachment to the October 5, 2011, Avoided Cost Inputs and Methodology Ruling. The Cost Effectiveness proposal urged the following changes to the energy efficiency avoided costs inputs and methodology:

1. Updating the data inputs used to determine the avoided costs of electricity generation, transmission, and distribution; as well as the data inputs for natural gas;
2 Separating the avoided cost of electricity generation into components to better reflect capacity, generation, and other costs in the short and long run; and
3. Changing the discount rate used in the cost-effectiveness analysis of Energy Efficiency programs from the before-tax Weighted Average Cost of Capital (WACC) to the after-tax WACC.

The Cost Effectiveness proposal and the Avoided Cost Inputs and Methodology Ruling also referenced the "Energy Efficiency Avoided Cost

[27] http://www.energy.ca.gov/greenbuilding/documents/background/07-J_CPUC_STANDARD_PRACTICE_MANUAL.PDF.

Scenario Comparison" spreadsheet.[28] This spreadsheet was provided to facilitate the comparison of current and proposed energy efficiency cost-effectiveness methodologies. It estimates the variation in Total Resource Cost and Program Administrator Cost benefit cost ratios of the IOUs' energy efficiency programs that would result from the three changes in the Staff Proposal when applied to the utilities' 2010 Energy Efficiency claims. These estimates are summarized in the table below. The proposed changes result in a roughly 15% increase (on a TRC basis) in the cost-effectiveness of the current 2010-2012 portfolio.

Energy Efficiency Portfolio Benefit Cost Ratios Resulting from Proposed Changes[29]										
	PG&E		**SCE**		**SDG&E**		**SoCalGas**		**All IOUs**	
	TRC	*PAC*	*TRC*	*PAC*	*TRC*	*PAC*	*TRC*	*PAC*	*TRC*	*PAC*
Current Calculator	1.43	2.63	2.04	3.73	1.66	2.65	1.42	3.11	1.66	3.06
#1: Updated Inputs	1.47	2.70	1.94	3.56	1.51	2.42	1.43	3.13	1.64	3.01
+ #2: Separated Components	1.62	2.97	2.06	3.77	1.53	2.45	1.44	3.15	1.76	3.23
+ #3: New Discount Rate	1.74	3.19	2.19	4.01	1.63	2.60	1.59	3.48	1.88	3.45

In general, the updated inputs (*See* #1 above) tend to lower the benefit cost ratios, mostly because of decreased natural gas prices. Adding the avoided cost calculator which uses separated components (*See* #2 above) increases all the

[28] This spreadsheet based tool can be accessed at: http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/Cost-effectiveness.htm.

[29] Benefit cost ratios were estimated using 2010 full measure claim content tracking data, as submitted by the utilities.

benefit cost ratios relative to the current calculator, and as examination of the spreadsheet tool shows, this increase is largest for HVAC programs.[30] Adding the third proposed change, using the after-tax rather than the before-tax WACC as the discount rate, raises the benefit-cost ratios because the after-tax WACCs are lower than the before-tax WACCs, as discussed below.

The October 25, 2011 Avoided Cost Inputs and Methodology Ruling asked parties to answer six questions. Party input in response to these questions is discussed below.[31]

4.2.1. Consistency with Other Demand-Side Programs

The "separated components" proposal would replace the current avoided cost calculator with a new one that separates the avoided cost of electricity generation into several components to better reflect capacity, generation, and other costs in the short and long run. This new avoided cost calculator was adopted for use by Distributed Generation programs in D.09-08-026 and for Demand Response programs in D.10-12-024. These decisions adopted this new avoided cost calculator because it more accurately reflects key components of avoided costs, including capacity, energy, GHG, transmission and distribution,

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[30] This is likely due to the fact that the original calculator under-values the avoided cost of generation capacity because it is not sufficiently factoring in the fact that improving HVAC efficiency lowers peak demand, resulting in increased avoided capacity costs.

[31] In their responses, some parties asked general questions about avoided costs and cost-effectiveness. Parties expressed a desire for more details about the proposed new avoided cost model and the proposed new discount rate. Commission Staff responded to these requests for information by providing more background information to the parties, in the form of several papers written by Commission Staff's consultants, E3. These papers were sent to the service list of this proceeding on January 27, 2012.

and costs associated with the RPS and Ancillary Services markets. Consistency among demand-side programs is a key component of the Strategic Plan.[32]

While parties agree that consistency among demand-side programs is desirable, most parties also point out that variations in the cost-effectiveness models are required so that the unique characteristics of these programs are accurately represented.

4.2.2. Updates to Data Inputs

The Staff Proposal attached to the Avoided Cost Inputs and Methodology Ruling proposed the following updates to the data inputs in the avoided cost calculator to reflect more recent market conditions:

1. Using the December 2010 New York Mercantile Exchange price forecast for natural gas prices; and
2. Using the Synapse Consulting forecast for carbon prices, approved in the Renewable Portfolio Standard Market Price Referent proceeding.

Parties had no objections to these two data updates.

4.2.3. New Avoided Cost ("Separate Components") Calculator

The proposed new avoided cost calculator incorporates significant methodology changes. The most significant change is that rather than using one all-in avoided cost for electricity and the California Power Exchange market price shape, energy and capacity prices are calculated and allocated separately and the energy prices are based on the more recent (2010) California Independent System Operator (CAISO) Market Redesign and Technology Upgrade (MRTU). As in the past, the proposed avoided costs of energy and capacity are split into long and short-run costs, with the transition between long- and short-run costs occurring

[32] Strategic Plan January 2011 update at 67.

in the "resource balance year" (which is defined as the first year in which the capacity and energy markets will reflect the full cost of new plants). Both the new and old avoided cost calculators also calculate the costs associated with the avoidance or deferral of transmission and distribution system upgrades and maintenance, and the avoided costs of GHG emissions. The new calculator adds two additional avoided costs – the costs associated with providing ancillary services and renewable procurement – for a total of six avoided cost components.

The process used to determine the resource balance year was established for the cost-effectiveness of distributed generation in D.09-08-026. The capacity value for each year between 2008 and the resource balance year is calculated by linear interpolation, and the resource balance year is currently calculated for energy efficiency as 2017.[33]

Pacific Gas and Electric Company (PG&E) recommends that the scope of this cost-effectiveness update be expanded to include correcting errors in the current version of the E3 cost-effectiveness calculator.[34] Specifically, PG&E argues that the E3 calculator contains an error whereby it discounts all program benefits but only some program costs. The calculator assumes that all administrative, marketing, and direct implementation (non-incentive) costs are incurred at the beginning of the program cycle. PG&E further states that correcting this error is important because by failing to discount the costs in the same manner as benefits, the calculator consistently underestimates cost-effectiveness of energy efficiency programs, and that this correction is fairly

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[33] Parties have some concerns about the resource balance year which we will defer to future proceedings, as they require stakeholder discussion to resolve.

[34] PG&E comments on the Phase IV Scoping Memo (November 8, 2011) at 10.

simple and will not cause any delay to the Commission's proposed schedule. This change has been made in the new avoided cost calculator.

4.2.3.1. Avoided Cost of Energy

The avoided cost of energy is defined as the costs that would have been borne by the ratepayers via rate increases in the absence of energy efficiency programs. Avoided cost is estimated for all 8,760 hours of the year. Prior to the resource balance year, the short-run average avoided energy cost is based on New York Mercantile Exchange market price forecasts, where available. If the forecasts are not available, the data is obtained by interpolating between the last available New York Mercantile Exchange price and the long-run energy market price. The long-run energy market price, used for the resource balance year and subsequent years, is based on the 2010 MRTU day-ahead market price and is escalated by the natural gas burner tip forecast. The annual long-run energy market price is set so that the Combined Cycle Gas Turbine's (CCGT) energy market revenue plus the capacity market payments is equal to the fixed and variable costs of the CCGT.

4.2.3.2. Avoided Cost of Generation Capacity

The avoided capacity calculation is an estimate of the cost of building (or purchasing) sufficient capacity to meet the IOUs' Resource Adequacy requirement and insure there is sufficient capacity to provide electricity at times of peak demand. The proposed avoided costs for generation capacity include both a short-run and a long-run forecast. The short-run value of capacity is based on the 2008 resource adequacy market payments; the relatively low value ($28 per kilowatt-year (kW-yr)) reflects the large surplus of capacity currently available on the CAISOs. The long-run cost of capacity is calculated based on the cost of a simple-cycle Combustion Turbine, instead of the CCGT used in the

current avoided cost calculator. The long-run capacity value is equal to the Combustion Turbine's annualized fixed cost less the net revenues (gross margins) it would earn through participation in the real-time energy and ancillary services markets—the residual capacity value. The net revenues are based on a capacity factor typical of a CCGT so as to make the model based on a marginal power plant. The residual capacity value is allocated among the top 250 load level hours of the year.

4.2.3.3. Avoided Cost of Transmission and Distribution Capacity

The Transmission and Distribution capacity avoided costs measure the value of deferral of transmission and distribution network upgrades due to reduction in local peak loads. There is no change in the method used to calculate them, as they are obtained from values submitted by the utilities. PG&E's transmission and distribution avoided costs have been updated by climate zone and are taken from its 2011 General Rate Case Phase II. SCE and SDG&E system level values are the same as those used in the Demand Response and Distributed Generation.

Parties raised some concerns which require additional stakeholder discussion, these are listed below.

4.2.3.4. Avoided Cost of Ancillary Services Procurement

The avoided cost of ancillary services accounts for the decrease in the additional services needed to deliver electricity, as defined by the Federal Energy Regulatory Commission, due to load reductions resulting from energy efficiency. The cost has been updated to reflect MRTU values. There was little discussion of this avoided cost in parties' comments.

4.2.3.5. Avoided Cost of Renewable Procurement

The avoided cost of renewable procurement reflects the fact that, as energy usage declines, the amount of utility renewable purchases required to meet the 2020 renewable requirement (33%), also declines.

The forecasted cost of renewable energy is higher than the forecasted cost of wholesale energy and capacity market purchases. This difference is known as the Renewable Premium, which is the incremental cost of the marginal renewable resource above the cost of conventional generation. In the Demand Response proceeding, R.07-01-041, the avoided RPS cost was calculated as 33% (the RPS goal in 2020) of the cost difference forecast between RPS-eligible resources and the wholesale market price, beginning in 2020. The updated methodology proposed for the 2013-2014 transition portfolio incorporates the newer interim goals of 20% in 2013 and 25% in 2016.

Several parties questioned the wisdom of applying the newer interim goals as step increases in 2013 and 2016, rather than a linear interpolation, given that renewable capacity is not likely to be added to the system in a step-wise fashion. We agree that a linear approach would more accurately reflect the likely renewable procurement trajectory, and we note that this would also conform with the approach adopted for the RPS program in D.11-12-020. We anticipate that this would likely represent a relatively modest adjustment, but it would be a useful "second-order improvement" in our avoided cost calculations.

Due to the compressed schedule for developing this guidance decision, we were unable to make the adjustment for the 2013-2014 avoided cost calculations. We will plan to incorporate this approach in future portfolio cycles.

4.2.3.6. Avoided Cost of GHG Emissions

The value of the GHG reduction used in the new avoided cost calculator is based on a forecast developed through a meta-analysis of various studies of proposed climate legislation. This is the same forecast approved in the most recent RPS Market Price Referent and Long-Term Procurement Plan proceedings, and it is also the forecast used by the Commission for cost-effectiveness analyses of Distributed Generation and Demand Response programs. The mid-level forecast used for the update was developed explicitly for use in electricity sector integrated resource planning and so serves as an appropriate applied value for the cost of GHG emissions in the future.

Absent a market for GHG allowances, any value chosen for avoided GHG emissions is necessarily somewhat speculative. While several parties question the accuracy of the forecast, we find the most appropriate value to use in this proceeding is that value which has already been litigated and approved the above-cited Commission proceedings.

We recognize that there will be much price discovery in the carbon market over the 2013-2014 portfolio cycle. Starting with the 2015 cycle, we intend to use the carbon market price index as feasible. We direct Commission Staff to explore the best feasible way to do this analysis during the 2013-2014 cycle so that it is ready as an option for consideration starting with the 2015 cycle.

4.2.4. Discount Rate

The discount rate is used to determine the net present value of each cost and benefit included in the California Standard Practice Manual tests. We traditionally use each utility's Weighted Average Cost of Capital (WACC), which is the minimum return that the utility must earn on its existing asset base to satisfy its creditors, owners, and other providers of capital. Companies generally

use their WACC to determine if the investment projects available to them are worthwhile to undertake; therefore it is appropriate to use each utility's WACC as the discount rate in cost-effectiveness calculations.

In energy efficiency proceedings, the Commission has at different times used either the before-tax or the after-tax WACC as the discount rate, and there has been much debate about which is more appropriate.

For Demand Response programs, D.10-12-024 adopted the after-tax value of the WACC, finding that "the after-tax WACC best reflects the costs borne by ratepayers for demand response activities, and is therefore the appropriate discount rate." To maintain consistency across demand side resource proceedings, Staff proposed that we apply the same discount rate to the energy efficiency portfolio. The before- and after-tax WACCs for each IOU are shown in the table below.

IOU	Before-tax WACC	After-tax WACC
PG&E	8.79%	7.66%
SCE	8.75%	7.65%
SDG&E	8.40%	7.36%
SoCalGas	8.68%	7.38%

PG&E and SCE support the Staff proposal to use the after-tax WACC, while SDG&E/SoCalGas advocate retaining the before-tax WACC. In its comments,[35] Division of Ratepayer Advocates (DRA) initially proposed using three different social discount rates and comparing results. However, in reply comments DRA advocated that we further explore using a societal cost test rather

[35] DRA comments on the Avoided Cost Inputs and Methodology Ruling (October 27, 2011) at 12.

than a societal discount rate.[36] National Resources Defense Council (NRDC) suggests using the after-tax WACC for the Program Administrator Cost and a societal discount rate of 3% for the Total Resource Cost.[37] In its reply comments The Utility Reform Network (TURN) argues that a societal discount rate is inappropriate for energy efficiency.[38] The Efficiency Council recommends that since there is little agreement on this issue, we use the after-tax WACC for now and continue to discuss the issue.[39]

We agree with the Efficiency Council that this issue merits continued discussion and therefore the after-tax WACC should be used for the 2013-2014 cycle.

4.2.5. Adoption of the Avoided Cost Calculator and Discount Rate

Parties generally agree that the proposed data updates and use of the new avoided cost calculator will improve the accuracy of the IOUs' estimations of the cost-effectiveness of their energy efficiency programs. However, parties raised many issues that cannot be resolved in time for the 2013-2014 portfolio, and that should be discussed among all stakeholders for future energy efficiency portfolios. These discussions will undoubtedly further improve the cost-effectiveness methodology.

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[36] DRA reply comments on the Avoided Cost Inputs and Methodology Ruling (November 7, 2011) at 12.

[37] NRDC comments on the Avoided Cost Inputs and Methodology Ruling (October 27, 2011) at 9.

[38] TURN reply comments on the Avoided Cost Inputs and Methodology Ruling (November 7, 2011) at 3.

[39] Efficiency Council reply comments on the Avoided Cost Inputs and Methodology Ruling (November 7, 2011) at 2.

We will adopt the Staff Proposal and direct the IOUs to use the new avoided cost calculator (which includes the recommended data inputs) and the after-tax WACC as the discount rate. In addition, we will direct Staff to continue its efforts to update cost-effectiveness methodologies with particular emphasis on improving and standardizing the cost-effectiveness methodologies used for Energy Efficiency, Demand Response, Distributed Generation, Energy Savings Assistance Program, and other ongoing efforts to address the cost-effectiveness of demand-side programs.

4.2.6. Issues to be Considered in Future Proceedings

As noted above, many parties raised questions and concerns, and suggested improvements to various aspects of the calculation of avoided costs and the selection of an appropriate discount rate that cannot be properly addressed within this guidance decision for 2013-2014 portfolios. As these concerns warrant further consideration, we direct Staff to continue to explore these issues so that improvements may be made to the energy efficiency cost-effectiveness methodology for use in planning future portfolios. Issues that have been identified for additional record development include, but are not limited to:

- Consistency across demand-side proceedings – Can we continue to separately address cost-effectiveness for Energy Efficiency, Demand Response, Distributed Generation, Energy Savings Assistance Program, etc., or can consistency only be accomplished by updating avoided costs and cost-effectiveness methodologies in proceedings simultaneously in an integrated manner? What relationship should the existing Energy Efficiency, Demand Response, Energy Savings Assistance Program and Distributed Generation cost-effectiveness efforts have to one another?
- Resource Balance Year – The resource balance years used for Energy Efficiency, Demand Response, and Distributed

Generation are different. Is this appropriate, given the inherent differences among those programs, or is this an inaccuracy that should be corrected? Should the resource balance year be updated periodically?

- Additional Benefits – Are there additional benefits of Energy Efficiency that should be added to the cost-effectiveness calculations, such as the avoided costs of embedded energy in water and non-energy benefits?
- Load Shapes – Do we need additional load shapes to more accurately calculate the avoided costs of generation energy and capacity? If so, which of the thousands of available load shapes should be used and/or how should they be aggregated?
- Avoided costs of generation capacity – Given that most of the new capacity that will be built in the coming years is expected to be renewable generation, would it be appropriate to model avoided capacity costs on renewable generation (the likely marginal new capacity resource) rather than gas-powered generation? Or does the addition of the avoided RPS cost properly account for the change in the generation capacity mix?
- Allocation of the avoided costs of generation capacity – How should these costs be properly allocated across the hours of the year? Should capacity be allocated to the top 250 hours, the top 100 hours, or using a different method?
- Transmission and distribution system avoided costs – Does Energy Efficiency actually avoid transmission and distribution costs? If so, are the (average system) costs we are using now correct? How could they be better estimated for different locations and measures? The feed-in tariff proceedings have considered identifying specific locations or "hotspots" where distributed generation will provide higher avoided transmission and distribution cost savings. Should those be adopted for Energy Efficiency?
- Discounting Costs – Should the cost-effectiveness methodology discount costs as well as benefits? If so, should that be done over the program cycle, or the lifetime of the costs, or a combination of the two?

- Accuracy of the avoided RPS cost – Is it more appropriate to assume a stepwise or a linear increase in the percentage of renewable capacity? How much impact will changing this calculation have on the cost-effectiveness of the Energy Efficiency portfolio?
- Accuracy of the avoided GHG cost – Are we double counting because of RPS and/or embedded GHG cost in electricity forward prices?

4.3. DEER 2011 Update

As discussed above, to ensure the utilities follow our policy and procure cost effective energy efficiency that meets our goals, we have adopted the Total Resource Cost and Program Administrator Cost effectiveness indicators. We require the utilities to submit in their portfolio applications a prospective showing of the estimated Total Resource Cost and Program Administrator Cost for their proposed portfolios. We refer to the cost effectiveness parameters that are used in this required prospective showing as ex ante values.

The primary source of our ex ante values is the DEER.[40] The assumptions used to produce ex ante values contained in DEER, including analytic and calculation methods, are included in our adoption of DEER.[41]

Pursuant to the Phase IV Scoping Memo, Commission Staff updated DEER for use in the 2013-2014 transition portfolio, focusing on updates to High Impact Measures (HIM) and changes expected to have the biggest impact on savings

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[40] Energy Efficiency Policy Manual, Version 4 (EEPMv4), Rule II.11.

[41] DEER is not the full universe of ex ante assumptions and values that may be used by the utilities for planning and reporting purposes. The utilities are encouraged to augment their portfolio with measures and activities that are not identified in DEER to increase their ability to meet our energy efficiency goals in a cost effective manner. To this end, we have authorized the utilities to submit workpapers that contain proposed additional assumptions and values for measures not contained in DEER.

potential, while striving to incorporate the best available information from the most current evaluations.[42] The draft DEER 2011 Update was posted on the DEER website[43] and incorporated into this proceeding by ALJ Ruling.[44.45]

In comments, parties raised issues on the overall DEER update process and on specific aspects of Commission Staff's proposed DEER 2011 Update. These issues are taken up below.

4.3.1. DEER 2011 Update Process

4.3.1.1. Party Positions

Parties generally agree that at least certain values in the DEER database should be updated for the 2013-2014 transition period.[46] PG&E agrees with the direction in the Phase IV Scoping Memo that the focus of the ex ante update should be on High Impact Measures as they have the largest impact on savings potential.[47] NRDC agrees with PG&E that "targeted updates" are appropriate.[48]

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[42] The Phase IV Scoping Memo at 14, states that, "The DEER will be updated by the Commission Staff to reflect all relevant and sufficiently supported data and results from the 2006-08 evaluation activities."

[43] The DEER website is located at http://deeresources.com/ and the draft DEER 2011 update values and documentation are on the "DEER 2011 for 2013-2014" page with addition information on the "DEER 2011 Issues & FAQ" page.

[44] ALJ November 17, 2011 Ruling.

[45] ALJ November 17, 2011 Ruling, with due date revised in ALJ December 28, 2011 Ruling.

[46] PG&E, Comment on Phase IV Scoping Ruling at. 10; NRDC Comment on Phase IV Scoping Memo at 7; Efficiency Council Comment on Phase IV Scoping Ruling at 10; SCE Comment on Phase IV Scoping Memo at 7; Ecology Action Comment on Phase IV Scoping Ruling at.2; SDG&E and SoCalGas Comment on Phase IV Scoping Memo at 13; TURN Comment on Phase IV Scoping Memo at 13; DRA Comment on Phase IV Scoping Memo at 10; Synergy Cos. Comment on Phase IV Scoping Memo at 5.

[47] PG&E, Comment on Phase IV Scoping Memo at 11; Phase IV Scoping Memo at 14.

The Efficiency Council recommends that the Phase 1 update and simpler, widely-agreed upon ex ante data inputs be incorporated into DEER.[49] DRA agrees with the Scoping Memo that updates should focus on High Impact Measures and "changes having the biggest impact on savings."[50]

In contrast, SCE requests that there be a full ex ante update prior to the development of the transition portfolios.[51] SCE points out that the version of the software used to develop savings estimates was released to the public on December 5, 2011, which was about one month into the review period.[52] SCE is concerned that there have been "no requests for the DEER team [for] input into the process, since August," when the process started, and believes that the "process is inherently biased" since stakeholders were not consulted and "the DEER team had over a year to develop the inputs." SCE states that the current "process is not the collaborative process envisioned and requested by the Commission in this proceeding."[53] NRDC's statement, that the limited time for review and input by the utilities, third-party implementers and other stakeholders prevents the integration of DEER updates into portfolios for the transition period, supports SCE's request.[54]

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[48] NRDC, Comment on Phase IV Scoping Memo at 7.

[49] Efficiency Council, Reply Comment on Phase IV Scoping Memo at 4.

[50] DRA, Comment on Phase IV Scoping Memo at 10-11, quoting Phase IV Scoping Memo at 14.

[51] SCE, Comment on Phase IV Scoping Memo at 14.

[52] SCE opening comments on the DEER and Potential Ruling at 11.

[53] *Ibid.* at 11.

[54] NRDC opening comments on the DEER and Potential Ruling at 2.

4.3.1.2. Discussion

We find that the Commission Staff's proposed update has followed our guidance to focus on the expected High Impact Measures in the utilities' portfolios. We decline to adopt parties' request that only noncontroversial values be updated. In many cases, the values that parties find the most controversial are the values most important to developing accurate overall portfolio impacts and thus are the most important values to be researched and updated regularly to ensure that our estimates of overall portfolio impacts and cost-effectiveness are as accurate as possible within the time and resources constraints on the updating process.

Nor do we agree with parties' comments concerning the lack of time for review of the current proposed DEER 2011 Update. The primary input parameter changes in the proposed updates are drawn from data from the 2006-2008 evaluations that were published during the first quarter of 2010. Commission Staff proposed many of the software updates and modeling methodology changes during that same time period. We decided not to adopt the recommended changes to DEER in D.10-12-054, all the evaluation results and DEER modeling changes recommended at that time (and now incorporated into the proposed DEER 2011 Update) have been available for review since early 2010.

The final proposed update, which included updates beyond those provided in early 2010, was released last November, and Commission Staff made information requested by parties available during December. The time allowed for comments was extended into January 2012 to accommodate the subsequently added information. Moreover, some parties provided comments on very detailed aspects of the update modeling methods (as listed in Attachment A).

The detail of these comments seems to run counter to the suggestion that there exists a lack of transparency or inadequate opportunity for review and comment.

4.3.2. Complexity of Ex Ante Values

4.3.2.1. Party Positions

In comments, several parties assert that development of unit energy savings values has become needlessly complex and that this complexity has greatly slowed the updating of unit energy savings values to reflect improvements in technological efficiency. These same parties point out that older versions of DEER included a mix of energy simulation-based unit energy savings values and savings estimates based on simplified engineering calculations. For example, PG&E states that, "since 2005, DEER has evolved into a set of derived values based on complex modeling methods, which is inconsistent with the original intent of the tool." Further, PG&E "believes DEER should use agreed-upon [Evaluation] values …"[55] and additional levels of detail "can provide a false sense of accuracy."[56] SCE believes that versions of DEER, dating back to 2005 and before, used appropriate methodologies for specific applications and "The Draft DEER 2011 Update relies solely on building simulation models rather than determining the best methodology for estimating ex ante cost-effectiveness …" and "[w]hile a simulation may provide more precise hourly savings estimates" the cost of these calculation approaches may have limited benefits compared to "simpler engineering calculations."[57] SDGE/SoCalGas echo this sentiment, pointing out the complexity of the DEER

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[55] PG&E opening comments on DEER at 16.

[56] *Id*. at 18.

database and recommend that it be simplified and reduced.[58] SDG&E states that, "The Commission must re-evaluate whether this … increasing, intense data generation is itself cost effective …" and proposes that, "the previous version of DEER, built solidly on averages and much easier to understand, would be a much better tool going forward into the next program cycle."[59] NRDC agrees with utility comments and believes the level of complexity does not provide additional value to DEER and also "imposes substantial costs" on all parties by requiring additional implementation, consulting and administrative services and costs.[60]

4.3.2.2. Discussion

The proposed DEER 2011 Update utilizes building simulation methods that are similar to those used in all previous versions of DEER and to DEER predecessors developed in the early 1990s.[61] It is our understanding that the utilities have used similar building simulations for their own ex ante value development efforts.[62] Impact evaluation activities dating back to the 1990s have

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[57] SCE opening comments on DEER at 20.

[58] SDG&E/SoCalGas, Comment on Programmatic Guidance Ruling at 2.

[59] SDG&E opening comments on DEER at 3.

[60] NRDC reply comments on DEER at 2.

[61] "Final Report on Technology Energy Savings," for California Conservation Inventory Group (CCIG), May 1994; "2001 DEER Update Study Final Report," for CEC, August, 2001; "2004-2005 Database for Energy Efficiency Resources (DEER) Update Study," for SCE, December 2005.

[62] The Non-Residential New Constructions programs have been requiring use of CEC approved whole building simulation programs since their inception more than a decade ago. All such CEC approved non-residential compliance software utilize the DOE-2 simulation program which is also used for DEER modeling. Similarly, the utilities' non-residential customized retrofit programs utilize savings estimating software based

Footnote continued on next page

relied upon these building simulation methods for estimating the energy savings and cost-effectiveness of energy efficiency measures relating to indoor lighting systems, heating and air-conditioning systems, and building shell elements.[63] We disagree with SCE that the DEER methodologies rely solely on building simulation. The current methodology, which includes the use of building simulation, meets our expectations and directions for this DEER update.[64]

We expect a combination of methodologies that provide accurate estimates in a cost-efficient manner to be used. While we agree with comments that our adopted ex ante values should not imply a sense of accuracy beyond that which is defensible based upon the underlying data and methods, we also believe there is benefit in having specific point value estimates for all ex ante values that are reflective of the best information available. We recognize that there is an inherent conflict between the need to adopt point values and the complexity and uncertainty of methods and data being utilized to produce those point estimates, and understand that some values have greater uncertainty than we would like and that point values may represent an "expected value" while individual customer experienced values may fall within a wide range. To this end, we

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upon DOE-2 (*see*, for example, the Estimating Energy Savings and Incentives section of the 2012 Statewide Customized Offering Manual (http://www.aesc-inc.com/download/spc/2012SPCDocs/UnifiedManual/Customized%202.0%20Energy%20Savings.pdf).

[63] *See*, for example, "International Performance Measurement & Verification Protocol," March 2002, Section 3.4.4 Option D: Calibrated Simulation.

[64] However, Commission Staff should continue to seek input from parties to determine where and when to use a particular analytical approach from the range of available techniques and to choose approaches that make the most sense given the weight of evidence and requirements for a particular measure or program activity.

direct Commission Staff to take steps to ensure ex ante values are not presented in a manner that appears to overstate the accuracy of the underlying information.

4.3.3. DEER Net-To-Gross Values

4.3.3.1. Net-to-Gross Development Methodology and Complexity of Resulting Values

4.3.3.1.1. Party Positions

Many parties expressed concerns over the development and applicability of proposed Net-to-Gross values.[65] For example, PG&E disagrees with many underlying methodologies and questions whether the proposed values truly reflect actual free-ridership.[66] According to PG&E, "[i]t appears that many Net-to-Gross ratios were based on inadequate … sample size, insufficient response levels, and/or [an] eighteen to thirty-six month delay in surveying customers …"[67] PG&E further asserts that the "Strategic Plan supports deep, lasting energy savings, yet the proposed Net-to-Gross values … are not in line with these goals."[68] PG&E advocates for a transition to a "gross savings measurement methodology."[69] Similarly, SCE argues that proposed Net-to-Gross values rely on the 2006-2008 Evaluation studies and that the "flaws of [these studies] have been well documented by parties, including the

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[65] The subject of Net-To-Gross ratio values, as in previous and other ongoing proceedings, has been a topic of much discussion and comment by parties.

[66] PG&E opening comments on DEER at 23.

[67] *Id.* at 24.

[68] *Id.* at 9.

[69] *Id.* at 8.

Commission, particularly the fact that they were conducted during the biggest economic recession in a generation."[70]

NRDC states that some references to evaluation results provide "the appearance of analytical foundation, but many of the cited studies offer little to no analytical support for the recommended values."[71] NRDC goes on to assert that the Commission's increasing focus on attribution vis-à-vis Net-to-Gross is "both analytically flawed and counterproductive" and that this focus is counter to the Commission's history of energy efficiency policies "that ensure California utilities rely on efficiency as their first resource to reduce the need for increased generation."[72] SDG&E/SoCalGas argue that the proposed Net-to-Gross values are not consistent with other existing Commission policies or with common program implementations. For example, SDG&E/SoCalGas highlight how the proposed value for emerging technologies (0.70) conflicts with the much higher market penetration suggested in the Draft 2011 Potential Study.[73] SDG&E/SoCalGas also express concern that proposed Net-to-Gross values for custom projects may get applied to all custom projects including those subject to the Commission Staff Custom Project Review Process, and therefore recommend that the Commission clarify that these values should not apply to reviewed projects.[74]

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[70] SCE reply comment on DEER at 12.

[71] NRDC opening comments on DEER at 4.

[72] *Id.* at 4.

[73] SDG&E/SoCalGas opening comments on DEER at 6.

[74] *Id.* at 8.

TURN is concerned that Net-to-Gross values for Compact Fluorescent Lamps measures and programs understate free rider levels. TURN notes that only two of the values from the 2006-2008 Evaluation studies are above 0.5, many are much lower, and yet the proposed Net-to-Gross for basic Compact Fluorescent Lamps is 0.54.[75] TURN is concerned that, (1) the proposed DEER includes "one particular estimate from the upstream lighting program" even though the "evaluation includes … alternative estimates that are lower"; and (2) the recommended Net-to-Gross value "was developed a number of years ago" and does not consider "the impact of changes in lighting market and other factors on Compact Fluorescent Lamps NTG ratios." TURN recommends that the Net-to-Gross ratio for basic Compact Fluorescent Lamps be reevaluated.[76] SCE disagrees with TURN's assessment and recommendation related to Net-to-Gross values for Compact Fluorescent Lamps.[77]

Many parties assert that several of the proposals related to Net-to-Gross add complexity without benefit. Proposed revisions include different Net-to-Gross for electricity consumption (kWh), electricity demand (kW), and natural gas consumption (therm). Regarding separate Net-to-Gross for kWh, kW and therm, PG&E comments, "While the validity of this theory is questionable at best, the additional complexities it adds to the process are not justified."[78] The proposed revisions also include different Net-to-Gross values for each utility. According to SCE, while these differences may be statistically valid, "it is not

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[75] TURN opening comments on DEER at 3.

[76] *Id.* at 4.

[77] SCE reply comments on DEER at 13.

[78] PG&E opening comments on DEER at 25.

clear how most customers will be influenced differently for the same measure, relative to the resulting energy savings and demand reduction."[79] SCE believes varying Net-to-Gross by utility causes "anomalies in shared climate zones and … where an Net-to-Gross does not exist for a specific IOU" and therefore recommends statewide Net-to-Gross values.[80]

4.3.3.1.2. Discussion

We believe the Net-to-Gross work undertaken by Commission Staff for the 2006-2008 period is equal, if not superior to, past Net-to-Gross work and the resultant values overall are also superior to the values that resulted from similar work by the utilities. While that there are instances where the sample size used to develop particular utility program results should have been larger (to reduce uncertainty in those results), this does not lead us to agree that those results should be rejected in favor of older results that are likely even less representative of the current activity. We agree with Commission Staff's recommendation to update DEER with 2006-2008 evaluation Net-to-Gross results rather than retain older DEER values based upon older evaluation results.

We reject the notion that only gross savings are important and the analysis of net savings should be either downplayed or abandoned completely. Net savings are a key component of the Commission's adopted cost-effectiveness calculations performed to ensure that the utilities' ratepayer funded activities are cost-effective, as required by statute.

While we agree that interviews with customers and others who participate in the utility programs are best made when their memories are fresh, this is a

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[79] SCE opening comments on DEER at 19.

desired improvement that holds equally true for older evaluation activities (i.e., 2004-2005 and earlier) performed under utility direction. Undertaking Net-to-Gross interviews earlier requires the utilities and their customers to cooperate and facilitate these early interviews. We require this facilitation from the utilities and this cooperation by customers as a condition of receipt of energy efficiency funds. We are concerned by reports from Commission Staff that the needed cooperation and facilitation has been hampered. The utilities must respond to Commission Staff's request for Evaluation data in a timely manner to facilitate our ability to interview customers early so as to improve the reliability of their Net-to-Gross results.

We share the concerns TURN expresses about Net-to-Gross values for basic Compact Fluorescent Lamps measures, but note that the kW, kWh and therm energy savings values for those measures appear to have been subject to much larger percentage changes than Net-to-Gross based upon recent evaluation results. The proposed DEER updates to Net-to-Gross values suggest a downward adjustment by 10% of the previous values while the kWh values are adjusted downward by close to 30%. While TURN correctly notes that the 2006-2008 evaluation report included alternative statewide values for upstream Compact Fluorescent Lamps as low as 0.43, it is equally true that the report recommended the use of a higher value of 0.54. Commission Staff chose to retain the evaluation report recommended value for the DEER update, and we agree with that recommendation.[81]

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[80] *Id.*

[81] We address our overall concerns on basic CFL programs and the rather steep decline in both net and gross savings in our direction related to those activities.

We agree that similar measures delivered by similar activities should have single statewide values unless recent evaluations show a significant variation between utilities and that difference is supported by a historical trend of evaluation results. While it would be inappropriate to adopt planning values based on anomalous results we do not believe the 2006-2008 evaluation Net-to-Gross results overall are anomalous. We therefore accept Staff's recommendation to use those results. We direct Commission Staff to strive for uniform statewide Net-to-Gross planning values that represent typical expected results in the DEER update for the next planning cycle for measures in which the variation between utilities is not significant.

Finally, while we see how a project composed of separate gas and electric measures may have a composite Net-to-Gross we do not see the need to use different Net-to-Gross values for kWh, kW and therm for a single measure. Commission Staff should revise the DEER 2011 Update to remove this complexity for the case of single measures and better document how the DEER values are to be used for projects which include both gas and electric measures.

4.3.3.2. Considering Recent Program Improvements in DEER Net-to-Gross Values

4.3.3.2.1. Party Positions

Several parties are concerned that the proposed Net-to-Gross values do not consider recent improvements to program design and implementation – that past performance is not an indicator of future success because the programs have been revised and are addressing different market conditions. NRDC comments that, "the proposed Net-to-Gross Ratios represent a backward-looking static approach to program design" and that this approach "provides a counterproductive focus on the past that confounds the Commission's efforts to field ambitious,

forward-looking programs."[82] National Association of Energy Service Companies (NAESCO),[83] PG&E,[84] SCE,[85] and SDG&E/SoCalGas[86] hold similar views that proposed Net-to-Gross values do not adequately consider changes in program design, program delivery and market conditions to produce forward looking values.

SDG&E/SoCalGas "recommend that before the Net-to-Gross values are finalized discussions on program design and changes to improve Net-to-Gross for the coming cycle be done prior to filing the program applications."[87] NRDC recommends the Commission utilize the 2013-2014 period to resolve key disputes[88] and "transition to an alternative framework for addressing the issue of attribution."[89] PG&E states that 2006-2008 programs have been modified in a variety of ways and that "it is of questionable benefit to apply Net-to-Gross values that were developed using a previous set of assumptions." On claims that, "the Net-to-Gross values indicate a serious disconnect between program strategy and program practicality," PG&E recommends the Commission "revisit

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[82] NRDC opening comments on DEER at 4.

[83] NAESCO reply comments on DEER at 3.

[84] PG&E reply comments on DEER at 8-9.

[85] SCE opening comments on DEER at 16.

[86] SDG&E/SoCalGas reply comments on DEER at 3.

[87] SDG&E/SoCalGas opening comments on DEER at 6-7.

[88] NRDC opening comments on DEER at 3-4.

[89] *Id.* at 5.

proposed Net-to-Gross values so that they help, rather than hinder, achievement of the Strategic Plan goals."[90]

4.3.3.2.2. Discussion

We agree that Net-to-Gross, like many other cost-effectiveness and program performance metrics, can be difficult and/or expensive to measure with a high degree of certainty. We disagree with comments that suggest that Net-to-Gross is not an important metric in the valuation of portfolio activities. However, this does not mean, in our view, that the utilization of Net-to-Gross as a metric is diminished in its importance. A low Net-to-Gross value indicates that much of the savings resulting from the activity would have occurred without utility portfolio support.

While we have decided to adopt goals using a gross savings metric in past decisions, and consider the use of gross goals later in this section, we continue to measure portfolio cost-effectiveness using net metrics and expect the utilities to take actions in their portfolio design and implementation that act to maximize the net program benefits for the ratepayers dollars invested in the energy efficiency activities. For these reasons, we disagree with comments that suggest that Net-to-Gross is not an important metric in the valuation of portfolio activities.

4.3.3.3. Net-to-Gross Values for Customized Projects and Emerging Technologies Measures

4.3.3.3.1. Party Positions

SoCalGas believes the proposed Net-to-Gross values treat natural gas projects unfairly, asserting that the higher capital costs and lower energy cost savings of gas measures, particularly for residential and commercial customers,

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[90] PG&E reply comments on DEER at 9.

make it inappropriate to combine electricity and natural gas projects into single calculations for Net-to-Gross. By this logic electricity measures will have greater financial benefit than natural gas measures and, "when the DEER Study melds together results from a dual-fuel utility with those of a single-fuel utility, the latter quickly becomes diluted and may not even be meaningful."[91] SoCalGas believes that Net-to-Gross for large custom projects cannot be developed using the approaches in the 2006-2008 Evaluation research. Large capital costs for these projects means approval takes several years, and the project can move through several different entities prior to moving forward. As a result, identifying free-ridership requires more than a single survey of one customer representative.[92] SoCalGas also notes that the 2006-2008 Evaluation research identified as free riders "customers who were … replacing their equipment in response to jurisdictional (e.g., air quality) requirements." For the current program cycle, SoCalGas has formalized a process for disallowing applicants whose only objective is meeting regulatory requirements.[93] SoCalGas emphasizes that, "larger scale projects are more likely to be cost-effective, and are consequently a large component of how the overall cost-effectiveness is maintained."[94] SoCalGas has provided a recommended alternative calculation resulting in an Net-to-Gross ratio of 0.63 for custom projects compared to the DEER proposed value of 0.54.[95]

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[91] SDG&E/SoCalGas opening comments on DEER at 3.

[92] *Id.* at 4.

[93] SDG&E/SoCalGas opening comments on DEER at 7.

[94] *Id.* at 4.

[95] SDG&E/SoCalGas opening comments on DEER, Attachment at 1.

NRDC believes that proposed Net-to-Gross values for custom measures will exclude all but the most cost-effective custom projects, which will typically be short-term lighting dependent measures.[96] NRDC states that the proposed Net-to-Gross values for custom projects ignore the impacts of the recently implemented custom project review process, which is "intended to address concerns raised about biased ex ante estimates and should result in fewer free riders and higher Net-to-Gross Ratios."[97] NRDC also notes that, as part of the custom review process, savings of un-reviewed custom projects are reduced by 10% due to the adopted default Gross Realization Rate of 90% and states, "The proposed DEER updates appear to ignore these changes [embodied in the CPRT] and propose to assume further significant downward adjustment to saving estimates." NAESCO argues that the proposed lower Net-to-Gross values for custom projects do not take into account the expertise provided by third-party implementers in identifying benefits to customers of large complex processes. NAESCO points out "in other parts of this proceeding [Commission Staff describes] the failure of the market to provide a sig The Total Resource Cost nificant level of Energy Efficiency implementation [and requests] all interested parties to provide suggestions about how the market can be enhanced."[98] PG&E agrees with NAESCO and NRDC that the reduced Net-to-Gross for custom projects is not justified.[99]

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[96] NRDC opening comments on DEER at 7.

[97] *Id.* at 6.

[98] NAESCO opening comments on DEER at 3.

[99] PG&E reply comments on DEER at 10.

Several parties express concern that the proposed Net-to-Gross values discourage emerging technologies, unfairly treat early retirement measures and otherwise unjustifiably reduce savings. SCE states, "If the presumption is that transformed measures must have lower Net-to-Gross, then emerging technologies measures should be presumed to have high NTGs."[100] SDG&E/SoCalGas disagree with the approach of using traditional methods of establishing Net-to-Gross values and then applying those Net-to-Gross values to early retirement projects subject to the dual baseline.[101] Current definitions of NTG overlap "with the NTG ratio calculation by unilaterally assuming that a participant would, in fact, have replaced the pre-existing equipment in a later year" and that, with the application of the dual baseline approach to calculating savings "the NTG values becomes redundant and irrelevant." SDG&E/SoCalGas recommend that an Net-to-Gross of 1.0 be used for projects subject to a dual baseline.[102]

4.3.3.3.2. Discussion

We agree with the SDG&E/SoCalGas comments related to combining Net-to-Gross values for gas and electric projects. Commission Staff must provide separate Net-to-Gross values for gas and electric projects that are developed for

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[100] SCE opening comments on DEER at 27.

[101] For early retirement measures, a "dual baseline" applies which means that a customer average baseline is used for the calculation of energy savings for the remaining useful life (RUL) of the removed equipment. At the end of the RUL, the customer would have needed to replace the failed equipment with equipment that reflected current energy efficiency standards and/or market practices. This second baseline is used to calculate the [reduced] savings for the remainder of the effective useful life (EUL) of the measure.

[102] SDG&E/SoCalGas opening comments on DEER at 5.

those types of projects alone, unless the values are sufficiently similar that a single value is warranted. This will require Commission Staff to apply judgment in cases where the line between gas and electric project designation is less clear and provide guidance to the utilities as to how to apply gas versus electric Net-to-Gross values to projects that include a combination of gas and electric measures. We adopt the specific direction on this matter provided in Attachment A as part of the DEER 2011 Update.

We share the SDG&E/SoCalGas concerns regarding Net-to-Gross values for large versus small projects. Although we do not direct any changes at this time, we direct Commission Staff to research this issue for the next ex ante update and, if appropriate and supported by existing data, propose alternative values that account for the differences based on project size for custom gas and electric measures.

We also share the SDG&E/SoCalGas concerns about the proposed update to the Net-to-Gross value for commercial and industrial custom gas projects. The recommended value of 0.35 is lowered primarily due to a 0.31 result from the 2006-2008 evaluation of PG&E program activities. Although we have no reason to doubt the validity of that result, we do not expect that such a low value would be best for planning for the 2013-2014 cycle. In D.11-07-030 we adopted a custom measure and project review process by which Commission Staff will be able to review and update ex ante values based upon current activities.[103] We adopted that review process first due to the desire to improve the ex ante values for those projects and second to allow the utilities to respond to Commission Staff reviews

[103] D.11-07-030, Attachment B.

with program design changes that improve overall program ex ante versus ex post results.

We expect the utilities to respond to Commission Staff reviews, not just by accepting altered ex ante values, but by taking steps to change program activities to improve the Net-to-Gross results. We do not expect the utilities to curtail custom measure and project activities due to low gross savings or Net-to-Gross results. They should to respond to any such poor results with programmatic changes designed to improve performance. For example, when a customer is found to be likely to carry out a project without incentive support, the program should strive to push the customer to augment its plans to include additional action that would not occur without incentive support, or redesign the incentive structure offered to encourage deeper and more comprehensive retrofit activities as well as aligning the dollar amounts to be commensurate with the level of savings that can be attributed to the program.

In anticipation of the custom project review and programmatic changes mentioned above, we agree that it is reasonable to expect improvements to the evaluated NTG results for both the 2010-2012 program cycle and the 2013-2014 transition portfolio relative to the 2006-2008 ex post results. For this reason, we increase the commercial and industrial custom project NTG value in the DEER 2011 Update from 0.35 to 0.50. We direct Commission Staff to track the results of its custom project and measure review activities as well as related 2010-12 impact evaluation activities and report any results on NTG values in a timely manner for consideration when ex ante update values are adopted for the next program cycle.

We also agree with comments regarding NTG values to use for measures added to the utility portfolios as a direct result of Emerging Technology Program

activities (or Emerging Technologies measures). We direct Commission Staff to assign a new NTG category for Emerging Technology measures with a default NTG value of 0.85. The existing non-DEER measure submission process shall also cover Emerging Technology measures, and the utilities may request, in their non-DEER Emerging Technologies measure workpaper submissions, that measure be assigned an NTG value at or above the 0.85 default value.

Commission Staff shall have the authority to accept or reject a utility Emerging Technology measure classification and to set any Emerging Technology measure's NTG at a higher value than the default value as it deems appropriate.

4.3.3.4. DEER Values for HVAC Interactive Effects

4.3.3.4.1. Positions of the Parties

Many parties oppose the use of interactive effects in estimating savings claims.[104] SDG&E notes that, in 2010-2011, "estimated negative therm values from the DEER resulted in negating approximately 70% of all of SDG&E's real gas savings."[105] Many parties claim DEER interactive effects are un-vetted and should be set aside. SDG&E states that, in addition to the DEER work to produce interactive effects, only one other study has been performed, and "that study

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[104] Measures such as lighting retrofits and appliance replacements reduce the amount of energy rejected as heat to conditioned space. This will result in an increased need for heating energy and a decreased need for cooling energy. The increased need for heating energy is often referred to as a "negative impact." This phenomenon of an energy efficiency measure also causing a change in the energy use of the space conditioning equipment is called an "interactive effect."

[105] SDG&E/SoCalGas opening comments on DEER at 9.

indicates … the gas interactive effect is not significantly different from zero."[106] NRDC also believes the interactive effects are "overestimated and unfounded," and refers to the same study referenced by SDG&E. NRDC also cites several other jurisdictions in the country where interactive effects are assumed to be small or non-existent.[107] PG&E acknowledges that, "more efficient devices within a building produce less waste heat, thus enabling air-conditioning systems to use less energy in the cooling season," while "during the heating season, furnaces will use more energy."[108] However, PG&E feels more expert review is needed for the DEER models used for estimating interactive effects and, "requests and proposes that any model used for DEER purposes be widely circulated for industry expert evaluation and approval prior to use."[109]

4.3.3.4.2. Discussion

During the review of party comments relating to HVAC interactive effects, Commission Staff identified and corrected some mistakes in the DEER interactive effects calculation methods, and these corrections have been made in the DEER 2011 Update. We remain open to reconsidering this issue in the future, as additional evaluation results are available for review and comment. It is our understanding that a soon-to-be released draft Commission Staff report specifically examines HVAC interactive effects as currently contained in DEER and that Commission Staff intends to continue work to improve both the

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[106] *Id.* at 8.

[107] NRDC opening comments on DEER at 6.

[108] PG&E opening comments on DEER at 18.

[109] *Ibid.*

methods and underlying data upon which DEER HVAC interactive effects are based.

In the meantime, we affirm our order in D.09-05-037 that HVAC interactive effects are appropriate for incorporation into DEER.[110] We also affirm that the inclusion of HVAC interactive effects into DEER places a similar requirement for inclusion of those effects into non-DEER workpapers and custom measures and projects calculations. In its review of utilities' workpapers and custom measures and projects, Commission Staff shall ensure the utilities include these effects when Staff deems that inclusion has a significant impact on the savings estimate.

Our potential and goals studies now incorporate HVAC interactive effects, so we do not expect goals to need any adjustment due to these effects, as long as the goals values remain updated based on ex ante values which include these effects. We expect consistent treatment of HVAC interactive effects among the DEER, potential, and goals studies.

4.3.4. Other Updates to DEER Values

Several parties comment on the details of the proposed updates to DEER kW, kWh and Therm unit energy savings and other DEER values or methods. These detailed comments are enumerated in Attachment A along with a Commission Staff discussion of the issues raised and any recommendations for changes based on the comments.

Many parties' comments offer their preferred assumptions and values for use in DEER, and opine that the Staff's recommendations are biased against their activities and energy efficiency in general. As previously articulated in

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[110] D.09-05-037, Ordering Paragraph 3 denied the utilities' proposal to eliminate HVAC interactive effects from DEER.

D.09-09-047, we reject the utilities' request to utilize their preferred values in updating DEER in place of the recommendations provided by Commission Staff. As stated in D.09-09.047:

> The updates to DEER resulting from [Commission Staff's] independent analysis do not in any way diminish the utilities ability to deliver savings. Rather they ensure that reported savings are more closely aligned with actual load impacts, as informed by our best Evaluation data. We believe it is of the utmost importance that reported achievements reflect honest representations of load impacts, and to the extent that a discrepancy exists, it is far preferable to align goals with reality than to resist adjustments based on updated data.[111]

In our view, reliance on Commission Staff to develop ex ante updates, with input from the utilities and other stakeholders, provides better assurance that the utilities' estimates of portfolio goal attainment and cost-effectiveness prospectively during planning as well as retrospectively during implementation reporting are reliable and thus appropriate for us to use as a basis for our decision making. We direct Commission Staff to include all of the recommended changes provided in Attachment A in the final DEER 2011 release.

4.3.5. Adoption of DEER 2011 for Planning

We adopt Staff's recommendations for updates to DEER, with the modifications discussed in the sections above, which have been posted on the DEER website (http://www.DEEResources.com) on the page labeled "DEER 2011 for 2013-2014 Planning." The DEER 2011 update adopted in this decision was utilized as a first reference source for values and assumptions in the production of the final potential study, discussed later in this section.

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[111] D.09-09-047, Section 4.2.2 at 3.

4.4. 2011 Energy Efficiency Potential Study

The draft 2011 Energy Efficiency Potential Study (draft Potential Study), issued by ALJ ruling on November 17, 2011, was an update to the 2008 Potential Study and 2003 Secret Surplus Study. Like the previous two studies, the 2011 Potential Study provides a statewide assessment of energy efficiency potential at three levels: technical, economic, and market. Technical potential encompasses complete penetration of all energy efficiency measures that are technically feasible to install from an end-use and engineering standpoint. Economic potential typically refers to the portion of technical potential that is cost-effective when compared to supply-side alternatives. Market or "maximum achievable" potential is the amount of energy efficiency potential estimated to be achievable over a period of time, based on established incentive scenarios and customers' willingness to adopt the identified technical and economic potential.

The Potential Study was developed in close coordination with the DEER and avoided cost updates to ensure that the final adopted values and methodology were incorporated in the final Potential Study. The Potential Study was developed with the support of the Demand Analysis Working Group (DAWG), a collaborative public input process jointly coordinated by the California Energy Commission and this Commission to discuss demand and energy efficiency forecast issues. DAWG provided ongoing informal comments, which were posted on the "Dataweb" site.[112]

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[112] Energy Dataweb can be accessed at http://www.energydataweb.com/cpuc/home.aspx.

The Potential Study provides important information to guide utilities' changes to their portfolios for the mainstream programs and the measures that were assessed. The results of the Potential Study indicate that savings from codes and standards activity will increase significantly and IOU program market potential will decrease compared to the 2008 Potential Study due to the following factors:

- **Codes and Standards adoption:** A number of measures have been or are expected to be adopted into Title 20 or Title 24 codes or federal appliance standards.
- **2006-2008 ex post value adjustment:** The Commission's 2006-2008 evaluations found that a significant number of gross ex ante planning assumptions were overestimated, such that the evaluated 2006-2008 program savings were 40% lower than the savings calculated based on ex ante planning assumptions. The measure groups with the most significant changes were standard Compact Fluorescent Lamps and refrigerator recycling.
- **Low income energy efficiency assumptions adjustment:** The low income energy efficiency savings assumptions in the 2008 Potential Study were higher than in the 2011 Potential Study.
- **New construction adjustment:** Economic conditions have significantly reduced new construction in the residential and commercial sector since 2008.

Contrary to the downward trends above, and despite limited capacity to develop a comprehensive assessment of the emerging technology potential in the time available to complete the Potential Study for this decision, emerging technologies constitute an increasing percentage of potential beyond 2014. The greater emphasis on savings from emerging technologies partially offsets the decline in IOU program potential resulting from these downward adjustments.

In addition, due to the aforementioned time constraints, the Potential Study was not able to assess additional sources of savings potential from

Strategic Plan initiatives (e.g., deep, whole house retrofits and Zero Net Energy programs), energy efficiency financing, and other market transformation programs. As noted above, these analyses will be developed in Track 2 of Navigant's work.

4.4.1. Positions of the Parties

Comments on the draft Potential Study were submitted in conjunction with the DEER update and the Goals Proposal. NRDC, California Energy Efficiency Industry Council (CEEIC), Women's Energy Matters (WEM), Local Government Sustainable Energy Coalition (LGSEC), TURN, EnerNoc, SCE, PG&E, SDG&E/SoCalGas, and OPower filed comments in response to the ruling, and NRDC, WEM, LGSEC, TURN, SCE, PG&E, and SDG&E/SoCalGas filed reply comments. Several parties argue that deficiencies in the draft Potential Study lead to an underestimation of market potential. In particular, EnerNoc, NRDC, PG&E, and SCE suggest that Navigant's approach to emerging technologies is too restrictive. NRDC points out that the list of measures studied was limited to only 21 of the 90 identified measures, and suggests that this does not capture the full potential.[113] SCE notes that the study did not include agricultural potential.

Some parties express a concern about a disconnect between the results of the draft Potential Study and the many aspects of the Phase IV Scoping Memo policy guidance. As CEEIC states, "The Commission must not consider the adoption of the 2013-2014 savings goals in isolation from other policy guidance that determines how performance against the goals is assessed."[114] TURN, PG&E, SCE, and SDG&E/SoCalGas concur with this point and specifically point

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[113] NRDC Opening Comments on the 2013-2014 Energy Efficiency Goals Ruling at 9.

to the Compact Fluorescent Lamps and refrigerator recycling components of the study, which the Scoping Memo indicated should be significantly reduced or eliminated. SCE and NRDC also point out that the limited scope of the draft Potential Study did not include Strategic Plan and market transformation initiatives.

Some parties express concern about some of the data inputs and assumptions upon which the draft Potential Study was based. For example, NRDC, EnerNoc, PG&E, and SCE question the use of the 2006-2008 evaluation results, arguing that these results have not previously been adopted by the Commission and that certain values remain questionable and should not be the basis for the Potential Study. Additionally, SCE argues that the final goals should be based on the final potential, which should use the adopted DEER values and avoided cost methodology.

Parties recommend a number of specific changes to the data inputs and assumptions in the draft Potential Study and seek further explanations regarding the content of the report. For example, TURN and SCE point out that the energy savings for low income households were based on historical data and that the 2010 evaluation of the Energy Savings Assistance Program has found an increase in potential savings, from 146 kWh per household in the 2009 evaluation to 330 kWh.[115]

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[114] CEEIC Opening Comments on the 2013-2014 Energy Efficiency Goals Ruling at 2.

[115] TURN Opening Comments on the 2013-2014 Energy Efficiency Goals Ruling at 12.

4.4.2. Discussion

The Final Potential Study report has been released and is publicly available on the Commission website.[116] Many of the changes recommended by parties were incorporated into the Final Potential Study. For instance, the assessment of emerging technologies was expanded to include ten new measures. Additionally, low income potential estimates, were revised and are now based on the 2010 evaluation results of the Energy Savings Assistance Program. Regarding the use of the 2006-2008 evaluation results, the Commission made clear in D.10-12-045 that evaluation results were to be incorporated into the DEER, and we now affirm that it is appropriate to use these updated DEER values as inputs in the Final Potential Study. We adopt the Final Potential Study at this time.

Other issues, including those associated with refrigerator recycling, basic Compact Fluorescent Lamps, and behavior programs, are the subject of significant debate. These program areas are further discussed below and in the Final Potential Study, adopted herein.

4.4.3. Refrigerator Recycling

Refrigerator recycling is the primary component of the IOUs' Appliance Recycling Programs.[117] The 2006-2008 evaluation indicated that 20% of all refrigerators removed or replaced in California homes were recycled, the other 80% of units were given away or sold, became secondary refrigerators, or were

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[116] The Potential Study is available online at http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/Energy+Efficiency+Goals+and+Potential+Studies.htm.

[117] Refrigerator recycling is the decommissioning of a secondary refrigerator, with the secondary refrigerator being removed from the grid.

picked up by retailers. The Potential Study accounts for this finding by applying a 20% "applicability" factor to the refrigerator recycling measure potential.

4.4.3.1. Positions of the Parties

SCE states that the method used to calculate potential is inaccurate, and proposes an alternate approach to estimate refrigerator recycling. SCE's approach uses weighted averages of primary and secondary refrigerator size to estimate savings from the recycling of the appliances.[118]

4.4.3.2. Discussion

We believe that the IOUs should redesign the Appliance Recycling Program to be more effective. Since the 2006-2008 evaluation results indicated that 20% of all refrigerators were recycled, it appears the draft potential study methodology misinterpreted the evaluation results. After revisions, the final Potential Study corrects this error.

4.4.4. Basic Compact Fluorescent Lamps

The Phase IV Scoping Memo recommended significantly reducing or eliminating basic Compact Fluorescent Lamps in the 2013-2014 transition portfolio. The Potential Study found that the market potential for basic Compact Fluorescent Lamps is approximately 64 gigawatt-hours (gWh) in 2013-2014, and is projected to decline to zero by 2018 as AB 1109 (Huffman, 2009) lighting standards are implemented. This is a substantial reduction from both the previous market potential and the 2010 IOUs' reported savings for Compact Fluorescent Lamps.

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[118] SCE Opening Comments on the Potential Study and DEER Ruling at A-5-6.

4.4.4.1. Position of the Parties

SCE, PG&E and TURN argue that if the 2011 Potential Study includes additional potential for basic Compact Fluorescent Lamps, then the proposed portfolio goals (which are based on the 2011 Potential Study) will need to be reduced if the Commission directs the IOUs to not include basic Compact Fluorescent Lamps in the 2013-2014 transition portfolio.

4.4.4.2. Discussion

According to the Final Potential Study, the 64 gWh of incremental market potential for basic Compact Fluorescent Lamps represents an 84% reduction in Compact Fluorescent Lamps savings compared to the market potential available in 2010-2012, due to the implementation of AB 1109. Basic Compact Fluorescent Lamps are forecast to account for no more than 4% of the 2013-2014 portfolio. This change adequately reflects the significant reduction in Compact Fluorescent Lamps envisioned in the Phase IV Scoping Memo.

4.4.5. Behavior Programs

The Potential Study provides an estimate of the potential for behavioral initiatives that were not included in the 2008 study. While California IOUs have coordinated behavior programs such as the Home Energy Reports and online audit tools at the pilot scale, there has been no impact evaluation of these programs to date. Given the lack of evaluation data, the potential estimates must be based on data from other state programs and reasonable assumptions about the IOUs' plans for Home Energy Reports and comparable programs. The draft Potential Study based its savings estimates on an average impact across all evaluated programs in the country and found that the programs save 1.5% of total consumption, using whole house billing data analysis. The savings

resulting from behavior-based initiatives can be broadly characterized as either equipment-based or usage-based:

- Equipment-based behavior – Savings from the purchase and installation of higher efficiency equipment, relative to baseline conditions. Equipment-based behavior includes the purchase of energy efficiency equipment when incentives are and are not provided.
- Usage-based behavior – Savings from changes in usage and maintenance of existing equipment.

The draft Potential Study assumed that the disaggregated impacts of behavior programs savings are 75% equipment-based behavior and 25% usage-based behavior, based on the only past study that evaluated the disaggregated impacts.[119]

Based on informal input, it appears that the different types of behavior programs currently pursued had different kinds of impacts, and thus may require different assumptions. For example, the Home Energy Reports programs were lower cost and more easily broadcast across large populations, whereas home energy audit tools were more intensive to implement, but led to deeper savings. Lastly, the draft Potential Study made assumptions about the participation rates based on the IOUs' scale of behavior programs, which currently function as pilot programs reach 6% of households in PG&E territory and 1.7% of households in SDG&E territory.

4.4.5.1. Positions of the Parties

OPower, EnerNoc, and SCE argue that the draft Potential Study underestimates savings from behavior programs by several orders of magnitude.

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[119] Potential Study at 61-62.

OPower states that there are two causes for the underestimate: (1) the assumed scale of the program will remain small, and (2) the assumption that behavior based savings are 25% usage-based and 75% equipment-based lacks supporting empirical evidence. OPower asserts, "Since there is no present way to measure empirically exactly what purchases recipients made, it is impossible to conclude with any statistical confidence what percentage of overall savings they represent."

4.4.5.2. Discussion

The IOUs' program plans for behavior programs are summarized in the final Potential Study. Input from the IOUs suggest that PG&E plans to roll out behavior programs to 20% of households by 2014, SCE plans to roll them out to 0.4% of households, SDG&E plans to reach 3.3% of households, and SoCalGas plans to emphasize the home energy audits and to maintain its programs on a pilot scale.

The use of the IOUs' program plans to estimate behavior potential would lead to potential estimates, and thus energy savings goals, that are orders of magnitude greater for PG&E than for SCE. This raises several concerns. For one, there is clearly untapped potential in behavioral programs that has yet to be effectively estimated. However, it is clear that the number of assumptions required to calculate the behavior potential makes these savings less reliable for the purposes of goal setting and procurement planning. In addition, the widely divergent assumptions for behavior potential across the utilities would lead to substantially different goals. We expect all of the IOUs to pursue cost effective potential from behavioral programs with equivalent effort and timeliness. Therefore, we find it reasonable and prudent to set consistent assumptions for program participation at 5% of households, signaling our expectation that

behavioral programs should be substantively, but not excessively, represented in IOU program portfolios. Further, the IOUs may apply alternate behavioral programs to achieve their goals if they find other approaches to be more effective. These goals represent a floor, not a ceiling, and we encourage the IOUs to exceed this target by pursuing behavioral programs on a greater scale if they believe we have underestimated potential in this area.

To disaggregate the types of impacts, the assumptions were adjusted to reflect 67% usage-based savings and 33% equipment based savings. As discussed in the Potential Study, these adjustments were based on informal input from utilities that currently implement behavioral programs. Given the limitations of the data available at this time, we adopt this proposed approach for the transition portfolio. We intend to further refine this approach for the portfolio starting in 2015.

4.5. 2013-2014 Transition Portfolio Goals

The Phase IV Scoping Memo directed Commission Staff to prepare a proposal for energy efficiency goals for the 2013-2014 transition portfolio. The Staff Proposal for 2013-2014 Energy Efficiency Goals (Goals Proposal), issued by ruling on December 28, 2011, recommended that the 2013-2014 goals remain consistent with the Commission's intent in past decisions. Specifically, goals should (1) be aggressive yet achievable;[120] (2) support long-term planning;[121] (3)

[120] D.04-09-060 at 3.

[121] D.04-09-060 at 35.

encourage a focus on long-term savings;[122] and (4) be based on the best available information.[123]

In the Goals Proposal, Staff recommends that the goals for the 2013-2014 transition portfolio be established on the following basis:

- Use the 2011 Potential Study, IOU program, and codes and standards advocacy savings estimates as the basis for goals;
- Separate targets for codes and standards, IOU programs, and emerging technologies;
- Apply goals on a gross basis consistent with recent Commission policy; and
- Develop annual and cumulative goals, with cumulative goals including recovery of savings lost from decay of past energy efficiency activities, but not the recovery of unmet goals prior to 2010.

4.5.1. Positions of the Parties

NRDC, CEEIC, WEM, LGSEC, TURN, EnerNoc, SCE, PG&E, SDG&E/SoCalGas, and OPower filed comments in response to the Energy Efficiency Goals Ruling. NRDC, WEM, LGSEC, TURN, SCE, PG&E, and SDG&E/SoCalGas also filed reply comments. All parties except TURN support the Goals Proposal and consider it to be generally reasonable, provided that the goal values are updated with the final Potential Study to include the final DEER and avoided cost updates and to respond to the parties' specific concerns. TURN disagrees with the Staff proposal because TURN believes the work is incomplete, and the complex issues in goal setting should not be allowed to impede the

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[122] D.07-10-032 at 5.

[123] D.08-07-047 at 18-19.

Commission's overarching energy efficiency portfolio transition process.[124] While CEEIC does not oppose the Goals Proposal, it shares TURN's concerns and urges the Commission to move quickly to set goals and guidance for the 2013-2014 transition portfolio and minimize market disruption and delays. It specifically recommends that the transition period be simply an extension of the current portfolio.[125]

CEEIC, NRDC, TURN, SCE, PG&E, and SDG&E/SoCalGas note that the Goals Proposal does not incorporate potential savings from key strategic plan initiatives such as financing, integrated whole house/building programs, and market transformation. SDG&E/SoCalGas, CEEIC, and NRDC express concern that the utilities will be unable to build a cost effective portfolio with the remaining available potential. WEM states that the goals are far too low, reflecting only 0.3% of total energy consumption, and that past goals were far too easy for IOUs to achieve.[126]

LGSEC argues that the "ruling proposes to not only perpetuate but to greatly expand the preferential role related to codes and standards that has up to this point been ceded by the [Commission] to the utilities."[127] Furthermore, LGSEC states that the proposal does not appreciate the challenge of local governments' permitting offices ensuring compliance, that the goals give all the credit to the IOUs, and that the goals for codes and standards should account for the role of the local governments.

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[124] TURN Opening Comments on the 2013-2014 Energy Efficiency Goals Ruling at 3-4.

[125] CEEIC Opening Comments on the 2013-2014 Energy Efficiency Goals Ruling at 5.

[126] WEM Opening Comments on the 2013-2014 Energy Efficiency Goals Ruling at 3.

[127] LGSEC Opening Comments on the 2013-2014 Energy Efficiency Goals Ruling at 3.

4.5.2. Discussion

We agree with parties that the Goals Proposal is generally reasonable provided the adopted goals include the final DEER values and avoided cost methodology. While we recognize parties' concerns that the goals do not currently incorporate savings potential from strategic plan initiatives, we nonetheless consider the information in the Potential Study essential for an effective update of the utilities' portfolio goals. Regardless of the current limitations associated with using the Potential Study without a more complete goals analysis, a portfolio built on the latest DEER update, revised economic forecasts, new codes and standards, and other updates is far more relevant than one built on data that is over five years old. Although the goals in fact do not include quantified savings from the Strategic Plan initiatives, goals are intended to represent a floor for IOU savings, not a ceiling. Our adoption of goals for each utility based on the 2011 Potential Study does not in any way prevent the utilities from proposing programs and estimating savings that exceed the adopted goals if they are convinced that additional attainable potential not identified in the Potential Study exists, and we encourage them to do so.

While we appreciate the challenges that local governments face in ensuring compliance for codes, and applaud their efforts in this area, their interpretation of credit toward goals appears to be out of context. The Commission only sets goals for the utilities in order to hold them responsible for pursuing all available cost effective energy efficiency opportunities, and utilities receive credit for the savings associated with the code and standard adoption attributable to their codes and standards advocacy programs. The role of the compliance rate embedded in the codes and standards goal is to reduce the savings estimate for which the IOUs get credit to reflect the fact that compliance is not 100%.

4.5.3. Use of 2011 Potential Study

In its Goals Proposal, Staff recommends that goals be established as the sum of incremental market potential in the 2011 study and the expected savings of IOU codes and standards advocacy work. The potential input assumptions are consistent with the mid-case scenario adopted in D.08-07-047 from the 2008 Potential Study and calibrated to the 2006-2008 portfolio evaluated savings. IOU program goals would be based on 100% of incremental market potential for both gas and electric savings. This proposal would diverge from the application of potential to goals in D.04-09-060, which expected the utilities to capture 90% of the maximum achievable electric potential over a 10-year period, and 60% of the maximum achievable gas potential.[128]

4.5.3.1. Positions of the Parties

All parties support this proposal with the exception of TURN, which recommends that the goals be based on the Total Market Gross goals adopted in D.08-07-047. While PG&E does not oppose the proposal, it claims that its ability to achieve 100% of the gas potential depends on the exclusion of interactive effects from the portfolio. PG&E recommends that natural gas goals be established excluding interactive effects. PG&E states that, if interactive effects are excluded as currently indicated by the values in Table 4 (Attachment A) of the Goals study, "it is appropriate to establish natural gas goals assuming 100%

[128] D.04-09-060 at 2-3. The level of expectation for natural gas savings was lower based on "the fact that natural gas program funding levels have dropped substantially over the last five years, and that ramping up those efforts to meet the full savings potential may take more time than on the electric side."

of market potential."[129] SDG&E also recommends that we omit interactive effects.

4.5.3.2. Discussion

In D.09-05-037, we required the IOUs to account for interactive effects--the collective efficiency impacts of individual measures on the overall building load. D.09-05-037 determined that accounting for interactive effects was necessary to ensure we meet the AB 32 mandate that all energy savings are real, verifiable and additional. As stated therein, "it is of paramount importance to maintain the analytical rigor of our methodologies to count savings. Compromising the technical integrity of our counting methodologies is tantamount to compromising the reliability of energy efficiency as a resource." Parties provide no convincing arguments to support changing the policy, so utilities will continue to be responsible for interactive effects.

We believe that the 2011 Potential Study represents the best available information upon which to establish IOU program goals; therefore, we adopt Staff's proposal. Regarding PG&E's recommendation for gas goals, the 2011 Potential Study modeled the impact of interactive effects on gas potential and found that it varied by utility. Since interactive effects have been accounted for in the 2011 Potential Study, we see no reason to set gas goals below 100% of incremental market potential. Therefore, we adopt both electric and gas IOU program targets at 100% of incremental market potential.

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[129] PG&E Opening Comments on the 2013-2014 Energy Efficiency Goals Ruling at 9.

4.5.4. Codes and Standards Advocacy Savings

In D.05-09-043, we recognized the need to encourage the utilities to support adoption of energy efficiency measures into state building codes, and state and federal appliance standards, and determined that IOUs could credit savings from codes and standards advocacy toward their energy efficiency goals. Specifically, the utilities were given credit for 100% of the savings associated with their attributed codes and standards advocacy work adjusted for compliance levels and naturally occurring market potential, beginning in the 2010-2012 program cycle.[130] The utilities' codes and standards advocacy programs have successfully supported the adoption of a number of new codes and standards which will become effective in the 2013-2014 period and for which the IOUs will receive credit toward their goals.

The Goals Proposal presented a separate category of estimated codes and standards savings that have already been adopted or are expected to be adopted in 2012. These estimated savings values are based on the Addendum to the 2011 Potential Study (Addendum).[131] The codes and standards advocacy category represents the estimated energy savings forecasted for the Title 20 and 24 updates and federal appliance standards that can be attributed to the IOUs' codes and standards advocacy program; it is intended to be additive to the market potential to reflect the savings from codes and standards advocacy established in D.05-09-043. The estimated savings assume an 85% compliance rate for Title 20

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[130] D.09-09-047 at 205-207.

[131] "Addendum to the 2011 Potential Study in Support of the [Commission Staff]'s Goals Proposal," 2013-2014 Energy Efficiency Goals Ruling (December 28, 2011) Attachment B.

codes and 83% compliance rate for Title 24 codes. The Addendum, assumed that the compliance rate would increase to 100% by 2020 due to utilities' compliance enhancement efforts.

The codes and standards savings in the Addendum are based on the model developed for 2006-2008 impact evaluations, consistent with the evaluation protocol that was adopted by ruling on April 13, 2006. However, a modification was made to the calculation in order to count the incremental savings produced by the adoption of each new code. While the evaluation protocol includes savings for first-time and future replacements as well as new installations, the measure life calculation was adjusted to only include first-time replacement in determining the incremental estimated savings.[132] This approach diverges from the 2006-2008 evaluation protocol, which only calculates codes and standards savings on a cumulative basis.

4.5.4.1. Positions of the Parties

Though they generally support the codes and standards component of Staff's proposal several parties urge further modification. For example, SCE argues that the savings are overestimated and claims that the IOU attribution adjustment and an ex-post realization adjustment were omitted. SCE also states that the estimated savings had been applied on an adjusted gross basis rather than a net basis, which would include the attribution and the Naturally Occurring Market Adoption (NOMAD) adjustments. While SCE states that the attribution adjustment should be applied, it argues that codes and standards

[132] *Ibid*. at 32.

goals should be maintained as gross by omitting NOMAD (but not ex post realization) in order to make them consistent with the gross IOU program goals.

NRDC supports Staff's proposal provided that the Potential Study is updated to include the best available data, which NRDC states is not necessarily the most recent data or the 2006-2008 evaluation results.

TURN opposes Staff's proposal, stating that "simply adding a large quantity of goals from codes and standards advocacy will not ensure that the transition period will see a new approach to energy efficiency program design and market strategy."[133]

PG&E requests several modifications to the codes and standards model. PG&E recommends that the codes and standards calculation exclude the adjustment to measure life calculation and remain consistent with the 2006-2008 evaluation protocols. PG&E states that the protocols use this approach because, "it is assumed that once a measure is adopted as a result of a code or standard change, the behavior will be repeated until that code or standard is eliminated or updated."[134] PG&E further comments that the proposed compliance rates of 85% for appliances and 83% for buildings are reasonable and should remain constant through 2013 and 2014.[135] NRDC concurs with PG&E, while TURN and SCE oppose the proposed compliance rate, recommending that a more conservative rate should be used.

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[133] TURN Opening Comments on the 2013-2014 Energy Efficiency Goals Ruling at 4.

[134] California Energy Efficiency Evaluation Protocols: Technical, Methodological, and Reporting Requirements for Evaluation Professionals, prepared by The TecMarket Works Team on behalf of the Commission (April 2006) at 97.

[135] PG&E Opening Comments on the 2013-2014 Energy Efficiency Goals Ruling at 4-5.

4.5.4.2. Discussion

We agree with the utilities that the codes and standards savings are overestimated in the draft Goals Proposal, and that they should be adjusted for attribution and realization of verified savings. We do not agree with PG&E's measure life calculation argument or requested modifications to the codes and standards model. Given that the protocol calculates the measure savings under the assumption that "the behavior will be repeated until that code or standard is eliminated or updated," the protocol is structured on a cumulative basis, and does not count only new incremental savings. We observe that the savings values in Table IV of the goal proposal are annual savings. Annual savings represent new, incremental savings in this context. Cumulative savings are accounted for in the cumulative goals adopted by the Commission, but this cumulative calculation is performed separately from incremental savings.

Finally, we agree with PG&E's request to maintain the compliance rates constant at 85% for appliances and 83% for codes. Without any evidence to support an alternative compliance rate, we find that using existing compliance rates is appropriate.

4.5.5. Separate Targets for Goals Components

As noted above, to encourage the utilities to support adoption of energy efficiency into codes and standards, D.05-09-043 determined that IOUs could credit savings from codes and standards advocacy toward their energy efficiency goals. That decision stated that, "these estimates should be treated as basically 'bonus' savings, more like a hedge against inherent risks that other programs may not meet their performance goals."[136] For the 2006-2008 program cycle,

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[136] D.05-04-043 at 91.

codes and standards savings accounted for only 9% of the total savings (356 gWh of the total 4,093 gWh evaluated savings in the portfolio).[137] Thus, in the 2006-2008 portfolio the realization of codes and standards savings as a portion of the total portfolio did indeed act as a hedge, as the policy intended.

To ensure that utilities aggressively pursue energy efficiency strategies beyond codes and standards advocacy, the Goals Proposal recommends that separate targets be set for IOU programs for existing technologies, emerging technologies programs, and codes and standards savings. As the Goals Proposal states:

> While the 2011 Potential Study indicates that [energy efficiency] potential for IOU programs will decline, the savings accrued from codes and standards activity is anticipated to grow substantially. … This proposal is intended to avoid the risk of overemphasis on codes and standards advocacy at the expense of the utility programs that are needed to ensure technologies and building practices are available and affordable as they become required by code.[138]

4.5.5.1. Positions of the Parties

CEEIC, TURN, EnerNoc, and SDG&E/SoCalGas all support the proposal for separate targets for codes and standards; however, CEEIC and EnerNoc recommend that the targets be defined with a degree of flexibility. NRDC, SCE, and PG&E oppose the proposal because, as SCE argues, "the IOUs should

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[137] Table 24, 2006-2008 Energy Efficiency Evaluation Report, at 100. For the 2006-2008 cycle, the utilities received 50% credit for the evaluated codes and standards savings, per D.05-09-043.

[138] "Goals Proposal," Attachment A of 2013-2014 Energy Efficiency Goals Ruling at 9.

maintain flexibility so that they can be held fully accountable to achieve the energy efficiency goal."

NRDC points out that emerging technologies have not been clearly defined. PG&E is concerned that the current work paper process used to calculate energy savings for new measures must be improved to expedite the introduction of new and emerging technologies in the portfolio. SDG&E/SoCalGas state that it is not clear whether the savings will be attributed while emerging technology projects are still in the "investigative" or pilot stage where installations are limited to very few customers willing to participate.

4.5.5.2. Discussion

In the Addendum, the projected codes and standards goals were adjusted gross estimates that represented 64% of the total goals in 2013 and 72% in 2014. Based on the adjustments described in this section, the final codes and standards targets represent 29% of the total goals in 2013 and 28% in 2014. The lower final codes and standards targets lessens the likelihood that the proportional codes and standards savings might overshadow the IOU program efforts; however, we continue to believe it is prudent to develop and hold utilities accountable for separate codes and standards and IOU program goals. The utility role in and programmatic approach towards these two types of efficiency-generating activities are wholly different from one another. It is important that we continue to encourage the utilities to develop the market for new technologies through both emerging technology and mainstream incentive programs. It is equally important that measures are not pushed through to code before they are market ready, and that we do not incent the utilities to do so. For these reasons, we adopt in this decision separate codes and standards advocacy and IOU program goals.

We agree with the intent of the Goals Proposal to provide firm indicators to the IOUs to drive emerging technologies toward market adoption. Emerging technologies are critical to the future of energy efficiency, and as discussed in the section on Emerging Technologies, we have not witnessed the consistent, effective transition of these technologies into mainstream incentive programs in past portfolios. However, we agree that the proposal does not satisfactorily address questions regarding how to define what technologies should qualify to meet the emerging technologies goals, and there is insufficient record to act on this issue at this time. Clearly, a more concerted effort to accelerate emerging technology adoption into mainstream programs is desirable. We will reconsider the role of emerging technologies when we set goals for future portfolio cycles.

4.5.6. Goals Applied on a Net or Gross Basis

The goals originally adopted in D.04-09-060 were applied on a net basis, meaning that IOU credit toward goals was "net" of free ridership. D.08-07-047 adjusted the IOU-specific goals to a gross basis citing an increased opportunity to support more strategic, long-term energy efficiency programs. Defining goals as gross "may open up the opportunity for more program options which support the long-term goals for energy efficiency than the use of net goals."[139]

The Goals Proposal recommended that the Commission maintain the policy established in D.08-07-047 and apply 2013-2014 portfolio goals on a gross basis, as this approach represents "a more expansive definition of goals that seeks to achieve 100% of gross market potential provides the greatest opportunity to achieve the breadth of energy savings that the Commission is

[139] D.08-07-047 at 30.

seeking, and would align with statewide activity to advance the Strategic Plan."[140] The Goals Proposal did not specifically address whether the goals for codes and standards advocacy should be applied on a net or a gross basis.

4.5.6.1. Positions of the Parties

All parties except TURN support the Goals Proposal recommendation to maintain gross goals for IOU programs. TURN argues that it provides incentive for the IOUs to continue to focus on easier-to-achieve, short-term annual savings, e.g., from Compact Fluorescent Lamps, at the expense of more complex and longer-term savings.[141] SDG&E/SoCalGas support gross goals, but argue that the requirement for a cost-effective portfolio should be applied on a gross basis as well, due to the additional costs necessary to achieve the Strategic Plan initiatives.[142]

The IOUs point out that the numerical values presented in the Goals Proposal for codes and standards savings were calculated on an adjusted gross basis, which did not include an adjustment for IOU attribution or for NOMAD as defined in the California Energy Efficiency Evaluation Protocols.[143] SCE further argues that codes and standards goals should be gross in order to be consistent with IOU program goals. TURN and CEEIC question whether it is accurate to assess codes and standards goals on a gross basis and requests further clarification.

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[140] "Goals Proposal," Attachment A of Energy Efficiency Goals Proposal Ruling at 10.

[141] TURN Opening Comments on the Energy Efficiency Goals Proposal Ruling at 6.

[142] SDG&E/SoCalGas Opening Comments on the Energy Efficiency Goals Proposal Ruling at 12.

4.5.6.2. Discussion

Because we expect the IOUs to support more strategic, statewide long-term energy efficiency programs in the portfolio design, it is reasonable to continue to set IOU program goals on a gross basis. However, we disagree with the utilities that codes and standards goals should be established on a gross basis to be consistent with gross IOU program goals. As discussed above, the nature and design of codes and standards and IOU programs are fundamentally different, and there is no inherent reason why their goal structures should be aligned. As the Commission stated in D.08-07-047, the purpose of gross goals for IOU programs is to support more strategic long-term energy efficiency programs and to encourage the IOUs to take an expansive approach toward program design by leveraging other entities in the state to maximize savings opportunities, as outlined in the Strategic Plan. Conversely, the purpose of codes and standards goals is to give the IOUs credit for their specific contributions to new energy savings via their codes and standards advocacy work, which should not include naturally occurring savings or the advocacy work of other entities. As discussed above, we adopt codes and standards goals on an adjusted net basis.

Finally, we reject SDG&E/SoCalGas's request to apply the portfolio cost-effectiveness requirements on a gross basis. As stated above, we do not believe it is reasonable for the portfolio to include free riders in order to meet its cost-effectiveness requirements, as this runs counter to our statutory mandate to pursue all cost-effective energy efficiency.

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[143] The Evaluation Protocols can be viewed at http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/EM+and+V/.

4.5.7. Annual and Cumulative Goals

D.04-09-060 established both annual and cumulative goals, with cumulative savings representing the annual savings from energy efficiency program efforts up to and including that program year.[144] Cumulative goals encourage IOUs to invest in long-lived energy efficiency measures that produce persistent savings and are also needed for planning purposes, such as for supply-side procurement decisions.[145] Cumulative goals include savings that persist from prior cycles and, conversely, hold the IOUs responsible for shortfalls in annual savings in previous years and/or replacement of savings that have expired or "decayed."

The concept of decay concerns what happens to energy savings at the end of the expected useful life (EUL) of a measure. When measures installed in past years are no longer installed and operating, the savings from those measures are no longer available on the grid unless the customers choose to maintain or improve the efficiency of the original equipment. This choice affects the savings available for the IOUs to achieve their cumulative goals. If IOU programs have successfully induced behavioral changes such that the customer replaces the equipment with another efficient unit without participating in an IOU program, then past savings should be considered to persist and be included in (and count towards) savings to achieve cumulative goals. In D.07-10-032, the Commission began to address this issue by clarifying the definition of cumulative savings and recognizing three ways the IOUs could maintain decayed savings from expiring past measures: repeating the programs, promoting measures with longer lives,

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[144] D.04-09-060 at 10.

[145] D.08-07-047 at 9.

or achieving market transformation (i.e., a market state in which like-kind efficiency measures are the norm without program intervention).[146] In D.09-05-037 we acknowledged a high likelihood that some (50%, pending review) of the decayed savings were already being replenished due to continued influence of the programs on consumer behavior. D.09-05-037 gave the IOUs credit towards their cumulative savings goals for the 50% of decayed savings from past programs that was assumed to be replaced with like-kind efficiency measures by "market transformed" customers without re-participation in a utility efficiency program, and held the IOUs accountable to replenish the other half of the savings to meet their cumulative goals.

The Goals Proposal recommended that cumulative goals for the 2013-2014 transition portfolio be based exclusively on:

- The annual goals for 2013-2014;
- Recovery of unmet goals based on 2010-12 ex-ante planning assumptions pursuant to D.11-07-030 and D.10-12-052; and
- Recovery of savings from the effects of decay.

The proposed cumulative goals also include the persistent savings from 2006 through 2012, using evaluated results from 2006-2009, and the ex-ante reported savings to date for the 2010-2012 cycle. Persistent savings are the remaining cumulative energy savings after the effects of decay have been removed. However, the proposed goals do not include recovery of savings from unmet goals prior to 2010, or recovery of any shortfalls relative to 2010-2012 ex-post savings in the event evaluation results in downward adjustments. In the

[146] D.07-10-032 at 75-77.

Goals Proposal, Staff recommends the omission of these savings requirements, because:

> While the IOUs achieved their goals using the ex-ante assumptions upon which the 2006-2008 portfolios were based, the 2006-2008 ex post values adjusted savings downward by 40%.[147] For the current cycle, the goals received just a 5% downward adjustment for PG&E and SCE and a 25% adjustment for SDG&E. Therefore, the difference between goals and evaluated savings represents a change in the expected achievable potential since the original potential study—potential savings that is no longer forecasted to exist. Therefore, it is no longer reasonable to expect the IOUs to achieve these savings.[148]

While the Goals Proposal did not recommend that the IOUs continue to be held responsible for recovery of pre-2010 cumulative goals, the forecasted cumulative energy savings would still need to be calculated for procurement planning purposes. Commission Staff clarified that the IOUs should still be expected to achieve their 2010-2012 goals based on frozen ex ante values, and that ex post evaluations would continue to update the planning assumptions for the following cycle. Accordingly, Navigant modeled savings decay in the final Potential Study report.

4.5.7.1. Positions of the Parties

All parties except PG&E support the proposal for cumulative and annual goals. PG&E argues the cumulative savings calculations are not transparent and are derived in large part from the Commission's current theory of decay, which the Commission previously acknowledged has not been clearly defined and may

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[147] 2006-08 Energy Efficiency Evaluation Report can be found at http://eega2006.cpuc.ca.gov/ERT.aspx.

have large program impacts.[149] PG&E recommends that decay and interactive effects should be set to zero until the correct values can be vetted, because they are currently based on assumptions that overstate the values.[150]

SCE supports the Goals Proposal, but states that it diverges from the specific approach to decay adopted in D.09-05-037 and D.09-09-047. These decisions required recovery of decayed savings starting in 2006, whereas the Goals Proposal alters the base year of the existing cumulative framework from 2006 to 2010.[151] SDG&E/SoCalGas also request clarification regarding whether there was decay in interactive effects.[152]

NRDC recommends that "the Commission more fully define 'decay' and 'decay replacement,' as it has yet to be clearly articulated both for resource planning as well program planning purposes. For example, how will the proposed decay replacement (1) relate to future market potential (e.g., does it reduce future market potential or is it a separate 'bucket'), (2) affect achievement of future annual savings goals (e.g., is decay incremental or included in future goals), and (3) incorporate the findings from the forthcoming study directed in D.09-05-037 to evaluate a reasonable estimate of decay."[153]

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[148] Energy Efficiency Goals Proposal at 11.

[149] PG&E Opening Comments on the 2013-2014 Energy Efficiency Goals Ruling at 7.

[150] PG&E Reply Comments on the 2013-2014 Energy Efficiency Goals Ruling at 4.

[151] SCE Opening Comments on the 2013-2014 Energy Efficiency Goals Ruling at 8.

[152] SDG&E/SoCalGas Opening Comments on the 2013-2014 Energy Efficiency Goals Ruling at 12-13.

[153] NRDC Opening Comments on the 2013-2014 Energy Efficiency Goals Ruling at 12.

4.5.7.2. Discussion

Our adoption of cumulative goals in the past was intended to encourage the utilities to focus on measures with longer design lives by requiring them to recover savings that would otherwise decay when energy efficiency measures burned out. As evidenced by much of the direction provided in this decision, we remain committed to encouraging the utilities to focus their portfolios on long-term savings.

However, based on many comments on the treatment of decay in the cumulative goals provided in the proposed decision, it is evident that there are many challenges associated with accounting for decay that must be addressed prior to including it in utility goals in a meaningful and robust manner.

We therefore will adopt only annual goals for the 2013-2014 transition portfolio, with the intention of developing a better understanding of the sustained impact of the utility programs (including decay and market transformative effects) to encourage programs that will have lasting impacts and to hold utilities accountable for long term savings in future portfolios.[154]

4.5.8. Adopted 2013-2014 Goals

The adopted 2013-2014 Goals are provided in the table below. Based on the final update to the potential study.[155] A "foreword" has also been added to

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[154] We note, too, that cumulative energy efficiency savings estimates are needed for use in long-term procurement planning, even if they are not explicit utility goals. Therefore, we direct Commission staff to continue to work with the CEC, the utilities, and other stakeholders to improve our methodologies for estimating cumulative energy efficiency savings, including whether and how decayed utility program measures are replaced.

[155] The final potential study is available at: http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/Energy+Efficiency+Goals+and+Potential+Studies.htm.

the potential study that describes the sources of the goals and identifies the respective tables from which the various goal components were obtained.

2013-14 Electric Goals	PG&E		SCE		SDG&E	
	2013	2014	2013	2014	2013	2014
Annual electricity savings (GWh/yr)						
IOU program targets	~~639~~599	~~614~~593	~~695~~660	~~700~~678	~~179~~162	~~164~~156
Codes and Standards Advocacy	276	262	285	270	65	61
Total Annual Targets	**~~915~~876**	**~~876~~855**	**~~980~~945**	**~~970~~949**	**~~244~~227**	**~~226~~217**
Annual peak savings (MW)						
IOU program targets	~~123~~114	~~105~~100	~~157~~149	~~148~~144	~~40~~36	~~34~~33
Codes and Standards Advocacy	36	38	37	40	8	9
Total Peak Savings Targets	**~~159~~150**	**~~143~~139**	**~~194~~187**	**~~188~~183**	**~~48~~45**	**~~43~~42**

Adopted 2013-2014 Natural Gas Savings Goals

2013-14 Gas Goals	PG&E		SoCalGas		SDG&E	
	2013	2014	2013	2014	2013	2014
Annual natural gas savings with interactive effects (MMMT/yr)						
IOU program targets	~~20.8~~21.0	~~20.2~~20.3	24.0	22.3	2.2	2.1
Codes and Standards Advocacy	1.1	1.6	1.8	2.5	0.1	0.2
Total Annual Targets	**~~21.9~~22.1**	**~~21.7~~21.8**	**25.8**	**24.9**	**2.3**	**2.3**
Annual natural gas savings without interactive effects (MMMT/yr)						
IOU program targets	21.9	21.1	24.0	22.3	2.5	2.4
Codes and Standards Advocacy	2.8	3.0	4.5	4.7	0.3	0.3
Total Annual Gas Targets	**24.7**	**24.0**	**28.5**	**27.1**	**2.8**	**2.7**

5. Financing

For energy efficiency financing matters, our investigation into the program design and implementation issues is relatively recent compared to some of the program areas with which the Commission and parties have a much longer

history. Therefore, we anticipate developing further direction in the area of energy efficiency financing throughout 2012 as we consider the utilities' program portfolio applications and a statewide expert financing contractor is hired to design further strategies as described later in this decision. Therefore, for purposes of this decision, our aim is to provide a framework to guide further design efforts around energy efficiency financing for 2013-2014 and beyond.

We have learned that, in general, developing energy efficiency financing programs and solutions is a complex undertaking, and involves the intersection of at least five different worlds:

1. Federal and state laws and regulations affecting lending, payment collections, and security of real property.
2. Financing structures and repayment histories that must be transparent and able to be risk-assessed by originating credit markets, as well as secondary capital markets, to turn over portfolios of loans.
3. Utility and state-directed energy efficiency programs and their technical elements to measure and maximize the energy savings performance of project investments (also referred to as quality assurance).
4. Energy efficiency marketing and sales activities to drive project transactions, primarily driven by contractors, vendors, and energy service providers, who are concerned about high conversion rates from sales prospects to closed sales, managing overhead costs, and getting prompt payment.
5. Consumer protection and low-income services advocacy.

We expect this list provides all the more reason to embark on a path to test out financing products and means of delivery, as well as utilize outside experts to help engage stakeholder input into program designs, and then to scale up successful mechanisms.

5.1. Background

The Commission has a relatively short history with energy efficiency financing. During the 2010-2012 portfolio cycle, we have made some progress to advance our thinking. Most notably, D.09-09-047 directed Commission Staff to explore a wide range of additional financing possibilities and oversee preparation of a report that recommends the most-promising approaches that should be considered in California for underserved segments of energy users. D.09-09-047 envisioned a series of workshops and meetings that engaged key actors and secured industry perspectives. Last, D.09-09-047 directed Commission Staff to prepare an assessment and plan that ensures effective financing instruments are available to all energy users in the state that can facilitate achievement of the high levels of energy efficiency that California needs.

Additionally, AB 758 (2009, Skinner and Bass) directed the Commission to investigate the ability of electrical corporations and gas corporations to provide energy efficiency financing options for comprehensive energy retrofits for residential and non-residential customers in the existing building stock. Finally, the Strategic Plan called for a number of near term (2009-2012) strategies related to financing of energy efficiency. These included:

- Creating innovative financing programs for the construction of energy efficient homes and buildings;
- Using finance tools to encourage the demand of energy efficiency building products, systems, and appliances; and
- Convening a task force on financing with particular attention to issues of multifamily housing and paying for actions with longer-term paybacks.

In November 2010, Commission Staff convened two days of workshops to discuss energy efficiency financing needs and mechanisms to begin to

accomplish both the Commission's and the Legislature's directions to identify meaningful approaches for energy efficiency financing.

In July 2011, Commission Staff released a report by Harcourt Brown and Carey entitled Energy Efficiency Finance in California: Needs and Gaps to continue to accomplish the mandates set out by the Commission, AB 758 and the Strategic Plan. In the report, Harcourt Brown and Carey conducted a needs and gaps assessment, and made findings and recommendations for the most effective approaches to facilitate capital investment in energy efficiency.

On October 25, 2011, an Amended Scoping Memo and Ruling laid out direction for the 2013-2014 energy efficiency program cycle. Among many other issues, the October 25, 2011 Assigned Commissioner Ruling (ACR) and Scoping Memo emphasized energy efficiency financing as a way to achieve deeper energy retrofits across all sectors by leveraging private capital, in addition to using ratepayer funds to support energy efficiency.

On January 10, 2012, an ALJ ruling on energy efficiency financing was issued that included a Staff proposal suggesting the development of a larger efficiency financing program, supported with both ratepayer funds and private capital funds. Specifically, the ruling included a Staff proposal for the 2013-2014 program cycle that entails: 1) the development of an on-bill repayment (OBR) structure, 2) the offering of ratepayer-supported loan products, 3) continuation of on-bill financing (OBF) on an interim basis while new financing products are developed and introduced, and 4) creation of an energy loan and project performance database. The goals of the Staff proposal were to:

- Expand access to credit and capital among utility customers / energy end users to help achieve the energy savings goals laid out in the Strategic Plan.

- Ensure financing mechanisms offer attractive interest rates that hold appeal to the prospective borrower (energy improvement sponsor) and sufficient term length. Both factors can help ensure the combined cash flow of debt repayment and bill savings is neutral or at least manageable.
- Increase market penetration in commercial leased space and rental housing, where occupancy tenure can be short, by adopting a finance mechanism conducive to repayments being connected with the property. This means that successor occupants and owners would remain the beneficiaries of the energy improvements and continue to pay off any facility-based energy improvement debt obligations, instead of the original borrower who may have since moved out.

The ruling described the process for considering the Staff proposal and posed a number of questions to discuss at workshops and via two rounds of party comments. February 8-10, 2012, Commission Staff convened three days of workshops to discuss the Staff proposals and associated issues.

In parallel with these procedural developments, several financing-related activities were underway by the utilities and the marketplace to make available additional financing options for customers. These include:

- The full-scale launch of the OBF programs in the current utility program portfolio cycle. The program is 100% funded by ratepayers and available to non-residential customers for up to five-year loans (up to 10 years for institutional customers) at 0% interest.
- Property Assessed Clean Energy (PACE) assessment financing, where energy-related assessments were repaid as part of local property taxes. Upon launch, PACE was expected to be the "silver bullet" perfect solution, offering affordable interest rates due to the security tied to property, and repayment from the current property owner. In the residential market, this program was thwarted by concerns from federal housing mortgage authorities over lien placement and the potential impact on federally-backed mortgages. In the California's commercial market, some PACE activities are proceeding such as in Los

Angeles, Placer, and San Francisco counties. We remain hopeful that PACE will succeed in the near future in both the residential and commercial markets. Had PACE proceeded as fast as initially appeared, it is likely we would not be undertaking such an intensive approach here to identifying other financing options. But at this point in time, we cannot count on PACE being available on a large enough scale to significantly aid in achievement of the energy savings goals laid out in the Strategic Plan, especially in the residential markets.

- American Recovery and Reinvestment Act stimulus-funded financing program initiatives (at least eight in California) in 2011-2012 enabled experimentation with different target markets, loan repayment terms, loan originators, and loan program administrators.

5.2. Positions of the Parties

On January 25, 2012 twenty-three parties filed first-round comments on the January 10, 2012 ALJ ruling on energy efficiency financing, mostly related to policy goals and the preferred overall financing framework. Those parties are: BCLBE; Beutler Corporation; Build it Green; California Association of Realtors; California Center for Sustainable Energy (CCSE); CILMT; City of San Diego; Commercial Energy; Efficiency Council; Environmental Health Coalition; DRA; Greenlining Institute/Green For All/ Ella Baker Center for Human Rights (EBCHR); LGSEC; Metrus; NCLC; NRDC; PG&E; Renewable Funding; SCE; SDG&E/SoCalGas; SolarCity; TURN; and WEM.

On January 30, 2012 eleven parties filed reply comments to the first round comments of others, including: Beutler Corporation; DRA; Environmental Health Coalition; Greenlining Institute/Green For All/EBCHR; LGSEC; NCLC; PG&E; SCE; SDG&E/SoCalGas; TURN; and WEM.

On February 22, 2012, seventeen parties filed second-round comments on the January 10, 2012 ALJ ruling on financing, on issues raised in workshops and

questions in Section 6B and 6C of the ruling, related to program design and implementation details. Those parties are: California Association of Realtors; CCSE; CILMT; CHPC; DRA; ETA; Greenlining Institute/Green For All/ Ella Baker Center for Human Rights; LGSEC; NCLC; NRDC; PG&E; Pulse Energy; SCE; SDG&E/SoCalGas; SolarCity; TURN; and WEM.

On February 29, 2012, ten parties filed reply comments to the second round including: CCSE, CHPC, DRA, LGSEC, National Consumer Law Center, PG&E, SCE, SDG&E/SoCalGas, SolarCity, and TURN.

Comments received on January 25 indicate that most parties (Greenlining/GFA/EHCHR, LGSEC, NRDC, SolarCity, and TURN) are generally supportive of the Staff Proposal's emphasis on OBR, with the exceptions being DRA and the IOUs. For example, Greenlining/GFA/Ella Baker Center for Human Rights (EBCHR) said say they supported OBR over OBF because: "OBR attracts private capital…. OBR has the potential to attract sufficient resources to bring financing programs to scale and realizing the full potential of energy efficiency improvements. OBF, on the other hand, uses finite ratepayer funding which imposes limits to the scale programs can reach." DRA opposes OBR for the increased risk of disconnection that it poses to residential customers and because it feels that ratepayer-funded credit enhancements offered via California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA) without utility involvement in financing would be a better program model.

The utilities generally oppose the Staff Proposal's dedication of $140 million to (non-OBF) financing activities over the 2013-2014 transition period, citing, among many other things, concerns about its impact on the overall cost-effectiveness of their portfolios. The utilities vary somewhat, however, in their

willingness to explore options and experiment with alternative program offerings. SDG&E/SoCalGas signal openness to continuing to explore OBR as a new financing tool, and offer a list of lending requirements and constraints that would need to be addressed prior to launching full-scale efforts. PG&E also offers thoughtful and considered concerns about the legal constraints that would apply currently to OBR, particularly in the residential market. SCE also conceptually supports moving away from utilizing only ratepayer funds to support energy efficiency loans and toward more reliance on private capital, but offers the most conservative perspective on the elements of the Staff proposal of any of the utilities, holding up the specter of the housing crisis as a cautionary tale.

The IOUs' comments also convey the preference that a more modest budget and scope of activity should be put in place for 2013-2014 to conduct market research, investigate identified barriers, and pilot line-item billing (LIB) projects for some commercial customers. LIB is an approach where utilities would list third-party payment amounts on the utility bill on behalf of a product or service provider, but, unlike with OBR, the utilities would not be responsible for the collection of any unpaid debts from those line items. The utilities would simply offer the convenience of billing alongside energy commodities, but would not be responsible or involved in any way with the purpose of the debt, its origination, or bad debt collections.

Regarding OBR, many other parties raised numerous legal, policy and operational concerns and questions related to attachment of the debt to the meter, disconnection of utility service for nonpayment to third-parties, transference of the debt obligation to the next tenant or owner, and notification of landlords and successor owners or tenants.

Notably, the IOUs and DRA identify two sections in the PU Code - Sections 777.1(e)(3) and 779.2(a) - that affect the offering of OBR programs to residential customers because they prohibit termination of residential service for non-payment to a third-party.

PU Code Section 777.1(e) reads:

> If a corporation furnishes residential service subject to subdivision (a) (master metered properties), the corporation shall not terminate that service in any of the following situations:… (3) for indebtedness owed by the customer to any other person or corporation or if the obligation represented by the delinquent corporation other than the electrical, gas, heat or water corporation demanding payment therefore.

PU Code Section 779.2(a) reads:

> No electrical, gas, heat, telephone or water corporation may terminate residential service for nonpayment of any delinquent account or other indebtedness owed by the customer or subscriber to any other person or corporation or when the obligation represented by the delinquent account or other indebtedness was incurred with a person or corporation other than the electrical, gas, heat, telephone or water corporation demanding payment thereafter.

Many parties, particularly CHPC, Greenlining, DRA, TURN and the IOUs, oppose disconnection being allowed for OBR for residential customers, particularly low-income customers (those that qualify for CARE[156]), due to concerns about keeping general levels of service disconnection low and fears that

[156] CARE is the California Alternate Rates for Energy program, which provides assistance and rate relief to qualified low income customers.

lower-income households could find themselves overburdened with energy improvement debt.

In addition to the comments and suggestions discussed above, in the January 25 comments parties identified additional elements that they assert should be added to the Staff Proposal on energy efficiency financing. These suggestions include:

- The inclusion of quality installation requirements into finance program design to ensure development of high-quality green jobs (Greenlining, Green For All, and the Ella Baker Center for Human Rights).
- Recognition of existing American Recovery and Reinvestment Act-funded energy efficiency finance programs that involve local governments and the recommendation that future financing activities should be conducted on a regional basis by local government regional energy networks (LGSEC).
- Specification of what happens procedurally when utility service is disconnected due to nonpayment, and how utility service can be re-established (NCLC).
- Refinements to the Staff Proposal's recommendation to create an energy loan performance database to collect and share aggregate energy savings data with entities that provide financing (NRDC, PG&E, and Renewable Funding).
- Recommendations for whether and how to offer financing to customers with poor/low credit histories (SDG&E/SoCalGas, SCE and Greenlining/GFA/EBCHR).

5.3. Discussion

As is apparent from the January 10, 2012 ALJ ruling on financing, multiple rounds of comments from parties, and three full days of workshops hosted by Commission Staff, energy efficiency financing is an extremely complex and multi-faceted issue. This topic brings together the interests of a diverse set of entities within and among the following categories: large and small financial

institutions, banks and credit unions; customer groups and customer segments; contractors, consultants, energy services companies, and energy efficiency and solar vendors and manufacturers; utilities and third-party implementers; local governments and state agencies; and non-profit advocacy organizations.

As articulated in the January 10, 2012 ALJ ruling on financing, the opportunities offered by an increased emphasis on financing for achieving greater levels of energy efficiency are not new. Emphasis on financing alternatives dates to the 1970s; financing offers the potential of overcoming numerous economic barriers to the adoption of deeper levels of energy efficiency.

Commission Staff hosted the workshops to explore new options for offering financing for energy efficiency to try to achieve the following potential major benefits:

- Overcoming the "first cost" of energy efficiency upgrades;
- Leveraging ratepayer funds by bringing in private capital;
- Increasing sales of energy efficient products and services;
- Reaching a broader set of customers and market segments; and
- Encouraging customers to invest in projects that will achieve deeper energy savings.

If achieved, all of these benefits will result in much higher levels of energy efficiency in California. In addition, the financing offerings need not be limited to energy efficiency, and can support all types of demand-side investments, including energy efficiency, demand response, distributed generation, and storage. To achieve this public interest, our challenge is to design a set of program offerings that will meet the private needs of all or most of the diverse market players discussed above. To make this happen, it quickly becomes apparent that there is no "one size fits all" approach that will work for all

customer segments and all market actors. Instead, a portfolio of approaches will be necessary.

In addition, due to the complexity of the legal, policy, and practical issues surrounding design of financing options in various markets, it seems prudent to design an approach where financing programs and budgets can ramp up over time based on practical experience and market participation by various customer segments.

In keeping with these principles of diversity and scalability, we require the utilities to propose in their 2013-2014 program applications a portfolio of financing options (to become a new "statewide" category, with a portfolio of financing programs implemented consistently by all of the utilities) consisting of the following three types of programs to be funded at a level of at least $200 million over 2013-2014:

1. Continuation of and improvement to the on-bill financing (OBF) programs currently in the utility 2010-2012 portfolios for non-residential customers.[157]
2. Continuation of successful financing programs that were originally supported by American Recovery and Reinvestment Act stimulus funding in 2011 and 2012 and implemented by third-parties and local governments, in some cases administered by or through the California Energy Commission.[158]

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[157] As of this date the utilities have authorization in the current cycle to spend approximately $70 million on OBF loans, including the March 8, 2012 augmentation authorized to SCE's OBF budget in Resolution E-4473.

[158] The CEC reports oversight on some $40 million of American Recovery and Reinvestment Act funds committed to local financing of efficiency, of which $37 million came from the State Energy Program administered by the CEC and $3 million came from Energy Efficiency Community Block Grant funds.

3. A set of new financing programs to be designed in 2012, and then offered consistently on a statewide basis, in pilot form in 2013, and at a larger scale in 2014.

In addition, we require the utilities to develop a database or contribute to a larger database of financing-related information (including, but not necessarily limited to, credit scores, bill payment history, debt repayment history, estimated and actual energy savings), along with an approach to sharing this information in a manner that will preserve individual customer confidentiality while still meeting the needs of interested financial entities and others for additional data.

Each of these areas is discussed in more detail in a separate section below.

5.3.1. Continuation of OBF Programs

A number of parties in their comments, including PG&E, WEM, SDG&E/SoCalGas, NRDC and TURN, support continuation of the OBF programs for the non-residential market. In the cases of SDG&E/SoCalGas and SCE, the program appears to be quite successful if measured by the level of customer interest and the recent need to shift funds into the program to meet market demand. In the case of PG&E, their program implementation lagged behind the other utilities but appears to be gaining in popularity. SoCalGas seems to face some barriers related to its status as a natural gas-only utility that may be able to be addressed in 2013-2014 through methods to engage with SCE in supporting joint gas/electric improvement projects, or considering extending loan terms to better match the cash flow of savings from longer-lasting improvements. Still, overall, OBF is a strategy that is serving some customers very successfully.

The downsides of the current OBF program are that: 1) it is not leveraged, i.e., it is funded 100% by ratepayers without augmentation by private capital and is therefore limited in size and cannot fully meet customer market demand, and

2) it has been heavily marketed by some efficiency product vendors predominantly to finance lighting projects and has not yet enabled many deep and more comprehensive retrofits. However, over time loan funds are paid back and meanwhile customers can take advantage of easy access to capital and 0% interest rates.[159]

Since the OBF program required considerable effort to implement and appears to be making good progress at reaching some types of customers (especially small businesses and governmental organizations), we direct the utilities to propose in their portfolios for 2013 and 2014 an OBF program and budget for each year at a level equal to or greater than the amount of OBF funding reserved by non-residential customers in 2012. In addition, we invite the utilities to propose any program design or implementation changes they believe will make the program even more successful in 2013-2014 for customers who most need access to capital. We also stress that we expect the OBF program to be proposed and implemented as a uniform program statewide, which it is not currently.

For example, SDG&E has already limited loan terms for lighting-only projects, offering longer loan terms for projects that are more comprehensive. This is the type of modification we support. We also suggest close attention to and analysis of how OBF can be offered in combination with rebates and incentives, and whether those up-front incentives may be scaled back and/or

[159] As articulated in D.09-09-047, because of the prospect for high levels of repayment, loan capital need not be counted as an "expenditure" in cost-effectiveness analysis; only actual losses from defaulted OBF loans need to be treated as a programmatic expenditure by utilities.

offered as alternatives to financing, to maximize overall portfolio cost-effectiveness in the non-residential markets.

5.3.2. Continuation of American Recovery and Reinvestment Act Financing Programs

During the past few years, half a dozen or more financing programs have been offered in California with the support of American Recovery and Reinvestment Act stimulus funds and delivered by a combination of local governments and third parties, some in conjunction with existing financial institutions. Several individuals representing these programs were presenters at the workshops February 8-10, 2012, representing loans to both consumers and commercial properties.[160] In addition to the OBF program described above, these efforts represent a good start toward developing experience and data that can help provide a bridge toward larger and more leveraged financing programs in the future.

So far, the American Recovery and Reinvestment Act -funded financing programs have been fairly diverse and distributed geographically throughout the state. Some programs have shown a great deal of success at reaching target markets, offering reasonably low interest rates, and achieving real energy-saving projects. In many cases, the programs were designed by or with local

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[160] Presenters included CRHMFA Homebuyers Fund, Los Angeles County, Santa Barbara County, and the Town of Windsor in Sonoma County. Additionally, a summary of lessons learned included the experience of additional organizations that sponsored financing programs including: CCSE, Ecology Action, Heschong Mahone Group (for San Diego, Sacramento, and San Francisco), City of Los Angeles, Placer County, Renewable Funding (for Los Angeles and other American Recovery and Reinvestment Act-funded programs), City/County of San Francisco, Sacramento Municipal Utility District, and Sonoma County.

governments, utilizing local credit unions that serve particular, usually local, populations. A few have used American Recovery and Reinvestment Act funds as no-cost capital, or to write down otherwise higher lender-set interest rates, while still taking advantage of any applicable utility rebate programs. Each has its own set of rules surrounding eligible measures, interest rates, loan terms, credit score requirements, etc.

In the long term (2015 and beyond), our goal is develop a standardized set of financing program rules and requirements that can be utilized statewide for different types of consumers so that California can attract a larger amount of private capital from bigger banks and/or sales of loans on a secondary market, bringing even more capital to bear on encouraging energy efficiency projects. CCSE put it this way in their February 22, 2012 comments: "In order to participate in a meaningful way, financial institutions would need to see that any Commission-supported program is scalable and standardized such that energy efficiency loans could be purchased and sold with some frequency in secondary capital markets."

To make that happen, however, we need to continue developing loan and project performance data and experience to share with larger capital market players to ensure their confidence in both debt repayment behavior and the cash flow profile of energy savings associated with the projects. Continuing successful distributed programs, preferably with more standardized risk profiles and whose characteristics are potentially scalable to a broader market, will help us develop that data and experience.

Thus, we require the utilities to propose in their 2013-2014 program portfolios to set aside a specific amount of funding and administrative support for continuing and augmenting previously American Recovery and

Reinvestment Act-funded programs that can help establish this performance record. As further discussed in the Section on Statewide ME&O, utilities are required to utilize between $5 and $10 million from the 2010-2012 statewide ME&O budget to augment funding for some types of programs, among them financing programs, in 2012. Utilities should choose for continued funding in 2012, as well as in 2013-2014, those programs that best exemplify the following criteria (utilities may also add additional criteria):

- Potential for scalability to larger target markets.
- Ability to leverage ratepayer funds (e.g., with reasonable budgets for outreach to prospective borrowers or for modest levels of credit enhancement) with private loan capital.
- Ability to test unique and/or new program design and delivery options (i.e., effects of requiring bill neutrality, offering longer loan terms, assessing tradeoffs between rebates and financing, etc.)
- Ability to serve previously-unserved or under-served markets (such as multi-family residential, for example).
- Ability to offer low interest rates to consumers, including loan programs that make use of "flexible capital" (from foundations, small business sources, etc.).
- Effective utilization of total combined ratepayer funding support from all sources – utility programs, local or state government partnerships, third-party programs, and financing (in other words, in the vernacular: "best bang for the buck").

5.3.3. Design of New Financing Strategies

In addition to the requirements above, the 2013-2014 program portfolios offer an opportunity to make significant progress toward our longer-term goal of developing new, scalable, and leveraged financing products to offer to consumers to help them produce deeper energy efficiency projects than we have

previously achieved utilizing mostly traditional program approaches such as audits, rebates, and information.

We acknowledge, however, that despite recent strides, designing and delivering financial products within a complex landscape of legal, regulatory, policy, and practical constraints is not, in most cases, the core competency of either utility energy efficiency program Staff or Commission regulatory Staff. Thus, to help the Commission accomplish its policy goals and help the utilities design successful strategies for different types of customer segments, it is clear that additional expertise will be needed.

In addition, because one of our goals is to have a large-scale and consistent statewide approach in order to eventually attract additional private capital to help provide funding, our preference is to have one utility be responsible for acquiring the additional expertise needed to help with new program design, on behalf of the other utilities and the Commission. For this role, we select the Sempra utilities, SDG&E and SoCalGas, due to their excellence in designing and delivering the OBF program currently, as well as several related innovative programs in the past. The SDG&E/SoCalGas Staff also has excellent experience from their design and implementation of the most successful OBF program to bring to bear on these new areas.

We realize that this is a tall order for a relatively small utility with limited resources to undertake on behalf of multiple stakeholders, state agencies, and the other utilities. We considered the option of dividing responsibility for the new financing program areas among all four utilities. However, ultimately, since we are trying to move away from financing offerings as "utility" programs funded by ratepayers and toward a model utilizing mostly private capital, we think it is in the best interests of all stakeholders to have one utility hire an expert financing

consultant to conduct both the program design efforts and the necessary stakeholder engagement.

To help move this effort forward, we require SDG&E/SoCalGas to hire an expert financing consultant as soon as possible in 2012, no later than August 1, 2012. This effort should be co-funded by all of the utilities and may come either from unspent 2012 program funds and/or 2013-2014 funding. In the meantime, Commission Staff and/or consultants should be able to work with SDG&E/SoCalGas staff to start the program design and continue the stakeholder engagement process. The SDG&E/SoCalGas consultant's objective will be to convene a set of two or more working groups to help design pilot programs in certain market segments in 2012 to be launched in 2013. The minimum two working groups will be designed to address:

- Program design issues for new financing programs.
- Energy project and loan performance data collection and dissemination issues.

It may make more sense for the first working group above to be divided up into multiple groups organized by market segment, with a working group for each of the program areas further detailed below. It also could be helpful to designate additional working groups or sub-groups to apply specialized knowledge to such issues as the best ways to address legal/statutory changes or regulatory approvals or waivers, protocols for billing and payment aggregation, and determining roles and potential institutional responsibilities to perform the necessary functional roles from borrower outreach and education to capital provision, loan origination, and credit enhancement.

We leave the identification of and assignment for these tasks and choices to the discretion of SDG&E/SoCalGas and the consultant hired, in consultation with Commission Staff and other appropriate agencies and stakeholders. We

also note that Commission Staff have worked with Lawrence Berkeley National Laboratory personnel who developed a preliminary analysis tool that could be helpful in identifying the effective leverage and cost of alternate financing program structures, and then in using this information to shape a portfolio of funds devoted to existing and new financing programs.[161]

We also expect SDG&E/SoCalGas and their consultant to consult with the local governments and their partners with financing program development experience gained in the past few years through PACE and American Recovery and Reinvestment Act funded programs.

In comments on the proposed decision, a number of parties, including all of the utilities, expressed concern that the timeline we have identified is too accelerated to allow for meaningful program, design, pilot testing, evaluation, and then full-scale launch of new programs. We cannot emphasize enough the level of priority we place on moving forward with new financing programs.

For the second area identified above related to collection and dissemination of data, while the expert consultant can help facilitate a working group to help identify the data that can be collected and shared, the utilities already collect considerable data related to existing financing programs. Thus, as discussed in more detail below, we also require the utilities to begin the process, in parallel, of developing for California or possibly in collaboration with a possible national approach, a database of financing-related project performance

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[161] The energy efficiency financing impacts calculator was described and illustrated at the February 10, 2012 public workshop. The presentation is available at: http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/

and repayment data that will become the repository of all of the data agreed-upon in the working group that should be collected and shared.

After reviewing multiple rounds of parties' comments on the January 10, 2012 ALJ ruling on financing, as well as experts' comments at the workshops, we are selecting a few promising market segments for which we require the utilities and the consultant hired by SDG&E/SoCalGas pursue the design and development of financing program options to be piloted in 2013 and scaled up in 2014. These are:

Residential Market

1. A credit enhancement strategy for the single-family residential market.
2. A financing program strategy designed specifically for the multi-family residential market that includes both credit enhancement and an on-bill repayment option (and/or tariff-based energy efficiency improvement reimbursement mechanism) that may require legislative change to fully implement. Variations in program structure or terms may be appropriate to ensure the ability to engage customers and building owners from both a) low-moderate income and b) moderate-high income multi-family residential market segments.

Non-residential Market

3. A credit enhancement strategy for the small business market.
4. An on-bill repayment (OBR) strategy for all non-residential customers.

In addition, we order the development of the financing-related database for collection and sharing of relevant data. Each of these activities is discussed in more detail in the subsections below. Note that this list does not, at this time, include pursuit of an OBR strategy for the whole residential market. The rationale for this is also discussed further below. Instead, we suggest that the

utilities pursue pilot proposals within the single-family residential sector that operate within existing statutory limitations for the time being.

For each of the new program areas described above, we will need the consultant, in cooperation with SDG&E/SoCalGas, to identify the types of functional roles and structure to be used and the entities that should be chosen to perform these roles. These roles include, but are not necessarily limited to:

- Financing program administrator;
- Credit enhancement manager;
- Administrator of interest rate buy-downs (if applicable);
- Capital providers;
- Lenders/ originators;
- Servicing agent and/or clearinghouse for data flow from lenders to OBR facility; and
- OBR billing administrator;

We also articulate the following general principles that should apply to all of the new programs to be designed:

- Each finance product should be designed for a uniform statewide program, or with standard statewide terms, documents, and procedures.
- "Keep it simple and fast" – contractors are the most likely marketing agents and will need to be able to present finance information to the borrower/energy-user to drive transactions. Thus, programs should avoid over-complexity of design or required paperwork, etc.
- For the non-residential OBR, a single servicing agent should be considered who would relay simple finance payment information to the utility bill.
- In terms of defining functions and roles, the consultant should assume that a servicing agent will be responsible for all special adjustments, the originator will be responsible for consumer

inquiries, and there could be a separate program dispute resolution process for issues with contractors.

The consultant hired by SDG&E/SoCalGas will be expected to identify and define these elements in more detail in 2012 for launching pilots in 2013.

5.3.3.1. Credit Enhancement for Single Family Residential Customers

For the single-family residential market, the most promising option appears to be design of a credit enhancement strategy. Credit enhancement may be able to entice financial entities to offer lower interest rates for qualifying customers and/or extend credit to customers with lower credit scores, allowing energy efficiency loans to support more comprehensive projects and/or to reach a larger market.

There are many forms of credit enhancements that may be utilized. For example, a loan loss reserve[162] would appear to stretch scarce ratepayer funding effectively, since funds are required only to cover actual loan losses due to non-payment. This is in contrast, for example, to interest rate buy-downs (which some view as a form of credit enhancement), which require funding to offset the interest rate reduction for each and every loan, thereby becoming more expensive for the portfolio overall. However, we do not impose specific requirements for the design of the credit enhancements in the single-family residential market in this decision.

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[162] A loan loss reserve sets aside (reserves) a certain amount of money to cover potential losses (in case of no repayment). For instance, a 5% loan loss reserve on a $60 million loan portfolio would cover up to $3 million of a capital provider's losses on that loan portfolio.

We do, however, offer illustrative program features that we would like to see the consultant aim for, if possible. Those include:

- Interest rates of around 7% for most borrowers with credit scores of 600 or more; and
- Terms of up to 15 years for major energy efficiency actions (possibly longer for solar installations).

Initially, we request utility proposals for the credit enhancement product in their 2013-2014 portfolio applications with discussion of the preferred options and rationale. These details can be further refined over the course of the rest of 2012.

An advantage of credit enhancement for single-family residential customers is also that it could be offered statewide by a single entity and utilized by both local and statewide lenders. One possibility would be for CAEATFA to administer such a program, as suggested in several sets of comments from DRA.

CAEATFA will soon launch a Clean Energy Upgrade Financing Program using up to $25 million from former Renewable Resource Trust Funds previously designated to support the PACE Bond Reserve Program. Under the Clean Energy Financing Program, CAEATFA may provide financial assistance in the form of credit enhancements to financial institutions providing a loan to finance the installation of distributed generation renewable energy sources, electric vehicle charging infrastructure, or energy or water efficiency improvements on homes or small commercial properties. The goal is to increase access to retrofit financing by reducing its cost.

In a first phase, CAEATFA is establishing a loan loss reserve program designed to help financial institutions make loans to California homeowners for energy efficiency and renewable energy retrofits. In a second phase, CAEATFA will issue a request for information to all interested parties – public, private, and

partnerships – to obtain information and ideas on alternative financing structures that might add value to the Clean Energy Upgrade Financing Program. CAEATFA anticipates issuing the request for information in the first quarter of 2012. In February 2012, CAEATFA issued proposed regulations for its first phase and hopes to launch the program later this spring.[163]

In their 2013-2014 program applications, utilities should propose an administrative structure for the credit enhancements that they believe is most likely to be successful at making financing available to more single-family residential customers. If desired, Commission Staff is available to arrange discussions by SDG&E/SoCalGas and their consultant with CAEATFA or other state agencies to explore possible roles and responsibilities.

The utilities, in their comments on the proposed decision, all stated a policy objection to the use of ratepayer funds to support credit enhancements, especially loan loss reserves. The utilities did not state a basis for their objection, and it is unclear how credit enhancement is any different from any other form of ratepayer financial support, such as rebates or incentives. Thus, we do not modify the requirement for credit enhancement strategies to be developed.

As noted above, we do not require, at this time, the development of an OBR program for single-family residential customers. There are many reasons for this. While intuitively it seems natural that residents are more likely to pay their utility bills than other types of obligations, and there is some evidence to support this conclusion, it is not clear how much of an advantage that would provide to financial entities to be able to offer interest rate reductions compared

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[163] Details are available at: http://www.treasurer.ca.gov/caeatfa/abx1_14/index.asp.

to the history of how consumers pay other unsecured debt such as credit card charges.

In their February 22 comments, NCLC expresses the following sentiment: "It is not clear that OBR for residential customers can be designed in a manner that can fairly and appropriately balance the risk to the consumers and ratepayers in general, with the risks to the providers of private capital and the risks to utilities in a manner that can entice all three interests to embrace these efficiency loans on a large scale."

While we suggest that OBR may be able to be developed successfully for single-family residential customers in the future, our chief concern at the moment is one of timing and feasibility, as DRA expresses in its January 25 comments: "with less than a year remaining before the 2013-2014 transition period starts, it is unrealistic to expect to resolve the issues in time to implement OBR during the transition period."

In addition, at this time we do not have the legal authority to allow the utilities to initiate collection actions for non-payment of portions of the utility bill not related to provision of utility services, and that could lead to disconnection. It had been assumed by the January 10, 2012 Staff proposal and the EDF OBR proposal that the OBR arrangement (including application of all customer collections and arrears payment policies) could establish sufficiently higher confidence in loan repayment behavior that lenders would drop their loan interest rates by several percent or more.

The utilities and DRA, in their comments, provide an exhaustive review of our limitations in this regard related to Public Utilities Code Sections 779.2 and 771(e)(3). In comments during the workshops, representatives of various financial institutions differed in terms of their characterizations of how important

or influential this payment and collections policy would be in obtaining lower interest rates in any case.

It is clear that to offer OBR mechanisms with sufficient equivalency to the payment treatment and collections policies for regular utility services would require statutory change. Such change would need to either exempt energy improvement loans from the prohibition applying to non-utility payment obligations, or define energy improvement loans (perhaps referred to as "negawatts") to be equivalent to normal utility charges for utility-provided energy commodities and services. Even then, larger lenders would probably still want to analyze long-term utility account payment histories in order to assign an appropriate credit risk and interest rate to an energy efficiency loan. This would require utilities to make available for examination by potential energy efficiency lenders utilities' (anonymous) customer payment statistics.

Another controversial subject for this market segment is the concept of "bill neutrality," and whether it is a necessary or appropriate requirement alongside OBR. Bill neutrality refers to the situation in which the combined monthly or annual cost of an energy efficiency loan repayment and the post-project utility bill does not exceed the amount of the original utility bill prior to the project being undertaken.

Opinions among experts in the comments and at the workshops also differ in this area. While it would seem superficially appealing to offer loans along with efficiency projects that ensure that a customer's total bill actually goes down, there are many factors besides the energy efficiency project that may determine whether that result actually occurs. The length of the loan (i.e., how quickly or slowly the loan is paid back), the behavior of the customer utilizing the new equipment (e.g., whether a household elects to enjoy more heat or cooling

comfort once monthly bills go down), whether a homeowner elects to undertake high levels of efficiency improvement to obtain the many other benefits received (comfort, environmental footprint, sound management, operational control, etc.), the climate zone in which the structure is located, the quality of the contractor installation that could affect the efficiency improvement's performance, and changes in numbers of residents or appliances and equipment owned all may affect the actual energy and bill savings observed by the customer.

In addition, NCLC, in its second-round comments on the ALJ financing ruling, offers some convincing evidence and statistics related to the likelihood of achieving bill neutrality among California residences. In short, it may be that the math does not work in many California residential buildings; in order to achieve deeper energy efficiency savings through more comprehensive projects such as replacement of HVAC systems, windows, and insulation, bill neutrality may not be possible in the average California single-family residence. This particularly could be the case in moderate climates near the coast or where loans are repaid in less than fifteen years. Bill neutrality also may not be necessary, as long as the consumers are informed of the cost impacts and see sufficient benefits in terms of energy savings, comfort, and aesthetics.

In addition, there is already a well-developed financial infrastructure in the existing marketplace in the form of home equity loans for larger and more expensive projects for homeowners with strong credit. While these mechanisms may not be robust enough in the current housing market to be able to serve the majority of homeowners who do not have high credit scores and/or significant equity in their homes, it is not clear that OBR, on its own, will be able to make significantly more financing or better rates and terms available to those who have access to home equity loans at this point in time.

However, we do see potential in the OBR mechanism for the residential market in the long term. It appears that the most important elements that would convince large financial institutions to bring capital to these types of loan products are satisfactory resolution of the legal issues discussed above, a track record of successful loans, certainty regarding the effectiveness of using utility bills as a payment collections method, and the expectation that utility programs or state policies will drive large volumes of energy upgrade projects.

To help build the loan repayment record, we direct the utilities to collect data on the performance of loans receiving credit enhancements and OBF through current programs and build a database of California loan payment history from all sources of energy project loans, as mentioned above and further discussed below.

Further, we will monitor the progress of similar programs for the single-family residential market in other states such as New York, Oregon and Pennsylvania. We note that in New York there was explicit statutory authority to develop an "on bill recovery" charge administered by the six IOUs and the Long Island Power Authority that is tariff-based, subject to potential termination of service with normal payment and collection policy safeguards in the case of non-payment of loan charges, requires bill neutrality based on estimated savings, and allows the payment obligation to survive changes in ownership (i.e., the repayment obligation is passed on to successive owners until the full loan amount is repaid).

In addition, Greenlining et al. in their comments on the proposed decision suggest that the Commission should encourage pilot approaches in the single-family residential sector during 2013-2014 that operate within existing statutory constraints for this segment. This is a sensible approach and we invite

proposals in the portfolio applications designed to address this segment of the market.

We also clarify that, contrary to comments by some parties on the proposed decision, our failure to order development of OBR for the single-family residential sector does not signal a lack of support for financing in the single-family market in general. Credit enhancement is a strong form of financing support, and we expect the utilities to propose other options to pilot as well within existing statutory constraints, as stated above. In addition, we expect that the pilot OBR approach we signal in the next section for the multi-family segment of the residential market will give us significant insight into the options for the single-family residential segment as well.

5.3.3.2. Strategy for Multifamily Residential Buildings

While some workshop participants and commenters advocated for starting an OBR approach with the "easiest" market segment of residences, which is usually, according to conventional wisdom, the single-family segment, in this case we believe that starting with multi-family buildings may offer the opportunity for more success. While the multi-family segment is often challenging due to the multitude of ownership structures, split incentive issues, income levels, etc., it is also an under-served market that offers the chance to identify and craft creative and complete solutions. We acknowledge that some legislative action may be necessary to allow us to move forward with the ideas described here.

Multi-family buildings that house primarily low-moderate income households may provide a unique test bed for multiple aspects of a financing program. First, these types of buildings are typically owned by one owner and rented to multiple tenants whose units are separately metered. Many of the

energy improvements most applicable to these buildings (central water heating, public area lighting and space conditioning, building shell improvements, air sealing) will benefit more than one household unit at a time. One of the most promising aspects of OBR is that it may allow loan repayments to be associated with particular meters (and the associated current occupants) rather than specifically-named original tenants or landlords. Crafting a solution for this segment of multi-family buildings may serve as a model for addressing the tenant-landlord split incentive problem in general – overcoming long-standing barriers to achieving energy efficiency potential.

An interesting parallel experience exists with virtual net metering of solar installations that started with multi-family buildings that house low-income tenants under the California Solar Initiative Multifamily Affordable Solar Housing program element. Under that program, the net energy metering (NEM) rules permit any excess solar production to be credited at retail rates and assigned to individual tenant (and common area) meters on a pro-rata basis defined by the property owner. If a solar system can be installed and benefit multiple meters in a multi-family building, there appears to be no conceptual reason why an energy efficiency project could not be treated similarly, providing a benefit to both tenants and landlords. Focusing on this particular smaller market niche first should help solutions emerge that may be more broadly applicable to other situations.

Some areas that will need to be addressed include:

- The need for landlord acquiescence to allow an improvement project and the placement of a repayment obligation on a meter, since it could affect their ease of finding subsequent tenants, who would be expected to continue loan repayment.

- The notification process for successor tenants.[164]
- The desire for limits or protections, such as bill neutrality, that the cost of measures undertaken, and associated repayment obligation, will imply a reasonable debt relative to the anticipated bill savings.

We offer the following initial guidance on program design features that may be desirable to pursue, and will look forward to the utilities' applications and subsequent consulting expertise to offer refinements on these ideas. The multi-family financing offerings should:

- Start with a bill neutrality objective, at least for credit-challenged or lower-income populations.
- Consider an additional cushion beyond bill neutrality (for example, limiting bill savings to 80% of estimate) to minimize potential negative impact on consumers.
- Seek to structure loans and eligible measures to give the owner at least an 11% return.
- Start with placing the loan obligations on common meters. A second stage product could work on tying the payment obligation to individual tenant meters. This will require greater attention to notification and disclosure, as well as possibly credit re-qualification by tenants.
- Identify specific waivers and/or clearance required from the California Department of Corporations.
- Consider possible tariffed service utilizing private capital.
- Seek to marry the energy efficiency loan opportunity with solving another problem (such as equipment malfunction, safety, health).
- Seek to pair the energy efficiency measure with a home equity loan instead of a stand-alone unsecured energy loan.

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[164] The February 22, 2012 comments from the California Association of Realtors offers additional thoughts on this subject.

- For multi-family market-rate rental housing, credit enhancement may be necessary to drive participation.
- Offer (and test) with a variety of multifamily types, including high rises and low rises, condos and rentals, and different physical configurations (e.g. central vs. individual building systems).

5.3.3.3. Credit Enhancement for Small Business Customers

Similar to the single-family residential market, some form of credit enhancement is likely to be successful in making more and/or more affordable financing options available to larger segments of the small business market. While not as much detail was discussed at the workshops or in comments related to the small business customer segment, these types of customers often face similar barriers to energy efficiency investments as their residential counterparts. There are no commercial credit scores or equivalent tools to consumer credit scores to help lenders assess the credit-worthiness of small business owners.

Discussion at the February 8, 2012 workshop revealed that for conventional lenders to assess loan credit for small businesses requires a fairly arduous and costly financial assessment of the assets, revenues, liabilities, and business prospects of each individual business. For this reason, most small business owners must offer their personal credit (and/or equity in their homes) as a pledge for any business-related loans. This makes it quite difficult for them to obtain financing and then when obtained, many business people would rather apply this to their core business activities and not to energy projects that affect operating costs.

Metrus Energy, in February 22, 2012 comments, stated its belief that credit enhancement is more likely to expand the commercial market than OBR alone. BCLBE, in January 25, 2012 comments, described the inherent limitations to commercial mortgage underwriting techniques, tools, and criteria that are not

sufficiently developed to leverage private funds for energy improvement purposes.

We are well aware that the existing OBF program of the utilities is used by small businesses and other nonresidential customers (loans up to $100,000 per meter except for institutional facilities, which have larger caps), and the terms of these utility-originated loans are far better than anything offered through private lenders. OBF terms offer 0% interest with qualification criteria primarily based on the customer having a good two-year utility bill payment history and the prospect that the loans can be repaid by savings within the expected useful life of the energy efficiency measures. According to a presentation by SDG&E/SoCalGas at the workshops, OBF loan payment defaults for over 960 loans issued to date (some of which were issued to government or institutional customers) and totaling $24 million, amount to about one-half of one percent of the loan principal.

Based on the need of this small business market segment for efficiency financing, the current experience with OBF, and the utility-shared desire to expand non-residential financing through private lending, we direct the utilities to include a proposal in their 2013-2014 program applications to offer at least some form of credit enhancement for non-utility-originated lending to this market segment. As with single-family residential, this credit enhancement may be provided or aggregated by a third-party such as CAEATFA or a similar type of entity such as one making small business administration-insured loans.

Our initial inclination is that credit enhancement of non-utility loans for small business customers should be offered as an alternative to the zero interest OBF option currently available to the same customers, and not in addition to OBF for the individual customer. The question of multiple program participation

should be addressed in the utility 2013-2014 applications and further addressed in the program design details developed subsequently. Criteria for the circumstances surrounding eligibility for OBF loans, as opposed to credit-enhanced private loans, also should be addressed.

5.3.3.4. OBR for Non-Residential Customers

We also direct the utilities to design an OBR program for all types of non-residential customers beginning in 2013 for expansion in 2014. After workshop discussion and comments, it is clear that OBR in the non-residential market is almost uniformly embraced by all stakeholders and less fraught with complexity for all players than OBR for residential consumers.

First, collections and disconnection policy are not big factors for non-residential customers. The utilities' OBF programs already include pro-rata allocation of customer remittances for energy loan repayments and energy charges and for the escalation of collections procedures eventually leading to disconnection of utility service for non-payment of OBF loans. The same structure can and should be utilized for OBR. Moreover, there is clear added-security value for efficiency loans collected via OBR as indicated by many workshop participants' statements that there is no value to real estate that lacks utility electricity and/or natural gas service.

Second, as detailed in workshop panel discussions and a few written post-workshop comments from CILMT, CCSE, and NCLC, bill neutrality does not appear to be a requirement or even necessarily a desirable strategy for this market. Most businesses (commercial, industrial, agricultural, institutional) have access to more internal or external expertise on energy costs and usage impacts from their facility managers or contractors and can effectively evaluate the economic impact of the energy efficiency projects and associated financing costs.

In comments on the proposed decision, some parties comment in favor of requiring bill neutrality while others agree with the proposed decision that it should not be required. NRDC submitted a constructive suggestion for the Commission to require that a customer must be presented with an estimate of the expected energy savings and bill impacts of the energy efficiency project at the time the customer agrees to the project. This is a sensible idea and we adopt it.

Our objectives in requiring the utilities to develop an OBR program for non-residential customers are as follows:

- Expand the class of customers who can qualify for credit to undertake energy improvements by more directly capturing the cash flow advantages of lower utility bills.
- Provide a predictable repayment system for customers to utilize.
- Seek to utilize utility bill payment history as a basis for credit approval for energy improvement loans.
- Reduce the burden and costs now required to assess individual business credit-worthiness.
- Help energy services providers with added credibility in marketing to end users with ability to offer financing and, in doing so, streamline sales transactions.

The types of design features we would like to see in the utility applications and subsequent program design from the expert financing consultant in this market are illustrated below:

- A program design that leads non-residential customers to view loan repayment and utility bill payment as a composite and undifferentiated obligation, without regard to the potential for disconnection for non-payment or pro-rata allocation of partial payments.
- Loans with interest rates of under 9%.

- Loan caps for commercial/institutional users that are high enough to capture costs of expensive mechanical equipment projects that offer deeper energy savings.
- Provision for pro-rata allocation of partial payments between utility service payments and loan repayment.

In their 2013-2014 program portfolio applications, the utilities should also provide details on the billing system upgrades and/or other information technology costs that may be associated with an OBR offering for the non-residential market. To help keep these incremental costs to a minimum, we urge the utilities to look into the clearinghouse or aggregator functions proposed by EDF in Attachment C to the January 10, 2012 ALJ ruling on financing, and as further illustrated by Deutsche Bank at the February 10, 2012 workshop.[165]

In addition, utilities should propose, as desired, a fee mechanism to negotiate with participating lenders or other financial entities that allows utilities to cover the costs of any ongoing billing expenses and infrastructure upgrades to provide the OBR service.

Finally, as with the continuation of the OBF program, the utilities should include in their applications a discussion of the relationship of the OBR offering with existing utility programs and their associated rebates or other financial incentives, with the goal of maximizing the cost-effectiveness of the program portfolio in the non-residential markets.

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[165] The presentation is available at: http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/.

5.3.3.5. Financing Database Development and Data Sharing

As mentioned several times above, consistent feedback from potential financial entities interested in providing energy efficiency project capital, as well as other stakeholders, is that we need additional information and data to fully inform program design, risk assessment, interest rates, and credit enhancement levels. We have experience already in California thanks to OBF and American Recovery and Reinvestment Act-funded financing programs that can be compiled and shared, as well as years of project investment experience in providing energy efficiency program incentives and evaluations.

The biggest issue always when discussing utility customer data is the need to protect individual confidentiality. In this case, we are discussing sensitive customer information such as addresses, bill payment history, loan payment history, credit scores, and performance of energy investments. In typical Commission decisions surrounding this issue, we seek to preserve confidentiality through aggregation of data. However, in this case, it is the individual customer data, project by project, that is the most illuminating. Thus, we will need to find ways to protect customer privacy through methods such as "anonymizing" customer data.

Thus, we direct that SDG&E/SoCalGas use their expert financing consultant to convene a working group to address issues with data collection and dissemination. The working group will need to obtain guidance on what loan data and qualities will be needed to engage the secondary financial markets to purchase loan portfolios. The group should also explore possible ties to the development of a national database underway with U.S. Department of Energy, federal housing entities and others.

In parallel, we direct the utilities to begin the development of a database that will eventually, once confidentiality protocols are worked out, be able to provide anonymous customer data publicly. The database should be developed to contain information such as the following, along with any other data worked out among working group members:

- Customer type,
- Host site characteristics,
- Utility payment history,
- Borrower credit scores and energy project repayment histories,
- Energy project performance data (by building or customer, not only by measure), and
- Billing impacts comparing pre- and post-installation utility bills.

We recognize that additional Commission action in the future may be necessary to approve confidentiality protocols that may be proposed to meet the above requirements.

5.3.4. Other Issues

This section addresses the question of whether utilities will be given credit for the incremental energy savings achieved with the financing programs described above, as well as next steps for developing financing programs and providing additional Commission guidance, if needed.

5.3.4.1. Utility Credit for Energy Savings Associated with Financing Programs

We recognize that for utilities to be enthusiastic developers and implementers of energy efficiency financing programs, they need to see a benefit to their business and/or their customers. For this reason, it will be important that the utilities are credited with any incremental energy savings achieved beyond those associated with rebates or other related programs by the financing

offerings. CCSE argues in February 22 comments that "a primary incentive for the IOUs to utilize OBR or other on bill instruments is the capture of energy savings for portfolio attribution. Explicit language could impose credit enhancement requirements and other portfolio-related constraints, which would likely limit project eligibility, reducing the relevance and scalability of the instrument." We agree.

However, we are not convinced that, as proposed by the utilities, every energy efficiency measure included in a project that is offered financing must also be part of another utility incentive program. This could unnecessarily constrain the potential for customers to go further with energy savings from projects that are offered financing but that may not fit neatly into other incentive program offerings. A more restrictive approach may be appropriate in the case of credit enhancements and OBF, where utility ratepayer funds are being used to fund financing. However, it is less appropriate when considering OBR. We will leave the details of the appropriate threshold level of eligibility for other utility incentive programs to the expert consultant designing the new financing approaches under contract with SDG&E/SoCalGas, but for now we specify that the utilities shall not require that all financed measures must be eligible measures to be treated by one or another program in the utility portfolios.

In addition, utilities should propose in their 2013-2014 program applications an approach for counting incremental energy savings achieved by financing program offerings while avoiding double counting with savings from other programs.

We also clarify that we consider this statewide financing portfolio category as a whole to constitute a set of "resource" programs designed to deliver additional savings beyond those that would otherwise be achieved by other

programs. The utilities shall include the statewide financing programs in their portfolio applications as resource programs and estimate the incremental savings associated with their delivery. We recognize that this may be a somewhat speculative exercise at the beginning, but over time, evaluation results should lead to more reliable estimates of incremental savings achieved by financing programs.

5.3.4.2. Next Steps for Financing Programs

As discussed above, our efforts to design the next generation of financing solutions are still nascent and all of the market players and stakeholders likely will require that considerably more information be developed between now and the end of 2012 before launching new pilot programs in 2013. We acknowledge that when the utilities file their 2013-2014 portfolio applications, the financing components may not yet be fully developed. Our consideration of those applications will give us additional opportunities to consider our ultimate requirements for the 2013-2014 time period.

Currently, we anticipate the following timetable for the various activities addressed in this decision related to financing programs:

- July 2012: Utilities file 2013-2014 energy efficiency program portfolio applications, including:
  - Basic structure of financing programs and budgets planned for 2013-2014, and
  - Plan for expert consultant hiring and structure of working groups and timeline for 2012.
- By end of third Quarter of 2012: Expert financing consultant presents 2013 pilot program design details in written program plan and public workshop.
- Fourth Quarter of 2012: Additional Commission direction in response to consultant's program plan, if necessary.

- January 1, 2013: Continuation of OBF programs and selected financing programs previously supported by American Recovery and Reinvestment Act stimulus funds.
- First Quarter of 2013: Launch of new financing program pilots.

In comments on the proposed decision, the utilities all asserted that the requirement for $200 million in funding of energy efficiency financing programs in 2013-2014 is too high. However, their comments imply that this requirement is only for new financing programs. That is not the case. This suggested budget was for the entire portfolio of financing programs, including the continuation of existing OBF programs as well as the previously-ARRA-funded financing programs implemented by local governments. We do not order specific budgets for each of these categories.

Many parties also commented that the timetable for design and rollout of new financing programs in 2012 and 2013 is too short. We stress that this area of new program development is a high priority for the Commission and the state. Therefore, we decline to amend the timetable, but encourage the utilities to present a realistic but aggressive timetable for design and implementation in their 2013-2014 portfolio applications.

The utilities also predict that the proposed decision underestimated the costs of upgrading utility billing systems to accommodate the new OBR program for non-residential customers. We do not prejudge or resolve that issue now. Utilities will have ample opportunities in the portfolio applications and in the future to detail the actual expenses associated with OBR implementation; likewise, other parties will have opportunities to review those estimates.

Many parties commented both for and against the proposed decision's recommendation not to require bill neutrality for the non-residential OBR program. NRDC presented, in its comments, a compromise that makes sense

and we will adopt. Although we will not require bill neutrality, we will require that an estimate of the bill impacts of the energy efficiency project to be financed be presented to the customer at the time they are making the commitment to the project (usually when they are signing a contract with their contractor). This ensures an informed decision by the customer without a strict requirement for bill neutrality.

The utilities also objected in their comments on the proposed decision to the requirement that partial bill payments be allocated on a pro-rated basis between payment for utility services and repayment of debt on the energy efficiency project, arguing that this has the potential to increase utility uncollected receivables and risks higher rates of disconnection. They also argue that there is precedent for utility service payments taking priority, in the context of payments to third parties such as direct access electricity service providers and community choice aggregators.

We decline to make any change to the pro-rata requirement in the event of partial payments. We remind the utilities that this program will at least initially be offered only to non-residential customers. We think the utilities' concerns about rising uncollectible payments and risk of disconnection for non-payment are overstated for non-residential customers. In addition, unlike in the residential sector, even if there were an increase in the potential for customer disconnection as a result of non-payment of OBR obligations, there is no prohibition against disconnection of a non-residential utility customer for non-payment of a third party change. That prohibition only applies to residential customers. Finally, the direct access and community choice aggregator examples are not applicable here; repayment of debt for an energy efficiency project is

fundamentally different from payments to other service providers for energy generation services.

Several parties, including Efficiency First, WEM, SolarCity, Greenlining et al., TURN, and CHPC, suggested in comments on the proposed decision that the Commission's requirements are not aggressive enough in the financing area. Some parties would prefer that we order at least pilot programs for residential OBR in the single-family market starting in 2013. We decline to take that step at this time, but leave open the possibility that OBR for all residential customers may be available beginning in 2015 or sooner. We hope that SDG&E/SoCalGas and the expert consultant hired to help design a statewide approach in the multi-family residential market can make significant progress designing solutions that may also be applicable to the single-family residential market.

The utilities also object to the fact that the proposed decision declined to require that all measures financed as part of a financing program be eligible for a utility incentive program. However, such a requirement could be too restrictive and may prevent worthwhile projects from moving forward. The utilities' position may be appropriate for credit enhancements utilizing ratepayer funds, but is not appropriate in the case of OBR. Thus, we retain the prohibition on utilities requiring that all financed project components be eligible for another utility incentive program, but we leave the finer points of how much of a total project must be eligible for other incentive programs to SDG&E/SoCalGas and their consultant to propose in the future. We have also clarified that we consider the financing programs to be "resource" programs capable of delivering savings additional to the savings from other programs. As such, the utilities should propose savings estimates in their portfolio applications that can be subsequently verified through evaluation.

6. Local Government, Government Partnerships and Third-Party Delivery

In D.05-01-055, the Commission addressed the issue of third-party program delivery in extensive detail. D.05-01-055 recognized concerns over allowing the balance of energy program portfolio design to energy resource procurement objectives to be planned by third-party entities that were not within the Commission's jurisdiction, since Commission authority over third parties is significantly less robust than its authority over programs administered by the utilities. D.05-01-055 also highlighted the challenge of handling ratepayer funds collected by the IOUs and the lack of a process for transferring these resources for utilization by third-party program administrators. D.05-01-055 directed Commission Staff to update the Energy Efficiency Policy Manual to allow the IOUs to competitively bid out 20% of the statewide portfolio to third-party implementers and initiate energy efficiency partnerships with local governments.

We now have two portfolio cycles and over six years of experience with increasing levels of third-party delivery of energy efficiency programs. The Phase IV Scoping Memo noted that parties have urged the Commission to increase the number of efficiency programs overseen and carried out by local governments and third parties that implement programs separately from the utilities. The scoping ruling sought input on which new and continuing programs would be appropriate for such treatment in the 2013-2014 transition period, as well as input on how those programs have helped or can help us achieve the deep retrofit goals.

The Phase IV Scoping Memo further requested input on how non-utility implemented programs should be selected, what kinds of cost-effectiveness characteristics they should exhibit, and how we should make tradeoffs or otherwise harmonize desires for these programs simultaneously with the desire

for uniform statewide programs and possibly a smaller number of programs. The Programmatic Guidance Ruling invited further comment on how to expand third-party programs, especially focusing on the commercial sector.

In this section, we consider the continuation and/or expansion of government partnerships and third-party implementation of efficiency programs.

6.1. Government Partnerships

In the 2010-2012 program cycle, $370 million was spent to fund partnerships with local governments, state entities, and institutions. There are 86 local government partnerships statewide and they focus on three broad areas of activity: (1) retrofit of local government buildings, (2) promotion of utility core programs, and (3) pursuit of energy efficiency activities identified in the Strategic Plan. The utilities also have local government innovator pilot programs where local governments are provided data, tools, and training to enable them to better manage their municipal and community-wide energy usage in conjunction with local climate action plans and GHG reduction strategies. Statewide and institutional partnerships provide building retrofit, commissioning, incentive, training, design advice and other services with entities such as the University of California, and the California Department of Corrections.

6.1.1. Continuation of Successful Government Programs/Partnerships

Most parties agree that successful local government programs should be continued in the 2013-2014 period.[166] Several of these parties also suggest utilizing contract amendments to extend identified local government

[166] CCSF, LGSEC, Beutler Corporation, DRA, PG&E, and SDG&E.

partnerships and programs (City and County of San Francisco (CCSF), LGSEC, PG&E).

We agree that there are many successful local government programs that should be continued without disruption in 2013 – 2014. Unfortunately, other than recommending that "successful" programs be continued, parties did not provide specific criteria that define "success" for existing local government partnerships. We direct the IOUs to submit as part of their 2013 – 2014 applications a description of the criteria that should be used to identify successful local government program/partnerships. The utilities should reference pertinent evaluation findings,[167] market transformation indicators, energy savings, and other documents that support these criteria, such as the Strategic Plan and the menu of local government strategic plan activities.[168] The utilities should confer with LGSEC and with any other interested local governments to get input on success criteria for local government partnerships. To the extent that the utilities do not accept criteria suggested by the local governments and LGSEC, the utility/ies shall delineate the rejected criteria in their applications and provide their rationale for rejecting them.

Additionally, the utilities' applications shall include Program Implementation Plans (PIPs) for all local government programs and partnerships they seek to continue, including a detailed explanation for how each program will meet their suggested success criteria. To provide the Commission with the

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[167] Commission Staff is preparing an evaluation of non-residential programs, including local government partnerships. This evaluation is anticipated to be completed in July 2012.

[168] Described in SCE Advice Letter 2445-E-A.

flexibility to consider local government proposals that were rejected by the utilities, the utilities' applications shall also include a separate set of PIPs for all local government program and partnerships that meet the local governments' proposed success criteria that were rejected by the utility.

6.1.2. Expansion of Successful Government Programs/Partnerships

Several parties identify areas where they recommend that local government programs should be expanded. Some areas noted for expanded local government interventions are Energy Upgrade California, the water/energy nexus, codes and standards enforcement and training, emerging technologies deployment, workforce education and training, low to moderate residential and small to midsized business market sectors, and program objectives. PG&E states that, while expanding the role of local governments is appealing, any expansions must be balanced to maintain portfolio level cost-effectiveness.[169] SDG&E comments that local governments should be held to the same cost-effectiveness requirements as the IOUs.[170]

With respect to expanding the scope of local government partnerships and programs, parties provide input that suggests local government partnerships could positively address additional market areas and program objectives as noted above. The criteria that the utilities propose for determining success in terms of continuation of a local government program or partnership include a variety of metrics, such as energy savings, market transformation indicators, and Strategic Plan objectives. We take a narrower approach with respect to

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[169] PG&E Comments on Programmatic Guidance Ruling at 10.

[170] SDG&E Comments on Programmatic Guidance Ruling at 5.

expansion of local government programs and partnerships. We observe there is a strong need for programs that can provide deep retrofits. Local government programs/partnerships that seek to expand or increase should demonstrate that capability.[171] The utilities' applications shall include a separate set of criteria for increases in local government programs and should be consistent with our overarching goal of deeper retrofits. The utilities are directed to confer with local governments and the LGSEC to get input on the expansion criteria. To the extent that the utilities reject any of the suggested criteria, the utility applications shall list those criteria and the rationale for rejecting them. The utility applications shall also include the PIPs of local government programs/partnerships that meet the expansion criteria, and (again, to provide the Commission, the flexibility to consider local government proposals that were rejected by the utilities) the utility applications shall also include a separate set of the PIPs that meet the expansion criteria that were rejected.

6.1.3. Local Government Regional Energy Efficiency Pilots

Several parties promote the piloting of a regional local government energy efficiency program in the 2013-2014 transition portfolio. LGSEC comments that, "A bridge pilot would test a modification of the process to enable regional networks to independently prepare and submit program implementation plans directly to the Commission."[172] Specific to the role of a local government regional pilot program and how it would be structured, LGSEC suggests that the mission of the local government regional energy networks would be to:

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[171] Phase IV Scoping Memo, at 5-6, 8.

[172] LGSEC Comments on Programmatic Guidance Ruling at 4.

- Provide missing technical resources that will get more projects implemented,
- Include more public agencies in project implementation,
- Leverage existing local government partnerships to implement these resources, and
- Provide centralized, regional program management and administration by local governments.[173]

LGSEC further states that the Commission "should direct regional energy networks in both urban and non-urban areas. A primary value of a regional program is the ability to tailor the program to local needs and priorities, while pooling energy management resources."[174]

CCSF supports LGSEC's recommendations for "pursuing regional local government initiatives that are accountable directly to the [Commission] and are not limited by or connected to the IOU shareholder incentive process."[175] DRA agrees with "the benefits described by the LGSEC, CCSE, and Beutler Corporation for piloting a regional [local government] administered program during the bridge cycle."[176] TURN echoes this view and, "fully supports recommendations to allow local government regional networks to independently submit program implementation proposals directly."[177] SCE cautions that, "shifting program administration away from the IOUs or instituting the creation

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[173] *Ibid.* at 4.

[174] *Ibid.* at 7-8.

[175] CCSF Comments on Programmatic Guidance Ruling at 2.

[176] DRA Reply Comments on Programmatic Guidance Ruling at 2-3.

[177] TURN Reply Comments on Programmatic Guidance Ruling at 2.

of unfunded oversight councils can increase administrative costs of programs without clearly defined benefits."[178]

While we decided to forego local government program administration in 2005, we believe enough has changed over the last seven years to warrant revisiting this issue in light of the potential benefits and alternative administrative structures as described in recent party comments. Since local governments began implementing utility energy efficiency programs in 2004, many have become experienced in the energy efficiency field either through their implementation of utility programs or independent efforts initiated at the local level. Local governments have had access to additional funding sources such as federal Community Development Block Grants and Neighborhood Stabilization Programs, and state American Recovery and Reinvestment Act funding (i.e., Energy Efficiency Conservation Block Grants, Weatherization Assistance Programs, and Energy Technology Assistance Programs). Local programs have also contributed to financing efforts such as Energy Efficiency and Renewable Energy Financing Districts. The development and implementation of codes and standards fall under the direct authority of local governments and many are utilizing their experience in energy efficiency to develop reach codes beyond Title 24 standards.

As evidenced by several local government-implemented energy efficiency program evaluations,[179] many local governments are better positioned to administer energy efficiency programs than they were seven years ago. While

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[178] SCE Reply Comments on Programmatic Guidance Ruling at 3.

[179] For example, *see* "Comprehensiveness in California's Small Business Retrofit Programs Within Local Government Partnerships." May 2009, at 14.

there is still a wide variation of success among local governments, we find it reasonable that more successful local governments can serve as examples to less experienced local governments.

We find the concept of local government regional pilots to be reasonable. Authorizing pilots in the 2013-2014 transition portfolio would provide local governments the opportunity to develop a track record. We anticipate that the 2013-2014 programs would lead to a series of lessons learned on the appropriate level of local government administration of ratepayer-funded energy efficiency programs. Regarding the process for selecting regional pilot proposals, LGSEC recommends:

> The bridge pilot would test a modification of the process to enable regional networks to independently (emphasis added) prepare and submit program implementation plans directly ….After [the Commission] reviews and approves sponsored PIPs the [Commission] would then direct the IOUs to contract directly with the [local governments] as identified in the PIP to implement programs.[180]

Commission Staff and parties should evaluate the proposed pilots to assess which pilots may merit support by ratepayers, and the Commission will determine which, if any, warrant adoption. This approach is consistent with a key objective underlying the proposed pilots - to determine if local governments are in a position to plan and administer energy efficiency programs absent utility support or intervention. We envision approval either in the application proceedings, or via advice letter depending on the timing, but we defer specifics to the evaluation of the proposals.

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[180] LGSEC Comments on Programmatic Guidance Ruling at 4.

We encourage the local governments to submit PIPs and budgets for proposed regional pilots in the 2013-2014 applications proceedings, so that Commission Staff and the parties can begin their review as soon as possible. Submitted PIPs for each proposed regional pilot should describe the rationale and benefits of the regional pilot, highlighting its desired characteristics and why it should be selected for the pilot period.

Prospective local government regions should utilize the same PIP template established for the IOUs' programs. Additionally, the proposed PIPs should showcase how the pilot would support the identified benefits of local government program administration as described by LGSEC in its comments. Specifically, the PIPs shall demonstrate the extent to which the proposed regional pilots:

- Leverage additional state and federal resources so that energy efficiency programs are offered at lower costs to ratepayers,
- Address the water/energy nexus,
- Develop and deploy new and existing technologies,
- Address workforce training issues, and
- Address hard-to-reach customer segments such as low to moderate residential households and small to medium sized businesses.

Each PIP should include an organizational chart that identifies the local governments that are part of the proposed regional pilot, a narrative description for each of their roles, and plans to coordinate. Desired characteristics of a regional pilot are inclusion of a broad geographical area, encompassing a variety of demographic characteristics, and depth and breadth of coverage related to energy efficiency program goals and objectives.

In developing the PIP, prospective local governments should refer to the Strategic Plan Menu of Local Government Strategic Actions.[181] Consistent with this decision's preference for deep retrofit programs, a goal of the pilots should be to achieve deep energy efficiency savings. Further, ex-ante parameters for energy savings and measure costs should be derived from the DEER 2011 Update adopted in this decision.

Commission Staff will conduct and/or oversee the evaluation of any pilots selected, consistent with the process set forth for evaluation of IOU programs in D.10-04-029 and other decisions. If we determine that there are desirable proposals for regional local government energy efficiency pilot programs, the utilities will be directed to contract for selected regional pilots.[182]

6.2. Third-Party Programs

In D.05-01-055, the Commission established the current standard for third-party program implementation: the IOUs will identify a minimum of 20% of funding for the entire portfolio that will be put out to competitive bid to third

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[181] The menu is contained in SCE Advice Letter 2445-E-A.

[182] In its opening comments, SCE asserts that the Proposed Decision wrongly encourages local governments to submit proposals to administer regional pilot partnership programs for the 2013-2014 program cycle. According to SCE, "[i]n 2005, the CPUC thoroughly examined the proposal for non-utility administration of EE programs, and in D.05-01-055 concluded that it requires statutory authority to do so, because the public interest in the EE programs dictates that the CPUC must select an administrator over which it exercises jurisdiction." (SCE Opening Comments at 3.) SCE's argument suffers three significant flaws. First, it is premature. Rather than authorize programs, the Proposed Decision only requests proposals. Second, as fully detailed by LGSEC (*see* LGSEC reply comments at 3-5), SCE's argument misinterprets the relevant law. Finally, contrary to SCE's assumptions, rather than calling for an independent administrator, the proposal set forth in the Proposed Decision provides for utility oversight of the non-utility administrator.

parties for the purpose of soliciting innovative ideas and proposals for improved portfolio performance.[183] That standard was upheld for the 2010-2012 program cycle by D.07-10-032.[184] Parties in this proceeding were asked to comment on the prospect of continuing or expanding these non-government third-party programs.

6.2.1. Positions of Parties

Parties generally support expanded use of third-party programs.[185] The IOUs urge the Commission to extend existing, effective third-party programs through 2014 and express a willingness to add new third-party proposals in their 2013-2014 portfolios. The IOUs further suggest that all energy efficiency programs, whether implemented by an IOU or a third-party, should be held to the same cost-effectiveness standards and evaluation practices. NAESCO suggests that, "new third-party programs be considered, so that proven program options from other states can be offered during the [Transition] Period."[186] Similarly, NRDC expresses support for, "providing an opportunity for additional programs to be integrated into the [transition period] to allow for additional entrants into the field."[187]

OPower expresses support for third-party programs in general, but cautions that some energy efficiency programmatic activity needs to be

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[183] D.05-01-055 at 94.

[184] D.07-10-032 at 74.

[185] CCSE, DRA, Greenlining, SDG&E/SoCalGas, LGSEC, NAESCO, NRDC, OPower, PG&E, SCE, South San Joaquin Irrigation District (SSJID), and TURN.

[186] NAESCO Comments, November 7, 2011 at 7.

[187] NRDC Comments, November 8, 2011 at 9.

implemented in close coordination with the IOU. In OPower's view, integration with IOU customer data systems and customer access through the well-known IOU brands is critical to program performance.[188] SDG&E/SoCalGas articulate a similar point, asserting that, "customers expect and trust energy management solutions from their utility and the utility is best suited to manage comprehensive programs and advocate for their customers."[189]

While most parties support extending and expanding effective third-party programs, the IOUs, NRDC, TURN, and DRA all point out that past third-party program solicitations have been time consuming and at times ineffective in achieving the Commission's goal of engaging innovative programs.[190] Drawing on lessons learned from past program cycles,[191] NRDC urges the Commission to ensure that the third-party review and selection process is "fair and transparent," and recommends that "a future structure be set up with clear roles, responsibilities, process (e.g., facilitators, note takers, follow up, etc.) as well as checkpoints along the way to determine if the review process is on track to meet

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[188] OPOWER Comments, November 8, 2011 at 5.

[189] SDG&E/SoCalGas Comments, November 8, ~~2011,~~2011 at 7.

[190] PG&E's November 8, 2011 comments included a helpful summary of how past third-party program solicitations worked: "Each third party implementer was chosen as part of a Statewide Competitive Solicitation process which included oversight and input by the Peer Review Group (PRG). Third-party implementers are selected based on their ability to penetrate a target market segment given their specific industry sector and/or technology knowledge. These third-party implementers and government partners are measured by the same cost-effectiveness parameters used to measure utility performance. However, additional parameters such as their ability to reach different customer segments are also considered."

[191] PRG Report on the 2009-2011 Energy Efficiency Applications of SCE, SoCalGas, SDG&E and PG&E. September 12, 2008.

objectives and to provide an opportunity to resolve any challenges with the process."[192]

6.2.2. Discussion

We agree with the majority of parties that IOUs should expand their commitment to third-party implementation. We find two principle reasons to rely more heavily on third-party program implementation. First, to a large extent, third-party implementation can occur pursuant to "performance based" contracts. Under such agreements, executed between the IOU and the third-party, the third-party implementer accepts the risk for program non-performance: if verified energy savings do not result from the program, the third-party service provider receives reduced compensation. With effective IOU oversight, performance based contracts can effectively mitigate risk that ratepayer contributions do not produce commensurate value. While we recognize that all of California's objectives for energy efficiency cannot be achieved through performance based contracts alone, we conclude that their use should be increased by the IOUs going forward.

Second, the Commission's support for expanded third-party program implementation stems from two observed trends: (1) an exceptional rise in new, nimble, mission driven, third-party service providers, and (2) increasing dynamism in customer demand for efficient technologies and services. Each trend complements the other: we need new, innovative service providers to meet the dynamic needs of our increasingly better informed, more conscious energy users. The IOUs must be an integral part of this solution, but smaller, less risk

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[192] NRDC Comments, November 8, ~~2011,~~2011 at 10.

averse organizations are better suited to rapidly changing markets. This confluence in trends compels us to rely more heavily on third parties.

To pave the way for expanded use of third-party programs and improve on past practices, we outline herein new expectations for IOU administration of third-party programs. First, to inform the Commission's decision making going forward, IOUs are directed to file the following with their 2013-2014 applications:

- A table ("Third-Party Procurement Table") identifying all current Purchase Orders (or comparable contracts/agreements) between the IOU and third parties funded through energy efficiency balancing accounts. The table should include:
    - the IOU's unique purchase order number,
    - vendor name,
    - detailed description of the procured activity,
    - whether procurement supports IOU implemented program(s) or third-party implemented program(s),
    - whether the vendor was chosen through competitive solicitation or bilaterally,
    - start date,
    - end date,
    - purchase order amount,
    - whether service is provided on a "performance basis" (Yes or No),
    - description of performance basis terms and conditions, as applicable, and,
    - determination of whether the purchase contributes to the IOU's General Order 156 goals.

- Complete Purchase Orders (or comparable contracts/agreements) for every entry identified in the Third-Party Procurement Table.[193]

The purpose of requesting this information is to bring the IOUs' existing third-party procurement practices to light and give the Commission a detailed understanding of past practices to inform future decision making. To the extent elements of the Third-Party Procurement Table or Purchase Orders contain confidential information, the IOUs should file those elements under seal pursuant to Public Utilities Code Section 583.

Second, to extend existing cost effective third-party programs, IOUs are directed to explain in their applications which existing third-party programs should be extended in 2013-2014 and why. IOU explanations should include the criteria used to determine whether to extend third-party programs. To avoid unnecessary contention in the application review process, the IOUs should immediately coordinate with affected third parties. If renegotiations of third-party implementer contracts will be necessary, the IOUs shall explain how they will ensure those negotiations will be completed in time for the programs to begin on January 1, 2013. While contracts may not be finalized until the Commission approves the IOU portfolio application, any necessary negotiations should be complete by October 1, 2012. In addition, IOUs should identify which existing third-party programs should be discontinued in 2013-2014 and why. They should reference relevant purchase orders from the Third-Party Procurement Table and include both a quantitative and qualitative assessment of why the existing third-party program should, or should not, be extended.

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[193] The Third-Party Procurement Table and associated purchase orders should include both third-party procurement supporting the IOU's 20% target and "core" programs.

Third, IOUs should identify in their applications additional opportunities to enlist new third-party implemented programs through competitive solicitations. Based on the comments in this proceeding and the Peer Review Group Report on the 2009-2011 IOU competitive solicitations, we believe that the third-party solicitation process needs reform; the solicitations need to be better targeted, overseen, and executed. We are not comfortable directing the IOUs to conduct new solicitations until the needed reforms have been executed. As such, this decision begins the reform process with the intention of allowing new solicitations in 2013. In their portfolio applications, the IOUs are directed to propose solicitations for new third-party programs to begin in 2013. The IOUs are directed to include details as to how the solicitations would be effectively targeted, overseen, and executed in their proposal. The IOU proposals should be informed by the Peer Review Group Report on the 2009-2011 IOU competitive solicitations and developed in coordination with key stakeholders. Because the programs procured from these solicitations will not begin until 2013, the proposed solicitations should allow for "rolling" programs consistent with Section 17.2 of this Decision.

7. Reducing the Number and Complexity of Programs

The 2010-2012 energy efficiency portfolio consists of 247 programs, of which 53 are sub-programs of 12 statewide programs. There are 194 non-statewide programs for the current program cycle, compared to 157 programs implemented in the 2006-2009 period. Reducing the number of programs is not a new concept, and it was re-iterated in the Phase IV Scoping Memo, which asked parties if there were too many energy efficiency programs. The Scoping Memo solicited concrete suggestions on how to construct a portfolio that reduces the number and complexity of energy efficiency programs.

7.1. Positions of Parties

Almost all parties concur that energy efficiency programs should be reduced and simplified. All of the IOUs support decreasing the number and complexity of energy efficiency programs. SDG&E/SoCalGas suggest consolidation of related programs that are within different program categories and recommend that all programs:

1. Include comprehensive marketing campaigns;
2. Address all market barriers;
3. Provide equipment and information that enables full energy management; and
4. Integrate program delivery.[194]

SCE suggests a market-based portfolio structure as the most customer-focused delivery mechanism for energy efficiency programs, and comments that a "simplified portfolio structure would allow more agility to respond to ever changing market signals."[195] SCE points out that the current IOU programmatic structure is a mixture of market and technology-based sectors. Finally, SCE recommends, "that the Commission consider modifying the Staff Proposal to focus on market sectors as the program delivery channels (Residential, Commercial, Industrial, Agricultural and New Construction), with end-use, technology-based approaches, Codes & Standards, WE&T, ME&O, Heating, Ventilating, and Air Conditioning (HVAC) System, Emerging Technologies, and other program segments inserted into those channels to promote deeper savings and greater comprehensiveness of customer offerings."[196]

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[194] SDG&E/SoCalGas Comments on Phase IV Scoping Memo at 3.

[195] SCE Comments on Programmatic Guidance Rulingat 5.

[196] *Ibid.* at 6.

NRDC recommends that the Commission focus on consolidating programs, rather than eliminating programs, and focus on streamlining and standardizing delivery. NRDC suggests that less confusion amongst programs could encourage new entry into the market for program delivery.[197] TURN supports a general direction of reducing the number of programs, but asserts this should equate to smaller budgets. In PG&E's reply comments, it disagrees that a simplified approach should signify less funding for programs, and asserts instead that simplification should focus on structure and organization while maintaining a comprehensive set of offerings.[198]

Joint Committee on Energy and Environmental Policy (JCEEP) supports simplifying the portfolio, stating that evaluation for all of these programs is costly. It suggests a whole building approach, as opposed to a widget based program design, as a way to streamline programs, along with quality standards.[199] Consumer Federation of California (CFC) suggests consolidation of programs through a categorization process based on the goals different programs achieve, and then budgets can be allocated to the varying "goals achievement" categories.[200] CFC is concerned that, if consolidation is not done with a clear plan, transparency will suffer and program inadequacies may be harder to decipher. Many parties warn that the desire to simplify programs should not stifle innovation.

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[197] NRDC Comments on Phase IV Scoping Memo Ruling at 12.

[198] PG&E Reply Comments on Phase IV Scoping Memo at 2.

[199] JCEEP Comments on Phase IV Scoping Memo at 4.

[200] CFC Comments on Phase IV Scoping Memo at 4.

In reply comments, DRA states that few parties made concrete suggestions for reducing the number and complexity of programs, and recommends that programs be reduced into three categories based on the duration of program savings.[201] In reply comments NRDC states that programs should not be eliminated based on length of savings.

7.2. Discussion

While reducing the number and complexity of energy efficiency programs is not a new proposal, there were few concrete suggestions on the specific details of this proposal. NRDC's suggestion to focus on consolidating, rather than eliminating, programs has merit. We agree with NRDC that streamlining and standardizing delivery of programs could create less confusion among programs and possibly encourage new entry into the market. This new entry could achieve additional energy efficiency savings.

SCE's recommendation to realign programs based on market channels is compelling, and may represent the "natural evolution from the current portfolio's statewide program 'buckets'." While we agree with the spirit and direction of SCE's approach, we are wary of doing "too much too fast" in the energy efficiency markets. The 2013-2014 portfolio is intended to be a transitional portfolio, and we require several changes in this transition portfolio, some of which may be at cross-purposes with the goal of reducing the number of utility programs. Therefore, we decline to adopt SCE's suggested changes for the transition portfolio. Rather, we take a first step in this direction with a limited number of program reductions for the transition portfolio. Specifically, we direct

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[201] DRA Reply Comments on Phase IV Scoping Memo at 9.

the IOUs to split and/or incorporate the HVAC Residential and Commercial Quality Maintenance, Residential Quality Installation, and Commercial Quality Installation sub-programs into the respective Residential and Commercial statewide programs. The IOUs shall consider moving the HVAC Technology and System Diagnostics and WE&T sub-programs into the statewide Emerging Technologies and WE&T Programs, respectively. Finally, the IOUs should consolidate the existing Residential and Commercial New Construction programs within their respective market segments, the Statewide Residential and Commercial Programs.

We believe the separate statewide HVAC and new construction programs are examples of programs that can be absorbed within the broader market sector programs (residential, commercial, etc.), and we instruct the utilities to exclude these stand-alone statewide programs from their transition portfolio applications. The cross-sector collaborative activities and information-sharing tools that have been developed through these programs need not be discontinued. Instead, we direct the utilities to identify in their applications the elements of the existing statewide HVAC and new construction programs they recommend maintaining, and through which remaining programs those activities and tools will be "housed" and funded.

We encourage the utilities to suggest further program cuts or consolidations in their applications, using a "best bang-for-the-buck" screen (excluding those that this Decision directs be continued or that are generally consistent with the other guidance provided herein).

8. Program Guidance for the Residential Sector

D.09-09-047 approved a $635 million budget for the IOUs' Statewide Program for Residential Energy Efficiency (SPREE) and its eight subprograms--

the Home Energy Efficiency Survey (HEES), Basic Compact Fluorescent Lamps Advanced Lighting, Appliance Recycling Program, Home Energy Efficiency Rebates, Business and Consumer Electronics, Multifamily Rebates, and Whole House (now Energy Upgrade California). D.09-09-047 also approved funding for an additional $87 million in local and third-party residential programs. These residential programs are aimed at both single and multifamily buildings, and included a range of incentive, marketing and training approaches.

The Programmatic Guidance Ruling provided proposed portfolio guidance for a variety of residential efficiency programs, particularly those related to the Energy Upgrade California program. Consequently, much of the residential program guidance provided in this decision is focused on the Energy Upgrade California program, although we also provide guidance on the following residential efficiency topics: plug loads/appliances, appliance recycling program improvements, and residential new construction.

8.1. Energy Upgrade California (Whole House) Program

8.1.1. Background

In D.09-09-047, the Commission directed the IOUs to establish a statewide whole house comprehensive energy upgrade program. The intent of this direction was for the IOUs to establish a whole house program to advance the Strategic Plan's ambitious residential sector energy use reduction goal that by 2020, all California homes reduce energy drawn from the grid by 40%.[202] In 2010, the IOUs' whole house program was branded as the Energy Upgrade California program. The Energy Upgrade California program is administered by the IOUs

[202] Strategic Plan at 11.

in collaboration with the California Energy Commission and its American Recovery and Reinvestment Act grantees and partners.

Commission Staff's Energy Upgrade California proposal in the Programmatic Guidance Ruling noted several barriers that contributed to slow initial program participation levels, including contractor concerns regarding burdensome program application procedures and limited Energy Upgrade California program participation by HVAC contractors. To address these and other barriers, Commission Staff proposed many improvements to the IOUs' Energy Upgrade California programs, and parties added more recommendations in their responses to the ruling.

This decision focuses on eight areas of Energy Upgrade California improvement that we believe are relevant and applicable to the 2013-2014 transition portfolio:

1) Viewing Energy Upgrade California as a market transformation oriented program;
2) Making a long-term commitment to Energy Upgrade California, including a stepwise declining incentive approach;
3) Requiring building permit information to receive incentives for HVAC in the Energy Upgrade California program, and requiring compliance with new legislation aimed at improving code compliance;
4) Expanding the role of local governments in the Energy Upgrade California effort;
5) Increasing the emphasis on workforce training in the Energy Upgrade California program;
6) Fine-tuning Energy Upgrade California incentive design to appeal to moderate- and middle-income households;
7) Improving the Energy Upgrade California program and HERs software; and

8) Other program direction related to clarifying the definition of the program and adding specificity to the Energy Upgrade California PIPs.

8.1.2. Energy Upgrade California: A Market Transformation-Oriented Program

The Strategic Plan reiterated the Commission's commitment to market transformation as a central objective for efficiency programs. According to the Strategic Plan, a primary goal for existing homes is to "transform home improvement markets to apply whole house energy solutions to existing homes." The overall objective is to:

> Reach all existing homes and maximize their energy efficiency potential through delivery of a comprehensive package of cost-effective, whole house energy efficiency retrofit measures – including building shell upgrades, high efficiency HVAC units, and emerging deep energy reduction initiatives – with comprehensive audits, installation services and attractive financing. This can be achieved through parallel and coordinated initiatives among utility programs, private market actors, and state and local government policies.[203]

With this in mind, the Programmatic Guidance Ruling suggested that Energy Upgrade California be clearly identified as a long-term market transformation program.

8.1.2.1. Positions of the Parties

Build it Green and CCSE argue that the Energy Upgrade California program is a market transformation program for the residential sector and, as such, should not be subject to current Commission cost-effectiveness tests at this stage. Build it Green states that, as a market transformation program, Energy

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[203] Programmatic Guiding Ruling (December 12, 2011) at 7.

Upgrade California should be exempt from the Commission-adopted 6% budget target on marketing, education and outreach on a portfolio basis.[204] In contrast, PG&E and SCE, who support a long-term commitment to the Energy Upgrade California program, state that Energy Upgrade California is not, in their view, a market transformation program. Rather, they see appliances, electronics, and lighting programs as both producing short-term savings and driving market transformation in the residential sector. SCE's view is that Energy Upgrade California proposals should be assessed for their cost-effectiveness before being adopted.

CCSE and Gockel propose expanding the Energy Upgrade California program to include common measures currently rebated on a stand-alone basis, including pool pumps. CCSE also suggests that the Commission establish a clear set of Energy Upgrade California program goals and metrics for program success that go beyond energy savings to include job creation, health impact, water savings and improved building stock metrics. CCSE comments that:

> By definition, a long-term market transformation program (like Energy Upgrade California) begins in a very different place than it ends; in a successful program, cost-effectiveness metrics improve consistently over time to the point that the new practices, technologies, etc., become something like standard practice. The existing building retrofit space is on the front-end of a 10+ year effort, and we suggest that its cost-effectiveness be evaluated periodically through a series of volume-based or other similar milestones. Such an approach would respect the coming

[204] D.09-09-047 at 73: "This is not a hard cap, … but a budget target." *See* also Programmatic Guidance Ruling (December 7, 2011), at A32.

evolution of this marketplace and keep in view the long-term goals of the Commission."[205]

8.1.2.2. Discussion

We understand SCE's concerns regarding the cost-effectiveness of the Energy Upgrade California program, but ultimately agree with CCSE that Energy Upgrade California is a market transforming program in which cost-effectiveness will improve over time as new practices, technologies and business models become "standard practice." As such, we agree that the cost-effectiveness of the Energy Upgrade California program in the short-term should not be the only driver for decision-making about the program as long as its other objectives are clear, that the program should align with existing Commission direction and State policy, and that overall program costs should be kept reasonable as one component of the utilities' overall efficiency portfolio. The cost-effectiveness of the Energy Upgrade California program must also be periodically evaluated as it moves forward, and must be taken into account in future program policy and design.

We believe that the Energy Upgrade California program must be viewed as both a short-term resource acquisition program and a market transformation program, with clearly articulated program objectives in both areas. As discussed further below, the IOU's 2013-2014 portfolio applications shall reflect a recognition of the Energy Upgrade California program as a market transformation-oriented program.

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[205] CCSE Reply Comments on Programmatic Guidance Ruling (January 6, 2011) at 4; and, CCSE Comments on Phase IV Scoping Memo (November 8, 2011).

The Strategic Plan emphasizes reducing plug loads as part of residential market transformation strategies,[206] a need supported by 2010 residential end use market data, which show plug load increasing. Given the growing importance of lighting, plug, and appliance loads in residential energy use, we are sympathetic to PG&E's and SCE's argument that any residential market transformation strategy must also emphasize these end uses. The delivery of the Energy Upgrade California whole house program should be closely coordinated with the delivery of residential plug load/ appliance programs. Market transformation objectives for the Energy Upgrade California program should reflect market transformation objectives for these end uses as well the broader objectives of whole house deep energy retrofits. The IOUs shall include in their 2013-2014 Energy Upgrade California proposal strategies to better leverage the program to achieve energy savings from plug loads, appliances, lighting, and/or swimming pools.

8.1.3. Energy Upgrade California: Long-Term Commitment and Stepwise Declining Incentives Approach

8.1.3.1. Positions of Parties

Twelve parties commented on the Staff proposal that the Commission and IOUs make a long-term commitment (5-10 years) to the Energy Upgrade California program. The intent of Staff's recommendation was to provide the market stability necessary for contractors to invest and alter their business models to ensure continued program growth.

[206] Strategic Plan at 11 and 18.

Parties unanimously agreed that the Commission and IOUs should indicate a long-term commitment to the Energy Upgrade California program as part of the transition period application process. Efficiency First, The California Building Performance Contractors Association (CBPCA), Solar City, and CCSE argue that a ten, not five, year commitment is needed to provide stability for the development of this market. Efficiency First, Solar City, DRA, and Beutler support the Staff proposal for a 10-year declining incentive structure, with DRA indicating that establishment of a specific end date to incentives (e.g., in 10 years) also helps drive market change. To maintain program simplicity, SCE opposes a long-term declining incentive structure and states that the Commission should recognize the goal of making the Energy Upgrade California program cost effective while balancing the long-term investment needs of the Staff proposal.

8.1.3.2. Discussion

The Energy Upgrade California program has clear State energy agency and legislative support. AB 758 directs the establishment of a comprehensive residential retrofit program and reduced interest rate financing for whole house energy improvements, respectively. This has resulted in significant investments in building a statewide Energy Upgrade California program infrastructure to train contractors, establish quality assurance procedures, build a statewide web portal, and conduct marketing and outreach. The benefits gained from previous public expenditures on Energy Upgrade California should be strategically preserved in 2013-2014 and beyond to advance the State's residential energy use reduction goals.

We are sympathetic to contractors' requests that the Commission and IOUs commit to a 10-year, rather than a five-year Energy Upgrade California program

period in order to truly provide market stability for contractors. We agree that five years likely is insufficient time to attract additional contractors to this program, to provide stability for those contractors that have already altered business investment and hiring strategies to participate in this program, or to allow sufficient time for market growth in response to AB x 1 14. A 10-year stepwise incentive program may provide a better timeframe for contractor needs. In addition, although a stepwise declining incentive structure for a 10-year period could add to program complexity, it may hasten market development and heighten urgency amongst contractors and homeowners by providing a clear end to incentives. A 10-year stepwise declining incentive would also help reduce ratepayer costs for the program over the long-term. Any long-term incentive structure for the Energy Upgrade California program should take into account increased homeowner access to reduced interest rate financing available via the Clean Energy Upgrade loan program or other future financing programs and must maintain reasonable cost structures.

Therefore, we direct the IOUs to include in their 2013-2014 applications a proposal for a 10-year stepwise declining incentive structure for the Energy Upgrade California whole house program. The proposal should clearly indicate suggested Energy Upgrade California incentive levels and eligible measures for the 2013-2014 period and suggest how incentives would be ramped down during the 2015-2022 timeframe. The proposal shall also indicate how Energy Upgrade California incentives levels should be coordinated with or altered to take into account increased whole house financing levels that may begin if the CAEATFA Clean Energy Upgrade loan program includes such financing, and if ratepayer-supported financing programs are adopted.

We note that Energy Upgrade California projects are currently treated as custom projects for the purposes of determining frozen ex ante savings parameters. Because this program is a different delivery method than other programs for which existing savings parameters have been derived, some or all of the parameters for specific measures included in an Energy Upgrade California project, and particularly the net-to-gross ratios, will likely be different than the existing parameters. Consistent with the commitment we are making to this program, we direct Commission Staff to use a default net-to-gross ratio of 0.85 for Energy Upgrade California custom projects (though not as a strict "floor") similar to the approach we take in this decision for Emerging Technology net-to-gross ratios.

8.1.4. Energy Upgrade California: HVAC Incentives and Program

8.1.4.1. Participation Rules

The Programmatic Guidance Ruling included three basic changes to IOU HVAC programs proposed by Staff:

a. The IOUs should add incentives aimed at increasing the participation of HVAC contractors in the Energy Upgrade California program;

b. The IOUs should streamline review procedures for converting or "upselling" HVAC emergency replacement jobs into full whole house Energy Upgrade California jobs; and,

c. The IOUs should require that, for the HVAC upstream incentive and Energy Upgrade California programs, contractors represent and warrant that all applicable permits have been obtained.[207]

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[207] Programmatic Guidance Ruling (December 7, 2011), at A33.

8.1.4.2. Parties' Positions

The CBPCA, TURN and Greenlining Institute support the Staff proposal to include incentive "kickers" to increase HVAC contractor participation in the Energy Upgrade California Program. Several parties (i.e. SCE, SDG&E/SoCalGas, PG&E, and Beutler) oppose this proposal. Other parties suggest that instead of additional incentives, what is most needed is streamlining the HVAC Energy Upgrade California application review and approval process (CBPCA, Efficiency First, Solar City, Beutler, Building Performance Institute (BPI)). SMUD's emergency HVAC retrofit protocols have been identified as a model for a streamlined application review and approval process. While Building Performance Institute argues that this streamlined HVAC Energy Upgrade California job approval process should only be available to top-performing contractors with consistently strong quality assurance records and credentials, PG&E emphasizes that any streamlining must not compromise customer safety (combustion safety reviews).

Five parties comment on the Staff Proposal to require contractors to warrant that they have procured permits for access to incented high efficiency HVAC replacement units and/or to Energy Upgrade California rebates. NRDC, Building Performance Institute, TURN and the CBPCA support the proposal, while PG&E opposes it. NRDC proposes requirements in this area that go beyond those included in the Staff proposal, and argues that copies of permits should be required for access to IOU rebates, that the IOUs should create a database to track permit numbers for jobs accessing IOU incentives, that programs could "require that an approved rater certify the work and provide documentation to the utilities prior to rebate payout," and that IOUs should

work to simplify program processes to reduce the burden of complying with code.[208]

8.1.4.3. Discussion

The California HVAC replacement rate for residential and non-residential units may be as high as 800,000 units per year, for a total annual market of about $1 billion. Space cooling constitutes seven percent of residential electricity consumption and a higher percentage of peak demand.[209] It is important to maximize the appeal of a "whole house" upgrade to those homeowners replacing a faulty HVAC or water heating unit, so that more efficiency improvements in more households are undertaken at the same time. We want to encourage such steps to help minimize missed or lost opportunities in the residential sector.

Streamlining the review and approval of HVAC replacement jobs that are being considered for expansion into Energy Upgrade California whole house jobs seems the most important first step towards increasing HVAC contractor participation in Energy Upgrade California and, in turn, the number of HVAC replacement jobs that expand into whole house energy improvement jobs. Several parties point to the SMUD HVAC retrofit protocols as an model to accelerate Energy Upgrade California review and approval of HVAC replacement jobs while ensuring appropriate energy savings estimation and

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[208] PG&E's minimum energy savings threshold for Energy Upgrade California advanced path rebates is 15%, whereas SDG&E and SCE/SoCalGas apply a 10% minimum threshold (*see* "Statewide Residential Program Implementation Plan" at http://eega.cpuc.ca.gov/Main2010PIPs.aspx).

[209] Environmental Health Coalition Reply Comments to Programmatic Guidance Ruling at 2.

customer safety (*see* Attachment B to review the provided "HVAC Emergency Retrofit Protocol").

We direct the IOUs to include a streamlined HVAC Emergency Replacement Energy Upgrade California protocol in their 2013-2014 Energy Upgrade California applications, based on the approach provided in Attachment B. We also direct IOUs to consider in their Applications whether a streamlined HVAC Emergency Replacement Energy Upgrade California protocol should be available only to top-performing contractors with consistently strong quality assurance records or those with stronger building performance certification credentials. The IOUs should include their recommendations and rationale on this point in the same proposal. Streamlined IOU HVAC Emergency Replacement Energy Upgrade California protocols shall retain appropriate Energy Upgrade California combustion safety testing and other procedures to ensure customer safety. In addition, we believe that streamlining Energy Upgrade California program application and job approval procedures more generally is essential to developing contractor support for the program. We direct IOUs to include in their 2013-2014 Energy Upgrade California proposals a "Fast Track" Energy Upgrade California job approval protocol based on the HVAC Energy Replacement Protocol. This proposal should apply more generally to the Energy Upgrade California program. The intent of such a "Fast Track" Energy Upgrade California job approval protocol is to accelerate Energy Upgrade California job approvals for experienced Energy Upgrade California contractors with strong quality assurance records.

Finally, based on party comments emphasizing streamlining and simplifying the Energy Upgrade California program, we do not direct IOUs to establish any additional Energy Upgrade California incentives aimed at

increasing HVAC contractor participation in the Energy Upgrade California program at this time.

While high levels of non-compliance with current HVAC permit requirements is contributing to widespread faulty installation of HVAC units which results in significant amounts of wasted energy, new legislation enacted in 2011 seeks to address low levels of code compliance for retrofit measures, including HVAC, that require a permit. (*See* Pub. Util. Code § 399.4(b)(1) and Senate Bill (SB) 454, Pavley, 2011.)

The Staff proposal differs from SB 454 in that it would require *contractors* -- in addition to home or building owners receiving an incentive or rebate directly -- to certify or "warrant" that they have obtained applicable permits when installing HVAC equipment on behalf of customers benefiting from IOU rebates or incentives. The proposal applies when contractors obtain high efficiency HVAC units from distributors participating in the IOU "Upstream HVAC" program, as well as the downstream Energy Upgrade California program.[210]

SB 454 addresses code compliance problems, regardless of market sector or program delivery mechanism, "in order to ensure that prudent investments in energy efficiency continue to be made that produce cost-effective energy savings."[211] We direct changes to the HVAC Upstream Incentives program, if

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[210] We note that the 2010-2012 Upstream HVAC Incentive Program is currently operated as a commercial program. The Staff proposal was silent as to whether it applied to residential only. Therefore, we address commercial, as well as residential, in this discussion. Further, we extend this discussion to include any statewide, third-party, or utility local programs offering incentives for HVAC equipment requiring a permit, including but not limited to the Energy Upgrade California, MFEER, Home Energy Efficiency Rebates, Deemed Incentives, and Calculated Incentives programs, etc.

[211] PUC 399.4(a)(1).

needed to bring it into alignment with SB 454, while preserving it as a cost-effective program design for HVAC equipment.

We agree with CBPCA that "no incentives should be provided to any contractor without that contractor certifying that s/he has complied with all permit requirements."[212] While we tend to agree with NRDC's view that it is preferable that recipients of rebates certify that they that they have obtained permits and used licensed contractors by providing a copy of the permit to the utilities, we are concerned about maintaining a level playing field for contractors that are participating in IOU programs and installing high efficiency HVAC units and those that are not.

We believe that IOU programs should comply with SB 454 requirements and that all applicable programs should support HVAC permit acquisition as a matter of course. SB 454 does not imply that utilities have authority or responsibility for enforcing building energy or water code standards. Requiring contractors to warrant that they have obtained applicable permits and having the IOUs collect copies of permit numbers (and/or permits, where feasible) prior to awarding incentives is reasonable and advances California's peak energy use reduction goals.

To our knowledge, the IOUs currently require homeowners receiving incentives to "self-certify" compliance with SB 454 by checking off a box to this effect on the appliance application. In addition, the Energy Upgrade California program requires contractors to indicate that appropriate permits have been or will be obtained if an HVAC unit is installed as part of the job-check. Consequently, we direct the IOUs to institute the following changes to support

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[212] CBPCA Comments on Programmatic Guidance Ruling (December 23, 2011) at 5.

HVAC permit acquisition in conjunction with their HVAC and Energy Upgrade California programs:

1. Energy Upgrade California jobs involving HVAC replacements must include submittal of the HVAC permit number and a contractor certification that appropriate permits have been obtained, for inclusion in IOU Energy Upgrade California program records.
2. The IOUs shall make a showing in their 2013-2014 applications of all programs to which the requirements above apply, and present copies of the incentive / rebate applications or other documentation providing evidence that they are fully in compliance with SB 454 and this decision.

8.1.5. Energy Upgrade California: Role of Local Governments

8.1.5.1. Positions of the Parties

Several parties emphasize local government's role in advancing the Energy Upgrade California's deep energy retrofit and market transformation aims. CCSE states that the transition period should direct the IOUs to build on and retain the Energy Upgrade California statewide structure supported via American Recovery and Reinvestment Act funds. Rather than allowing the Energy Upgrade California program to revert to a "narrow" IOU approach, CCSE says, the Energy Upgrade California program going forward should build on its strengths and grow local government's roles. CCSE supports the Programmatic Guidance Ruling's suggestion that ratepayer funds be made available for the continuation of American Recovery and Reinvestment Act-funded local government and other state and regional Energy Upgrade

California marketing and outreach programs.[213] Beutler and NRDC urge a strong role for local governments in Energy Upgrade California program delivery. PG&E agrees with the idea of continuing effective local government American Recovery and Reinvestment Act-funded Energy Upgrade California activities, and recommends using the existing Local Government Partnership, Green Communities and/or Energy Upgrade California program as vehicles to support this idea.

LGSEC argues that local governments must play a lead role transforming residential energy use via Energy Upgrade California activities. It states that local governments are best suited to establish partnerships with regional entities, the private sector (contractors, retailers property managers) and other organizations (media, schools and community groups), and that existing Energy Upgrade California coordination between utilities and local governments can be expanded and strengthened.

8.1.5.2. Discussion

The Strategic Plan was clear on the need for involvement of non-utility actors in residential market transformation. California Energy Commission American Recovery and Reinvestment Act-funded Energy Upgrade California programs have built tremendous capacity and innovation through local and regional government activities. The insights and strong local community connections and commitment established in this way must be sustained if the Energy Upgrade California program is to grow into the market transforming initiative we anticipate it to be. As discussed by LGSEC, the primary

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[213] Programmatic Guidance Ruling, Attachment A at A32.

contributions of local and regional governments in Energy Upgrade California appear to be in the areas of building local partnerships for training, and locally-tailored outreach and marketing that builds on such partnerships and on local government's contacts with private and public sector leaders in their communities. Many of these activities appear to mirror those central to the now-suspended "Engage 360" campaign.[214]

We direct IOUs to consult with local governments, as well as regional and statewide government entities, and include in their 2013-2014 Energy Upgrade California proposals a budget for and a narrative description of the activities that local, state and/or regional government entities shall play in advancing Energy Upgrade California objectives in 2013-2014. The areas in which we would like to see significant government roles identified include locally-tailored outreach and marketing and contractor and technician training.

8.1.6. Energy Upgrade California: Workforce Training

8.1.6.1. Positions of the Parties

Parties support an increased emphasis on improving contractor and technician training programs for Energy Upgrade California, and on upcoming Title 24 codes and standards changes-- both are seen as central to the residential market transformation goals.[215] NRDC emphasizes ensuring that residential sector training is relevant to the needs of the market, while DRA suggests leveraging local government expertise in providing training programs.

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[214] Statewide Marketing and Outreach Ruling at 1.

[215] NRDC, Greenlining, Ella Baker Center for Human Rights, Green for All, CILMT, DRA, CBPCA, and BPI.

CCSE and CBPCA agree that the current Energy Upgrade California training approach was too "shallow" and was leading to a high number of loosely trained contractors. They suggest additional classroom training, mentorship, hands on field experience, and training in languages other than English, as well as improved on-the-job supervision and more transparent quality assurance and control procedures

8.1.6.2. Discussion

We are persuaded that increased attention must be directed to ensuring that contractors and technicians participating in the Energy Upgrade California program have the skills necessary to ensure quality deep energy retrofit equipment installations and services across the board. We, therefore, direct the IOUs to work with the Commission Staff, the California Energy Commission and others to convene a workshop to review Energy Upgrade California workforce training needs upon completion of IOU-administered Energy Upgrade California process evaluations in 2012. This workshop shall review Energy Upgrade California evaluation findings relevant to Energy Upgrade California training programs, and seek stakeholder feedback on priority training improvements needed, and identify a timeline to put such improvements into place via both IOU and any local government administered Energy Upgrade California or related training programs. As part of this workshop, the IOUs should also propose ways to coordinate improved Energy Upgrade California trainings with any local government-led Energy Upgrade California or codes and standards (Title 24, 2013) training programs, as discussed later in this decision. The IOUs should aim to create robust, coordinated residential workforce training programs across the Energy Upgrade California, Workforce Education and Training, and other relevant residential programs, in a manner that supports improved,

consistent quality installations. The IOUs should consider the training and certification requirements of the Energy Savings Assistance Program as part of this process. "Sector strategies" activities, as discussed in the Workforce Education and Training section, shall inform this review and coordinate the process.

In their 2013-2014 applications, the IOUs shall identify contractor and technician training objectives for the Energy Upgrade California program, consistent with Energy Upgrade California's role as a market transformation program, discussed above, and the Market Transformation Indicator guidance provided below.

8.1.7. Energy Upgrade California: Proposals for Additional Incentives

The Programmatic Guidance Ruling proposal also suggests that IOUs:

1. Consider local government pilots aimed at building support for comprehensive energy improvements at the time of home purchase, accomplished via home energy rating and increased installation incentives; and,
2. Explore ways to improve Energy Upgrade California participation amongst moderate income households, by aligning "basic" and "advanced" incentive pathways or replacing the current "basic" approach with a "menu" of approaches, and/or increasing incentives for income-qualified households.[216]

The Energy Upgrade California "basic" path currently offers a $1,000 incentive to homeowners for installation of a list of six required measures estimated to save ten percent of a single-family home's energy on a statewide basis. A pre- and post- job in home audit is required to qualify for these

[216] Programmatic Guidance Ruling at A33.

measures, but this audit is not as stringent as that undertaken under the Energy Upgrade California "advanced" path. As discussed above, the "advanced" path offers homeowners rebates of $1,000 - $4,000 for installation of measures projected to save between 10% - 40% of a home's energy use. Under the "advanced" path, an in-home "diagnostic audit" (i.e., an audit that includes pressurization of a home and its heating/cooling system to measure air leakage levels) is required both before and after measure installation. PG&E also offers a Middle Income Direct Install (MIDI) program in some local jurisdictions, for both single and multi-family households found to be just above Energy Savings Assistance Program qualifying levels.

8.1.7.1. Positions of Parties

Build it Green, DRA, CCSE, CBPCA and SDG&E/SoCalGas propose eliminating the Energy Upgrade California basic path. Build it Green proposes aligning the basic path with the advanced path by lowering the minimum percentage savings threshold required to access Energy Upgrade California advanced incentives from fifteen percent (in PG&E service territory only) to ten percent. Greenlining Institute suggests expansion of the MIDI program to be more comprehensive and to reach more neighborhoods across the state. Environmental Health Coalition supports investment in deeper education and outreach on Energy Upgrade California in hard to reach communities.

TURN, supported by Greenlining Institute and the Environmental Health Coalition, suggests pilots of "whole neighborhood" standard packages for homes of similar construction in similar neighborhoods. No party supports Staff's proposals for increased incentives for new Energy Upgrade California contractors maintaining high audit to job conversion ratios. Only CBPCA supports the idea of pilots with local governments testing increased incentives

for Energy Upgrade California work performed just after home purchase, and no party supports establishing Energy Upgrade California incentives for home energy ratings at the time of sale.

Comments on this issue note that a forthcoming California Energy Commission AB 758 "Needs Assessment"[217] would review this issue more thoroughly and recommend that any Commission decision requiring HERs ratings for Energy Upgrade California program participation by homeowners be deferred until later. Several parties, including CBPCA, Build it Green and CCSE, suggest, instead, that the IOUs and the Commission should explore developing voluntary training and outreach partnerships with California's real estate industry such that real estate agents can more effectively promote Energy Upgrade California program benefits to home purchasers.

8.1.7.2. Discussion

D.09-09-047 directed IOUs to take necessary steps to make the Energy Upgrade California whole-house program approach accessible to single and multi-family buildings, and to moderate and higher income households.[218] The Energy Upgrade California "basic" program was designed to appeal to moderate income households considering a lower cost whole house energy upgrade investment. It was also designed as a program entry point for contractors new to the whole house energy performance business.

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[217] *See* "Technical Support Contract" for AB 758 Program Development, CEC, at http://www.energy.ca.gov/ab758/documents/AB_758_Technical_Support_Contract_Scope_of_Work.pdf.

[218] D.09-09-047 at 120.

All ratepayers should have the opportunity to benefit from participation in California's deep energy use reduction programs such as the Energy Upgrade California program. We direct the IOUs to explore changes to the "basic" Energy Upgrade California program pathway to make it more appealing to moderate income households and to propose these changes in their 2013-2014 applications. Incentive design changes may include merging the basic and the advanced pathways, offering "menu" packages of comprehensive measures, and/or increasing incentives for moderate income households. We also direct all IOUs to establish MIDI programs in 2013-2014, if they have not yet done so, and to explore expansion of eligible MIDI measures to improve the program's comprehensiveness. IOUs shall include proposals in these areas in their 2013-2014 transition portfolio applications.

TURN suggests improved marketing and program design elements to focus on whole neighborhood delivery in a way that reduces program costs. We agree that this would, in theory, be a promising way to reduce program delivery costs. However, we have limited information to evaluate the benefits of such a proposal at this time.[219] If desired, local governments may pursue such an approach with their respective utility.

Home purchases and deep energy upgrades constitute significant investments that must be carefully considered. Staff's proposals for local government pilots testing of increased incentives for Energy Upgrade California jobs undertaken immediately after home purchase, and mandatory HERs ratings

[219] We understand that some CEC American Recovery and Reinvestment Act-funded Energy Upgrade California pilots are testing the "whole neighborhood" approach, and would prefer to see evaluation results from these pilots before mandating them on a broader scale.

at time-of-sale appear to be aimed at increasing program participation at a time when homeowners are most receptive to making significant investments in their homes. We agree that the Energy Upgrade California program and related whole-house deep energy improvement opportunities should be presented to homeowners at the times when they will be most receptive to taking action to improve their home's energy performance.

We support the idea offered by three parties of exploring voluntary training and outreach partnerships with California's real estate industry aimed at training real estate agents to understand and promote Energy Upgrade California program benefits to potential home buyers. We are particularly supportive of exploring voluntary programs in partnership with California's real estate industry since mandatory home energy ratings or upgrade mandates could deter California home purchases.

We direct the IOUs to consult with relevant stakeholder groups, experts and Commission Staff to develop a concrete proposal for implementing voluntary training and outreach partnerships with California's real estate industry in their 2013-2014 applications. This proposal shall have the objective of training real estate agents to understand and promote Energy Upgrade California program benefits to home buyers. The IOUs shall include in this proposal: (1) development and implementation timelines; (2) proposed outreach/training partners; and (3) proposed outreach/training objectives.

We believe the Staff proposal for local government pilots testing mandatory time of sale labeling ordinances and home energy rating incentives is aimed at further developing the HERs rating infrastructure that has been developed by the California Energy Commission. We agree that further marketplace testing and development of a home assessment and rating systems

has great value to California and to long-term residential market transformation goals.

We, therefore, direct the IOUs to work with local governments and the California Energy Commission to identify jurisdictions wishing to pilot incentives for HERs II assessments and/or ratings as part of the Energy Upgrade California program. Based on these conversations, each IOU may include proposals for one or more HERs incentives trials in its Energy Upgrade California program implementation plan for the 2013-2014 period. Description of these trials in the Energy Upgrade California PIP shall indicate: (1) the anticipated incentive level and to whom the incentive will be offered (i.e. building owner or contractor); (2) building professional training and/or certification requirements for accessing the incentive; (3) additional outreach or coordination activities that will occur as part of the trial; (4) estimated budget for each trial; (5) hypotheses that the trials would test; and, (6) the anticipated evaluation approach.

8.1.8. Energy Upgrade California: Multifamily Program

About one third of California households reside in multifamily buildings,[220] which are primarily served by the IOUs' Statewide Multifamily Energy Efficiency Rebate Program (MFEER), which is part of the Statewide Program on Residential Energy Efficiency (SPREE). Additional SPREE incentives and services (such as are offered in the Basic Compact Fluorescent Lamps, Upstream Lighting, and Appliance Recycling programs) are also fully available to multifamily building

[220] Residential Appliance Saturation Survey (2010). CEC.

residents. The Commission authorized a MFEER budget of $81 million for 2010-2012 in D.09-09-047.

The Programmatic Guidance Ruling identified two major barriers to multifamily participation in Energy Upgrade California and similar comprehensive energy improvement programs: the "split incentive" barrier and the lack of access to capital among multifamily property owners. The Ruling proposed the following steps during 2013 and 2014 for improving IOU multifamily programs:

- Evaluate Energy Upgrade California multifamily program elements launched in the 2011 -2012 period to inform their further expansion in the 2015-2017 period;
- Consider the recommendations of the Multifamily Subcommittee of the California Home Energy Retrofit Coordinating Council (HERCC) and the approaches emerging from the Energy Savings Assistance Program (ESAP) multifamily whole building program development to refine future Energy Upgrade California multifamily program elements;[221]
- Pursue all avenues to overcome the split incentive barrier;
- Increase targeted outreach to multifamily building owners to drive demand; and
- Ensure that all central system measures (i.e., boilers, central air, water, and heaters) become available via the existing MFEER program, so that the complexity associated with multifamily building owner access to single measure rebates is decreased.[222]

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[221] "Improving California's Multifamily Buildings: Opportunities and Recommendations for Green Retrofit and Rehab Programs: Findings from the Multifamily Subcommittee of the California Home Energy Retrofit Coordinating Council. (April 2011).

[222] Programmatic Guidance Ruling at A34.

8.1.8.1. Positions of Parties

CCSF, LGSEC, WEM, Green For All and the Greenlining Institute, PG&E, and SDG&E commented on Commission Staff's multifamily proposals. Greenlining Institute and WEM urge higher incentives for an Energy Upgrade California multifamily program element and increased attention to this market segment. Greenlining also recommends engaging owners and managers in program development to ensure their concerns are addressed in the program structure, and that the program is not cost-prohibitive to low-to-moderate income households living in these buildings. PG&E advanced the importance of multi-family program design efforts to be consistent with the Energy Savings Assistance Program and the Moderate Income Direct Install programs because these address similar housing stock. SDG&E pointed out it has a pilot multi-family Energy Upgrade California program underway in 2012 and expects to use the program results to inform the development of a "full program." LGSEC points to program design features that are critical and affect the services delivery model to be utilized, including permitting owners to hire their own contractors (unlike some of the existing programs) and considering the multi-family program recommendations put forward by the California Home Energy Retrofit Coordinating Council (cited in the Staff proposal).

LGSEC also states that local governments can take a more holistic approach than utilities are typically able to take on multifamily programs, and can provide a single point of customer interface for property owners. It asserts that participation in multifamily utility incentive programs will be significantly increased if local governments take on multifamily program support roles using ratepayer funding. LGSEC submits that local governments can add value to multifamily programs in the following areas:

- Targeted outreach. Local governments are in the best position to market the new whole building incentives and recruit participation in collaboration with industry partners;
- Integrated technical assistance. Local governments can help property owners prioritize their building improvements and refer them to the appropriate resources;
- Training and workforce development. Local governments can sponsor trainings for auditors/raters that serve utility programs as well as other financing programs; and
- Addressing split incentives. Local governments can create educational resources for renters and multifamily property owners.[223]

8.1.8.2. Discussion

We understand that while SDG&E has a pilot program underway, other IOUs are still working to launch Energy Upgrade California multifamily "whole building" pilot projects in 2012. Meanwhile, multi-family programs supported by American Recovery and Reinvestment Act stimulus funds (administered by the California Energy Commission, local governments, and the Community Services Development Department) are winding down and looking to transfer their lessons learned and best practices to wider-scale programs. We welcome the numerous program design recommendations offered by parties, and commend this input to the utilities' preparation of their upcoming applications. Primary recommendations were to 1) provide for a contractor delivery entity (entities) acceptable to the building owner such as a one-stop-shop to garner greater participation,[224] and 2) ensure coordination across utility, Energy Savings

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[223] LGSEC, Comments on Programmatic Guidance Ruling; D 09-09-047 at 120.

[224] The one-stop-shop should apply to the forthcoming multifamily Energy Upgrade California program. Program implementers should also be adequately trained to

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Assistance Program (ESAP), and Community Services Development Department's Weatherization Assistance Program and Low Income Home Energy Assistance Program, to ensure a more streamlined way to offer whole-building solutions to the owners and managers of multifamily housing (containing multiple income levels), benefits to both tenant-occupied and common-areas of a building, and utilization of programs (e.g., financing) that can address split incentives by allocating expenditures and benefits between owners and occupants.

We agree that the results of both the utility and American Recovery and Reinvestment Act-funded pilot projects would be helpful to inform guidance on a statewide Energy Upgrade California multifamily program for the 2013-2014 period. We direct IOUs to submit evaluation reports of their 2012 Energy Upgrade California multifamily pilot projects in the 2013-2014 application proceedings, no later than three months after completion of those projects. We also note two other dimensions for knowledge coordination in this market segment: 1) our direction (in the financing section of this decision) to develop financing products appropriate to the unique challenges of multi-family housing, and 2) the pending direction for the 2012-2014 Energy Savings Assistance Program cycle (coming from proceeding A.11-05-017 et al.) regarding services to multifamily buildings, including how to address the challenge of multiple programs' overlap when low income and higher-income tenants occupy a single building. We look to the 2012/2014 ESAP/CARE applications (A.11-05-017 et al.) and the Commission's related decisions for more guidance's in this regards.

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ensure that the one–stop-shop includes relevant non-utility incentives for multifamily buildings and/or units that quality as low income.

The IOUs shall include a plan and timeline for proposing and implementing a statewide Energy Upgrade California multifamily program in their 2013-2014 transition period applications that addresses the Commission Staff Energy Upgrade California multifamily program recommendations summarized above and as further informed by party comments cited. This plan and timeline shall identify appropriate roles for local government support for multifamily programs, including in the areas of targeted outreach, integrated technical assistance, training and workforce development, and addressing split incentives. The plan and timeline shall also take into account recommendations on multi-family building strategies developed through activities authorized under the Energy Savings Assistance Program rulemaking (A.11-05-017 et. al.).

8.1.9. Energy Upgrade California: Whole House Home Energy Rating System (HERs) and Energy Upgrade California Approved Software

The Strategic Plan states that a "key driver" for the goal of getting home improvement markets to apply whole-house energy solutions to existing homes is to create market demand for efficient homes by increasing awareness of, and information on, energy efficiency.[225] The Strategic Plan also calls for market research to assess the impact of energy or carbon labeling, campaigns to raise demand for efficient homes, supporting local governments considering residential energy conservation ordinances at time of sale, and pilot projects based on the HERs program.[226]

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[225] Strategic Plan at 18.

[226] Strategic Plan at 20.

In D.09-09-047, the Commission directed the IOUs to create a "whole house" energy improvement program that would "support pre installation assessments and post-installation verification consistent with the California HERs program." The Commission stated that the IOUs' whole-house program should "establish approaches to coordinate with the California Energy Commission HERs Providers regarding training and certification of HERs raters and quality assurance."[227]

Public Resources Code Section 25942 directed the California Energy Commission to establish a statewide home energy rating (HERs) program for residential dwellings by 1995. The HERs program aims to create a consistent, accurate, and uniform rating system based on a single statewide rating scale that can identify the energy efficiency levels of California homes and help prioritize the investment in cost-effective home energy efficiency measures.

In June 1999, the California Energy Commission established "HERs I" regulations pertaining to HVAC installations in newly constructed and existing homes. The regulations require contractors or developers to obtain permits indicating correct installation of HVAC equipment according to Title 24.[228]

In 2009, the California Energy Commission promulgated a HERs regulations update which established a California "Whole-House Home Energy Rating System" (HERs II). HERs II ratings can be applied to existing and newly-constructed residential buildings, including single-family homes and multifamily

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[227] D.09-09-047 at 120.

[228] Officially known as "HERs for Field Verification and Diagnostic Testing," the 1999 Home Energy Reports I regulations established the basic framework for Home Energy Reports rater training, certification, and quality assurance systems. *See* http://www.energy.ca.gov/HERS/.

buildings of three stories or less. The HERs II rating works on a 0 – 250 scale, with a lower score indicating a more efficient home.[229] The HERs tool uses a "time dependent valuation" metric to weight energy use by its time of use, in this way incorporating into its rating the higher generation and delivery costs associated with energy use during peak periods.

HERs II software and services provide two main functions: (1) energy assessments, with recommendations for energy efficiency improvements and return on investment estimates, and (2) energy ratings.

To align themselves with both California Energy Commission objectives and this Commission's direction in D.09-09-047, the IOUs presently require contractors submitting Energy Upgrade California job applications to utilize either Energy Pro or HERs II software to model projected energy savings from the proposed installation of measures.

8.1.9.1. Positions of Parties

Many parties commented on the software used in the Energy Upgrade California program in response to Staff's proposal that the Energy Upgrade California program should test approaches likely to be used as part of AB 758 implementation during the 2013-2014 transition period. CBPCA, Efficiency First, and Solar City object to Staff's proposal for a local government pilot program where incentives for HERs II ratings would be made available in jurisdictions where local government adopted mandatory time of sale HERs II ratings.

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[229] A residence in compliance with Title 24 in the year it is rated is awarded a Home Energy Reports II score of one hundred, and is considered a "reference home" against which other homes are compared. A Home Energy Reports II score of "zero" is intended to indicate a "zero net energy home." A typical range of Home Energy Reports scores for homes built before 2008 would be 101 – 250.

Several additional parties voice concerns about the HERs system itself.[230] These parties contend that the Energy Pro and HERs II software rely on average energy usage patterns and regional assumptions, and do not take into account variations in homeowner behavior. These parties state that this leads to significant variance between predicted and actual savings estimates under the Energy Upgrade California program, undermines the credibility of the industry, and hampers its growth. Build it Green states that limiting Energy Upgrade California software to Title 24 code compliance functionality (part of both Energy Pro and HERs II) does not help the homeowner understand the likely bill impacts of Energy Upgrade California jobs, or help contractors with the calculation of rebates and job sales.[231]

The aforementioned parties unanimously agree on the need to broaden eligible software allowed for use under the Energy Upgrade California program. These parties state that expanding software options would foster competition and software improvements, and reduce hours of duplicative contractors' time per completed project. Many parties point to national residential home energy performance modeling standards, the National Renewable Energy Lab (NREL) "Best Test" standards, and standards adopted by the voluntary, national "RESNET" organization as informative.[232]

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[230] CBPCA, Efficiency First, CCSE, Solar City, BPI, and DRA.

[231] BIG Comments on Programmatic Guidance Ruling.

[232] RESNET (the Residential Energy Services Network) was founded in 1995 by the National Association of State Energy Officials and Energy Rated Homes of America to develop a national market for home energy rating systems and energy efficient mortgages. RESNET's standards are recognized by the federal government for verification of building energy performance for such programs as federal tax credits, the

Footnote continued on next page

Several parties, including Build it Green, Efficiency First, CBPCA, Solar City, and Building Performance Institute, suggest adding data reporting requirements to ensure that whatever software is approved can calculate energy savings in a manner consistent with all other software. Beutler states that it would be best if software is calibrated to a homeowner's individual location and that a California Energy Commission funded Energy Upgrade California low-interest rate financing project demonstrated that this was possible. CBPCA refers to the federal "Cut Energy Bills at Home Act," introduced by Senators Feinstein, Snowe and Bingaman, as a model to consider for the Energy Upgrade California in California. CBPCA states that a broad stakeholder coalition supported the federal bill, which requires software calibrated to individual energy bills.[233] CBPCA also states that Energy Upgrade California software should support but not require integration of code compliance features within energy modeling software. PG&E suggests that this Commission and the California Energy Commission jointly approve software for use in the Energy Upgrade California program.

8.1.9.2. Discussion

While we do not understand all the technical details of the HERs software in the context of the Energy Upgrade California program at this time, it is clear from party comments that significant concerns exist about limiting the software allowed under the Energy Upgrade California.

EPA's ENERGY STAR program, and the U.S. DOE's Building America Program. *See* http://www.resnet.us/about.

[233] This coalition includes American Council for an Energy Efficient Economy; Alliance to Save Energy, NRDC, RESNET, and Efficiency First.

The American Recovery and Reinvestment Act programs were designed to "create a foundation for future energy efficiency and renewable energy work" in California. We believe that American Recovery and Reinvestment Act-funded investments in HERs II and other Energy Upgrade California infrastructure should -- ideally -- be strategically built upon, until the anticipated benefits of the initial investment are realized or until alternative pathways towards the desired outcome become clear. However, we also believe that marketplace and contractor acceptance of a home energy rating system is absolutely critical to its success in raising consumer awareness and driving demand for more efficient homes.

Consequently, we reconsider our direction in D.09-09-047 that the IOUs ensure that the statewide whole house program (now the Energy Upgrade California) include activities "consistent with the California HERs program." Parties make a compelling case to broaden the software permitted in the Energy Upgrade California program. Therefore, we will not require mandatory HERs II ratings at this time because we want the Energy Upgrade California to garner continued contractor support and to grow into the comprehensive market transformation program envisioned in the Strategic Plan.

We direct Commission Staff and the IOUs to work collaboratively with the California Energy Commission and other Energy Upgrade California stakeholders to identify approaches to adequately broaden allowable software under the Energy Upgrade California program while containing costs required for needed Commission Staff reviews. In this effort, Commission Staff and the IOUs shall consider relevant findings and activities on building energy rating and labeling systems occurring as part of the AB 758 program development process. Commission Staff should report its recommendations on this issue to the service list of this proceeding or its successor, and the service list of the IOUs'

2013-2014 transition applications, as soon as feasible. In their deliberations, Commission Staff and the IOUs shall consider party input regarding whether allowable Energy Upgrade California software:

1) Should be required to meet national NREL BesTest and/or RESNET standards;
2) Include standardized data reporting requirements to ensure that each approved software calculates energy savings in a manner consistent with other software in the program;
3) Support, but not require, integration of code compliance features within the energy modeling software; and
4) Should allow reflection of the occupants' actual energy usage, i.e., should not rely solely on averages.

8.1.10. Energy Upgrade California: IOU Data Sharing

The Programmatic Guidance Ruling proposes that the IOUs be directed to share Energy Upgrade California program data with the California Energy Commission and specific local governments. The Ruling states that this step is needed to continue to document actual energy savings and associated costs from whole house energy upgrades, and that this information will help accelerate development of residential energy efficiency project financing offerings. In the Ruling, Commission Staff made the following recommendations on data sharing:

1) The IOUs should be directed to share Energy Upgrade California aggregated and customer specific data, including projected and actual savings, and all-in job costs;
2) Data should be shared with the California Energy Commission and specific local governments conducting Energy Upgrade California marketing, outreach and research activities;
3) Aggregated data should be provided in a manner that prevents identification of a single customer's energy usage and at the finest level of granularity possible;
4) Non-disclosure agreements and data security protocols should be required as needed prior to data sharing with any entity; and

5) Data should be provided in aggregated and disaggregated form and in industry standard electronic formats.

8.1.10.1. Positions of Parties

Of the twelve parties that commented on this topic, seven support Staff's proposal on sharing aggregated data (Build it Green, DRA, LGSEC, CCSE, Beutler, Greenlining Institute, and NRDC). DRA supports the release of Energy Upgrade California aggregated data by the IOUs to local governments and other building energy efficiency programs, stating that aggregated data does not pose privacy concerns. DRA and LGSEC recommend that the Commission direct the IOUs to provide data not just on the Energy Upgrade California program, but also for other building energy efficiency programs, and in support of local government efforts to develop climate action plans, or otherwise meet their legal obligations under AB 32. LGSEC asserts that a major barrier to tracking performance in multifamily buildings is access to utility usage information directly from the IOUs and recommends that the Commission direct the utilities to provide aggregated anonymous tenant usage data to building owners where tenants are individually metered.

CCSE supports the proposal and states that data should also be provided on relative measure uptake and cost, project level savings (therms, kWh, dollars), ancillary benefits realized, project location, and contractor. Beutler and Build it Green propose that the IOUs be directed to share Energy Upgrade California data with contractors who are investing their own funds in marketing the program. TURN states that data sharing should generate an inventory of technical project opportunities and financial analysis information via streamlining data gathering and analysis.

SCE argues that the proposal on data sharing contradicts D.11-07-056, adopted recently in the Smart Grid Rulemaking (R.08-12-009).

SDG&E/SoCalGas state that any data sharing or tracking systems should be consistent with D.11-07-056. DRA states that any data sharing must recognize privacy interests of utility customers. Specifically, DRA argues that, to the extent that personally identifying information or more granular data is requested--known as "covered information" in D.11-07-056--the Commission's Privacy Rules must apply. And where PG&E advocates the use of non-disclosure agreements with the California Energy Commission and local governments for any data shared regarding meritorious energy efficiency programs, DRA notes that customer privacy may not be adequately protected by non-disclosure agreements when local governments respond to public records act requests. Though DRA supports third-party access to information, it believes these privacy and security issues would be more appropriately addressed in the Smart Grid Rulemaking, R.08-12-009.[234]

8.1.10.2. Discussion

D.11-07-056 adopted privacy rules governing IOU release of the customer-specific data, and required that IOUs share the data on an aggregated basis.[235] Before D.11-07-056, the Commission addressed the sharing of

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[234] DRA Comments on Programmatic Guidance Ruling (December 23, 2011) at 5.

[235] *See* D.11-07-056 at 143: "Availability of Aggregated Usage Data. Covered entities shall permit the use of aggregated usage data that is removed of all personally-identifiable information to be used for analysis, reporting or program management provided that the release of that data does not disclose or reveal specific customer information because of the size of the group, rate classification, or nature of the information."

aggregated customer data in D.97-10-031, which adopted what is commonly referred to as the "15/15 rule."[236]

We believe that it would be helpful to address the release of customer data regarding the Energy Upgrade California and related energy efficiency programs. While the parties refer to D.11-07-056 and D.97-10-031, with its "15/15" rule, we recognize the limited scope of those decisions. Because data sharing is not directly related to the guidance needed for the 2013-2014 applications, we do not resolve data sharing issues at this time. These issues are important, however, and we intend to examine energy efficiency-related data sharing in a subsequent decision. We intend to examine appropriate conditions and restrictions that may be appropriate for the sharing of energy efficiency-related data, including data that has been aggregated or anonymized,[237] and the sharing of customer-specific data.

8.1.11. Energy Upgrade California: Other Program Direction

We direct the IOUs to clearly define the "whole house" program in their Energy Upgrade California PIP for the 2013-2014 transition portfolio and include in their 2013-2014 Energy Upgrade California program estimates of the number of single-family homes they plan to participate in the program in the 2013-2014

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[236] Roughly stated, the "15/15" approach adopted in D.97-10-031 requires that aggregated information provided by an IOU without customer written authorization must be aggregate data of at least 15 customers, and that a single customer's load must be less than 15% of the aggregated data. D.97-10-031 addressed non-residential customer information only.

[237] "Anonymized" data does not reveal the specific identity or location of the customer.

transition period.[238] The IOUs shall provide low, medium and high customer participation scenarios for 2013-2014 in their applications, a summary of the assumptions underlying these scenarios, and an associated budget for each scenario. These Energy Upgrade California participation scenarios shall take into account possible CAEATFA and other residential energy efficiency financing that may support Energy Upgrade California program growth in the 2013–2014 period, as well as additional Energy Upgrade California activities.

8.2. Plug Loads/Appliances

The Statewide Program on Residential Energy Efficiency's (SPREE) Home Energy Efficiency Rebates subprogram, the Business and Consumer Electronics subprogram, and the Appliance Recycling Program (ARP) address appliances, plug loads, and appliance recycling respectively. During 2010-2012 these programs were funded at the levels of $142 million, $45 million, and $67 million respectively, for a combined total of $255 million or 40% of the total SPREE budget.[239] In this subsection, we address these programs as a group.[240]

The Programmatic Guidance Ruling proposed merging the existing Home Energy Efficiency Rebates, Business and Consumer Electronics and appliance recycling subprograms into a single "Plug Loads/ Appliances" program with the aim of simplifying and reducing complexity in the IOUs' portfolios. The Staff

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[238] We discuss multifamily elements of the Energy Upgrade California program separately.

[239] This excludes the Multifamily Energy Efficiency Rebate (MFEER) program budget. MFEER includes rebates for some appliances, and is discussed in the Energy Upgrade California multifamily section above.

[240] Excluding the Appliance Recycling Program which is addressed in a separate subsection.

Proposal suggests that this would reduce administrative costs and maximize synergies in the IOUs' work with manufacturers and retailers and identifies the goals of the consolidated Plug Loads/Appliances program as being to:

1) Move all "feasible" plug load and appliance subsidy programs upstream to manufacturers to reduce program administrative costs, and develop clear criteria for the appropriate incentive delivery channel for all incented measures;
2) Reduce program costs by capturing efficiencies in the development of retailer partnerships across appliance types;
3) Reorient appliance recycling program activities to reflect market changes; and
4) Strive to rapidly transition technologies from the Plug Load program into Title 20 codes.[241]

8.2.1. Positions of Parties

Seven parties commented on the proposal outlined above. While TURN recommends "fully implementing the plug load proposals in 2013-2014," and SDG&E/SoCalGas also generally support integrating the three existing SPREE subprograms into one larger program, other parties are less supportive of the integration proposal. SCE opposes the proposal, noting that cost-effective interventions in the plug loads/appliances area include a range of up-, mid- and down-stream incentive delivery points. SDG&E/SoCalGas state that articulating clear criteria to determine the best delivery channel for any given plug load or appliance incentive would be beneficial. CCSE calls for continued strong focus on plug loads/appliances due to the "inexorable increase in the proportion of overall residential energy consumed by a very diverse group of small devices."

[241] Programmatic Guidance Ruling, at A30.

Gockel echoes CCSE's comments, while voicing concerns about pool pump requirements and rebate practices,

NRDC supports much more aggressive IOU plug load and appliance programs to support California's residential Zero Net Energy 2020 goals. It states that some 100 plug load types could be considered in the IOU program and that the Commission and IOUs should consider "horizontal standards" that allow energy savings across many product categories with one standard, such as: low power modes, internal power supplies, and power factor correction.

8.2.2. Discussion

Plug load, appliances and "miscellaneous" uses comprise about 66% of current California home electricity usage, with plug loads (televisions, personal computers, and office equipment) accounting for about 20% of home electricity usage alone.[242] Clearly, strategic intervention to reduce energy use by these devices remains important. PG&E and SCE state that they see residential market transformation as driven by lighting, plug load, and appliance programs.

We direct the IOUs to include the criteria they use to determine the best delivery channel for any given plug load or appliance incentive or intervention in their plug load and appliance program PIPs for the 2013-2014 transition period. The IOUs shall also clearly identify the selected delivery channels for all measures included in the Home Energy Efficiency Rebates and Business and Consumer Electronics programs and identify where synergies allow for more coordinated engagement work with retailers and manufacturers across the Home Energy Efficiency Rebates and Business and Consumer Electronics programs.

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[242] Programmatic Guidance Ruling at A5.

We direct the IOUs to simplify and streamline their plug load and appliance programs to maximize synergies with manufacturers and retailers and reduce administrative costs. The IOUs shall seek to ensure the provision of integrated information on high efficiency appliances and appliance recycling at retail partner outlets. In their 2013-2014 Home Energy Efficiency Rebates PIPs, the IOUs shall identify the steps being taken to ensure that the Home Energy Efficiency Rebates program is in compliance with Title 20 pool pump requirements and that expert stakeholder concerns regarding IOU pool pump rebating practices have been sought out and clearly addressed.

We are persuaded by NRDC's proposal that a more aggressive plug loads program would benefit California's residential Zero Net Energy aims. This suggestion seems in line with the Programmatic Guidance Ruling proposal that the IOUs ensure a "rapid transition of technologies from the Plug Load program into Title 20 codes."[243] We direct the IOUs to explore how their Business and Consumer Electronics and Home Energy Efficiency Rebates programs can support manufacturers' implementation of voluntary product specifications that support the development of mandatory "horizontal standards" (i.e., product standards that lead to energy savings across many product categories) for plug loads and appliances. The IOUs shall explore this approach through discussions with interested parties and in conjunction with their statewide Codes and Standards program and shall report on these discussions and any resulting program design changes in their 2013-2014 applications.

Finally, in line with PG&E's and SCE's statements regarding market transformation opportunities in these areas, the IOUs shall include in their Home

Energy Efficiency Rebates and Business and Consumer Electronics 2013-2014 program proposals a strategic discussion of how they will use these programs to advance market transformation toward Title 20 codes and standards changes.

8.3. Appliance Recycling Program

The Phase IV Scoping Memo suggested that the Appliance Recycling Program (ARP) be "reconsidered" based on recent Commission Staff evaluation and U.S. Department of Energy reports indicating declining levels of per-unit energy use and savings from recycled refrigerators. The subsequent Programmatic Guidance ruling included a unified proposal for reorienting ARP based on a summary of party suggestions in response to the Scoping Memo.[244]

8.3.1. Positions of Parties

Parties generally support reorienting the ARP program to improve its ability to capture incremental savings, reduce costs, leverage retailer-purchaser relationships, improve participation from multifamily building owners, and emphasize removal and recycling of secondary and high consumption units.

TURN and DRA raised concerns about high levels of free ridership in the ARP program. TURN states that the ARP was characterized by "100 percent free ridership" because major retailers such as Sears, Home Depot and others offer free refrigerator and freezer removal. DRA asserts that high rates of free ridership in the ARP make it unclear that a ratepayer subsidized recycling program is justified. DRA also notes that, if the Commission determines the

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[243] Programmatic Guidance Ruling at A39.

[244] Programmatic Guidance Ruling, Attachment A at A40.

program does not warrant ratepayer support, DRA would lend its support to the suggestions by other parties to reorient the program.

8.3.2. Discussion

It appears that, while per-unit savings of recycling refrigerators have declined, savings opportunities remain from refrigerator and freezer recycling, particularly for older and secondary units.

While we agree with TURN and DRA that there is cause for concern regarding free-ridership levels in the program, the 2006-2008 evaluation findings suggest that the ARP has mid-range *ex post* evaluated net to gross (NTG) ratios, and a range of program level cost-effectiveness estimates.

ARP 2006-2008 Evaluation Results

IOU	NTG ratio	TRC
SCE	0.52	2.40
SDG&E	0.51	1.13
PG&E	0.52	N.A.[245]

These data suggest that, while ARP NTG ratios are middle range, in at least two cases (SCE, SDG&E), the ARP program remains cost-effective.[246] SCE states that it continues to explore ways to reduce overall program costs in an ongoing trial that directs retailers to pick up units for recycling and emphasizes

[245] PG&E's ARP program was not a free-standing program during this period, so there is no ARP program specific total resource cost estimate available.

[246] Note that D.11-07-030 updating ex ante energy savings values will impact these reported Total Resource Costs during the 2010-2012 period, mostly downward. We do

Footnote continued on next page

collection of vintage and secondary units. PG&E reports an ARP trial aimed at improving the program's cost-effectiveness. SDG&E states that it intends to use findings from the SCE and PG&E trials to improve its collaboration with retailers and in this way to reduce program costs and increase program energy savings.

In light of these efforts, and in particular those of SCE, we are convinced that the ARP can continue to remain cost-effective. We direct IOUs to include a reoriented ARP program in their 2013-2014 transition period proposals, as outlined below.[247] The IOUs shall minimize ARP program costs while maximizing savings by implementing the following program changes:

1) **Add New Appliances:** Expand recycling efforts to include clothes washers and air conditioners;
2) **Switch to Distribution Center Pick-Ups:** Reduce overall program costs by directing retailers to pick up units for recycling. IOU program collections of appliances in the home could be replaced by collections at partner retailer distribution centers. IOUs must avoid duplicating existing efforts with these strategies;
3) **Emphasize High Consumption and Secondary Units**: Target units with highest savings potential and emphasize collection and recycling of vintage models, secondary units, and extra freezers;
4) **Influence Appliance Purchaser's Decision:** Use the results of current recycling retailer trials to determine the best approaches to partnering with retailers. These partnerships could seek to cost-effectively capture savings through influencing a new appliance purchaser's decision to retire their old units. IOU

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not have access to the updated ARP Total Resource Costs based on these updated ex ante values at this time, however.

[247] *See* Programmatic Guidance Ruling (December 7, 2012), at A40 for information on the party making each of these recommendations.

retailer partnerships could include delivering new appliances at the same time as collecting old units for recycling. The IOUs should seek to coordinate collection of old units with appliance manufacturers and recyclers;

5) **Participants Receive Appliance Incentives upon Surrender of old Appliance:** Condition the provision of appliance incentives upon surrender of older units for recycling;

6) **Transition of Recycling to Market Actors:** Transition the current appliance recycling program to market players by a specific date;

7) **Highest Standard of Recycling:** Require ARP participating recyclers to comply with highest standards of recycling, including for GHG emissions in refrigerants and foam insulation; and

8) **Properly Target Multifamily Residences:** Develop new recycling approaches for the multifamily sector, including a bulk exchange approach.

8.4. Residential New Construction

D.09-09-047 approved $63 million for two IOU Residential New Construction (RNC) subprograms within the statewide New Construction Program during the 2010-2012 program cycle. These programs are the California Advanced Homes Program (CAHP) ($51 million statewide budget) and the Energy Star Manufactured Homes Program ($12 million statewide budget).

The Programmatic Guidance Ruling proposes substantial changes to the IOU Residential New Construction programs that are intended to expand the support the program gives to the objective that all new homes be zero net energy homes by 2020. The Programmatic Guidance Ruling proposes that IOU Residential New Construction programs:

1) Use incentive design to encourage the early adoption of base and "Reach" 2013 Title 24 Standards;[248]
2) Increase incentive levels to make the program more attractive to participating home builders;
3) Emphasize measures that incorporate future code cycles in Residential New Construction design curriculum, and technical and design templates; and
4) Support development of a Zero Net Energy Roadmap that identifies efficiency measures likely to be adopted into Title 24 Standards in 2017 and 2020 for inclusion in the IOU Residential New Construction program.

The ruling noted that Title 24 2013 residential codes are likely to require a thirty percent higher residential building energy efficiency level than the Title 24 2008 codes.[249] The first three components of the Residential New Construction proposal are addressed in the following subsection, followed by a separate discussion of the fourth component (Zero Net Energy roadmap).

8.4.1. Residential New Construction Guidance for 2013-2014 Implementation Activities

8.4.1.1. Positions of Parties

SCE believes that the Staff proposal to increase Residential New Construction incentives in 2013 (in order to prepare the industry for the 30% increase in the Reach 2013 Title 24 (Title 24) standards that are expected to become effective in January 2014) will be difficult to implement. Among other things, SCE notes that there is limited time to adjust incentives and other

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[248] "Reach" codes are 15% and 30% more efficient than "base" Title 24 codes, as articulated in California's Green Building Standards Code's voluntary Tier 1 and Tier 2 standards respectively. *See*: http://www.hcd.ca.gov/CALGreen.html.

[249] Programmatic Guidance Ruling at A37.

program elements between the time of the adoption of the Title 24 codes sometime in 2012 and 2013. SCE further contends that the cost-effectiveness of the Residential New Construction program would be reduced if only builders that can achieve extremely aggressive savings goals are targeted for participation. SDG&E/SoCalGas recommend that parties and Commission Staff collaboratively develop a cost-effectiveness methodology to reflect the anticipated market transformation benefits of the proposed approach. The Staff proposal states that the costs of transforming California's residential new construction can be reduced in a slower construction market through focusing on a smaller set of builders wishing to position themselves competitively for renewed growth when the market expands.

SDG&E/SoCalGas also indicate a general interest in developing a Zero Net Energy roadmap which SCE states should include elements beyond Title 24. NRDC also supports a Zero Net Energy roadmap, but states that it should be based on best the estimates of the cost effective potential for energy efficiency and renewable technologies available within buildings.

8.4.1.2. Discussion

D.07-10-032 first adopted the residential Zero Net Energy 2020 target that "by 2020 all new housing in the California IOU service territories will be built to consume "zero net energy," calling this a "Big Bold Energy Efficiency Strategy" (D.07-10-032 at 42). D.08-09-040 reiterated this residential 2020 Zero Net Energy target and adopted it as part of the California Long-Term Energy Efficiency Strategic Plan.[250] D.08-09-040 directed IOUs to align their 2010-2012 energy

[250] Strategic Plan at 6.

efficiency portfolios with the Strategic Plan.[251] As noted in the Programmatic Guidance Ruling, several other state energy policy documents endorse the residential Zero Net Energy 2020 goals.[252]

Policies and programs supporting California's Zero Net Energy residential goals should support marketplace stability and long-term planning. Program cost containment is also important, and ratepayer-funded Residential New Construction programs must strive to support development of Zero Net Energy compliant residential buildings across the market segments, including multifamily, single family, and affordable housing developments.

We direct the IOUs to include in their 2013-2014 applications a timeline by which increased levels of incentives supporting the 30 percent more efficient building codes expected to be adopted in Title 24 can be incorporated into their Residential New Construction program. The date proposed for inclusion in the Residential New Construction program of higher incentives supporting the increased Title 24 efficiency levels should be no later than March 1, 2013. The IOUs shall consult with the California Energy Commission, Commission Staff, builders and other stakeholders regarding appropriate incentive levels for this increased building efficiency performance. The incentive design and increased incentive levels identified in this process should encourage the early adoption of base and reach (Title 24) codes.

To support this direction, several additional policy support steps are needed. First, we affirm that the unique IOU RNC program approaches needed to support California's aggressive residential Zero Net Energy 2020 goals clearly

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[251] D.08-09-040 at 16, 18, and 19.

[252] Programmatic Guidance Ruling at A37.

make this a market transformation program. Long-term market changes that the program should support with this new direction include increased skills development for building professionals and technicians and increased homeowner demand for high efficiency homes. As such, we direct the IOUs, in accordance with guidance on Program Performance Metrics and Market Transformation Initiatives elsewhere in this document, to identify (1) market barriers to achieving residential Zero Net Energy homes by 2020 and (2) mechanisms that the RNC program will employ to address these barriers starting in 2013.

Second, the IOUs shall review policies and programs supporting residential Zero Net Energy programs in other states for potential new and innovative program design approaches to increase homeowner demand and marketplace change, consulting with relevant experts in this area. They shall report at least preliminary results in their 2013-2014 applications, and may report more complete findings of this effort through an Informational Advice Letter served on the application service lists no later than April 1, 2013. The IOUs shall identify potential pilot projects or trials to test new program designs that would improve marketplace innovation and engagement and homeowner awareness within the 2013-2014 timeframe.

8.4.2. Residential New Construction Guidance for Future Zero Net Energy Roadmap

We find compelling arguments that the IOUs and other residential sector stakeholders should participate in developing a Zero Net Energy Roadmap that identifies efficiency measures likely to be adopted in the Title 24 Residential New Construction Standards in 2017 and 2020, for inclusion in the IOU Residential New Construction program cycles beginning in 2015. Early expert coordination will reduce costs to ratepayers and consumers of achieving Zero Net Energy

residential building codes by 2020 and will support market stability and long range planning.

We agree with NRDC that a Zero Net Energy Roadmap should include and be based on best estimates for cost-effective combinations of onsite renewable energy and energy efficiency for the range of building types. Failure to do so could result in the oversizing of on-site renewable energy when considerable energy efficiency measures could be more cost effective. The Staff proposal noted that residential energy use from miscellaneous, plug load, lighting and appliance end uses remains proportionally high, so we are sympathetic to SCE's recommendation that such a roadmap should be broadened to include elements beyond Title 24.

We, therefore, direct IOUs to collaborate with the California Energy Commission, Commission Staff, and other expert stakeholders to develop a Zero Net Energy Roadmap that identifies efficiency measures likely to be adopted into Title 24 Residential New Construction Standards in 2017 and 2020 for inclusion in future IOU Residential New Construction program cycles. This collaboration shall start within a timeframe relevant to support Title 24 2017 code cycle development activities, but shall, at a minimum, begin no later than June 2014. This Zero Net Energy roadmap collaboration would be led by Commission Staff and the California Energy Commission, or their designees, and would include the IOUs and other stakeholders. IOUs shall bring to the collaborative effort proposals for appropriate ways that the roadmap might include elements beyond Title 24, as well as proposals and/or a study plan to develop best estimates for cost-effective combinations of onsite renewable energy and energy efficiency for the range of building types included in this roadmap. The IOUs shall include in

their 2013-2014 Residential New Construction program proposal a budget estimate sufficient to fund these steps.

9. Program Guidance for the Commercial Sector

D.09-09-047 approved $1 billion in commercial energy efficiency programs for both existing buildings and new construction for the 2010-2012 program cycle. Budgets were approved for three types of utility administered programs: statewide, local, and third-party. Statewide programs constitute core programs that all four IOUs provide in their territory, while local and third-party programs are distinct to each of the utility portfolios. We provide guidance focused on the statewide and third-party programs in this decision.

The 2010-2012 Commercial Statewide Programs included five subprograms: Non-Residential Audits, Deemed Incentives,[253] Calculated Incentives, Direct Install, and Continuous Energy Improvement. Third-party programs are administered outside of the standard IOU statewide programs and are intended to pilot innovative approaches and delivery mechanisms for targeted customers. Third-party programs target niche markets such as schools, retail, healthcare, grocery stores, office buildings, lodging and hospitality.[254]

The December 7, 2011 Programmatic Guidance Ruling solicited comments on a Staff Proposal for the various market segments within the IOUs' energy efficiency portfolio. The proposal encourages commercial sector programs to

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[253] "Deemed Incentives" refers to pre-determined incentives for measures that are in DEER.

[254] Programmatic Guidance Ruling, Attachment A at A10. http://docs.cpuc.ca.gov/efile/RULINGS/154861.pdf.

focus on several specific areas to achieve deep energy savings in the 2013-2014 period, including the following:

- Targeting the untapped potential of small commercial buildings;
- Increasing the adoption of Emerging Technologies (ETs) into current programs;
- Increasing the measurement of performance data at the building level;
- Providing deeper energy retrofits through innovative auditing approaches and packages of measures; and
- Addressing split-incentive barriers in multi-tenant buildings.[255]

Parties are generally in favor of the direction of the Staff proposal. In addition, many parties provide further detailed recommendations to the Commission to consider for the 2013-2014 transition period.

9.1. Targeting the Untapped Potential of Small Commercial Buildings

Small commercial customers are notoriously hard to reach. Indeed, while small commercial buildings represent over 90% of SCE's and SDG&E's customer base, on average less than three percent are participating in energy efficiency non-residential programs.[256] In 2010, Commission Staff recognized the challenge of this particular market segment and, in conjunction with the IOUs, developed Program Performance Metrics (PPMs) to assess mid-cycle progress of small commercial customers. The Staff proposal suggests four strategies to address small commercial buildings:

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[255] Programmatic Guidance Ruling, at 3-4. http://docs.cpuc.ca.gov/efile/RULINGS/154860.pdf.

[256] 2011 Annual Reports and PPMs filed pursuant to Res E-4385.

1) Increasing coordination with Local Government Partnerships and Business Improvement Districts (BIDs) for hard to reach customers;
2) Acceptance of rebates in the small business market should include a commitment to an audit;
3) Utilizing the Energy Smart Jobs (ESJ) model for outreach, and piloting Building Energy Asset Rating System (BEARS); and
4) Programs focused on tenant-leased space should compile a participant "toolkit."[257]

9.1.1. Positions of the Parties

Though most parties agree that small commercial buildings present energy efficiency opportunities and should be a focus for the 2013-2014 transition period, parties disagreed about two of Staff's four strategies.

The IOUs did not agree with the recommendation that acceptance of rebates should include a commitment to an audit. The IOUs are concerned that requiring this commitment will hinder participation by a group of customers that are already hard to reach. SDG&E/SoCalGas caution that requiring audits in their territory would bar participation by gas customers of municipal electric utilities, such as Los Angeles Department of Water and Power (LADWP), which do not currently support an electric audit tool.[258] PG&E suggests that the IOUs should motivate the market through increased education and increased awareness.[259]

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[257] The Staff recommendation to include a "tool kit" for small commercial buildings in tenant-leased spaces is addressed below in the discussion on split incentives

[258] SDG&E and SoCalGas Comments on Programmatic Guidance Ruling at 10.

[259] *Ibid.* at 11.

The Energy Smart Jobs model "is an initiative of [Energy Upgrade California]; administered and funded by American Recovery and Reinvestment Act through the U.S. Department of Energy and California Energy Commission."[260] The Energy Smart Jobs trains energy surveyors to complete energy assessments, and provides incentives for technologies for businesses. SCE supports utilizing the Energy Smart Jobs model for outreach, while SDG&E/SoCalGas recommend that this model should undergo a program evaluation to gauge its effectiveness before IOUs are directed to replicate it. Most utilities support piloting the Building Energy Asset Rating System tool but caution that it is in an early stage of development and that they do not want to risk creating market confusion at this point. SCE and SDG&E/SoCalGas recommend that a Building Energy Asset Rating System pilot be deferred until after the tool is fully developed so as to not hinder benchmarking progress in this area.[261]

9.1.2. Discussion

Parties overwhelming agree that small commercial customers are hard to reach and that increased participation of this market segment is needed. The IOUs are actively engaging commercial customers, but reaching small businesses with less than a 200 kW demand is still a challenge. Local Government Partnerships often cater to small and medium commercial customers and have knowledge of these customers within their city and county confines. Local governments can also leverage insight on neighborhoods within a city, to further engage small commercial customers. Direct Install programs, often leveraged by

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[260] http://energysmartjobs.org/about/index.html.

Local Government Partnerships (LGPs), provide free to low cost measures for customers, and work well for small businesses. In addition, Business Improvement Districts [262] are another resource available to local governments and the IOUs to help support education and engagement of the small businesses.

Over the past few years California Air Resources Board has organized a program called the Small Business Energy and Water Makeover that coordinates with Business Improvement Districts, local officials, and utilities to pool small businesses together for energy assessments.[263] This has led to a cluster of small businesses doing energy efficiency measure replacements utilizing rebates from the IOU Direct Install program. PG&E concurs with the idea of increased coordination between Direct Install, Business Improvement Districts, and LGPs, but notes that cost-effectiveness could be affected because many LGPs are non-resource programs and the energy savings are not attributable to IOU goals. [264] In addition, increasing this collaboration with only Direct Install programs, could affect portfolio Total Resource Cost as this program provides free to low cost measures for customers, resulting in little investment from customers and high subsidies for measures. While Business Improvement Districts create value and can reduce outreach and marketing costs for IOUs by gathering small to medium

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[261] SCE Comments on Staff Proposal at 10.

[262] A Business Improvement District is a public/private partnership that performs a variety of services to improve the image of its city and promote individual business districts. It can also carry out economic development services by working to attract, retain and expand businesses.

[263] http://www.coolcalifornia.org/sites/coolcalifornia/files/NorthPark.pdf.

[264] Institutional Partnership Programs are resource programs, but Local Government Partnerships are non-resource programs.

sized businesses together, increased coordination of LGPs and Business Improvement Districts will entail a cost since this is a new activity not currently occurring in the LGP programs.

We find it reasonable to utilize the Small Business Energy and Water Makeover model and direct the 2013-2014 IOU applications to detail in their implementation plan, how their Direct Install and Deemed Incentive programs can utilize and coordinate with the Local Government Partnership Programs, and Business Improvement Districts. Additionally, we direct the IOUs to utilize Business Improvement Districts resources and direct the IOUs to file in their PIPs a plan for how they will utilize Business Improvement Districts to engage customers. In some cases, this might require contract amendments between IOUs and LGPs.

Audits help customers identify additional energy efficiency opportunities. Offering audits at the time of measure replacement would educate customers on increased available energy savings, and reduce outreach costs to these customers at a later date.

We understand small businesses are hard to reach, and have limited budget for additional efficiency activities, specifically larger projects with a long payback. We do not want the IOUs to turn customers away because of an audit prerequisite, and will not adopt this requirement at this junction. However, we direct the IOUs to explore this requirement for customers considering three or more measures, as these customers are interested in deeper savings and potentially could make the additional investment. We direct the IOUs to set forth this approach for their Deemed Incentive and Direct Install Programs in their applications.

In D.11-04-005, the Commission suggested that the IOUs should pilot the Building Energy Asset Rating System tool when available from the California Energy Commission. We now direct the IOUs to propose to pilot the Building Energy Asset Rating System tool in the 2013-2014 transition period, starting in 2013, as this is the expected date the California Energy Commission has informed us it will be available for benchmarking.

9.2. Increasing the Adoption of Emerging Technologies into Current Programs

Emerging Technologies are highlighted as a significant contribution to energy savings for 2013 and beyond in the Potential Study.[265] The IOUs' annual reports show that Emerging Technologies make up between 1% and 14% of measures installed in the Deemed and Calculated Incentives statewide programs.[266] The Staff proposal for the 2013-2014 transition identified specific Emerging Technologies from the Potential Study for integration in the commercial Deemed and Calculated Incentives programs, and suggested coordination with the Lighting Market Transformation Program.

9.2.1. Positions of Parties

All four IOUs support increasing emerging technologies in the commercial Deemed and Calculated Incentive programs. For example, PG&E states the commercial market is risk averse, and emphasizes careful selection for these

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[265] Analysis To Update Energy Efficiency Potential, Goals, And Targets For 2013 And Beyond, at 100. http://www.cpuc.ca.gov/NR/rdonlyres/7C233849-9726-497DA60DFE84A057591A/0/PotentialGoalsandTargetsStudyTrack1DraftReport20111108.pdf.

[266] Staff Proposal in the Guidance Ruling Attachment A at A11. http://docs.cpuc.ca.gov/efile/RULINGS/154861.pdf.

technologies and along with increased incentives to ensure participation with the least amount of risk for customers.[267] PG&E further suggests collaboration between Commission Staff and the IOUs to identify the most promising Emerging Technologies.[268] PG&E also supports increasing the installation of cost-effective measures identified in the Potential Study but recommends that the IOUs and Commission Staff jointly determine these technologies.[269] SCE agrees with PG&E's recommendations, but notes that success is also contingent on Commission Staff's swift validation of corresponding workpapers for approval of new measures.[270] Lastly, both PG&E and SDG&E/SoCalGas warn that this recommendation may increase program cost and reduce cost-effectiveness.[271]

9.2.2. Discussion

Emerging Technologies support market transformation and their development is an important policy tool that can help achieve California's Zero Net Energy goals. Innovators and early adopters help demonstrate the commercial viability of Emerging Technology pilots and deployments, but incentives are needed to help defray the higher initial cost and motivate mainstream market adoption. The IOUs acknowledge the potential of Emerging Technologies and suggest increasing incentive levels are needed to prime the market for these innovative measures. We agree that it is reasonable to offer higher subsidies for new technologies to spur traction in the market. We approve

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[267] PG&E Comments on Staff Proposal at 9.

[268] *Ibid*.

[269] *Ibid.* at 11.

[270] SCE Comments on Staff Proposal at 11.

[271] *Ibid.* at 10.

the IOUs' request to raise incentive levels for Emerging Technologies in the 2013-2014 period, and direct them to file in their PIPs the incentive levels they propose to implement.

The IOUs suggested collaboration with Commission Staff to specify which Emerging Technologies in the Potential Study should be incorporated into the Statewide Programs. We agree collaboration is important between Commission Staff and the IOUs on Emerging Technologies, but also find that there are many other industry stakeholders that would be valuable to include in the collaboration about such technologies. We recommend improvements to the existing Emerging Technologies Coordinating Council to advise on technologies in the 2013-2014 transition period.

9.3. Increasing the Measurement of Performance Data

The Staff Proposal acknowledges the importance of gathering performance data for energy efficiency projects to support additional investment in the commercial sector. Measures of energy savings after energy efficiency installations are not readily available for commercial building projects. The Staff Proposal sets forth multiple strategies for gathering performance data. Parties commented on two of these strategies as follows: (1) incorporate better modeling tools for pre- and post-installation measured savings; and (2) provide incentives for the installation of data-gathering plug load technologies (e.g., watt meters), and for sub-metering.[272]

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[272] Sub-metering is the metering of individual buildings or commercial spaces, which creates awareness of energy usage by individual tenants or buildings where previously disguised by a master meter.

9.3.1. Positions of Parties

PG&E believes there is a need for performance data and is supportive of pre- and post-installation measurements and of sub-metering to verify actual project savings. PG&E also suggests the use of software-based energy management systems, as these systems use performance data to identify deeper energy savings in the commercial sector.[273] PG&E supports testing ideas for data gathering in the 2013-2014 transition period through pilots, and expanding successful methods in 2015.[274] SCE concurs with the need to increase the measurement of performance data, but is concerned that the technical capability may not be available at a reasonable cost prior to 2015, and recommends piloting several technologies in 2013-2014.[275]

9.3.2. Discussion

All parties who comment on this topic agree that performance data, including at the building, tenant level, or end-use level, is pertinent information and that improved ways to gather and utilize such information should be a part of the 2013-2014 transition portfolio.

Increasing the measurement of energy and energy savings at the tenant, building, or end use level may encourage additional financing for energy efficiency projects, as it will help reduce the performance risk of successful projects.[276] We previously emphasized the importance of customer level data by

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[273] PG&E Comments on Staff Proposal, at 10.

[274] *Ibid*.

[275] SCE Comments on Staff Proposal, at 11.

[276] Harcourt Brown & Carey, Inc. Energy Efficiency Financing in California Needs and Gaps - Preliminary Assessment and Recommendations, at p 45.

Footnote continued on next page

instituting benchmarking in D.09-09-047 for commercial energy efficiency programs; in D.11-04-055, the Commission revised targets and approaches to reach this goal. Sub-metering is identified in the Strategic Plan as a critical strategy to implement in the near term to help achieve the commercial buildings zero net energy goals. We continue to recognize the significance of performance data and direct the IOUs to file in their applications methods by which more detailed performance and usage data can be measured, stored, and used, for implementation and/or piloting during the 2013-2014 transition period.

9.4. Providing Deeper Energy Retrofits Through Innovative Auditing Approaches and Packages of Measures

Staff proposed ways to deliver deeper energy retrofits in the commercial sector through innovative auditing approaches and measure packages. High Impact Measure replacements are one of the primary approaches to energy savings for commercial statewide programs.[277] The Staff Proposal recommended a wide range of broad principles for programs geared toward deeper savings. The proposals addressed in this subsection include:

- Presentation of return on investment in audit results, and
- Tailoring audits to market segments, investigating the Energy Smart Jobs model.[278]

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http://www.cpuc.ca.gov/NR/rdonlyres/9A7637A9-BE7E-4762-B48F-93530D11DF8D/0/EEFinanceReport_final.pdf.

[277] A High Impact Measure is an energy efficiency measure that represents a significant portion of the IOU portfolio energy savings and demand reduction.

[278] Programmatic Guidance Ruling.

9.4.1. Positions of Parties

PG&E agrees to explore new audit tools, but cautions that there is a need for better software tools. In particular, PG&E sees, "the need for a more cohesive and well-articulated software strategy which leverages SmartMeter™ capabilities for a full suite customer engagement and education approach to address time-varying pricing and to increase participation in demand-side management."[279] SDG&E/SoCalGas also support the development of strategies that would lead to deeper energy retrofits. SDG&E/SoCalGas note that in order to have a basic audit tool present a set of measures with consistent savings before the auditor leaves a customer site, savings assumptions and workpapers need to be finalized with ex-ante savings data. The California Construction Industry Labor Management Trust (CILMT) supports deep whole building retrofits and suggests focusing on municipalities, universities, colleges, schools and hospitals, as they represent a strong area for investment since these customers face fewer market barriers than residential and small commercial customers. According to CILMT these "customers are much more likely to invest in deep, whole building retrofits rather than single, high cost measures (such as lamp replacement)."[280]

9.4.2. Discussion

No parties contest the need to focus commercial energy efficiency programs on deeper energy retrofits and packages of measures in the 2013-2014 transition period. We agree with the proposal as laid out by Staff. We direct the IOU applications to incorporate new approaches in their commercial programs to achieve deeper energy retrofits and packages of measures, as specified in the

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[279] PG&E Comments on Programmatic Guidance Ruling at 11.

[280] CILMT Comments on Programmatic Guidance Ruling at 3.

Staff proposal. We are dismayed at the apparent misconception by SDG&E/SoCalGas that the ex-ante savings review process should affect customer interaction, as implied by their comments. SDG&E/SoCalGas refer to the review process for custom projects and non-DEER measures workpapers, which in their view bear some "risk" due to the additional time built in for Staff's review of workpapers and savings assumptions. These should not deter the presentation of return on investment to a customer, because the reviews are to be conducted in parallel or prior to the utility and its customer signing a project agreement. We address concerns regarding delays in the ex ante savings review process below.

We are concerned that the ex ante savings misconception may permeate audit tools generally employed by the IOUs for commercial customers. Therefore, we direct the IOUs to explain whether or not their audit tools incorporate the ex-ante savings referenced by SDG&E/SoCalGas in their applications. Further we direct the IOUs to file in their applications how they will use the return on investment approach at the time of an audit to present the business case to customers. Finally, we agree with CILMT that the "MUSH" market (municipalities, universities, colleges, schools, and hospitals) should be a focal point to test ideas for deep energy retrofits in the transition period and direct the IOUs to include programs that cater to these entities in their applications.

9.5. Addressing Split-Incentive Barriers in Multi-Tenant Buildings

Split incentives are an inherent market barrier in tenant leased space in the commercial sector.[281] The Staff's Proposal provides two program recommendations to address this investment challenge. The first program modification seeks to engage owners and tenants through the compilation of a "toolkit" with tenant outreach materials. The second recommendation is for programs to increase the installation of sub-meters, plug load control technologies, and energy management systems through incentives for multi-tenant buildings.[282] As mentioned earlier, providing incentives for sub-metering and plug load control technologies will begin to pave the way for improved energy awareness and management for building owners and tenants.

9.5.1. Positions of Parties

PG&E and SCE both agree there is a need to increase owner participation in energy efficiency projects and address the split-incentive barriers that exist in non-owner occupied buildings. PG&E suggests pilot programs for sub-metering and software-based energy management in the 2013-2014 transition period, with expansion of successful methods in 2015.[283] PG&E states that savings associated with these methods need to be documented, to avoid decreased portfolio cost-effectiveness that could result from the increased cost of these tools.[284]

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[281] Split incentives refers to a condition where neither the owner nor the tenant is willing to make improvements to a leased space because neither party is likely to accrue the entirety of benefits associated with their investment.

[282] Programmatic Guidance Ruling at A15.

[283] PG&E Comments to Staff Proposal, at 10.

[284] *Ibid*.

9.5.2. Discussion

The parties that commented on this issue agree the split-incentive barrier is important and warrants program attention in the 2013-2014 transition period. Innovative program designs and resources such as a "green lease tool kit" for tenant-occupied buildings, along with incentives for plug load control technologies, sub-metering, and energy management tools, can help better identify and understand what approaches work to overcome the split-incentive market barrier. We direct the IOUs to propose programs focused on overcoming the split-incentive barrier in multi-tenant buildings. We also direct the IOUs to submit an approach to include incentives for sub-metering and plug load control technologies for both owner and non-owner occupied buildings.

10. Lighting Programs

D.09-09-047 approved, as a part of the Statewide Program for Residential Energy Efficiency (SPREE), $78 million for the Basic Compact Fluorescent Lamp subprogram and $89 million for the Advanced Lighting subprogram.[285] These programs provide discounts to customers that greatly reduce their cost of energy efficient lighting products. The Commission also approved a budget of $1.5 million for the Lighting Market Transformation program.[286] This program focuses on developing and testing market transformation strategies for emerging lighting technologies and commercially viable, advanced lighting technologies into the utility energy efficiency programs.

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[285] D.09-09-047 at 140 -141.

[286] Budgeted through the staff disposition of Advice Letter 3065-G-B/3562-E-B, dated September 17, 2010 and approved on October 21, 2010.

The Staff proposal contains several recommended changes to the IOU lighting programs for the 2013-2014 transition portfolio:

- Upstream rebates for basic Compact Fluorescent Lamps should be phased-out or significantly reduced;
- The existing residential lighting programs and the Lighting Market Transformation program should be unified into a new statewide Lighting Program consisting of four subprograms: (1) Lighting Market Transformation, (2) Emerging Lighting Technology,[287] (3) Lighting Innovation,[288] and (4) Primary Lighting;[289]
- Lighting measures should be consolidated for the residential and nonresidential sectors;
- The Lighting Market Transformation subprogram should continue its current activities but also serve as a coordination program that oversees the progression of new lighting measures from the proposed Emerging Lighting Technology subprogram to the Lighting Innovation and Primary Lighting subprograms; and

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[287] This subprogram would contain lighting measures that are currently supported in the Emerging Technology Program and would also support future emerging lighting technology measures. It would primarily develop small pilots and demonstration projects. As markets for measures are tested and demonstrated through this subprogram and become more mature, they would transition to the Lighting Innovation Program.

[288] This subprogram would be designed as an intermediary step to foster markets for measures that are more mature than those in the Emerging Lighting Technology subprogram but less so than those in the Primary Lighting subprogram. (*see* next footnote). It would develop medium scale pilots and demonstration projects to identify measures that should be supported in the Primary Lighting subprogram.

[289] The Staff Proposal originally called this the "Basic Lighting" subprogram. To avoid confusion with basic Compact Fluorescent Lamps, we will rename this the "Primary Lighting" subprogram.

- Rebates for advanced lighting including light emitting diodes (LEDs), specialty Compact Fluorescent Lamps,[290] efficient incandescent lamps, and dimmable linear fluorescent ballast products should be supported in the 2013-2014 portfolio. The proposal also suggests that rebates for general service screw base light emitting diode lamps should be provided only for products that meet a particular quality standard developed by the California Energy Commission. To maintain lower administration costs, the rebates are proposed to be applied upstream, although they may also be applied midstream for products typically purchased by lighting contractors.

Ten parties filed comments on Commission Staff's lighting proposals for 2013-2014, and eight parties filed reply comments. We address the parties' comments based on each proposal as follows:

10.1. Upstream Rebates for Basic Compact Fluorescent Lamps

10.1.1. Positions of the Parties

DRA supports the elimination of upstream rebates for basic Compact Fluorescent Lamps.[291] DRA cites research that indicates the market has transformed and that the saturation rate has remained stagnant at 21% of all sockets. DRA claims this is despite decades of utility-managed basic Compact Fluorescent Lamps programs.[292] TURN and SCE support the proposal to eliminate or significantly reduce upstream rebates. SCE explains it has been ramping down rebates for basic Compact Fluorescent Lamps and proposes to

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[290] Specialty Compact Fluorescent Lamps are mainly Compact Fluorescent Lamps not included in the 2010-2012 Basic Compact Fluorescent Lamps lighting program.

[291] DRA Comments on Programmatic Guidance Ruling at 7.

continue this during the 2013-2014 transition portfolio.[293] LGSEC agrees with the overall assessment regarding basic Compact Fluorescent Lamps.

Ecology Action, City of Berkeley, and the City and County of San Francisco suggest that upstream rebates for basic Compact Fluorescent Lamps should be eliminated but also recommend that rebates and support for downstream comprehensive lighting upgrades still include basic Compact Fluorescent Lamps. These parties' comments generally contend that this direction should be taken to ensure minimal lost savings.[294] NRDC states that if potential in the Compact Fluorescent Lamps market remains, the Commission should allow the IOUs to capture those savings with a program designed to maximize customer benefits.[295] Synergy Companies endorses NRDC's comments regarding basic Compact Fluorescent Lamps.[296]

PG&E contends that upstream rebates for basic Compact Fluorescent Lamps should not be eliminated, as cost-effective savings still exist. PG&E contends basic Compact Fluorescent Lamps should be part of a broader channel strategy to provide incentives through retailers serving low-income and hard-to-reach customers.[297] SDG&E/SoCalGas recommend that we focus on supporting lighting solutions based on the merits of Total Resource Cost and

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[292] DRA Comments on Phase IV Scoping Memo at 1-2.

[293] SCE Comments on Phase IV Scoping Memo at 4.

[294] City and County of San Francisco Comments on Phase IV Scoping Memo at 2.

[295] NRDC Comments on Phase IV Scoping Memo at 2.

[296] Synergy Companies Comments on Phase IV Scoping Memo at 3-4.

[297] PG&E Comments on Programmatic Guidance Ruling at 13.

total energy savings over a product's life, including basic Compact Fluorescent Lamps.[298]

10.1.2. Discussion

The Strategic Plan sets forth the Commission's vision for the lighting market with regard to support for basic Compact Fluorescent Lamps: "Utilities will begin to phase traditional mass market Compact Fluorescent Lamps bulb promotions and giveaways out of program portfolios and shift focus toward new lighting technologies and other innovative programs that focus on lasting energy savings and improved consumer uptake."[299]

A majority of the commenting parties indicate the Commission should not completely remove support for basic Compact Fluorescent Lamps in the 2013-2014 portfolio if it is determined there is available cost effective savings potential remaining. Some parties indicate the rebates should be shifted downstream, echoing the same sentiment that if cost effective savings remain in basic Compact Fluorescent Lamps, the Commission should not pass up the opportunity to capture them.

The 2011 Potential Study indicates that there is remaining cost-effective potential in basic Compact Fluorescent Lamps. While the study indicates this remaining potential is substantially diminished from previous years, this nonetheless contradicts DRA's position that no savings potential remains for Compact Fluorescent Lamps.

As determined in the 2011 Potential Study, the market potential for lighting for basic Compact Fluorescent Lamps in 2013 is 64.13 gWh, and for 2014

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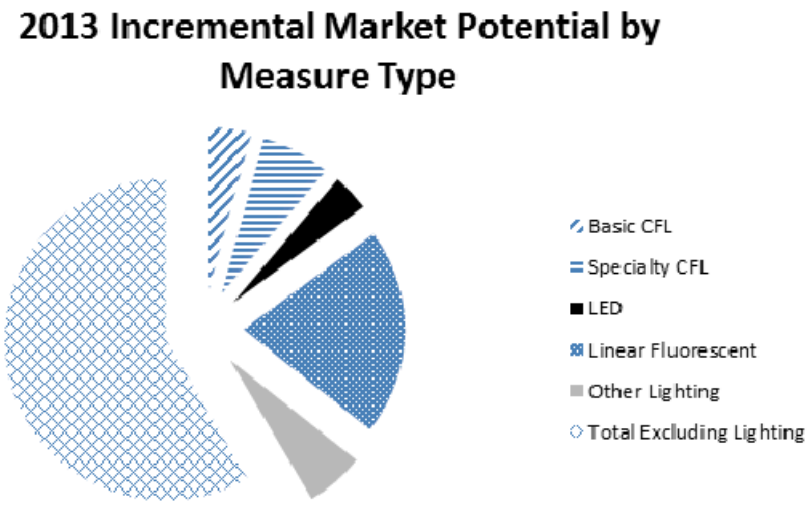
[298] SDG&E and SoCalGas Comments on Programmatic Guidance Ruling at 11.

it is 34.32 gWh. The incremental market potential for advanced lighting measures, which includes all measures including fixtures, ballasts, controls, light emitting diodes, and specialty Compact Fluorescent Lamps (but excludes basic Compact Fluorescent Lamps), is 562.5 gWh for 2013 and 544.22 gWh for 2014. The incremental market potential for light emitting diodes measures is 56.30 gWh for 2013 and 66.53 gWh for 2014. The incremental market potential for specialty Compact Fluorescent Lamps is 104.5 gWh for 2013 and 118 gWh for 2014. We graphically break out the individual components of the total market potential remaining in lighting for 2013.



We conclude that we should not ignore available cost effective savings that basic Compact Fluorescent Lamps can still provide, particularly when our overall energy efficiency goals for the transition period are less than previous cycles. The IOUs are directed to propose upstream rebates in the Primary Lighting subprogram for basic Compact Fluorescent Lamps to capture the

[299] Strategic Plan at 11.

remaining market potential as indicated by the 2011 Potential Study.[300] A majority of commenting parties support this direction. We emphasize that the utilities' rebate program for basic Compact Fluorescent Lamps should be limited in size, meaning that its design and budget should be tailored to the limited remaining market potential for basic Compact Fluorescent Lamps. We further clarify that any Compact Fluorescent Lamps potential captured through the Energy Savings Assistance Program (which counts towards the utilities' energy savings goals) during the same period shall be deducted from the amount of Compact Fluorescent Lamp potential targeted and budgeted for in the 2013-2014 energy efficiency program cycle. In their applications, the utilities shall provide detailed testimony and workpapers if necessary, to demonstrate how their proposed basic Compact Fluorescent Lamps program complies with this limitation. The utilities are expected to target specialty Compact Fluorescent Lamps through appropriate program designs to capture the remaining potential in these applications. Specialty Compact Fluorescent Lamps are discussed below in the lighting section of this decision.

The Strategic Plan envisioned phasing out support for basic Compact Fluorescent Lamps. Our guidance to the utilities to propose a much smaller basic Compact Fluorescent Lamps program for the transition period is a step in the phase out process envisioned by the Strategic Plan.

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[300] These rebates are applied upstream to minimize administration costs.

10.2. Lighting Program Re-design

10.2.1. Positions of the Parties

DRA supports the lighting recommendations that emphasize a longer term strategy for market transformation.[301] DRA contends the program design should focus on the critical product development "chasm" to take the measures from the early adopter market stage to the early majority.[302]

SDG&E and SoCalGas concur with the Guidance Ruling Proposal that the IOU lighting program should institute a framework that provides a pathway of support for market transformation.[303] They recommend that this process be focused on a market approach that helps develop products, creates awareness, and provides the products at an affordable price. SDG&E and SoCalGas suggest the "lighting program should cover both residential and non-residential sectors, which would provide greater synergy and improve the program's overall effectiveness."[304]

PG&E recommends the lighting programs continue in the new portfolio as they are addressed in the current portfolio. PG&E asserts that the current rebates best meet the unique needs of each customer segment, many third-party and local government programs incorporate lighting offerings already, and Emerging Technologies currently addresses lighting properly.

SCE comments that an emerging technology program dedicated to lighting runs contrary to the Integrated Demand Side Management (IDSM) priorities set

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[301] DRA Comments on Programmatic Guidance Ruling at 7.

[302] DRA Comments on Programmatic Guidance Ruling, Appendix A at 5.

[303] SDG&E and SoCalGas Comments on Programmatic Guidance Ruling at 10.

[304] *Id.*

by the Commission, and that a Lighting Innovation subprogram would be duplicative of Staff's proposed Emerging Lighting Technology subprogram.

10.2.2. Discussion

The Strategic Plan articulates our vision of the lighting market and future utility lighting programs:

> The residential lighting industry will undergo a substantial transformation through the deployment of high-efficiency and high-performance lighting technologies supported by state and national code standards…The utilities will begin to…shift focus toward new lighting technologies and other innovative programs that focus on lasting energy savings ….[305]

With this in mind, Staff proposes to redesign the IOU lighting programs to (1) more effectively facilitate market transformation for advanced lighting products, and (2) simplify and reduce the number of programs.

One point that is emphasized in the party comments is the need to develop the lighting market in a way that will provide greater and deeper long-term savings. Like resource acquisition and immediate energy savings, the promotion and facilitation of lighting market transformation is crucial to an effective lighting program. We direct the IOUs to include a Statewide Lighting Program in their applications. Specifically, the IOUs are directed to include lighting measures applicable to the residential and non-residential sectors in the Statewide Lighting program. We see benefit to reducing the number and complexity of programs by consolidating lighting measures into a single statewide program. We agree with SDG&E, SoCalGas, and DRA that to facilitate market transformation and a long-term savings strategy, measures for all sectors need to focus on market

transformation. Contrary to PG&Es comments, we believe this change will more effectively address the unique market segments by more expeditiously transforming lighting markets in all sectors.

Second, we direct the IOUs to continue supporting technology assessment of pre-commercialized lighting measures in the Emerging Technology Program in the 2013-2014 portfolio. We believe an Emerging Lighting Technology subprogram for lighting is unnecessary and risks duplication of effort. We are confident that the existing Emerging Technology Program, as modified below in this decision, can spur the innovation of new lighting products.

Third, we direct the utilities to propose a Lighting Innovation subprogram to support advanced lighting technologies aimed at early adopters. We concur with DRA that we need to dedicate resources to help these innovative lighting technologies bridge the "chasm" between the early adopters and the early majority. From the early stages of product development, promising measures that exit the Emerging Technologies Program should transition to the Lighting Innovation subprogram for further market development. Addressing SCE's concern that this subprogram would be duplicative of the Emerging Technologies Program efforts, the Lighting Innovation subprogram would support demonstration and pilot projects of measures in the very early stages of commercialization, not pre-commercialization. Moreover, the scale of the demonstration and pilot projects in the Lighting Innovation subprogram should be of a greater scale than those in the Emerging Technologies Program. This will

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[305] Strategic Plan at 11.

help determine which measures should be eventually supported on a larger scale with upstream rebates.

Finally, we direct the IOUs to propose a Primary Lighting subprogram in the Statewide Lighting Program for the purpose of supporting lighting measures that have reached a greater level of commercialization. This subprogram should receive a majority of the lighting funds and would facilitate rapid market adoption through cost-effective upstream rebates.[306] Specific measures that should be in the Primary Lighting subprogram include basic Compact Fluorescent Lamps (as discussed previously) and additional measures that are addressed in greater detail below. This will complete the pathway of market transformation, as measures transfer from the Emerging Technology Program, to the Lighting Innovation subprogram, and then to the Primary Lighting subprogram.

10.3. Lighting Market Transformation as a Coordination Program

10.3.1. Positions of the Parties

Seeing Staff's proposal as a "fresh approach to program implementation for greater market transformation and deeper energy savings," SDG&E and SoCalGas agree the Lighting Market Transformation program should oversee the progression of lighting measures in the IOU lighting programs.[307] However, PG&E suggests the Lighting Market Transformation program should continue

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[306] These rebates are applied upstream to minimize administration costs, however the rebates may also be applied midstream for products typically purchased by lighting contractors.

[307] SDG&E and SoCalGas Comments on Programmatic Guidance Ruling at 10.

serving the same function as it does in the 2010-2012 portfolio, focusing narrowly on developing and testing market transformation strategies.

SCE raises the concern that the Lighting Market Transformation subprogram could be viewed as a peer advisory board that is a separate entity from the utilities. It warns against any of its program administration authority being repositioned to a peer advisory board. SCE argues that D.05-01-055 establishes the IOUs as the program administrators and asserts that legal obstacles prevent peer advisory boards from managing any ratepayer money without statutory authorization.

10.3.2. Discussion

The Strategic Plan sets a goal to "develop and implement coordinated policies, procedures, and other market interventions that eliminate barriers, accelerate lighting market transformation in California and provide incentives for best practice lighting technologies and systems."[308] Further, D.07-10-032 discusses market transformation as it pertains to the lighting market, stating, "[s]hort-term programs such as the replacement of incandescent light bulbs with compact fluorescent lamps bulbs must be accompanied by programs to encourage new technologies in lighting…"

In light of our longstanding position and parties' comments, we direct the IOUs to propose a Lighting Market Transformation subprogram within the Statewide Lighting Program directed herein. The Lighting Market Transformation subprogram should continue developing and testing market transformation strategies, as authorized in D.09-09-047. Using the results of the

[308] Strategic Plan at 99.

strategies developed, the mission of the Lighting Market Transformation subprogram would be to facilitate and expedite lighting market transformation. It would do this by overseeing the progression of lighting measures from the Emerging Technology subprogram to the Primary Lighting subprogram. Further, the Lighting Market Transformation subprogram would be tasked with ensuring lighting has adequate representation in the Emerging Technology Program to ensure measures are being evaluated for potential inclusion in the Lighting Innovation subprogram. The Lighting Market Transformation subprogram should contain representatives from each of the utilities and Commission Staff.

We agree with PG&E that the current function of the Lighting Market Transformation program is important and should remain. However, we believe that broadening the Lighting Market Transformation in the specified manner more closely aligns with our policy aims. We find SCE's concerns in regards to the use of advisory groups to be unfounded since the Lighting Market Transformation subprogram would not act as a peer advisory group - and the IOUs will be the administrators of the Statewide Lighting Program.

10.4. Upstream Rebates for Advanced Lighting Measures

10.4.1. Positions of the Parties

CILMT concurs with the Staff proposal and supports advanced lighting products in the transition portfolio. SCE encourages the Commission to capture the savings potential that remains for lighting products, including advanced Compact Fluorescent Lamps and light emitting diodes. PG&E agrees that directional light emitting diodes and dimmable linear fluorescent ballasts should be supported in the transition portfolio, but cautions against dimmable Compact

Fluorescent Lamps being supported. PG&E contends that the technology enabling dimmable Compact Fluorescent Lamps is not ready for market support, as the user experience with those products has been negative up to this point.[309] DRA and WEM disagree, stating that dimmable Compact Fluorescent Lamps can help achieve greater energy savings.[310]

WEM states that EnergyStar and Design Lights Consortium have provided adequate light emitting diode quality specifications for the Commission to establish as a baseline quality standard for rebates.[311] SDG&E and SoCalGas put forth a similar recommendation, stating that the current specifications allowing only Design Lights Consortium or EnergyStar labeled light emitting diode is sufficient to ensure long-lasting high-quality products.[312] DRA states that Commission Staff and the IOUs should work closely with EnergyStar, Design Lights Consortium, and the California Lighting Technology Center to create a more advanced light emitting diode standard for California.[313] DRA and WEM recommend that all light emitting diode products that receive ratepayer support

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[309] PG&E Comments on Programmatic Guidance Ruling at 12-13.

[310] DRA Comments on Programmatic Guidance Ruling at 7-9.

[311] WEM Comments on Programmatic Guidance Ruling at 10.

[312] SDG&E and SoCalGas Comments on Programmatic Guidance Ruling at 10.

[313] DRA Comments on Programmatic Guidance Ruling at 3.

should include a "Lighting Facts"[314] label to help consumers understand the quality of an individual product.[315]

Finally, TURN cautions that the Commission should determine whether light emitting diodes will likely only replace Compact Fluorescent Lamps in the marketplace, which would not improve energy savings to a significant degree.[316]

10.4.2. Discussion

Consistent with the Strategic Plan's emphasis on advanced lighting products, the Staff proposal recommends providing upstream rebates for light emitting diode, specialty Compact Fluorescent Lamps, efficient incandescent lamp, and dimmable linear fluorescent ballast products in the Statewide Lighting Program.[317] The 2011 Potential Study indicates substantial achievable savings are available from these advanced lighting measures.

Parties generally favor supporting light emitting diode products in the 2013-2014 portfolio. While the baseline information TURN identified is not widely available, the 2011 Potential Study indicates there is substantial energy savings potential in light emitting diode measures. Much of this is due to the fact that light emitting diode and Compact Fluorescent Lamps technologies tend to be complementary; many applications that are adequate for Compact Fluorescent

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[314] A program of the U.S. DOE, the Lighting Facts® label provides detailed information for consumers, including luminaire light output, efficacy (lumens per watt), measured power (watts), correlated color temperature, and color rendering index. http://www.lightingfacts.com.

[315] DRA Comments on Programmatic Guidance Ruling at 3.

[316] TURN Comments on Programmatic Guidance Ruling at 8.

[317] These rebates may also be applied midstream for products typically purchased by lighting contractors.

Lamps, such as omnidirectional installations in portable desktop luminaires, are not as suitable for current widely available light emitting diodes, and vice versa.

In light of the 2011 Potential Study findings and supportive party comments, we direct the IOUs to propose upstream rebates for light emitting diode (LED) measures, including LED down lamps and screw base LED general service lamps, in the Primary Lighting subprogram directed herein.[318] In California there is substantial energy saving potential for the replacement of inefficient incandescent down lamps that are deployed in buildings all across the state with more efficient LED down lamps.

We expect the California Energy Commission to adopt a lighting quality standard for LEDs in the current Title 20 Rulemaking. We direct the IOUs to only propose incentives for LED products that adhere to that standard. For example, regarding quality standards, we direct the IOUs to only propose rebates for general service screw base LED products that are consistent with the quality standards developed by the California Energy Commission. We concur that Commission Staff, the IOUs, and the California Energy Commission should consult with U.S. Environmental Protection Agency's (EPA) ENERGY STAR program, Design Lights Consortium, and the California Lighting Technology Center in the California Energy Commission's establishment of a California general service LED standard. We agree with DRA and direct the IOUs to only propose rebates for LED products that have a U.S. Department of Energy

[318] These rebates may also be applied midstream for products typically purchased by lighting contractors.

Lighting Facts ® label, a program of the U.S. Department of Energy and U.S. Federal Trade Commission.[319]

As noted in D.09-09-047, the Commission is focusing support on high efficiency cost-effective lighting products like specialty Compact Fluorescent Lamps.[320] The 2011 Potential Study indicates there are substantial savings remaining for specialty Compact Fluorescent Lamps products. With the exception of dimmable Compact Fluorescent Lamps, party comments support giving incentives for specialty Compact Fluorescent Lamps in the 2013-2014 portfolio. We are concerned about PG&E's contention that the quality of currently available dimmable Compact Fluorescent Lamps is insufficient for ratepayer funding to support these technologies. In deference to this argument, we direct the IOUs to propose upstream rebates for specialty Compact Fluorescent Lamps products, with the exception of dimmable Compact Fluorescent Lamps products, in the new Primary Lighting subprogram.[321] However, Party comments regarding support for dimmable linear fluorescent ballasts are overwhelmingly positive. Dimmable linear fluorescent ballasts achieve considerable savings by enabling lower lighting levels when the full lighting capacity of a particular linear florescent lamp is not needed. Accordingly, we direct the IOUs to propose upstream rebates for dimmable linear fluorescent ballasts in the new Primary Lighting subprogram.

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[319] As of February 2, 2012, the U.S. Department of Energy Lighting Facts ® label was provided on 4339 products. http://www.lightingfacts.com.

[320] D.09-09-047 at 126.

[321] These rebates may also be applied midstream for products typically purchased by lighting contractors.

11. Codes and Standards

Progressive increases in building and appliance efficiency standards are a critical component of achieving the State's long-term energy efficiency goals. The Commission has authorized IOU activity in this area, including giving credit for savings attributable to codes and standards advocacy and supporting the addition of new strategies to improve compliance and promote the adoption of Reach Codes.

D.09-09-047 approved a $30.4 million budget for the 2010-2012 statewide Codes and Standards program. The current program has four sub-programs:

- Building Codes, including: (1) Advocacy, (2) Extension of Advocacy, and (3) Codes and Standards Enhancement studies;[322]
- Appliance Standards including: (1) Advocacy, (2) Extension of Advocacy and (3) Codes and Standards Enhancement studies;
- Compliance Enhancement;[323] and
- Reach Codes.[324]

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[322] The IOUs' Building Codes activities include codes and standards program "advocacy" activities that target the California Energy Commission and U.S. Department of Energy to influence building and appliance efficiency regulations. Extension of Advocacy efforts are carried out to improve the rate of compliance with Title 24 (building code) and Title 20 (appliance standards) primarily by providing education and training of key market actors.

[323] The purpose of the Compliance Enhancement Program is to increase the number of customers complying with existing codes and standards through outreach, education and training activities.

[324] This subprogram encourages local governments to adopt "reach codes," which are voluntary standards that go beyond minimum efficiency requirements in existing codes. They are voluntarily adopted as mandatory by local government ordinance and by other agencies, such as the California Tax Credit Allocation Committee for affordable housing. The CEC plans to incorporate reach standards into the 2013 Title 24

Footnote continued on next page

The 2010-2012 codes and standards program is projected to account for 19% of the IOUs' total portfolio energy (kWh) savings and 17% of total demand (MW) reduction.[325] Prior decisions have allowed the IOUs' codes and standards program to count verified codes and standards savings towards the achievement of the goals.[326]

The Phase IV Scoping Memo signaled the intent to re-shape the IOUs' programs away from shallow savings and more toward programs that achieve greater market transformation and long-term savings. Accordingly, Commission Staff proposes several changes to the codes and standards program, including the following:

- Reorientation toward an "integrated, dynamic approach," to establish a formal process that dynamically aligns planning activities across the IOU energy efficiency portfolio within the Codes and Standards program activities to prepare the market for future code adoption (i.e., improve code readiness), to ensure higher code compliance rates and advance the Strategic Plan goals toward Zero Net Energy;

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update by placing them as a voluntary standard in Part 11, the Green Building Standards Code.

[325] Third-Quarter 2011 Compliance Filing Reports. http://eega.cpuc.ca.gov/ReportsFundShifting.aspx.

[326] D.10-04-029 allowed the IOUs to count "… 100% of verified savings from pre-2006 codes and standardsadvocacy work toward achievement of the 2010-2012 goals. We clarify that this accounting is only for savings occurring within the IOU service areas" (D.10-40-29.). D.07-10-032 allowed the IOUs to count "100% of verified savings from post-2006 codes and standards advocacy work" (D.07-10-032.). The IOUs did not include savings claims specific to Compliance Enhancement and Reach Codes subprograms in their 2010-2012 applications. D.10-04-029 directed Commission Staff to conduct pilot evaluations of the sub-programs.

- Enhanced Workforce Education and Training to ensure the proper installation, commissioning and maintenance of code compliant measures and systems;
- Marketing, education, and outreach to improve the understanding of the benefits associated with code compliance among contractors and consumers and facilitate the adoption of future more stringent codes; and
- Targeted incentives to boost the low compliance rate of targeted codes and standards.

Eight parties filed comments on Staff's proposal and two filed reply comments.

11.1. An Integrated Approach

The Staff Proposal calls for "a redesign of the statewide codes and standards program," placing it in "a central strategic position within the IOU energy efficiency portfolio."[327] The proposal addresses a perceived gap in current IOU codes and standards programs, namely, the absence of an integrated process for coordinating codes and standards activities throughout all of the IOUs' programs. Staff recommends creating a formal process that dynamically integrates early planning activities within the Codes and Standards program with supporting program activities across the IOUs' portfolio to achieve the following goals:

- Maximizing code compliance with current and future codes and standards;
- Improving code readiness to all significant energy savings opportunities identified for a future code update cycle; and

[327] Programmatic Guidance Ruling at 4.

- Targeting Reach Codes to achieve the Zero Net Energy goals for residential sector by 2020 and the commercial sector by 2030.

The proposal also emphasizes the importance of collaboration between the California Energy Commission, the IOUs, and this Commission to plan and coordinate the activities to achieve these goals.

11.1.1. Positions of the Parties

For the most part, the IOUs agree with the Staff Proposal on the "integrated dynamic approach." CILMT[328] and DRA[329] also support this recommendation. The IOUs seem to agree that the proposed recommendations should not replace existing program activities or override compliance improvement opportunities. In addition, some IOUs assert that their existing program activities indicate that:

(1) Savings from advocacy are the most cost-effective energy efficiency savings in the State;

(2) Role based trainings aimed at local governments and Title 24 consultants were developed from a rigorous needs assessment and remain a high priority; and

(3) Initial input from the best practices study and Compliance Improvement Advisory Group (CIAG) indicate that simplifying the compliance process through an automated forms and permitting processes may yield the best return on investment, and that compliance improvement activities in general will not be effective in the long run if compliance is not expected or enforced.[330]

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[328] CILMT Comments on Programmatic Guidance Ruling at 10.

[329] DRA Comments on Programmatic Guidance Ruling at 9.

[330] SDG&E/SoCalGas Comments on Programmatic Guidance Ruling at 12.

SDG&E/SoCalGas further suggest adding a new statewide "Planning and Coordination Subprogram" for the purpose of identifying high-priority advocacy objectives – including those that incorporate reach codes to achieve Zero Net Energy – and for maintaining an open communications forum. The Planning and Coordination Subprogram would include the following:

- Identification of statewide codes and standards objectives;
- Bringing the Map Zero Net Energy, Integrated Energy Policy Report, AB 1109, and other policy goals into code cycle timelines;
- Establishment of base code and state and local government reach code requirements to meet policy goals;
- National building code priorities, including green building codes;
- State and federal appliance standards priorities; and
- Identification of industries to target for outreach and communications.[331]

11.1.2. Discussion

The role of codes and standards in the technology advancement continuum was emphasized by the Commission in D.09-09-047.[332] The importance of codes and standards is also reflected in the Strategic Plan where it is highlighted as one of the policy tools critical to implementing the market transformation goals of the Strategic Plan.[333]

The Strategic Plan aims to achieve its objectives by among other things, strengthening and expanding building and appliances codes and standards, and

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[331] SDG&E and SoCalGas Comments on Programmatic Guidance Ruling at 13.

[332] D.09-09-047 at 88.

[333] Strategic Plan at 63.

dramatically improving code compliance and enforcement. However, there are challenges relating to timing and complexity for implementing codes and standards program components. In particular, there are a limited number of Title 20 and Title 24 update cycles before California's 2020 and 2030 Zero Net Energy goals for residential and commercial new construction take effect.[334]

After considering all the factors impacting the codes and standards program, we are persuaded that the Staff Proposal to create an integrated dynamic approach should be developed. An integrated approach to the codes and standards program addresses the critical need for targeted and collaborative efforts with technology development leading to future codes and standards adoption. The codes and standards program should engage in Emerging Technologies Program planning activities early on so as to be able to collaborate in the development of advanced technologies and practices that could to be adopted in future codes. While the IOUs prepare Codes and Standards Enhancement studies and engage in advocacy work with the code-setting bodies, the IOUs' programs can help improve market code readiness for targeted measures.[335] Pilots, demonstrations, training and outreach programs expose customers to new technologies and practices and ultimately result in higher rates of market acceptance and consequently higher rates of compliance.

Several parties, including the IOUs, CILMT, and DRA, support this part of the Staff proposal. We agree with comments asserting that existing codes and

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[334] The current Title 24 update has been delayed a year, and will take effect in 2014 instead of 2013 – leaving effectively only one more code update by which to achieve the Residential ZNE goals by 2020.

[335] Activities targeting code readiness affect cost effectiveness, availability, and acceptability by the market.

standards program activities should not be replaced, and we believe the Staff proposal will supplement (and not supplant) the current program design.

SDG&E/SoCalGas' proposal to create a statewide "Planning and Coordination Subprogram" aligns with our comprehensive codes and standards planning and coordinated implementation efforts. We therefore adopt the SDG&E/SoCalGas proposal and direct all the IOUs to include in their codes and standards program implementation plans a detailed description for such a statewide program, including program objectives, strategies, and expected outcomes, as well as program budgets.[336] The subprogram plan should include an outline of the functions of each codes and standards subprogram and their roles relative to each other and other utility programs, including but not limited to, the Emerging Technology Program, incentive programs targeting retrofits and major renovations, Residential New Construction, Savings By Design, Workforce Education and Training, Marketing, Education and Outreach, Zero Net Energy pilots, and the residential Zero Net Energy Roadmap initiative directed in this decision.

11.2. Workforce Education and Training, and Marketing and Outreach

The Staff Proposal emphasizes the importance of technical training initiatives as part of the integrated approach to prepare the workforce for quality installation and maintenance of energy efficiency measures. Such training is required for advanced technologies, systems or integrated building design and operation approaches that will likely be adopted in upcoming codes and standards as well as Reach Codes. The Staff Proposal also acknowledges that

[336] SDG&E/SoCalGas Comments on Programmatic Guidance Ruling at 13.

current codes and standards programs offer training to facilitate code adoption and compliance. Staff recommends that training programs be created to provide the required technical skills related to existing and upcoming codes and standards for installers (such as contractors and technicians), and coordinated with existing programs.

11.2.1. Positions of the Parties

PG&E supports the Staff Proposal to increase the coordination with Workforce Education and Training and incentive/rebates programs and suggested that these modifications could be integrated during the transition period.[337] SDG&E/SoCalGas note that strong coordination between the codes and standards program, Marketing, Education and Outreach, and rebate/incentives programs would improve awareness, understanding and compliance with code.[338] SCE states that funding might need to be increased if the codes and standards program is to increase integration with activities such as Workforce Education and Training, and Marketing, Education and Outreach.[339]

CILMT and Greenlining support the Staff proposal to investment in training for installers and urge that this proposal be implemented in the transition period.[340] CILMT further recommends that training investments targeted to achieve codes and standards goals be aligned with existing skills upgrade mechanisms for occupations, such as continuing education requirements for architects, engineers, inspectors, and plan-checkers, and the

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[337] PG&E Comments on Programmatic Guidance Ruling at 13.

[338] SDG&E/SoCalGas Comments on Programmatic Guidance Ruling at 13.

[339] SCE Comments on Programmatic Guidance Ruling at 12.

[340] Greenlining Comments on Programmatic Guidance Ruling at 7.

state-certified apprenticeship journey skills upgrade requirements for certified electricians.[341]

DRA supports most of the Staff Proposal recommendations on enhancing workforce education and training, and customer marketing, education and outreach.[342] PG&E recommends that the California Energy Commission, with expertise and support from the IOUs, should continue to lead mass marketing efforts to increase code adoption.[343]

11.2.2. Discussion

Effective adoption and realization of energy savings requires that the correct installation and operation of new energy technologies and systems be supported by coordinated workforce education and training. Coordinated workforce education and training can produce higher rates of compliance with new codes and standards in the market (i.e., fuller realization of the potential energy savings and demand reduction adopted by code). The IOUs and DRA support the Staff's recommendations on Workforce Education and Training targeting existing and new codes and standards as well as Reach Codes.

We direct the IOUs to propose expansion of their codes and standards programs through coordinated initiatives (resources and/or budgets) with the statewide Workforce Education and Training programs to implement this recommendation[344]. This more targeted training can be created as a new program element of the Statewide Codes and Standards Program or

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[341] CILMT Comments on Programmatic Guidance Ruling at 11.

[342] DRA Comments on Programmatic Guidance Ruling at 9.

[343] PG&E Comments on Programmatic Guidance Ruling at 13.

implemented through third-party programs. In their program implementation plans, the IOUs are directed to propose this program element as a non-resource program with the primary objective of providing technical training and certification programs for contractors and technicians. This effort should target new and/or advanced technologies that are candidates for Reach Codes and upcoming codes and standards that support the advancement of California's Zero Net Energy goals. The program activities should also prepare the workforce to provide installations and maintenance that are consistent with the Codes and Standards and Reach Codes.

We agree with PG&E that the expanded marketing and outreach activities to improve code compliance should be led by the California Energy Commission. In addition to the current advocacy activities implemented through the codes and standards programs, we direct the IOUs to partner with the California Energy Commission to support their outreach/education activities to improve compliance with codes and standards.

11.3. Incentives for Codes and Standards

The Staff Proposal recommends that specific market segments receive incentives to offset the high costs inherent in the process of complying with some standards (such as the cost of obtaining a permit) and encourage measure adoption through the codes and standards program. However, the Staff Proposal cautions that such incentives should be administered on a case-by-case basis, based on pre-established criteria that are supported by a strong rationale and reviewed in the IOUs' applications.

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[344] For further information, see Attachment C to this decision.

11.3.1. Positions of the Parties

SCE is interested in the idea of offering incentives for codes and standards opportunities and requests to have additional conversations with Commission Staff regarding this matter.[345]

TURN and DRA do not support Staff's recommendation to offer incentives and rebates for compliance with existing codes.[346] Rather, TURN and DRA support enforcement of Codes and Standards by the California Energy Commission and local governments. Moreover, while TURN supports incentives for performance that surpasses or out-performs Codes and Standards, it cautions against relying on rebates as the primary means of ensuring code compliance. DRA asserts that ratepayers should not, pay for compliance with existing requirements. Instead, DRA recommends that to the extent that there is poor compliance with existing Codes and Standards, ratepayers should support increased education and outreach, and enhanced financing to improve adoption of measures that are compliant with Codes and Standards requirements.

11.3.2. Discussion

Parties' comments on the use of incentives to support code compliance are varied. We see at least two examples in which incentives to augment codes compliance could be justified. First, for existing codes, the cost of complying with certain requirements (e.g., obtaining permits) could be a barrier in some market segments (e.g., residential HVAC). Second, for future codes to meet aggressive goals or policy mandates (such as Zero Net Energy and AB 1109), local

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[345] SCE Comments on Programmatic Guidance Ruling at 12.

[346] *See* TURN Comments on Programmatic Guidance Ruling at 2; and DRA Comments on Programmatic Guidance Ruling at 9-10, respectively.

jurisdictions which adopt reach codes become an important stepping stone and testing ground to collect data on adoption rates of new technologies. Today, less than 10% of local jurisdictions have adopted reach codes, and even within those jurisdictions data regarding compliance rates is lacking. We believe that jurisdictions that otherwise would not have adopted reach codes could be enticed to do so, if their constituents were offered financial incentives to comply with reach codes. In both examples, we see merit in exploring the possible use of incentives to augment code compliance. However, given that this would be a new approach not previously tested, we direct the IOUs to work with the California Energy Commission and Commission Staff to obtain recommendations on (a) potential local jurisdictions to target for potential reach code adoption, and (b) specific areas of low code compliance based on documented and verified compliance rates

Rather than dismiss or embrace the use of incentives on the basis of what may be considered equally compelling arguments, we believe it prudent to investigate further. The pilots referenced above should be consistent with Staff's proposed threshold criteria for using incentives set forth below:

- Existing (adopted) codes and standards with documented and verified low compliance rates and a minimum two-year gap between the date the standard has been adopted and its effective date;
- Existing (adopted) and/or new Reach Codes; and
- Future codes and standards that have yet to be adopted by the California Energy Commission but have undergone technology assessment through the Emerging Technologies Program, and for which Codes and Standards Enhancement studies have been prepared.

Once identified, the IOUs should propose a pilot program in their applications, if merited, to be conducted during the 2013-2014 period, to test the use of incentives to support code compliance. Commission Staff should evaluate the effectiveness (through pilot evaluation studies) of this approach.

11.4. Local Government Role

11.4.1. Positions of the Parties

Several Parties offer comments on the role of local government entities in codes and standards initiatives. LGSEC states that the current economy has caused severe staff reductions in planning and permitting departments and recommends that financial resources be allocated to support code compliance. CCSF asserts that local governments should play a greater role in developing and enacting reach codes and in code enforcement. CCSF also argues that the California Energy Commission rather than the IOUs should play a central role in the development of local reach codes. CCSF further recommends that during the 2013-2014 transition period, the Commission should pilot approaches that shift these code activities toward local governments and the California Energy Commission.[347]

LGSEC recommends that the Commission direct funds for codes and standards work to regional local government energy networks or individual local governments that have the core competency and relevant experience to develop and implement codes and standards. In order to gain the support of local governments for the development of new ordinances, LGSEC contends that it is

[347] CCSF Comments on ALJ Ruling Regarding Program Guidance for the 2013-2014 Energy Efficiency Portfolio at 7-8.

critically important that financial resources be allocated to support these policy-making and implementation activities.[348]

CCSE states that instead of incentives for code compliance through the IOUs, the Commission could better achieve code compliance through direct support for local government associations and other similar actors. CCSE suggests that this could be done at the state or regional level to leverage economies of scale and encourage maximum participation from individual jurisdictions.[349]

11.4.2. Discussion

We recognize that Codes and Standards compliance enforcement can be a challenge for some local governments. The Commission has supported funding for the IOU codes and standards program to: (a) advance the adoption of more stringent code and standards through the codes and standards program advocacy work; (b) improve code compliance through the Extension of Advocacy and Compliance Enhancement Program; and (c) promote adoption of Reach Codes among local jurisdictions.

In the 2013-2014 transition period, we further emphasize the importance of code compliance by introducing new elements to the codes and standards program, such as training of the workforce to provide them the knowledge required for proper installation and maintenance of code compliant measures and systems, and partnering with the California Energy Commission to augment its outreach efforts to educate consumers about the benefits of code compliance. Although we acknowledge that education and training are not substitutes for

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[348] LGSEC Comments on Programmatic Guidance Ruling at 10.

enforcement, the codes and standards program activities target raising awareness and understanding regulations to provide key market actors and consumers the tools and knowledge necessary for compliance.

12. Emerging Technologies Program

In D.09-09-047, the Commission approved a statewide Emerging Technologies Program budget of $56 million for the 2010-12 portfolio. These funds were used to add five new program elements to address the Strategic Plan goals of achieving Zero Net Energy.

The Strategic Plan identifies two main goals to address the advancement of energy efficient technologies. One goal is to leverage private and public funds for the deployment of new technologies. The second goal is to achieve profound improvements in new building and equipment energy efficiency.

The 2010-2012 Emerging Technologies Program elements are as follows:

- Technology Assessments focused on evaluating energy efficient measures that are new to a market, or new and/or underutilized for a given application. The assessment function supports the transfer of promising measures into the utility portfolio;
- Scaled Field Placements are used to place a number of measures at customer sites as a key step toward gaining market understanding and traction;
- Demonstration Showcases to implement large-scale projects that expose measures to various stakeholders utilizing real-world applications and installations;
- Market and Behavioral Studies focused on identifying potential barriers to program adoption early in the process, and

[349] CCSE Comments on Programmatic Guidance Ruling at 15.

to inform multiple points in technology development, assessment justification, and transfer;

- Business Incubation Support or Technology Resource Incubator Outreach (TRIO) focused on providing training and networking for developers of energy saving technologies; and
- Technology Development Support to search for opportunities to benefit energy efficiency product development.

We believe the Emerging Technologies Programs offer a means to move the newest technologies to market, while helping consumers, through ratepayer subsidies, afford the best available energy efficiency measures before they are ubiquitous. By continually bringing new technology into the energy efficiency portfolio, we will help diffuse emerging technologies into the market, and eventually transform the market. At the same time, as more established technologies achieve market transformation, we will remove them from the subsidized energy efficiency portfolio. This process should help ensure that our energy efficiency programs focus on the best, newest technology, and that measures that no longer require subsidies are removed from the program.

The Emerging Technologies Program requires significant effort to plan projects throughout the technology development continuum. Simultaneously, the time frame for achieving California's market transformation towards Zero Net Energy requires a targeted focus on moving innovative technologies more quickly into the marketplace. This could be accomplished by establishing specific technology and innovative approaches targets, or technology roadmaps, for each market sector and end-use. The Emerging Technologies Program could achieve its targets not only by aligning its program activities with other energy efficiency programs in the IOU portfolio but also by leveraging concurrent efforts in the private and federally funded technology research and investments. The full and successful deployment of emerging technologies into the market can be best

realized through deliberate planning and engagement with the full range of private and public entities that are engaged in the research, development and deployment (RD&D) field.

However, statewide IOU Emerging Technology Program efforts in 2010-2012 appear to have experienced several challenges.

1. A primary challenge is that current program expenditures reflect extremely low program activity levels. As we enter the third year of the program cycle, the IOUs have spent just over a third of their authorized budgets.[350]
2. While not definitive as a measure of program success, we are concerned that expenditures may need to be more robust to achieve the promise of increasing energy savings through technology. The Emerging Technologies Program is supposed to provide successive waves of advanced technologies and innovative approaches into the IOU energy efficiency portfolio and the marketplace in California at large. While the program is well funded to pursue large scale demonstrations and technology advancement activities to meet the Zero Net Energy goals, the IOUs' budget allocations for Emerging Technologies Program activities (compared to their authorized budgets) reflect a dramatic pattern of under-spending on these programs.
3. Although spending levels may not relate directly to program success, the IOUs should in general demonstrate how their program expenditures and other activities generate new energy savings for ratepayers.
4. Another challenge in the current program design is that there is no clear mapping of program activities (as reflected in the PIP) to target specific markets and end-uses, particularly to achieve the Zero Net Energy goals of the Strategic Plan. In other words, program budgets and activities are allocated by program elements and do not necessarily link

[350] Collectively, the IOUs have spent $19 million out of the $56 million budgeted. PG&E has spent only a fifth of its budget. Data per February 2012 monthly reports on EEGA.

pre-defined sets of technology development milestones to advance the Strategic Plan goals.

To address some of these challenges and to ensure that the Emerging Technologies Program is operating in its full capacity to meet the energy efficiency savings goals and the aggressive goals of the Strategic Plan, the Staff Proposal in the Programmatic Guidance Ruling identified six recommendations for the current Emerging Technologies Program's design and implementation. Five of the six recommendations relate directly to IOU planning and program design of a more balanced Emerging Technologies Program portfolio:

1. Balancing the portfolio of emerging technologies is critical to advancing energy efficient technologies to ensure comprehensive inclusion of different market sectors and end uses;
2. Balancing short-term (1-3 years or within the program cycle) versus long-term (over 3 years) assessments as there is a need to commit program funds and resources to assess emerging technologies over the long-term to target the goals of Big Bold Energy Efficiency of achieving Zero Net Energy by 2020 in the residential sector and by 2030 for the commercial sector as detailed in the Strategic Plan;
3. Balancing new advanced and unproven versus emerging and/or underutilized technologies;
4. Planning is needed to consider transitioning new technologies from other external initiatives like universities, and entrepreneurs; and
5. Designing the Emerging Technologies Program to demonstrate technologies that are upcoming candidates for California Energy Commission Standards programs (including CEC-identified measures that are in the "pipeline" for inclusion in upcoming cycles of the Standards).

The sixth recommendation is aimed at broadening the IOUs' Emerging Technologies Program collaborative efforts by increasing the breadth and depth

of industry expertise and input on the IOU-coordinated Emerging Technologies Coordination Council (ETCC):

6. Expanding the committee members for ETCC to include key research organizations and universities, as well as the building and appliances standards setting bodies (California Energy Commission and U.S. Department of Energy).

12.1. Positions of Parties

In their comments, SDG&E/SoCalGas state that the Emerging Technologies Program does not engage in technology development, but instead serves as a catalyst for new technologies by (1) continuing to contribute to the development and deployment of emerging technologies and (2) verifying energy savings for which IOU programs may offer rebates.[351] SDG&E comments, in response to the proposal's recommendation to "balance" Emerging Technologies Program activities, that the Emerging Technologies Program should have the flexibility to judiciously select and evaluate technologies.

Regarding the balanced Emerging Technologies portfolio proposal, SDG&E/SoCalGas state that "requiring the Statewide Emerging Technologies Program efforts to pre-determine the 'balance' of program funding according to market segments, long versus short-term projects, and by new versus underutilized, would require knowing ahead of time which new technologies will be available during the two-year cycle."[352] SDG&E/SoCalGas advise against establishing prescriptive budget allocations prior to knowledge of technologies

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[351] SDG&E and SoCalGas Comments on Program Guidance for the 2013-2014 Energy Efficiency Portfolio at 13.

[352] SDG&E and SoCalGas Comments on Program Guidance for the 2013-2014 Energy Efficiency Portfolio at 14.

that will be available during the program cycle. They claim that pre-committing funding to specific market sectors can potentially hinder their ability to respond to changing market conditions.

PG&E agrees with the Staff Proposal that the Emerging Technologies Program funds and resources must be committed and balanced, but echoes SDG&E/SoCalGas's position that "the IOUs must have flexibility to actively manage their portfolios and to allocate resources and funds to respond to market changes to avoid missing opportunities to investigate innovative Emerging Technologies."[353] SCE seeks clarification on the recommendation that new advanced and unproven technologies should be balanced against emerging and/or underutilized technologies as well as long-term versus short-term benefits.[354] The California Construction Industry Labor Management Trust supports the general recommendation for a balanced approach in the emerging technologies programs.[355]

Regarding the recommended expansion of the ETCC membership, the IOUs agree in spirit with the recommendation, but do not agree with the proposal to provide full membership to other entities. As an alternative, the IOUs propose creating a new category of membership (e.g., Collaborating Member) that would provide the same opportunity as intended in this

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[353] PG&E Comments on Program Guidance for the 2013-2014 Energy Efficiency Portfolio at 14.

[354] SCE Comments on Program Guidance for the 2013-2014 Energy Efficiency Portfolio at 12.

[355] The California Construction Industry Labor Management Trust Comments on Program Guidance for the 2013-2014 Energy Efficiency Portfolio at 12.

recommendation, while exempting these entities from financial and resource commitments associated with membership.[356]

LGSEC suggests that the Emerging Technologies Program be more directly linked with local governments, which have capacity and opportunity to develop and deploy new and under-utilized technologies. LGSEC states that many local governments have established demonstration policies and programs by partnering with companies for demonstration and testing opportunities. It proposes that current programs could be expanded to enhance other local government partnerships/regional networks to work with more local governments as test beds for emerging technologies.[357]

The California Construction Industry Labor Management Trust recommends that the Emerging Technologies Program emphasize workforce preparation by coordinating the market deployment of emerging technologies with the development of appropriate skills standards. The Trust points out that this recommendation is consistent with the Staff's proposal for codes and standards programs. The Trust recommends that the Commission should support the replication of existing programs for early workforce planning, such as the California Advanced Lighting Controls program, to support transitioning emerging technologies to the market.[358]

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[356] SDG&E and SoCalGas Comments on Program Guidance for the 2013-2014 Energy Efficiency Portfolio at 15.

[357] LGSEC Comments on Program Guidance for the 2013-2014 Energy Efficiency Portfolio at 13-14.

[358] The California Construction Industry Labor Management Trust Comments on Program Guidance for the 2013-2014 Energy Efficiency Portfolio at 12.

12.2. Discussion

The 2010-2012 Emerging Technologies Program budget was approved in anticipation that the program is likely to play a central role in increasing the adoption of advanced energy efficiency measures and approaches (enhancing the market demand), expanding technology supply, and advancing innovative energy efficient measures, tools, and approaches including Zero Net Energy to address the Strategic Plan Big, Bold goals. If implemented successfully, these efforts could contribute not only to meeting the utilities' future energy savings goals, but also to the Strategic Plan's Zero Net Energy and advanced HVAC technologies goals. However, the current slow rate of program activities (and especially the relatively low number of projects targeting scaled field placements and demonstrations) indicates that this program appears to be under performing. In their applications, the IOUs should demonstrate how their program expenditures and other activities generate new energy savings for ratepayers.

The Emerging Technologies Program plays a critical cross-cutting role in technology development and deployment that spans all major market sectors and end uses. The Emerging Technologies Program should be designed to strategically balance the selection of projects and execution of program activities through a defined timeline to ultimately meet the Commission's energy efficiency savings goals as well as long-term Strategic Plan goals. This will require careful planning of resources and activities. Key factors that we consider are prioritization of the different combination and distribution of technologies suitable for California's market sectors and end-use applications while considering the technologies' market and technical potential. The IOUs should leverage findings from existing research, as well as findings from current evaluation and the Commission Potential and Goals studies, to obtain robust

market potential estimates on targeted technologies and systems. The IOUs should also utilize enhanced market behavioral research to address customer and end-users acceptance and adoption of new technologies, in particular for technologies that are being considered for transfer into the energy efficiency portfolio.

We understand the IOUs' request for the flexibility to manage their portfolios and allocate resources and funds in response to market changes. However, we do not see the Staff Proposal of a "balanced portfolio" contradicting or prohibiting the IOUs from doing this. In fact, without deliberate strategic planning of resources and activities, the program might not be able to realize its full potential and plan its activities efficiently.

The Commission needs to ensure that ratepayer funds are efficiently and appropriately utilized to meet California's energy efficiency savings. Without a transparent process demonstrating that deliberate planning and targeted activities are taking place to maximize the value of ratepayer investments into these program activities, the value of the Emerging Technologies Program could be highly questionable.

We note that the limited current program activities appear to be dominated by technology assessments. While technology assessments are important for assessing performance claims and driving new technologies into the portfolio, the Emerging Technologies Program needs to better utilize the rest of its program elements, including demonstrations, scaled-filed placements, technology development support, Technology Resource Incubator Outreach, and market and behavioral studies, in order to maximize the technology supply and market demand of emerging technologies.

Given the need to expedite the development and adoption of advanced technologies, we direct the IOUs to include in their Emerging Technologies Program implementation plans for the 2013-2014 transition period the following:

1. For each of the three program goals,[359] provide a detailed plan (program activities) on how the six program elements will be utilized to meet the goals (including updates to the quantifiable targets (objectives), timeline, and budgets) while addressing the various market sectors and end-uses;
2. Provide a planning budget allocation by market sectors and end-uses: for each program element. Provide a budget for the following key market sectors: Residential, Commercial, Industrial and Agricultural, and for the following key end-uses: HVAC advanced technologies, Plug-Loads and controls, Lighting, Integrated building design and operation, and Other.[360]
3. For each program element, provide a planning budget allocation for short-term projects (within the program-cycle) versus long-term projects (projects that will exceed 3 years); for example a demonstration project might span 2-4 years whereas a technology assessment project might require one year of in-situ testing; hence, during the planning stage, the IOUs may want to weigh the duration of the program cycle, program activities and budgets that they want to dedicate to short-term versus long-term projects.

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[359] Goal (1) Increased adoption of energy efficient measures (increased market demand); Goal (2) increased energy efficient technology supply; and Goal (3) Support of the Strategic Plan and related solutions, including ZNE (2010-2012 PG&E Emerging Technologies Program Statewide PIP at pages 3 http://eega.cpuc.ca.gov/Main2010PIPs.aspx).

[360] For any "other" end-use category, identify the type and application, e.g., refrigeration-industrial, processes-agricultural. etc.

4. For Technology Assessments, provide a planning budget allocation for assessing new advanced and/or unproven[361] technologies versus emerging and/or under-utilized[362] technologies.

12.2.1. Coordination with External Market Actors

Given the cross-cutting role of the Emerging Technologies Program (both internal to the IOUs' energy efficiency portfolio and among external entities[363] that are active in the RD&D area), there is a need for the program to implement a robust collaborative approach. This is in order to leverage available information and research and cultivate opportunities (e.g., demonstration of technologies in local jurisdictions, and improvements in technology performance through collaboration with industry leads) to expedite the supply and adoption of advanced technologies and practices into the market.

We observe the need for more coordination between the public and private sector research to apply a "system approach" among different entities to set the research agenda and leverage private and federally funded research and

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[361] New advanced technologies are technologies and approaches that have not undergone technology assessments and/or for which no reliable existing performance characteristics are available. "Unproven" technologies are technologies that require rigorous assessment to prove their technically viability.

[362] Emerging technologies are new energy efficiency technologies, systems, or practices that have significant energy savings potential but have not yet achieved sufficient market share (for a variety of reasons) to be considered self-sustaining or commercially viable. Emerging technologies include early prototypes of hardware, software, energy design tools, or services (D.09-09-047 at 243). "Under-utilized" technologies are technologies with verified and documented low market penetration rates.

[363] D.09-09-047 at 246 directed the utilities "to work with other entities, particularly those in the Pacific Northwest, which have similar emerging technology efforts to leverage funding and expedite driving new measures, technologies, systems and practices into the market."

investment.[364] Indeed, the Strategic Plan states that, "to stimulate transformation in technology and related market dynamics, rate-payer funded emerging technologies program must be focused on creating demand pull for the emerging technologies that support the goals of the Plan. Key to this effort is a focused effort to leverage Resource and Development resources of both the public and private sectors."[365]

The Emerging Technologies Program currently is engaged with external entities through the ETCC and Technology Resource Incubator Outreach.[366] The key role of the ETCC[367] is:

> … to smooth the path from the laboratory to the marketplace for promising technologies that help Californians save money and energy. [ETCC] provides a collaborative forum for the five stakeholder organizations to exchange information on opportunities and results from their Emerging Technologies activities." Currently ETCC members include the four IOUs, the Sacramento Utility District (SMUD), the CEC and this Commission.[368]

To emphasize the importance of expanding the collaboration and alliances with external entities, the Staff Proposal includes recommendations to expand the

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[364] Strategic Plan at 82.

[365] Strategic Plan at 83.

[366] SCE in its Advice Letter 2627-E proposed to expand TRIO to include sub-components that find, fund, and foster innovative technologies through a competitive solicitation process. (http://www.sce.com/NR/sc3/tm2/pdf/2627-E.pdf).

[367] http://www.etcc-ca.com/about/11?task=view.

[368] The Commission finances ETCC operations out of Public Goods Charge funds, and provides regulatory guidance.

coordination activities between the Emerging Technologies Program and other key market actors.

We view the Emerging Technologies Program as a major strategy to meeting Zero Net Energy goals and to identify opportunities for advancing future codes and standards, in particular Reach Codes. The Emerging Technologies Program is well suited to take on a leadership role to bring all market actors together in order to increase coordination and to leverage the R&D opportunities, funds, and collaborative prospects.

In addition to its collaborative efforts with the Public Interest Energy Research program, the Emerging Technologies Program should work closely with the California Energy Commission's Codes and Standards program to support the advancement of emerging technologies and approaches into future codes. The Emerging Technologies Program should focus part of its efforts to accomplish reductions in plug loads and advancing integrated building design and operation solutions to achieve Zero Net Energy goals.[369] We agree with the Trust recommendations and direct the IOUs to coordinate efforts with the codes and standards program and with the California Energy Commission to identify critical early planning workforce training needs for advanced technologies. Such training prepares various market actors to accept new technologies and ensures quality installation and maintenance of these technologies.

Given the importance of building strong collaborative efforts among the California Energy Commission, Research and Development organizations, and

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[369] Specific program budgets and technology development targets related to plug loads and integrated building design and operation technologies program activities should be included in the transition period program applications.

universities (including private and public entities), as well as designers, builders, manufacturers, end-users and customers, we approve the "Collaborative" membership category as proposed by the IOUs. An offer of membership should be made to a variety of stakeholders, including U.S. Department of Energy, NREL, representatives from Local Governments, California Association of Local Building Officials, as well as, key research organizations and universities, such as LBNL, EPRI, UC Davis, and UC Berkeley.

We also encourage expansion of the Technology Resource Incubator Outreach trial solicitation, as SCE proposed in its advice letter 2627-E,[370] to become part of the Technology Resource Incubator Outreach program element in the statewide Emerging Technologies Program. The IOUs should include program components to demonstrate technologies that are candidates (as identified by the California Energy Commission and the IOU Codes and Standards program) for adoption in upcoming codes and standards. This program activity will require close coordination with the California Energy Commission and Commission Staff.

We agree with SDG&E's and SCE's proposal to require all IOUs to "include an Appendix to the Emerging Technologies Program PIP that details clear path of approaches and specific projects activities for transitioning new technologies from major external initiatives into the IOU programs." We direct the IOUs to revise and update their Emerging Technologies Program PIP to address the directives included in this Decision.

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[370] Trial Program submitted by SCE in Advice Letter 2627-E (http://www.sce.com/NR/sc3/tm2/pdf/2627-E.pdf).

In addition, we direct the IOUs to develop Residential and Commercial roadmaps that encompass existing building retrofit and new construction. The IOUs should include in their 2013-2014 PIPs a scope of work, budget, and process for including input key stakeholders, including Commission Staff and the California Energy Commission, in the development of these roadmaps. The roadmaps should include detailed strategies, activities (such as assessments, pilots, demonstrations, etc.) and timelines that the IOUs propose to implement to expedite the assessment and deployment of advanced technologies. Within their scope, the roadmaps should identify:

1. Key stakeholders in Research, Development, Demonstration, and Deployment (RDD&D) that could be engaged in the process of developing and implementing the roadmaps;
2. Current gaps in technologies throughout the lifecycle of technology development and deployment;
3. Linkages of activities among the six Emerging Technologies Program elements, and with the IOUs' core energy efficiency programs and targeted external initiatives; and
4. Targeted steps to advance the deployment of Emerging Technologies, such as scaled-filed placement, demonstrations, and technology development support projects.

The roadmaps should be completed and submitted for Commission Staff's review by the end of the fourth quarter of 2013, in preparation for their inclusion in the IOUs' 2015+ energy efficiency portfolios.

13. Workforce Education and Training

The Strategic Plan calls for a Workforce Education and Training Needs Assessment (Needs Assessment) as a first step toward the plan's ultimate goal of "developing the human capital necessary to achieve California's energy

efficiency and demand-side management potential."[371] In D.09-09-047, the Commission approved funding to complete the Needs Assessment and ordered the utilities to propose adjustments to the statewide Workforce Education and Training program that address the recommendations in the report.[372] In March 2011, the Don Vial Labor Center at the University of California at Berkeley completed an in-depth study of clean energy workforce training needs for California.[373]

Because the study focused on the state of California's workforce needs, it was oriented towards achieving both the state's clean energy goals and improving job opportunities. With these dual goals in mind, the study promotes a "high-road" economic development approach, which "consists of a market environment that favors business strategies built on quality work and innovation, resulting from investments in a workforce that is both highly skilled and rewarded for those skills."[374] The study found that public resources should only be allocated to job training programs when there is a documented need for training. If there is a choice, public funds should be allocated to job creation strategies rather than training strategies when there are limited job prospects due to the substantial number of experienced, unemployed workers.[375]

In furtherance of this "high-road" vision, the study made recommendations with implications for the Commission, the California Energy

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[371] Strategic Plan at 70-71.

[372] D.09-09-047 at 220-221.

[373] Available at: http://www.irle.berkeley.edu/vial/publications/WE&T_Part1.pdf.

[374] Needs Assessment at vii.

[375] Needs Assessment at 292.

Commission, utilities, and the broader universe of workforce development policy-makers, funders and practitioners. A key recommendation is to pursue "sector strategies," which are training initiatives built on partnerships among business, labor, post-secondary education institutions (including apprenticeships), and other stakeholders. Sector strategies involve intermediaries that organize multiple employers in a specific sector for the purposes of planning and executing training initiatives based on employers' commitments to consider hiring training program graduates and/or train incumbent workers.[376]

The recommendations addressed in this decision are:[377]

- **Support "sector strategies."** Initiate, help fund, and partner with other organizations to develop robust "sector strategies" in key energy efficiency sectors.[378]
- **Collaborations.** Expand collaborations between the utilities' Energy Training Centers and high-road associations demonstrating commitment to investments in ongoing workforce training, such as participating in apprenticeship programs.[379]
- **Incentive programs.** Require contractors who participate in energy efficiency rebate and incentive programs to have

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[376] Needs Assessment at xvi.

[377] As discussed further below, the utilities are addressing the full range of recommendations directed at their Workforce Education and Training programs in the process for program adjustments set forth in joint advice letter SDG&E 2260-E-B/2041-G-B, approved October 28, 2011.

[378] Needs Assessment at xxvii.

[379] Needs Assessment at xxvii.

> third-party certifications, licenses, building permits, and/or meet other relevant standards and certifications.[380]

Pursuant to D.09-09-047, the IOUs submitted a joint advice letter responding to the Needs Assessment.[381] The advice letter established a process and timeline to develop and implement a workforce "sector strategy" approach in 2012, with a goal to identify specific activities and partnerships for implementation in 2013–2014. We acknowledge the utilities' current efforts to pursue these "sector strategy" approaches via their existing Centergies, Connections, and WE&T Strategic Planning programs and provide additional guidance herein to address parties' input on workforce issues.

13.1. Positions of Parties

Greenlining, Ella Baker Center, and NRDC support inclusion of workforce strategies that promote a high-road approach to training and energy program requirements. These parties emphasize the importance of apprenticeships and pre-apprenticeship partnerships as a model for long-term career pathways that lead to more energy efficiency via quality installations, better job placement, and higher wages.[382] Greenlining contends that this will ensure ratepayer-funded programs achieve the greatest energy efficiency return on ratepayer investments.[383] CILMT supports implementation of the sector strategies

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[380] Needs Assessment at xxv.

[381] SDG&E 2260-E-B/2041-G-B, SoCalGas 4249-B, SCE 2588-E, and PG&E 3212-G-B/3852-E-B, filed October 24, 2011, and approved by Commission Staff on October 28, 2011.

[382] Greenling, Ella Baker Center, and NRDC Comments on Programmatic Guidance Ruling (Dec 23, 2011).

[383] Greenlining Comments on Programmatic Guidance Ruling at 6.

approach set forth in the utilities' joint advice letter.[384] Greenlining and CILMT point out the importance of continued efforts during the 2013–2014 transition period to support the Needs Assessment recommendations.

CILMT urges the Commission to "support the replication of existing programs for early workforce planning such as the CALCTP to support transitioning of emerging technologies into the market" and highlights the California Advanced Lighting Controls Training Partnership (CALCTP) as a good example of an existing workforce program.[385] Greenlining and CILMT also identify the HVAC sector as an area needing targeted training strategies to improve quality installations in both the residential and commercial sectors that promote high-road quality installation.[386] JCEEP argues that, for various market-driven reasons (e.g., access to capital,), program mandates for high-quality installation standards are more likely to be cost-effective when located in the commercial and industrial sectors rather than the residential sector.[387]

With regard to utility incentive program requirements, Greenlining supports skill standards and certifications for ratepayer-funded technologies and energy efficiency measures, since quality installations are viewed as key to

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[384] CILMT Comments on Programmatic Guidance Ruling at 14.

[385] CALCTP is a statewide initiative aimed at increasing the use of lighting controls in commercial buildings and industrial facilities through education, training, and certification of licensed electrical contractors, and state certified general electricians in the proper design, installation and commissioning of advanced lighting control systems. The program was initially funded by SCE, U.S. Department of Labor, CEC American Recovery and Reinvestment Act funds, and other partners. More information is available at http://www.calctp.org.

[386] CILMT Comments on Programmatic Guidance Ruling at 12; and Greenlining Comments on Programmatic Guidance Ruling at 2- 3.

reaching energy efficiency goals, fewer power plants, and quality jobs.[388] CILMT claims that development of guidelines for skill standards and certification will help identify appropriate workforce education and training investments minimizing the development of training programs of varying standards, inefficient duplication, and lack of coordinated training efforts.[389]

13.2. Discussion

The Needs Assessment provides a comprehensive set of recommendations for the state of California to grow and sustain a clean energy workforce capable of meeting the Strategic Plan goals. The "high-road" vision promoted in the study will require coordinated efforts by multiple stakeholders, including state and local agencies, utilities, educational institutions, labor organizations – each according to their individual roles and capabilities.

In broad terms, we see two roles utility programs can play in carrying out the high road vision: (1) "supply-push" strategies, such as training and certification programs, which produce the high-road workforce needed to meet our clean energy goals; and (2) "demand-pull" strategies, such as skills standards and certification requirements for utility incentive programs, which create demand for and sustain high-road jobs and companies. The utilities are actively involved in "supply-push" strategies through their workforce education and training programs. More recently, the IOUs have begun requiring contractors participating in programs such as HVAC quality installation and maintenance and Energy Upgrade California to receive certain training. New legislation

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[387] JCEEP Comments on Phase IV Scoping Memo at 2.

[388] Greenlining Comments on Programmatic Guidance Ruling at 5.

[389] CILMT Comments on Programmatic Guidance Ruling (Dec 23, 2011), at 11.

should help to create more demand for high-road services, particularly in the HVAC sector. SB 454 (Pavley, 2011) requires recipients of utility incentive dollars to warrant that they have complied with building permit requirements and utilized licensed contractors. While we expect the "sector strategies" advice letter process to provide a comprehensive assessment of appropriate "supply-push" and "demand-pull" strategies to implement through utility programs, we take decisive action herein to direct specific initiatives on both fronts.

13.2.1. Continuation of the California Advanced Lighting Controls Training Partnership (CALCTP)

The Needs Assessment cites CALCTP as a highly acclaimed example of a sector strategy.[390] The utilities have accumulated some experience with the sector strategy approach through their participation in the CALCTP initiative. SCE provided seed funding to develop the training curriculum and offer training courses. The other IOUs have contributed funding as well. Through a partnership between SCE, labor unions, educational institutions, and others, CALCTP developed a certification – "CALCTP-certified" – and a training curriculum to ensure quality work and maximize energy savings when installing advanced lighting controls.

We agree with party comments and the recommendation of the Needs Assessment that the CALCTP program should be continued. We direct the utilities to propose continued support of this sector strategy in the 2013–2014 transition period. Accordingly, the utilities shall submit, as part of their 2013-2014 applications, a plan to continue support for CALCTP as a defined

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[390] Needs Assessment at 116-117 and 195-196.

sector strategy. When developing this plan, the utilities should explore partnership opportunities resulting in shared resources and/or co-funding and describe these arrangements in their program implementation plan as it applies to CALCTP program. To ensure program continuity, the IOUs should address any potential funding shortfalls that may adversely impact the CALCTP's viability during 2012 according to the fund-shifting rules clarified in the December 22, 2011 Assigned Commissioner Ruling.

13.2.2. Heating, Ventilation, and Air Conditioning Sector Strategy Pilot

The Needs Assessment identified an abundance of poor quality HVAC installations, particularly in the residential sector. The Needs Assessment attributes this to high turn-over due to low pay and lack of training and experience among industry workers. As a result, 30 – 50% of new HVAC systems and 85% of replacement systems are installed incorrectly.[391] Therefore, the Needs Assessment specifically identifies the HVAC sector as needing a sector initiative similar to that pursued for CALCTP:[392]

> The HVAC sector is the single largest contributor to peak load demand, with residential and small commercial HVAC comprising up to 30 percent of peak load demand in summer months. The Strategic Plan targets a 50 percent improvement in efficiency in the HVAC sector by 2020, and a 75 percent improvement by 2030. The statewide IOU budget for the HVAC sector in 2010−2012 is approximately $127 million.[393]

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[391] Needs Assessment at xiv.

[392] *Ibid.* at 117.

[393] *Ibid.* at xiii.

With such a large emphasis on HVAC for meeting the State's energy goals, we recognize the potential benefits of a sector strategy approach for HVAC.

We agree the HVAC market is a prime target for testing the expansion of a sector strategies approach to a larger and more complex market (than, for example, the advanced lighting controls market addressed by CALCTP). However, we acknowledge that unforeseen challenges may arise in applying this approach to HVAC. Therefore, we agree with JCEEP that it is reasonable to pursue high-road strategies in the non-residential markets first, before embarking on the tougher challenges of transforming the residential market with this method.

The utilities shall submit in their 2013-2014 applications a plan to test the sector strategy approach for HVAC, beginning with the non-residential sectors. Toward this end, the IOUs should develop a HVAC sector strategy pilot in concert with the statewide HVAC Commercial Quality Installation program. We expect it will be necessary to work with the industry to develop and establish contractor accreditation and technician certifications, which could be based on mandatory or voluntary incentive-based skills standards. Development of this sector strategy plan should commence during 2012 as part of the aforementioned advice letter process. Further, we encourage the utilities to coordinate their mainstream energy efficiency sector strategies development with the Energy Services Assistance Program in order to develop data and knowledge regarding how increased training and skill standards may impact quality installations, customer participation and program budgets across similar programs.

13.2.3. General Direction

Pursuant to D.09-09-047, the IOUs' workforce education and training program plans should address any applicable Needs Assessment

recommendations not discussed herein. The utilities shall explore partnership opportunities resulting in shared resources and/or co-funding and describe these arrangements in their program implementation plan. The utilities shall include a list of workforce training courses and programs they propose to offer in the 2013-2014 program period using the template provided in Appendix C of this decision. In order to support coordination between energy efficiency core programs and Energy Savings Assistance Program training efforts, the utilities shall include training programs related to Energy Savings Assistance Program when populating this table.

The utilities should submit proposed budgets in their 2013–2014 applications that are commensurate with statewide workforce education and training program goals and objectives.

The utilities are directed to work with Commission Staff on the workforce education and training taskforce to develop a data request template to be submitted by Staff as needed for periodic updates on the status of the utility's Sector Strategy activities. In their applications, the IOUs shall indicate how they currently address safety concerns regarding energy efficiency installations (e.g., lead paint and asbestos removal and natural gas combustion safety) through training, education, certification, participating contractor requirements, or other appropriate measures, and how they plan to address these issues in 2013-2014. The IOUs should also provide data to characterize the current state of installation contractor safety qualifications associated with their energy efficiency programs. Lastly, the utilities shall include additional information related to their 2013-2014 WE&T program plans in response to an upcoming Staff guidance transmittal to the service list discussed in the"Next Steps and the Process for 2013-2014 Utility Portfolio Applications and Review" section of this decision.

In Greenlining et. al.'s comments on the proposed decision surrounding the guidance on workforce, education, and training, they raised questions concerning the requirements, such as criminal background checks, that utilities may impose on contractors participating in their programs that conduct work within and surrounding customer premises. These are issues common across all of the Commission's demand-side programs, not specific to energy efficiency program guidance. In addition, there was no record in this proceeding developed that would allow us to give additional guidance on these issues at this time. However, these are important questions and we will consider addressing these issues across all the demand-side programs we supervise in an appropriate venue in the future.

13.2.4. Skill Standards and Certifications

We acknowledge the potential need to mandate skill standards and certifications for specific energy efficiency measures or services offered through utility programs. However, at this time we find that there is insufficient evidence to make this determination at this time. While high-level market research cited in the Strategic Plan and the Needs Assessment indicates significant savings potential from quality installation, additional comparative information on the specific effects of increasing standards for energy efficiency programs should be gathered and assessed before adopting these recommendations on a broad scale. Specifically, questions remain regarding the potential impacts on customer costs and benefits of requiring high-road skill standards, and the potential impacts on program participation rates as a result of costs, benefits, or other factors. There is also a lack of information on how such impacts compare with the potential benefits of increased energy savings, lower costs over the lifecycle of the equipment, and the creation of higher quality jobs. Therefore, we direct the

utilities to include in their applications the following information regarding HVAC quality installation, CALCTP-certified installations, and any other sector strategy-induced skill standards identified by then: (1) data or estimation of the incremental customer cost, if any, of requiring skill standards; (2) data or estimation of the average and range of permitting/compliance costs across permitting jurisdictions in the IOUs' service territories; (3) data or estimation of impacts, if any, mandatory skill standards would have on program participation rates; (4) data or estimates of the incremental energy savings and customer cost savings over the life of the equipment; and (5) any other potential benefits associated with higher standards, such as fewer call-backs, lower frequency of customers over-riding control systems, lower life-cycle costs, and increased consumer uptake of measures based on higher quality and certainty. We encourage other parties to present this information, as well, in their testimony in the application proceeding, so that the Commission may more thoroughly consider this issue. In the CALCTP and HVAC pilot initiatives addressed herein, we expect the utilities to explore and, if appropriate, pilot mandatory and/or voluntary incentive-based approaches to promote high-road skill standards through utility programs in the 2013–2014 program period.

14. Water-Energy Nexus Programs

One of the state's largest end uses of electricity is in the treatment, heating, and conveyance of water in California. We recently authorized a series of pilot programs exploring whether energy savings may be realized through water conservation measures. Implicit in this approach is the concept that saving water

saves energy. This is dubbed the "water-energy nexus."[394] An increase in energy efficiency portfolio emphasis on measures that maximize energy savings in the water sector – such as through leak loss detection and water utility system repair, and through the enhancement of water systems efficiency – may be warranted.[395] The Scoping Memo invited parties "to propose and critique additional strategies to overcome barriers to the deployment and adoption of energy efficiency in the water-energy context."[396]

14.1. Party Positions

All parties who commented on the water-energy nexus discussion support including water-energy nexus measures in the 2013-2014 transition portfolio. The Programmatic Guidance Ruling did not make any specific water-energy nexus recommendations, but a number of parties who commented on the Guidance Ruling echoed this support. In particular, DRA and IEUA recommend that water-energy nexus measures be a high priority in energy efficiency efforts, since 19% of the electricity in the state is consumed in the transmission, treatment, and conveyance of water.[397] DRA recommends that water-energy programs in the 2013-2014 transition portfolio be limited to leak-loss detection and remediation and pressure management, which do not typically involve major capital investments and are therefore often highly cost-effective.[398]

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[394] Phase IV Scoping Memo at 7.

[395] *Ibid*.

[396] *Id.*, at 8.

[397] DRA Programmatic Guidance Ruling Response to Comments at 9 and IEUA Programmatic Guidance Ruling Comments at 9.

[398] DRA Programmatic Guidance Ruling Response to Comments at 7.

A majority of the commenting parties request that the Commission develop methods to determine the cost-effectiveness of water-energy nexus projects. DRA and parties from both the water and energy sectors specifically request the development of methods to quantify the embedded energy in water and the energy savings associated with energy efficiency efforts to reduce that embedded energy.[399] DRA, Irvine Ranch Water District, and West Basin Municipal Water District recommend that the Commission use averaging in developing a method for the quantification of embedded energy in the water supply chain. DRA supports this approach on the basis that man-made water systems and the hydrological cycle do not allow for discrete annual savings profiles for individual water agencies.[400]

SCE recommends that the methods developed to account for the embedded energy in California's water supply portfolios include the avoided energy and GHG emissions reductions associated with increasing the efficiency of water treatment, storage, transmission and use in particular regions.[401] Multiple parties request workshops to address the energy savings potential and cost-effectiveness of water-energy nexus projects.

14.2. Discussion

Several of the existing water-energy nexus programs should continue without modification; many of the programs captured in custom projects have

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[399] Programmatic Guidance Ruling Comments by Irving Ranch Water District (IRWD) at 6; by PG&E at 9; by DRA at 9; and by SCE at 7-8.

[400] DRA Programmatic Guidance Ruling Response to Comments at 7; IRWD Programmatic Guidance Ruling Comment at 6; Wells Branch Municipal Utility District (WBMUD) Programmatic Guidance Ruling Comment at 9.

[401] SCE, Programmatic Guidance Ruling Response to Comments at 7-8.

large ancillary water benefts and we encourage the IOUs to document these savings to help better understand their benefits. In addition, several agricultural programs target the water-energy nexus, and these program should continue or be expanded. Thus the recommendations for expansion of water-energy nexus programs should occur under the rubric that successful water-energy nexus programs should be maintained or enhanced. We now provide further guidance on new or expanded efforts. Overall, we expect that expanded programs should produce tangible savings through the investments being made.

We recognize that the pilot programs and embedded energy in water studies[402] conducted pursuant to the Commission's direction in D.07-12-050 laid the groundwork for further exploration of the potential for energy savings in the water sector.[403] We further recognize the need to develop robust methodologies

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[402] "Embedded Energy in Water Studies Pilot Impact Evaluation" (March 9, 2011, ECONorthwest), available at: http://www.cpuc.ca.gov/NR/rdonlyres/51BF9A0B-42C9-4104-9E71-A993E84FEBC8/0/EmbeddedEnergyinWaterPilotEMVReport_Final.pdf;

"Embedded Energy in Water Studies: Study 1: Statewide and Regional Water-Energy Relationship" (August 31, 2010, GEI Consultants/Navigant), available at: ftp://ftp.cpuc.ca.gov/gopherdata/energy%20efficiency/Water%20Studies%201/Study%201%20-%20FINAL.pdf;

"Embedded Energy in Water Studies: Study 2: Water Agency and Function Component Study and Embedded Energy-Water Load Profiles" (August 31, 2010, GEI Consultants/Navigant), available at: ftp://ftp.cpuc.ca.gov/gopherdata/energy%20efficiency/Water%20Studies%202/Study%202%20-%20FINAL.pdf; and

"Embedded Energy in Water Studies: Study 3: End-use Water Demand Profiles" (April 29, 2011, Aquacraft, Inc.), available at: ftp://ftp.cpuc.ca.gov/gopherdata/energy%20efficiency/Water%20Studies%203/End%20Use%20Water%20Demand%20P.

[403] Available at http://docs.cpuc.ca.gov/word_pdf/FINAL_DECISION/76926.pdf.

for measuring embedded energy savings from efficiency measures and determining the cost-effectiveness of energy efficiency projects in the water sector.

The evaluation of the pilots conducted pursuant to D.07-12-050 concluded that the leak detection pilot program generated high energy savings for the utility, and parties recommend that leak detection and pressure management programs be offered by the IOUs in the transition period.[404]

It is not prudent to spend significant amounts of ratepayer funds on expanded water-energy nexus programs until the cost-effectiveness of these programs, and particularly the net benefits that accrue to energy utility ratepayers, are better understood. However, in light of the potential for energy savings identified in the pilots, we will pursue three sets of activities during the 2013-2014 period to support the potential expansion of such programs in the 2015+ timeframe. In comments in the Proposed Decision, Association for California Water Agencies notes that some of these calculations might occur early during the 2013-2014 timeframe and there would be a loss of momentum during this transition period. We recognize this dilemma. In their applications, we ask the IOUs to note ways to accelerate the expansion of cost-effective water-energy nexus programs where possible. Depending on the applications, the Commission may be able to accelerate the timeframe during the transition period of some of the programs.

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[404] SCE Comment on Phase IV Scoping Memo at 8; Association of California Water Agencies, Comment on Programmatic Guidance Ruling at 6; NRDC Comment on Phase IV Scoping Memo at 8; DRA Comment on Phase IV Scoping Memo at 7.

The parties' comments tend to focus on systems improvements. We view water systems efficiency to be the most critical new strategy to capture additional water/energy nexus benefits in the energy efficiency program. In particular, the IOUs should focus their applications from the source of the water to the distribution point and through the system.[405] The IOUs should focus their outreach to target small and medium sized water and wastewater utilities, since they are the least likely to make system improvements without IOU-assisted intervention.

First, the IOUs should develop proposals to increase targeting of agricultural and industrial customers since they are the largest end users of water in the state. Moreover, the IOUs should propose to continue to offer measures and services to the water sector through their calculated energy efficiency savings programs in the 2013-2014 portfolio, as they currently do.

Second, we direct the IOUs to propose 2013-2014 efforts (either through limited, water sector focused pilot programs or through targeted efforts within the existing calculated savings programs) on leak-loss detection and remediation and pressure management services for water entities that are IOU customers. These efforts should build off of the results of the previous pilots. These programs (or projects) should be designed to calculate reductions in water consumption, quantify embedded energy savings, and capture water and energy avoided costs to support cost-effectiveness determinations. Commission Staff's evaluation of this program should report on energy savings, including embedded energy savings, avoided costs, and cost-effectiveness. As noted by Association of

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[405] Water utilities are most qualified to focus on their efficiencies and on end-use customers.

California Water Agencies in its comments on the Proposed Decision, this should include the embedded energy from all investor-owned utilities.

Third, we direct Staff to develop a robust record in the 2013-2014 application proceedings or in this or a subsequent energy efficiency rulemaking to address strategies to overcome barriers to adoption and deployment of water-energy nexus efficiency programs. The record should address appropriate methods for calculating energy savings and cost-effectiveness in the water-energy context, issues associated with the joint funding and implementation of water-energy programs by the IOUs and water entities, and the development of an updated water-energy cost-effectiveness calculator[406] and appropriate methodologies for calculating the GHG emission reductions associated with water-energy nexus programs. This record building may include Commission Staff facilitated workshops focusing on funding sources for water-energy projects, pump and system efficiency projects, and other topics as appropriate.

15. Marketing, Education, and Outreach

Both the Strategic Plan and a 2008 Joint Assigned Commissioner Ruling[407] on Guidance for integrated demand side management stressed the need for utilities to integrate and coordinate marketing messages for customers. In the 2009-2012 energy efficiency and demand response program portfolio decisions,[408] the Commission took steps to integrate statewide energy efficiency and demand

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[406] *See* http://doe2.com/download/Water-Energy/WaterSavingMeasures-Calculator-v3.pdf.

[407] April 11, 2008 Joint ACR Providing Guidance on Integrated Demand Side Management in 2009-2011 in R.06-04-010 and R.07-01-041.

[408] *See* D.07-10-032 for program planning, D.09-08-027 for demand response portfolios and D.09-09-047 for energy efficiency portfolios.

response marketing by directing the utilities to reduce redundancies in marketing efforts and to have one contract with a single marketing agency for both statewide marketing campaigns.

In October 2010, the new Engage 360 campaign was launched as the brand for statewide ME&O. Since that time, certain demand response marketing activities have also continued in parallel. This decision provides further direction on integrated statewide ME&O for demand-side programs overall for 2013 and 2014.

Engage 360 is the current name for the energy efficiency statewide marketing brand developed as required by D.09-09-047. That decision directed the utilities to implement the recommendations of the brand assessment study of Flex Your Power and, if applicable, develop a new smart energy statewide brand. The scope of the brand was to elevate customer participation in program options including, energy efficiency, low income energy efficiency, demand response, and renewable self-generation.[409] D.09-09-047 also ordered utilities to conduct audience segmentation research, develop an integrated communications plan, and create a web portal. In addition, the utilities were required to review marketing specific to individual energy efficiency programs, and eliminate any redundancies in local and statewide marketing efforts.[410]

On October 13, 2011, an ACR regarding statewide marketing noted that development and delivery of the Engage 360 brand was costly and likely not producing enough ratepayer benefits to justify its continuance. The ruling directed SCE to freeze spending on Engage 360, including the Engage360.com

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[409] D.09-09-047 at 383, Ordering Paragraph 35.

[410] D.09-09-047 at 381 and 382, Ordering Paragraph 34.

web portal, until further direction was provided by the Commission. The ACR further asked that parties file responses addressing whether or not the Engage 360 campaign should continue and whether there should be a statewide ME&O effort in any form. Parties were asked to comment on the appropriate objectives and elements of a statewide marketing campaign and on an appropriate brand name. Parties were asked to consider the merits of using one of the following names as the statewide brand, "Engage 360," "Flex Your Power," or "Energy Upgrade California." The ACR also requested that parties provide input about the size of the budget for statewide marketing and format for administration of the program. Approximately $48.5 million was remaining in the Engage 360 budget at the time of the ACR.

Meanwhile, in August 2010 in the demand response rulemaking, an ALJ ruling was issued on guidance for the utilities' 2012-2014 demand response applications.[411] This demand response guidance ruling directed the utilities to request one year of bridge funding for 2012, for the demand response portion of Integrated Demand Side Management activities, including marketing, in the demand response applications. The ruling further stated that future authority and funding for Integrated Demand Side Management activities will be considered in future energy efficiency proceedings starting with the energy efficiency applications for 2013-2015.[412]

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[411] August 27, 2010 ALJ Ruling Providing Guidance for the 2012-2014 Demand Response Applications in R.07-01-041.

[412] August 27, 2010 ALJ Ruling Providing Guidance for the 2012-2014 Demand Response Applications in R.07-01-041 at 15.

A proposed decision has been issued but not yet adopted by the Commission for demand response applications for 2012-2014. That decision, if adopted, would direct the utilities to request funding for post-2012 statewide demand response ME&O as part of their request for energy efficiency "bridge funding."[413] The proposed decision also would direct the utilities to have two statewide demand response marketing campaigns in 2012, one for emergency alerts and one for general awareness of dynamic rates.[414] Finally, the demand response proposed decision states that during the approval process for the energy efficiency program budget for 2013 and beyond the Commission will determine strategies for statewide campaigns.[415]

The October 13, 2011 ACR in this proceeding regarding the statewide marketing and outreach program requested that parties respond to a series of questions about how to move forward with or discontinue statewide marketing and outreach.

15.1. Positions of Parties

On November 2, 2011, nine parties filed comments on the October 13, 2011 ACR regarding statewide marketing and outreach. Those parties are PG&E, SCE, SDG&E/SCG, Ecology Action, CAISO, NRDC, WEM, LGSEC, and CCSE. On November 7, seven parties filed reply comments, including the utilities, LGSEC, CCSE, DRA, and Ecology Action.

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[413] December 15, 2011 Proposed Decision of ALJ Hymes for Application 11-03-001 at 80.

[414] December 15, 2011 Proposed Decision of ALJ Hymes for Application 11-03-001 at 81, and at 230, Ordering Paragraph 11.

[415] December 15, 2011 Proposed Decision of ALJ Hymes for Application A. 11-03-001 at 82.

In response to the ACR, no party advocates for Engage 360 to continue. However, two parties, Ecology Action and CCSE, request that the Engage 360 rebate database on Engage360.com be moved to a new host website. The parties recommend curtailment of the Engage 360 campaign because of its lack of traction, its confusing nature, and the existence of more suitable brands.

In response to whether there should be a statewide marketing program, all parties agree there should be, except for SCE and WEM. SCE comments that given the weak economy and rate pressures on customers, statewide ME&O funds would be best used by directing them to resource programs or refunded to ratepayers. WEM asks that funds be redirected toward local government programs.

With regard to the appropriate brand name for a statewide marketing program, PG&E, SCE and SDG&E/SoCalGas advocate that messages should come from the Commission or the IOUs without a brand name. The utilities identify several concerns with using Flex Your Power. The utilities cite that the brand assessment determined that unaided awareness of Flex Your Power was low, and the message was confusing, and the brand is focused on electricity but not natural gas. The utilities also oppose a transition to Energy Upgrade California as a statewide brand because they contend that it is a program that is focused on retrofits and upgrades and that Energy Upgrade California does not fit as a brand that can be the umbrella for all of the other demand-side management programs.

Some other stakeholders advocate for a specific brand, while others are agreeable to any of the proposed options other than Engage 360. NRDC and CCSE are open to using either Flex Your Power or Energy Upgrade California. CAISO argues that the advantage of a two-pronged Flex Your Power and Flex

Alert campaign was that it would result in load reduction on critical peak days. Ecology Action and LGSEC recommend adopting Energy Upgrade California, arguing that it is scalable and could be expanded to be an umbrella brand for energy efficiency programs. Further, Ecology Action and LGSEC argue that the existing pilot programs fit with the objectives of the Strategic Plan. Ecology Action also argues that Integrated Demand Side Management messages can be incorporated into Energy Upgrade California.

All of the utilities argue that the remaining budget should be divided. PG&E argues that half of the budget should be used for statewide marketing and the remaining half should be returned to the utilities for Integrated Demand Side Management marketing. SCE requests the entire budget be returned to ratepayers. SDG&E/SoCalGas argues that the funds should be divided, with a percentage for statewide marketing (35%), IOU individual program marketing (40%), and some returned to ratepayers (25%).

Some other stakeholders also comment on what to do with the remaining budget. WEM argues not to have a statewide marketing program, so it requests that the funding be shifted to local governments and Community Choice Aggregators. Ecology Action requests that $12 million be used to fund Energy Upgrade California from April to December of 2012 after American Recovery and Reinvestment Act funds are exhausted. CAISO requests that between $6 and $15 million be used for Flex Alerts. CCSE requests that $10 million be used for statewide marketing, $20 million to conduct another brand assessment and develop a new brand, and that $20 million be made available to non-profits so that regional networks could implement statewide messages.

The utilities argue that if there is a statewide marketing program, it should continue to be administered by the utilities with Commission oversight. NRDC

advocates that the Commission or a joint authority of the Commission and the California Energy Commission administer statewide marketing program. WEM, LGSEC, and CCSE advocate for the transfer of administration to non-profit organizations, following the model of Energy Upgrade California. CCSE also volunteers to run the statewide campaign.

15.2. Discussion

In this section, we address guidance for the statewide ME&O efforts both for the 2013-2014 energy efficiency portfolios, as well as give direction for the balance of 2012. The 2008 Strategic Plan, along with its 2011 update, articulated the following vision for ME&O: "Californians will be engaged as partners in the state's energy efficiency, demand-side management and clean energy efforts by becoming fully informed of the importance of energy efficiency and their opportunities to act."[416]

Between 2009 and 2010, the Commission engaged in a careful evaluation of prior statewide marketing and branding efforts, as well as market and demographic research to understand how best to encourage energy awareness as well as energy efficiency action. Much of this work and research is still extremely relevant to tailoring education and outreach messages to certain communities and groups.

In October 2010, the Engage 360 brand name was launched as a "community-based effort to provide Californians with clear and relevant options

[416] Strategic Plan, Chapter 10, at 75.

for smart energy solutions."[417] Engage 360 was focused on building a "movement" from the ground up, using grass roots and social media platforms to encourage awareness and engagement. Engage 360 was designed to build slowly by first reaching out to community and thought leaders, who in turn would reach out to individual consumers in their communities.

According to IOU comments, early experience with the Engage 360 brand was that its name did not resonate quickly with consumers and that a great deal of explanation was required for consumers to connect Engage 360 with action on energy efficiency. In addition, most parties who commented on the October 13, 2011 ACR do not support continuing the Engage 360 campaign.

Most parties, however, do support continuing a statewide ME&O program in some form. The original rationale for creation of a ME&O platform is still valid, including the following:

- There are many small individual brands in the energy efficiency space, such as utility brands, Energy Star, and individual program names, which is confusing to consumers.
- The utility ME&O efforts for various programs including energy efficiency, demand response, and energy savings assistance programs are disparate and potentially duplicative.
- A single brand or platform to which consumers may connect a number of different actions or programs would be beneficial.

As originally conceived, the statewide ME&O effort, though it may not have explicitly stated it, was aimed at mass market consumers, chiefly residential and small business customers. Larger commercial and industrial customers

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[417] Engage 360 press release, "CPUC Introduces New Statewide Brand and Website to Motivate Consumers to Embrace Clean Energy Solutions as a Way of Life," October 14, 2010.

usually have employees such as energy managers who are responsible for their companies' energy consumption and expenses, and thus these types of customers have other independent channels through which to learn about energy efficiency opportunities. Residential and small business customers, by contrast, do not typically have specialized knowledge or experience in the energy area. Therefore, a targeted campaign for energy education and outreach for energy efficiency is most relevant for those residential and small business consumers.

Residential and small business consumers are also typically, as a group, less informed about the particulars of program offerings available from utilities and third parties to help meet their energy needs. Part of what the Commission has been trying to achieve for some time with our statewide ME&O efforts, particularly in the most recent energy efficiency and demand response program and budget proceedings, is one integrated approach that includes multiple demand-side options depending on the needs of the consumer. Our efforts at a unified approach and integrated message have been hampered by differing program cycles and proceedings among energy efficiency, demand response, distributed generation, and low-income programs, among other reasons. To help bring these efforts together under one umbrella with one unified approach, for the 2013-2014 time period, we will, for the first time, require all four utilities to file separate applications outlining their approach to statewide ME&O for all demand-side programs as well as generalized energy education. These applications will be separate from the applications for the 2013-2014 energy efficiency program portfolios and shall be filed no later than August 3, 2012.

Having addressed that procedural requirement and approach, we now turn to consideration of the brand options available as the umbrella brand for continuation of a statewide ME&O campaign targeted at residential and small

business consumers. As already discussed above, Engage 360, both the brand and the "movement" approach, appear to be confusing and not resonating with consumers. In addition, as noted by Commissioner Ferron in his October 13, 2011 ACR, "building a brand is an extremely difficult undertaking." Given that, we are not prepared, at this time, to launch a whole new effort to develop yet another brand for consumer awareness of energy efficiency.

Instead, we consider two existing brand options: Flex Your Power and Energy Upgrade California. Flex Your Power was originally conceived during the California energy crisis of 2000 and 2001 as an emergency response to the threat of rolling blackouts. As such, its purpose was always more narrow and emergency-oriented than our intention for Engage 360, which was designed as a broad-based energy education and efficiency campaign as described in the Strategic Plan.

Consistent with the comments of the CAISO, we see value in continuing the emergency response portion of Flex Your Power –Flex Alert – in particular for use during hot summer months, or at any other time, when energy supplies have the potential to be tight. Emergency requests for action may be and should be connected to a larger information and education campaign, but they are fundamentally different because they are typically immediate and temporary requests for short-term conservation. Thus, although the emergency requests and an overall education and outreach campaign may co-exist, and they should be coordinated as we discuss further below, a campaign born out of emergency response does not seem appropriate to the larger message of energy education and outreach, or for general energy efficiency action. Further, as several of the utilities point out, the use of the word "power" is problematic for encouraging actions related to natural gas efficiency.

For these reasons, we do not think it appropriate to return to Flex Your Power as the umbrella brand for the overall statewide ME&O program. We do, however, request that the utilities plan to continue the limited use of Flex Alerts for the emergency type of advertising and calls for conservation advocated by the CAISO. In their 2013-2014 applications for statewide ME&O, the utilities should propose a budget for Flex Alerts and explain how they will be coordinated with the overall statewide education and outreach program.

We now consider the option of Energy Upgrade California as the brand name for an overall statewide ME&O program. Around the same time that the Engage 360 campaign began, the Energy Upgrade California program was launched as a residential whole-house retrofit program funded partly by IOU ratepayer energy efficiency programs and partly by American Recovery and Reinvestment Act federal economic stimulus funds. Energy Upgrade California took a much more traditional approach to marketing and outreach by funding advertising, billboards, and collateral materials. Perhaps partly because of this, Energy Upgrade California appears to be more instantly recognizable and associated with taking energy-related, and specifically energy efficiency, actions.

As currently used, Energy Upgrade California is the name of one specific program and not the name of a statewide marketing brand or campaign. However, given the intuitive nature of the name and its association with energy actions, it appears that the brand could be expanded to be more than just the name of one program. We see no reason why this name could not come to represent any and all demand-side management actions taken by homeowners and small businesses. Use of Energy Upgrade California would capture our desire to address these target markets and also continues the important emphasis on encouraging customer to take action.

Thus, for the remainder of 2012 and then for the 2013-2014 application on statewide ME&O, we direct the utilities to focus on transforming the Energy Upgrade California brand from the name of one program to more of an umbrella brand which residential consumers and small businesses can come to associate with learning about energy use information and taking energy efficiency and/or other demand-side management actions. Thus, the messages that come under the Energy Upgrade California umbrella should not be limited to energy efficiency, and should also include generalized energy education and awareness, such as information related to demand response, dynamic rate options, enabling technologies, climate change impacts, the Energy Savings Assistance Program (low-income energy efficiency program), distributed generation investment, smart grid upgrades, and any other general impacts of energy use for individuals or for the state as a whole. However, messages surrounding the use of the Energy Upgrade California brand must also continue to build its usefulness in prompting home and building owners to take immediate steps to achieve deep energy retrofits.

Utilizing Energy Upgrade California as an umbrella brand for statewide demand-side ME&O does not necessarily mean that it must be used exclusively or in every circumstance. Individual program names, IOU brands, or Commission brands or logos may be appropriate in particular circumstances and may serve to reduce confusion about what is being marketed or communicated. In their August 3, 2012 statewide ME&O applications, the utilities should include a narrative description of how they intend to approach brand and message coordination and a transition to the general umbrella of a newly-conceived Energy Upgrade California brand.

In general, the most important objective for all of the ME&O activities for demand-side programs in general is that they be coordinated. Thus, we affirm that the utilities should submit in their 2013-2014 statewide ME&O filings as directed in this decision a comprehensive plan for statewide ME&O of all demand-side programs under the general umbrella of Energy Upgrade California. In doing so, the utilities should utilize all prior work that supported Engage 360 such as the market and demographic research and market segmentation analysis to help tailor future marketing and education messages to relevant audiences, particularly within the residential and small commercial market segments.

As in prior decisions and rulings, our intent is to move away from separately authorized marketing and outreach programs and budgets for statewide demand response, energy efficiency, the California Solar Initiative, the Self-Generation Incentive Program, and other statewide demand-side program efforts. Under the general heading of Energy Upgrade California, we expect the utilities to craft a coordinated and leveraged approach that can offer separate program referrals depending on the desired actions by the customers. Our intent is to eliminate duplicative and potentially contradictory spending on separate marketing by utility or by program type. To the extent that the utilities still believe that program-specific and/or utility-specific marketing is warranted, they should explain, in any budget proposals, how the narrower marketing budget and approach relates to the general Energy Upgrade California umbrella approach.

Next we address how the statewide ME&O program should be overseen and administered. Administratively, the current approach of designating one utility as the coordinator and contracting agent for the statewide ME&O

program, on behalf of all utilities whose ratepayers co-fund the program, seems to be a reasonable and straightforward approach that should be continued. However, below we discuss several changes we will make to this model for 2013-2014 statewide ME&O.

First, recent experience with coordinating Energy Upgrade California program marketing among utilities, the California Energy Commission, and local governments with American Recovery and Reinvestment Act funding, suggests the desirability of and need for an intermediate entity in between the utility coordinator and the marketing and web hosting firms hired to carry out the campaign. We are intrigued with the idea of having CCSE fulfill this intermediary implementation role, as suggested in their comments, for several reasons. First, they are mission-driven organization with a great deal of experience both administering and implementing demand-side programs that are driven by Commission policy. They administer the California Solar Initiative program in the SDG&E territory and have worked with both the California Energy Commission and Commission Staff on the GoSolar campaign, which has statewide reach.

Although the origin of their organization is local, they have expanded to be regional, and therefore they have good working relationships with local and regional government partners and with statewide local government organizations. In addition, they have experience implementing and administering programs for a number of different demand-side management areas including energy efficiency and distributed generation, and are attuned to the integrated nature of the ME&O efforts we are undertaking here. For all of these reasons, we would like to have CCSE serve as the statewide implementer for the ME&O program in 2013-2014.

In comments on the proposed decision, the utilities raised concerns about its recommendation not to conduct a competitive solicitation for this function. Ideally, our preference is always to conduct competitive solicitations. However, it is not required, and in this case, there are several reasons to proceed with CCSE as the statewide coordinator under contract to PG&E. First, the statewide marketing effort has been dormant for some time awaiting Commission direction on Engage 360. Thus, time is of the essence. Second, CCSE's role will be more one of design, oversight, and coordination. We still expect that marketing firms or contractors will be hired by CCSE to execute and deliver a campaign and statewide messages; the selection of such firms will occur through a competitive bid. Third, as we state above, we are confident that CCSE's experience as both an administrator and an implementer of programs qualifies the organization uniquely; there is no other similar organization that we are aware of in the state.

We will also continue to need a utility to serve as the statewide ME&O coordinator and contracting agent, on behalf of all utilities whose ratepayers fund the statewide ME&O activities. SCE is the current statewide ME&O coordinator for energy efficiency and given that SCE, in its comments, did not support continuation of a statewide ME&O campaign at all, it also seems reasonable to reassign contractual responsibility and coordination of the campaign to another utility that is more supportive of the basic concept and willing to devote the necessary resources toward the effort.

The other options for utility coordinators and contracting agents for the statewide ME&O effort are SDG&E/SoCalGas or PG&E. Both the Sempra utilities and PG&E were supportive in their comments of continuing a statewide ME&O campaign in some form. However, given the size of the budget in the past portfolio cycle and the statewide reach of the revised program and approach we

discuss herein, we think the Sempra utilities are too small and are unlikely to have the necessary staffing resources immediately to handle the statewide campaign coordination. Thus, we require PG&E to take over coordination of and contracting for the statewide ME&O campaign effectively immediately upon the adoption of this decision.

Thus, in summary, we require PG&E to begin serving as the utility coordinator of the statewide ME&O program immediately after the adoption of this decision in 2012, and to enter into a contract with CCSE by no later than July 1, 2012 to conduct the statewide implementation of the ME&O campaign and to coordinate broader stakeholder input on and participation in the statewide program beginning in 2013. CCSE should have a budget of at least $500,000 for 2012 startup and will likely then need to subcontract with marketing firms and web providers to conduct the actual campaign efforts and create the marketing materials for 2013-2014. We expect that any subcontracts to CCSE will be competitively bid.

These implementation details will be up to CCSE and we do not further specify them in this decision. We do, however, require PG&E and CCSE to coordinate closely with California Energy Commission and Commission Staff to set up a reasonable governance and oversight mechanism to ensure the newly-reformulated Energy Upgrade California brand and campaign is meeting the Commission's objectives.

To that end, the utilities should propose in their 2013-2014 statewide ME&O application program performance metrics for statewide ME&O activities that reflect the direction in this decision, whether they be existing, amended, or new metrics. The utilities shall also propose, in consultation with CCSE, which entities will have responsibility for meeting the performance metrics.

To facilitate a transition to utilizing Energy Upgrade California as more of an umbrella brand in 2013-2014 as directed in this decision, some transitional activity and additional budget for Energy Upgrade California activities will be reasonable to undertake in 2012. Some marketing activity surrounding Energy Upgrade California to date has been funded by American Recovery and Reinvestment Act funds administered by the California Energy Commission that are set to expire in early 2012.

Ecology Action, in its comments on the October 13, 2011 ACR, suggested augmenting Energy Upgrade California marketing funding in 2012 by $12 million out of funds freed up by freezing Engage 360 spending. SDG&E/SoCalGas, on the other hand, suggested using 35% of the remaining statewide ME&O budget, which would amount to approximately $17 million for the rest of 2012. Both of these figures seem too large, given that we are requesting that the utilities, in cooperation with CCSE, come back to us in their applications with a more robust proposal for how to transition to using Energy Upgrade California more broadly. On the other hand, we do not want to lose momentum with consumer recognition of the Energy Upgrade California brand in the meantime.

Thus, we authorize the utilities to spend no more than $5 million on brand maintenance and transition for Energy Upgrade California in 2012. This includes the amount of funding already authorized via an ACR from Commissioner Ferron issued January 31, 2012 on the Energy Upgrade California web portal expenditures, which are further discussed below. This decision does not disturb the directives in the January 31, 2012 ACR, which essentially require SDG&E to contract to cover web portal expenses for the remainder of 2012; we affirm that direction in this decision and clarify that SDG&E has flexibility to choose the

most expeditious contract path to ensure that the Energy Upgrade California web portal functionality is maintained in 2012 and that the expenses do not exceed $588,000.

In funding Energy Upgrade California marketing and outreach expenditures both for the web portal and the transition toward utilizing Energy Upgrade California as an umbrella brand in 2012, the utilities should consult closely with CCSE, the California Energy Commission, Commission Staff, and the local government entities running the Energy Upgrade California programs now funded by American Recovery and Reinvestment Act to ensure continuity and avoid any confusion. PG&E shall also enter into a contract with CCSE no later than July 1, 2012 for an amount of no less than $500,000 for the remainder of 2012 to begin transitioning into their role as the statewide implementer beginning in 2013.

We also direct the utilities to spend a minimum of $ 5 million and a maximum of $10 million during the remainder of 2012 out of the original $60 million statewide ME&O budget for 2010-2012 on other program activities associated with the original Energy Upgrade California residential retrofit program. This could include augmenting the Energy Upgrade California program budget for the utility programs, or the continuation, supported by ratepayer funds, of the California Energy Commission / American Recovery and Reinvestment Act activities originally funded in 2010-2011, such as local government or third-party programs associated with Energy Upgrade California, including non-utility marketing and financing programs, or workforce, education, and training efforts. In allocating these funds, we require the utilities to consult with the California Energy Commission, local government entities, and Commission Staff, and to develop a set of standard criteria and make available

funding only to the most successful efforts that should be continued and/or provide models that can be replicated in the future.

The remainder of the $60 million in 2010-2012 statewide ME&O funds, after subtracting Engage 360 funds already spent in 2010-2012, Energy Upgrade California marketing and web portal expenses for 2012, and any additional programmatic expenditures authorized herein, should be returned to ratepayers either by reducing balancing account balances or by utilizing funds already collected in balancing accounts toward the 2013-2014 statewide ME&O program.

Next, we turn to the question of how to handle the web portals for both Engage 360 and Energy Upgrade California. Given that this decision recommends discontinuing the Engage 360 name permanently, the web portal for Engage 360 should eventually be dismantled and removed from the internet. However, the Energy Upgrade California web portal currently utilizes the rebate finder database portion of the Engage 360 web site. Several parties recommended continuing to maintain and enhance this database. We agree. The rebate finder database is one of the most functional and critical portions of the current Energy Upgrade California web portal. Thus, this functionality should be maintained and improved as we transition toward a broader use of the Energy Upgrade California name and web portal.

A critical assessment should also be made of the other content from the Engage 360 and/or Flex Your Power web sites that should be migrated toward use under the Energy Upgrade California umbrella in the future. In their statewide ME&O applications, the utilities should propose a budget for fully transitioning all relevant material to the Energy Upgrade California web portal and shutting down the Engage 360 web site entirely by no later than the end of 2013, preferably earlier. The utilities should also propose a budget for

comprehensively augmenting the Energy Upgrade California web portal to serve as a one-stop-shop for demand-side program information, as well as generalized energy education information for residential and small business consumers, while still continuing to prompt home and building owners to immediately take action and to participate in available energy efficiency programs. It should also serve as a repository of information for the utilities, practitioners, the California Energy Commission, local government programs, and third-party programs. While this proposal should be comprehensive, it should seek to minimize ratepayer costs for web portal maintenance.

Finally, consistent with our directives in the demand response and low income areas, we encourage the utilities and CCSE, in the design and delivery of the statewide marketing and outreach campaign, to utilize the existing network of community-based organizations and local and ethnic media such as newspapers, radio, and television. The utilities' ME&O applications should recognize the importance of these channels to reach and penetrate some of the harder-to-reach communities and help them identify energy saving opportunities.

Community based organizations can be especially important in outreach efforts because many have proven track records and have earned the trust of their communities. Coordination with such organizations can also yield the added benefit of job creation in particular communities. These strategies are consistent with the Legislature's and the Commission's long-standing support for encouraging greater economic opportunity for women, minority, and disabled veteran business enterprises captured in both General Order 156 and § 8281.

In summary, we direct the IOUs to include funding proposals for the Energy Upgrade California web portal in their 2013-2014 statewide ME&O

program applications. These proposals shall: 1) be based on consultation with CCSE, Commission Staff, the California Energy Commission, and leading Energy Upgrade California stakeholders as identified by the energy agencies; 2) seek to maintain and expand, as appropriate, critical web portal functions and existing oversight structures; and 3) seek to minimize web portal maintenance costs while maintaining its support for driving market transformation.

In comments on the proposed decision, all utilities raised concerns about the role of local marketing relative to our discussion of statewide marketing efforts. We clarify that nothing in this section is intended to prevent utilities from continuing to conduct local and targeted marketing that is service territory and/or program-specific. However, statewide marketing and local marketing should still be coordinated and the strategies for each should be designed to complement each other. In their August 3, 2012 applications for statewide marketing and outreach, the utilities should describe their expected roles and complementary strategies for statewide and local marketing efforts.

16. Continuation of 2010-2012 Programs not Addressed Elsewhere in this Decision

In this section, we identify several additional energy efficiency programs in the current 2010-2012 program cycle that we believe merit continuation into the 2013-2014 program cycle. Our main criterion for prescribing these programs is that they support our long-term market transformation goals under the Strategic Plan. Unless otherwise specified, the proposed activity levels in 2013-2014 should be roughly comparable to the approved 2010-2012 levels.

16.1. HVAC and Benchmarking Programs

The residential HVAC Quality Installation and Quality Maintenance programs, commercial HVAC Quality Installation and Quality Maintenance

programs, and funding for the Western HVAC Performance Alliance are key programs in our efforts to transform the HVAC industry. SDG&E and SoCalGas should propose to increase the activity levels for these programs commensurate with the other utilities' levels of commitment.

Through D.09-09-047 and subsequent modifications, the IOUs were directed to implement benchmarking in commercial energy efficiency programs, and commit to associated benchmarking targets by the end of 2012. During 2011, the Commission commissioned a study by NMR Consulting and Optimal Energy to evaluate and report on the status and impact these benchmarking initiatives are having on both savings and program awareness and participation. The report also reviews the Energy Star Portfolio Tool, and the utilities' Automated Benchmarking Systems. Lastly, this study surveys numerous customers and profiles their experiences with utility benchmarking, and aims to understand how to improve these efforts in the future. The Final Report is expected to be released in March 2012 and will provide recommendations on how to improve benchmarking activities at the utilities. We direct the IOUs to continue their benchmarking activities in 2013-2014.

We also provide guidance regarding two 2010-2012 strategic initiatives – integrated demand-side management and Continuous Energy Improvement -- which we believe warrant additional attention.

16.2. Integrated Demand Side Management

Integrating demand side program offerings has been an objective of the Commission since 2007. The Commission has provided extensive guidance to the utilities for promoting integrated program offerings of energy efficiency, demand response, and distributed generation programs. In this section, use of the terms "integrated," "IDSM," "DSM," and "Demand Side Resources" refer to

all three primary demand side energy resources: energy efficiency, demand response, and distributed generation, and also to storage where appropriate.

In D.07-10-032, the Commission first required the utilities to "integrate customer demand side programs, such as energy efficiency, self-generation, advanced metering, and demand response in a coherent and efficient manner."[418] The intent of integrating DSM programs described in that decision was to achieve maximum savings while avoiding duplication of efforts, reducing transaction costs, and diminishing customer confusion.[419]

Per D.07-10-032, integration would address the full range of comprehensive consumer demand-side options, promote a systems integration approach within RD&D, design, hardware, controls, codes and standards, and installation and maintenance, and would include a process to engage external subject matter experts.[420] California's Long-Term Energy Efficiency Strategic Plan adopted by the Commission in September 2008, includes a chapter dedicated to Integrated Demand Side Management goals and objectives that the utilities were to reference for their 2010–12 program. Additional Integrated Demand Side Management related guidance in D.09-09-047 established a joint utility Integrated Demand Side Management taskforce.[421] We provided guidance on the issue of integrating demand side energy programs and resources in, among other things, D.07-10-032, the April 2008 Assigned Commissioner Ruling, the October 2008 Assigned Commissioner Ruling, and D.09-09-047.

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[418] D.07-10-032 at 5.

[419] D.07-10-032 at 6.

[420] D.07-10-032 at 31.

[421] D.09-09-047 at 216.

Decision 07-10-032 directed the utilities to use existing Demand Side Management funding sources to fund pilot projects to achieve the Integrated Demand Side Management goals and objectives identified in the rulings and decisions above. Commission Staff was directed to supervise an independent third-party evaluator's assessment of the success of utility Integrated Demand Side Management efforts in the 2010–2012 portfolio to aid DSM integration efforts in future program cycles.

An August 2010 Ruling on guidance for the 2012-2014 demand response applications directed that future authority and funding for the demand response portion of Integrated Demand Side Management activities be considered in energy efficiency proceedings starting with the energy efficiency applications for 2013-2015.[422]

16.2.1. Positions of Parties

Parties support continuing Integrated Demand Side Management activities as part of the 2013-2014 energy efficiency portfolio. Ecology Action supports inclusion of resource integration, comprehensiveness, and lost opportunities in cost-effectiveness calculations while "considering the issue of integration of efficiency, generation, demand response, storage and electric transportation."[423]

SDG&E and SoCalGas state that, "with this anticipated [energy efficiency transition] funding the Commission needs to ensure that any program integration or coordination requirements continue as required and direction for [Integrated Demand Side Management] activities and budgets are included in the

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[422] Administrative Law Judge's Ruling Providing Guidance for the 2012-2014 Demand Response Applications, Rulemaking (R.) 07-01-041, August 27, 2010 at 15.

[423] Ecology Action Comments on Phase IV Scoping Memo at 4.

expected energy efficiency bridge portfolio guidance."[424] SDG&E/SoCalGas go on to state that they:

> … should continue to…provide the customer with a more comprehensive and unified approach thus promoting Integrated Demand-Side Management "IDSM" solutions. Integrated Demand Side Management solutions will not only promote [energy efficiency] solutions but where applicable, demand response and renewable solutions. This would minimize customer confusion when attempting to identify the best energy management options for their homes and businesses.

16.2.2. Discussion

We agree with party positions that the statewide Integrated Demand Side Management program and related integration goals and objectives should continue to be pursued in the 2013-2014 transition portfolio. Commission Staff is currently overseeing an independent third-party evaluation to assess the success of the Statewide Integrated Demand Side Management Program and disseminate lessons learned. This evaluation is expected to be completed by the end of 2012.[425]

16.2.2.1. Integrated Demand Side Management Taskforce

Though the taskforce was previously directed to utilize external subject matter experts in its deliberations, only one external subject matter expert was invited to participate in Integrated Demand Side Management taskforce meetings (by Commission Staff). We direct the utilities to revise their existing Integrated

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[424] SDG&E/SoCalGas Comments on Phase IV Scoping Memo at 7.

[425] Early evaluation findings are available at http://www.energydataweb.com/cpuc/home.aspx.

Demand Side Management PIP for the 2013-2014 transition portfolio, and again require that they include in the PIP a clear plan to obtain input from stakeholders concerning each of the eight tasks (identified in D.09-09-047), including, as necessary, public workshops, reporting, and coordination with Commission Staff and the Integrated Demand Side Management taskforce. This plan should also actively include interaction with external subject matter experts in Integrated Demand Side Management taskforce deliberations on a regular basis.

16.2.2.2. Integrated Pilots

Additional guidance appears to be required for integrated pilot program offerings. However, there is lack of quantifiable data that would measure the success of Integrated Demand Side Management pilots in terms of kilowatt-hours, kilowatt, and financial savings, GHG emission reductions, avoided lost opportunities, minimized water usage, and a broader range of sustainability areas.

We direct the utilities to include in their revised Integrated Demand Side Management PIP a detailed accounting of all "integrated" Integrated Demand Side Management pilot programs and projects using the table presented in Attachment D of this decision. We further direct the utilities to work with Commission Staff to ensure that an adequate level of detail is provided in reports on Integrated Demand Side Management pilot efforts. Should the utilities find that their Integrated Demand Side Management pilot offerings are not addressing our guidance on resource comprehensiveness, design characteristics, promotion of emerging technologies, and the testing of integrated cost-effectiveness and evaluation methodologies that support Integrated Demand Side Management objectives, they shall provide a scope and budget for

revamping their Integrated Demand Side Management programs in the 2013-2014 portfolio via their revised PIP.

16.2.2.3. Integrated Audit Tool

For 2013-2014, we direct the utilities to propose in their Applications a strategy to have an integrated audit tool for Integrated Demand Side Management activities. The utilities should harmonize timelines and approaches, to have a similar tool on a statewide basis. We direct Commission Staff to monitor the development of the audit tool.

In addition, if the utility's audit tool is not completed by the time it files its 2013-2014 application, we direct the utility to include in its application a revised Integrated Demand Side Management PIP with an updated audit tool completion timeline. The revised document shall focus on the business requirements used to select the IOU's audit development vendors and Attachment C of the October 2008 ACR referenced above. The revised PIP should also provide a plan to disseminate and utilize the audit tool, once it is completed, and for incorporating, mid-cycle, any additional data and lessons learned from the 2010-2012 evaluation, when finalized.

16.2.2.4. Integrated Marketing

There are few examples of integrated marketing campaigns and related material that actively promote the full range of Demand Side Management resources to customers. The minimal efforts in this area have not led to the long-term reductions in marketing and program costs envisioned for Integrated Demand Side Management marketing efforts. We direct the utilities to include in their revised Integrated Demand Side Management PIP a clear plan to pursue integrated marketing in the 2013–2014 program cycles. By "integrated marketing," we mean marketing strategies, messages, and material that

simultaneously promotes demand side resources to customers and seeks to educate them about the benefits of pursuing these resources where feasible. This plan should include the development of new marketing collateral and strategies that offer 'bundles' of Demand Side Management resources/programs targeted to specific customer groups via "one stop" approaches were possible, as well as a statewide integrated marketing plan per Strategic Plan objectives.

16.2.2.5. Access to Relevant Data

To determine whether pilot programs are designed in a manner that achieves the Integrated Demand Side Management objectives described in Integrated Demand Side Management Pilot section above, we direct the utilities to include data collection plans in their revised Integrated Demand Side Management PIP in the 2013–2014 portfolio applications that:

- Consider current reporting expectations for each of the Demand Side Management strategies;
- Identify the common information that is currently collected for Demand Side Management resources; and
- Propose a strategy for reporting integrated Demand Side Management information.

The plans should be clearly linked to the Integrated Demand Side Management goals and objectives for the pilot programs and projects. The utilities are encouraged to work together as they will be expected to provide the Commission standardized data (i.e., standard across the utilities). Commission Staff will review the proposed Integrated Demand Side Management data

collection plans and the Assigned Commissioner will approve final data collection plans in the 2013-2014 transition portfolio reporting requirements.[426]

16.2.2.6. Integrated Demand Side Management Resource-Specific Funding Guidance

In the Integrated Demand Side Management process to date, the utilities have consistently identified the lack of shared funding among Demand Side Management program areas as a barrier to achieving Integrated Demand Side Management objectives. We urge all Integrated Demand Side Management taskforce representatives to actively participate in the service lists for all applicable proceedings to develop of a record in each proceeding that would aid in developing a policy, funding opportunities, and mechanisms to promote integration of demand side energy resources. We also urge the utilities to include in their revised Integrated Demand Side Management 2013–2014 PIP a plan for how they will coordinate and participate in and between demand side resource proceedings going forward.

Additionally, it appears that with the adoption of this Decision, the demand response portfolio cycle of 2012-2014 and the energy efficiency portfolio cycle of 2013-2014 will be in sync starting in 2015. Since not all of the relevant resource proceedings are on concurrent cycles, it is reasonable for the utilities to make their proposals and funding requests for demand-side resource integration activities in their energy efficiency applications. We direct the utilities to include the demand response, distributed generation, and relevant AMI-portions of their Integrated Demand Side Management-related costs in the Integrated Demand

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[426] Reporting requirements for energy efficiency are specified by the Assigned Commissioner, pursuant to D.09-09-047, and posted on the EEGA (http://eega.cpuc.ca.gov/) website.

Side Management budget requests included in their applications, with justification for why funding should be continued.

16.3. Continuous Energy Improvement

Decision 09-09-047 approved a new statewide sub-program in all three non-residential market segments (industrial, agriculture, commercial) called the Continuous Energy Improvement program. This program is a pilot program which seeks to test innovative new approaches that promote customer demand side energy resource management by offering the tools and incentives for high load customers to incorporate energy management practices into their business and operating plans.

The Continuous Energy Improvement pilot has almost reached its participation level goals and initiated a Continuous Energy Improvement process evaluation beginning in 2012 to develop lessons learned and best-practices. It is however unlikely that evaluation findings will be available in time for 2013–2014 program planning. We direct the utilities to propose to continue to support the Continuous Energy Improvement program in their 2013–2014 portfolios and to include a Continuous Energy Improvement PIP in their 2013-2014 portfolio applications. The aforementioned PIP should clearly link Continuous Energy Improvement program activities to supporting the statewide Integrated Demand Side Management program's goals and objectives, and recognize the Continuous Energy Improvement pilot program as an "integrated pilot" program geared toward these purposes.

With regard to workforce education and training the current Continuous Energy Improvement PIP stated, that "Continuous Energy Improvement implementation shall [be] integrated with Workforce, Education, and Training efforts by providing Continuous Energy Improvement process and case study

input to 'energy engineer' curriculum designers for Community Colleges and Universities." We direct the utilities to include strategies in their 2013-2014 applications to actively engage workforce education and training sector strategy efforts. The costs associated with funding these efforts should be shared between the Continuous Energy Improvement and the Workforce Education and Training Statewide Program budgets.

Lastly, although the Continuous Energy Improvement program was designed to support large commercial, agriculture, and industrial customers, utility Continuous Energy Improvement program representatives have identified the need to include a focus on mid-sized non-residential customers (typically identified as customers with less than 500 kW load). Similarly, Commission Staff has also identified the smaller business customer segment as one that has not been adequately served by utility programs. PG&E agrees that the utilities should develop strategies "to better reach under-served small and medium business (SMB) customers."[427] Consequently, we direct the utilities to propose expansion of the Continuous Energy Improvement pilot scope to include mid-sized non-residential customers in the 2013–2014 portfolios in their revised PIP submitted with their 2013–2014 applications.

Once early Continuous Energy Improvement evaluation findings become available, Continuous Energy Improvement PIPs should be revised to describe how the program will be modified mid-cycle in consideration of these findings.

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[427] PG&E Comments on Programmatic Guidance Ruling at 9.

17. Other Portfolio Direction

17.1. Ex Ante Review and Updates

Ex-ante savings estimates are the foundation for portfolio planning and reporting accomplishments, and the starting point for evaluation and verification. Three concepts will guide our direction in this section:

- Use of best available information;
- Standardizing the process of freezing ex ante values for measures that can be frozen prior to start of a cycle; and
- Developing a clear, efficient process for freezing ex ante values for measures whose parameters cannot be frozen prior to the start of the cycle (primarily custom projects and non-DEER workpapers submitted mid-cycle).

17.1.1. Future DEER Updates

The importance of DEER to all ex ante values and the wide range of information contained in DEER make the availability of this information necessary to ensure that parties are able to adequately review and comment on Staff's recommendations for DEER updates. As time permits, we expect Commission Staff to inform parties of its plans and progress on DEER updates and provide parties with information on changes to assumptions and expected values in advance of the release of its draft DEER update recommendations.

17.1.1.1. Party Positions

The IOUs, TURN, and NRDC all comment on what they characterize as the contentious nature of the DEER process. TURN argues that the main reason for this contentiousness is that DEER values impact incentives paid to IOU shareholders, and therefore utilities have a strong motivation to contest the values. TURN also asserts that, when ex-ante values are frozen for use farther

into the future, differences between ex-ante and actual accomplishments increase, as will contention over the "to-be-frozen values."[428] NRDC notes that disputes continue on the merits of evaluations used for inputs for the updates and on the reasonableness of DEER values compared to the rest of the country.[429] PG&E comments that added complexity and related reduced transparency (due to a heavy reliance on derived values rather than evaluation results) have increased the contentiousness of planning cycles.[430] SCE agrees with NRDC and PG&E and states that the "DEER process has become convoluted, which naturally decreases transparency and increases contentiousness."[431]

Some parties comment on the manner in which contentious issues concerning the DEER update should be resolved. PG&E recommends that the Commission direct the IOUs and Commission Staff to jointly identify whether any significant disagreements exist concerning updated DEER values and, if so, to jointly convene a working session with a third-party consultant, who has not participated in the ex ante updates, to attempt to reach consensus. If no agreement is reached, PG&E recommends that the Commission accept the third-party's recommendation and incorporate that recommendation into DEER.[432] NRDC takes the position that the Commission should first focus on updating values that are agreed upon or have minimal controversy and should improve estimates for highly contested savings that affect a large portion of the

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[428] TURN opening comments on DEER at 3.

[429] NRDC opening comments on DEER at 1.

[430] PG&E opening comments on DEER at 16.

[431] SCE reply comments on DEER at 8.

[432] PGE, Comment on Phase IV Scoping Memo at. 11.

portfolio."[433] Synergy Companies recommends that the DEER update should use the most accurate ex ante values that are possible through agreement and due diligence by all parties. Synergy Companies points to the Regional Technical Forum (Northwest) as an example of good practices.[434]

DRA believes that ex ante assumptions should be developed through an independent process, and therefore disagrees with PG&E's proposal to require consensus building workshops with a third-party consultant. DRA comments that the workshop process would not lessen the complexity of energy efficiency, but rather would likely result in delays and contention in the Evaluation process.[435] DRA disagrees with NRDC's suggestion that the Commission should focus on updating less controversial values. As an example, DRA points to the net-to-gross ratio, which is one of the most contentious metrics, in observing that the least controversial route is not necessarily the best route for improving portfolio program savings.[436] TURN contends that the Commission never intended for the evaluation process to entail negotiations between Commission Staff and the IOUs.[437]

Parties ask that the Commission provide guidance for freezing the DEER data set for the duration of the 2013-2014 period.[438] Parties also request that a

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[433] NRDC, Comment on Phase IV Scoping Memo at 7.

[434] Synergy Companies, Reply Comment on Phase IV Scoping Memo at 5.

[435] DRA, Reply Comment on Phase IV Scoping Memo at 9-10.

[436] DRA, Reply Comment on Phase IV Scoping Memo at 10.

[437] TURN, Reply Comment on Phase IV Scoping Memo at 2.

[438] SCE, Comment on Phase IV Scoping Memo at 7; NAESCO, Reply Comment on Phase IV Scoping Memo at 4; NRDC, Comment on Phase IV Scoping Memo at 7;

Footnote continued on next page

cut-off date be established with respect to the data used for the update.[439] Ecology Action recommends that savings values based on DEER and Commission-accepted workpaper values (as of January 1, 2013) should be frozen and applied to the full transition period, while updates to DEER and workpaper values that occur after January 1, 2013 should apply to the next program cycle.[440] Parties assert that using frozen DEER values enables the IOUs to use the same fixed values for planning, implementing, and reporting.[441] NRDC agrees with Ecology Action that the Commission should provide policy guidance to avoid applying assumptions retroactively.[442] Synergy Companies opposes retroactive application of updated values.[443] The Efficiency Council suggests that the Commission establish guidance for freezing the best available ex ante data set in the near-term for planning for the 2013-2014 period so that the parties are working from the same set of information and the planning and implementation process is not delayed while waiting for new data. It recommends continuing to study and update data throughout the transition period in order to establish a subsequent data set that can be similarly frozen for planning and implementing

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Efficiency Council, Comment on Phase IV Scoping Memo at 10; Ecology Action, Comment on Phase IV Scoping Memo at 14.

[439] Efficiency Council, Reply Comments on Phase IV Scoping Memo at 7; NRDC, Comment on Phase IV Scoping Memo at 8.

[440] Ecology Action, Comment on Phase IV Scoping Memo at 14.

[441] SCE, Comment on Phase IV Scoping Memo, at 7; Ecology Action, Comment on Phase IV Scoping Memo at 2.

[442] NRDC, Reply Comment on Phase IV Scoping Memo, at 3; Ecology Action, Comment on Phase IV Scoping Memo at 14.

[443] Synergy Companies, Reply Comment on Phase IV Scoping Memo at 5.

the post-2014 cycle.[444] TURN opposes using frozen ex ante values through the portfolio cycle; instead the ex ante freeze should only be employed to prepare or plan for the bridge year portfolios.[445] Parties also emphasize the need to adhere to a strict schedule and adopt updated values in a timely manner.[446]

Parties offer different recommendations for resolving the current contentious nature of the DEER process. TURN recommends that the evaluation and DEER update[s] should be detached from the shareholder incentive process and refocused on optimizing program design.[447] TURN suggests a return to ex-post determination of accomplishments, but offers a possible solution of freezing ex-ante data for planning purposes only, and then update ex-ante values annually. PG&E recommends a transition to a "gross savings measurement methodology" that moves away from relying on Net-To-Gross ratio (NTG) values.[448] SCE agrees that DEER and evaluation processes should be detached from shareholder incentives, but disagrees with TURN's recommendation to update any frozen ex ante values during a program cycle.[449] NRDC and the utilities agree that only "agreed upon" ex ante values should be frozen in this round of DEER. NRDC recommends that only "noncontroversial" ex ante values be adopted into DEER and urges the Commission to "set up a process … to

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[444] Efficiency Council, Reply Comment on Phase IV Scoping Memo at 7.

[445] TURN, Reply Comment on Phase IV Scoping Memo at 1.

[446] NAESCO, Reply Comment on Phase IV Scoping Memo at 4; SCE, Comment on Phase IV Scoping Memo at 14.

[447] TURN opening comments on DEER at 2.

[448] PG&E reply comments on DEER at 8.

[449] SCE reply comments on DEER at 11.

address the key unresolved disputes before planning for the post bridge period."[450] PG&E and SCE agree comments that only "agreed-upon" 2006-2008 Evaluation values should be frozen "for use in portfolio planning and reporting."[451]

Several parties are concerned that DEER has not been developed in a transparent manner or with sufficient input and collaboration from stakeholders. These parties complain that they are not provided an opportunity to review DEER until after the work has been completed. PG&E states that the evolution of the development of DEER savings estimates into a process based heavily on energy simulations has caused a decrease in the transparency.[452]

PG&E and NRDC recommend a process similar to the Regional Technical Forum utilized in the Pacific Northwest as a method for simplifying the development of ex ante values. PG&E states that the Regional Technical Forum "is transparent, lacks contention among its stakeholders and has a proven track record." PG&E also suggests that following the Regional Technical Forum approach of using voluntary participation and support could significantly reduce costs to ratepayers for developing, maintaining, and administering ex ante values.[453]

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[450] NRDC opening comments on DEER at 2.

[451] PG&E opening comments on DEER at 16; SCE reply comments on DEER at 10, respectively.

[452] PG&E opening comments on DEER at 16.

[453] PG&E opening comments on DEER at 20.

17.1.1.2. Discussion

We share parties' concerns about the controversies that surround updates to energy savings and cost-effectiveness parameter values. We recognize that most values for DEER and non-DEER measures include underlying complexity in analysis methodology and require interpretation in the use of data that can come from evaluation studies as well as other related research activities. We expect disagreement regarding specific values based upon differences in professional judgment. However, the Commission cannot adjudicate every disagreement about the values contained in the ex ante data. For this reason the Commission has given our Staff the responsibility of performing the review and making recommendations as to the values we should adopt. When we assigned our Staff the responsibility of maintaining and updating DEER together with other activities designated as "Research and Analysis in Support of Policy Oversight,"[454] we stated:

> We place these activities under the management of regulatory staff because they involve judgments that can influence either the development of performance targets or the measurement of program achievements. For example, in both DEER and net-to-gross ratio work, judgments need to be made about what specific energy savings numbers from which studies will be used to estimate energy savings for specific measures. Due to the conflict-of-interest concerns discussed above, the IOU Portfolio Managers would not be the appropriate entities to manage or directly contract for this type of work."[455]

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[454] D.05-01-055, Section 5.3.2 at 120.

[455] *Ibid.* at 121.

We provide our Staff significant latitude in performing DEER and other policy oversight functions and do not require Staff to utilize any advisory groups to perform this work. As noted when this decision was made:

> We decline, however, to involve one or more policy advisory groups in this area of responsibility on a standing basis, as some parties propose. We find this approach to be far more structured and potentially cumbersome than we believe is necessary. In performing the Research and Analysis functions, Commission and CEC staff should have full flexibility to obtain input from various sources, including working groups of experts or hired consultants, as they deem appropriate to the circumstances."[456]

In D.10-04-029 we set forth an approach for collaboration and dispute resolution between IOUs and Commission Staff for Evaluation studies. We affirm this recommendation below for evaluation activities in general and identify specific steps to ensure transparency and sufficient opportunity for party input in future DEER updates. However, we clarify here that the collaborative approach and dispute resolution process articulated in D.10-04-029 do not apply to the DEER update process. Recent experience suggests that such a process would interfere with our ability to regularly update ex ante values with the best available information. While we weigh the evidence and opinions of all parties in adopting ex ante values, we typically place a high weight on the recommendations of Commission Staff.

As TURN suggests, the Commission did not envision the ex ante update process, for either DEER or non-DEER values, to be a negotiation between Commission Staff and the utilities or other parties. We require that Staff seek input and review from parties on all ex ante values. However, Commission Staff

should recommend ex ante values that reflect the best estimate of expected real portfolio accomplishments based upon the most appropriate and accurate data available.

We disagree with comments that DEER should be based only upon evaluation methods and results. As stated above, DEER falls under Commission Staff's broad responsibilities to undertake research and analysis in support of policy oversight.[457] To perform these research and analysis functions we have given Commission Staff the flexibility to obtain input and perform research as it deems appropriate.[458] Ex ante values used for planning must be the best estimates of the likely accomplishments of the utilities' proposed portfolios. We recognize that many of these planning values may be projections based on past experience, evaluations of past similar activities, and results of other related research.

We generally agree with parties' request that ex ante values should be adopted and held constant throughout the portfolio cycle. However, mid-cycle updates of ex ante values are warranted if newly adopted codes or standards take effect during the cycle.[459] We anticipate that a new version of Title 24 will become effective January 1, 2014, and the specifics of changes to be made public in late 2012.[460] The utilities shall make appropriate adjustments to their participation and incentive calculation rules as well as update their ex ante value

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[456] *Ibi*d. at 121.

[457] D.05-01-055, Section 5.3.2 at 128.

[458] *Ibid.* at 130.

[459] These changes are known at least one year ahead of their effective date.

[460] http://www.energy.ca.gov/title24/2013standards/prerulemaking/.

calculations in response to codes and standards changes. Codes and standards changes shall, as discussed below, be reflected in both DEER and non-DEER ex ante values used for reporting of utility portfolio accomplishments.

In addition to the need to update DEER for mid-cycle significant codes and standards changes, DEER will require updates for use in 2015 and beyond planning activities. By the end of 2012, codes and standards changes that will be effective by 2014 should be known and thus content for mid-cycle DEER and non-DEER revision can be fully planned. In addition, Commission Staff's 2010-2012 evaluation activities that will provide results that can be used to inform 2015 and beyond planning will likely also be available. Commission Staff shall prepare and release a plan for DEER updates that covers the anticipated mid-cycle codes and standard changes as well as DEER updates for 2015 and beyond planning.[461] The DEER 2014-2015 update plan should be released to parties before the end of 2012. As discussed above, Commission Staff should release detailed information on measures, methods, and assumptions that will be the subject of changes within these two future DEER versions as soon as is practical. Staff should not wait until all updates for all measures are completed before releasing information. Instead, Commission Staff should incrementally release information on the details of planned recommended changes as early as practical.

Several parties view the Regional Technical Forum as a model that could provide insights into ways to improve our ex ante updating process. Although we do not change the existing process at this time, we direct Commission Staff to

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[461] Commission Staff should target two versions of DEER for our adoption late in 2013: first, the DEER update for use in 2014 reporting that incorporates changes to codes and standards effective by that time, and second, the DEER update to be used for 2015 and beyond planning.

review the processes in other jurisdictions and make recommendations for improvements to our process for consideration prior to beginning the ex ante update for the post-2014 cycle.

17.1.2. Non-DEER Workpaper Updates

Parties commented on the following areas of the non-DEER workpaper review process: retirement of specific non-DEER workpapers, updates of non-DEER workpapers that are covered by the DEER update,[462] updates of non-DEER workpapers not covered by the 2011 DEER update - to reflect the 2006-2008 evaluation results,[463] the workpaper review process, and mid-cycle measures in the Phase 2 workpaper process.

17.1.2.1. Retirement of Specific Non-DEER Workpapers

PG&E comments that where any of the specific parameters of an IOU installation differ from the assumptions that form the basis of the DEER measure, the IOUs will necessarily have to develop a workpaper to convert and/or apply the DEER assumptions to the particular installation. Therefore, PG&E asks the Commission to specify that whether a measure is considered a DEER or non-DEER "measure" not be determined solely based on the technology installed, and that rather the IOUs should prepare non-DEER workpapers for measures where any of the installation parameters differ from the parameters in the DEER update.

The utilities have always had the flexibility to provide a workpaper for a measure that is not in DEER for Commission Staff review, therefore PG&E's

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[462] PG&E comment on Phase IV Scoping Memo at 11-12.

[463] *Id*. at 12-13.

request is moot. To minimize the proliferation of workpapers, though, the IOUs are instructed to use DEER values as starting points and/or apply the DEER methodologies for estimating the non-DEER parameter value for cases in which any of the specific parameters of an IOU installation differ from the assumptions that form the basis of a DEER measure. The utilities will not have the option to replace DEER assumptions and values with their preferred values unless the Commission Staff agrees with their proposal for such replacements.

17.1.2.2. Application of DEER Values to Non-DEER Workpapers

PG&E states that after the DEER is updated, each DEER value or parameter that has been updated should be identified, and a clear procedure to apply these updates to non-DEER workpapers should be established. We agree. We direct Commission Staff and the utilities to work together to identify each of the values that have been updated and develop a clear procedure for applying the updates to relevant non-DEER workpapers. The procedure must follow our intent to utilize DEER assumptions and values in non-DEER workpapers, but we provide Commission Staff flexibility to interpret the details of this requirement in a manner it finds reasonable and practical.

17.1.2.3. Updates of Non-DEER Workpapers not Covered in the 2011 DEER Update to Reflect 2006-2008 Evaluation Results

PG&E requests that the Commission clarify that the IOUs should update the High Impact Measures workpapers in accordance with the 2011 DEER update, as opposed to the 2006-2008 evaluation results. In D.09-09-047 and D.11-07-030, the Commission stated that non-DEER workpapers were to be updated with the latest information available. Consequently, the utilities have already been instructed to update with the latest information available, which would include the Commission's 2006-2008 evaluation results. We once again

instruct the IOUs to update non-DEER workpapers with the latest information available, including the Commission's 2006-2008 evaluation results, and not wait for future DEER updates before complying with this Commission directive. In the absence of existing DEER values, followed by the utilities shall use the 2006-2008 evaluation results as inputs, when applicable. We leave to Commission Staff to approve the utilities' proposals as to which workpapers require updating. This direction is consistent with the expectation that the best available information will be used when calibrating goals, estimating savings, and reporting results.

17.1.2.4. Review of Non-DEER Workpapers in 2013-2014 Portfolio Applications

The utilities shall submit their non-DEER workpapers as part of their 2013-2014 transition portfolio applications, and each utility shall upload its non-DEER workpapers to its respective directory in the Workpaper Project Archive on the website: http://www.deeresources.info.

Given the limited time available for the utilities to develop and the Commission to approve 2013-2014 transition portfolio applications, PG&E[464] and SCE[465] state that Commission Staff should first review High Impact Measure non-DEER workpapers filed with the applications and turn to non- High Impact Measure workpaper review as time permits. We agree, and direct the IOUs to provide in their applications a "Non-DEER Workpaper Summary List" that identifies those non-DEER measures they forecast to be High Impact Measures. Commission Staff shall review as many of the workpapers as time allows,

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[464] Phase IV Scoping Memo at 14-15.

[465] SCE reply comment on Programmatic Guidance Ruling at 6.

beginning with the High Impact Measures, and provide recommended adjustments to the workpapers it has reviewed in a document similar in format to Attachment A of D.11-07-030 that will be included in the decision approving the IOUs' Applications.

If the IOUs do not agree with Commission Staff's adjustment(s) attached to the proposed decision, they may indicate their positions in comments on the proposed decision approving the 2013-2014 transition portfolios as was done in D.11-07-030. The Decision approving the Applications approves any workpapers that are not reviewed, and Commission Staff may review any of these in the future and apply any upward or downward adjustments (consistent with the dispute resolution process described in the following section) on a prospective basis on contracts entered into by the IOU(s) for the relevant measures (i.e., the adjustments will only apply to contracts signed after Commission Staff communicates to the utility that it has selected the workpaper for Phase 2 Mid-Cycle review, as described in D.11.07-030 and amended per the discussion in the following section).

17.1.2.5. "Phase 2" Process for Mid-Cycle Review of Interim Approved or New Measure Workpapers

PG&E,[466] SCE,[467]and Ecology Action[468] comment on a need for timely Commission Staff Phase 2 workpaper review. PG&E adds that Commission Staff's "conditional approval" review disposition designation has resulted in delays in introducing products into programs.

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[466] PG&E Comment on Phase IV Scoping Memo at 13-14.

[467] SCE opening comments on DEER at 16.

[468] Ecology Action reply comment on Phase IV Scoping Ruling at 4-5.

To address these concerns, to eliminate the potential for multiple iterations of workpaper discussions on disagreements between Commission Staff and the utilities, and to provide an opportunity for disputed values to be vetted in a more transparent manner, we replace the "conditional approval" designation in the Commission Staff review disposition process with the following Phase 2 workpaper approval dispute resolution process that shall commence with the 2013-2014 transition portfolio:

a. If Commission Staff agrees with the parameters included in a non-DEER workpaper for a new measure provided by an IOU, Commission Staff will communicate this to the IOU via email and upload it to the Workpaper Project Area on the http://www.deeresources.info website, and the workpaper will become effective on that date.

b. If Commission Staff disagrees with or needs more information regarding parameters included in a non-DEER workpaper, Commission Staff will recommend revised parameter values (or request additional information) within 25 days of receipt of a work paper with all necessary information provided by the utility.[469]

c. If the utility finds the revised parameter values unacceptable (and/or any subsequent information exchange does not resolve the disagreements in parameter values), Commission Staff and the IOU will hold one or more meetings to come to an agreement. If agreement on workpaper parameters is reached through this process, Commission Staff will upload the workpaper to the Workpaper Project Area on the http://www.deeresources.info website, and the workpaper will become effective on that date.

d. Every six months, and for each applicable IOU, Commission Staff will develop a draft resolution that identifies the disputed ex ante values proposed by the IOU for each non-

[469] As set forth in the November 18, 2009, ALJ ruling in A.08-07-021, et al.

DEER workpaper submitted during the previous six months that remains in dispute, along with Commission Staff's recommended adjustments and its rationale for those adjustments. The IOUs may articulate their disagreements with Commission Staff's proposed adjustments in their comments on the draft resolution, and the resolution will be subject to a Commission vote.

17.1.2.6. Summary of 2013-2014 Portfolio Non-DEER Workpaper Disposition Processes

We currently require that Commission Staff review all utility proposed non-DEER assumptions and values.[470] The utilities must cooperate and collaborate with Commission Staff during the review of the non-DEER workpapers so that the Commission is able to fulfill its oversight responsibilities.[471] The process for utility non-DEER workpaper submittal, review and approval shall be as follows:

- Non-DEER measure ex ante values based upon 2010-2012 IOU workpapers shall be updated with the latest available information, including the Commission's 2006-2008 evaluation results.
- Non-DEER workpaper measures that are included in the 2013-2014 DEER update shall be retired in favor of the updated DEER values. Commission Staff with help from the utilities will identify which of the non-DEER workpaper measures are now in DEER and will be retired.

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[470] ALJ Ruling in A.08-07-021, (November 18, 2009.

[471] D.09-09-047 Order Paragraph 4 states that, "Review of completed IOU workpapers regarding ex-ante savings estimates are subject to Commission Staff review and approval, as set forth in an Administrative Law Judge Ruling of November 18, 2009 in Application 08-07-021, et al. Each IOU shall cooperate with Commission Staff to allow upfront consultation regarding such workpapers." Discussion in Section 5.2 (page 19) of that decision states that, "We will require the IOUs to cooperate and collaborate with ED in the development of these workpapers."

- Non-DEER workpapers that are based on DEER values or methods covered by the 2013-2014 DEER update or that include measures not covered by the 2013-2014 DEER update shall be updated, giving priority to High Impact Measures.
- If a large amount of non-DEER workpapers are received in the 2013-2014 portfolio applications, such that Commission Staff is unable to review them all in time for approval in the 2013-2014 portfolio applications, any workpapers that are not reviewed will receive "interim approval," and Commission Staff may review any of these in the future and apply any adjustments on a prospective basis.
- Commission Staff's review of "interim approval" workpapers or new workpapers submitted mid-cycle shall adhere to the Phase 2 workpaper review process, including the dispute resolution process described herein.

17.1.3. Relationship of DEER to non-DEER Ex Ante Values

17.1.3.1. Party Positions

The utilities and other parties point out that there is an inextricable link between the development of DEER and non-DEER measures and that any difficulty in one process (DEER versus non-DEER) is detrimental to the other. SDG&E presents the example that savings for a seemingly simple Compact Fluorescent Lamps measure must actually be calculated using "various combinations of measures vis-à-vis climate zones, home vintages etc. and are required to be analyzed along with the preparation and approval of the corresponding workpapers."[472] SCE believes that the level of review to which the DEER is subject is less rigorous than the level of review and scrutiny applied to IOU workpapers by Staff's Data Management and Quality Control (DMQC)

[472] SDG&E opening comments on DEER at 3.

consultants.[473] SCE notes that about one hundred of its workpapers have not been reviewed and most were submitted more than twelve months ago.[474] Portland Energy Conservation Incorporated (PECI) "commends the [Commission] for recognizing that many DEER measures have become out-of-date" but also recommends that retirement of measures must be "coupled with updates to the work papers" and that the current backlog of work papers prevents any expectation that approved work papers will be available when DEER measures retire.[475] SDG&E suggests there is a misconception that energy savings values can simply be looked up in DEER. Rather, it contends that many common measures must be further developed in workpapers, and that, "[t]his is not described in the documentation and results in a significant administrative burden and confusion, especially for third party implementers."[476]

17.1.3.2. Discussion

We agree with comments that point out that non-DEER ex ante values will often depend upon DEER. We expect the development of non-DEER values to utilize DEER assumptions, methods and data whenever appropriate. We disagree with the claim by SCE's claim that its non-DEER workpapers undergo a more detailed review and commenting than DEER. Commission Staff review workpapers based upon the expected contribution of the measures contained within those workpapers to the utilities' portfolios. By establishing DEER as Staff's vehicle to recommend ex ante values, while retaining a non-DEER utility

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[473] SCE opening comments on DEER at 12, 13.

[474] *Id.* at 16.

[475] PECI opening comments on DEER at 2.

[476] SDG&E opening comments on DEER at 9.

workpaper submission process, we provide a two-tier approach allowing for a complete and robust ex ante value dataset. The first tier is DEER which we expect will be focused upon the measures and activities that contribute the most to the utilities portfolios. The second tier is comprised of the non-DEER as well as the custom measure and project values. We expect Commission Staff, when developing DEER content, to devote a higher level of resources to the determination of savings values for each measure. We also expect Commission Staff to undertake research in support of DEER updates when the existing evaluations results, analysis methods and other research literature are found lacking.

We expect that DEER updates will make maximum use of appropriate evaluation data, methods and results. We expect the utilities, when adding new measures to their portfolios, to utilize due diligence when developing the proposed ex ante values. The ex ante parameters should be developed to represent the expected gross and net savings, costs, and lifetime of the measure. For new measures we expect that the development of ex ante values will entail some research to establish reasonable expected values. We also understand that such research may take time and that it may be desirable to allow new additions to be utilized in the portfolio prior to all necessary research being completed. We encourage the utilities to pilot promising new technologies and utilize the results of research undertaken during the piloting period to improve the ex ante values. Piloting and ex ante value research for new measures is necessary to ensure the utility portfolios can respond to technology changes and innovations in the future while maintaining accurate impact and cost-effectiveness forecasts upon which budgeting decisions can rely. We expect Commission Staff, in their review of utility proposed ex ante values for new measures, to balance the need

for accurate ex ante values with the equally important need to continuously augment the portfolios with new technologies that offer promise. The utilities and Commission Staff should collaborate to perform the needed ex ante value research for new measures while those measures are being piloted in the portfolios. We also encourage Commission Staff not to allow "the perfect to be the enemy of the good," in general but especially in determining ex ante values for new technologies that offer considerable promise and (at its discretion) to consider "risk-sharing" approaches when assigning ex ante values to such measures.

17.1.4. Custom Project and Measure Ex Ante Review

Parties raise several issues related the Custom Project Review Process adopted in D.11-07-030. In addition to issues raised by parties, we review the progress Commission Staff and the utilities have made in implementing the review process. We also examine assumptions relating to the gross realization rate to be applied for planning and reporting custom measures during the 2013-2014 period.

17.1.4.1. Custom Project and Measure Review Process

The commenting parties state that the custom ex ante review process is hampered by delay and complexity.[477] In particular, SCE asserts that the custom

[477] PG&E, reply comment on Programmatic Guidance Ruling at 5; NRDC, reply comment on Programmatic Guidance Ruling at 6; EnerNOC, comment on Programmatic Guidance Ruling at 9; SD&GE/SoCalGas, reply comment on Programmatic Guidance Ruling at 4-5; NAESO, Comment on Phase IV Scoping Memo at 5-6); Trane, reply comment on Programmatic Guidance Ruling at 4; Gary Gockel, comment on Programmatic Guidance Ruling at 4.

project ex ante process suffers from review paralysis and is not clearly defined.[478] SCE recommends that it have the option to verify Commission Staff's (consultants') expertise relevant to the project being reviewed prior to performing review/inspection, and that Commission Staff, rather than its consultants, control the process so as to ensure that unintended biases and/or potential conflicts of interests are avoided.[479]

EnerNOC recommends, and SDGE/SoCal Gas agree, that a more definitive custom project ex ante review process be developed through a stakeholder workshop prior to commencement of the 2013-2014 transition portfolio.[480]

PG&E notes that custom measures, by definition, have values determined at the time of project application. It asserts that the IOUs' custom applications should utilize the new DEER data on a prospective basis during the transition period.[481]

Having reviewed parties' comments in this area, we are not inclined to make revisions to the custom project ex ante review process at this time. As with any new process, we expect that initial implementation issues will arise and need to be resolved as kinks in the process are identified and worked out. We note that the utilities are yet to be in full compliance with D.11-07-039, which is an additional reason for us to not make a change at this time.[482]

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478 SCE Comment on Programmatic Guidance Ruling at 7.

479 SCE Comment on Programmatic Guidance Ruling at 7.

480 EnerNOC, comment on Programmatic Guidance Ruling at 10; SDG&E/SoCalGas reply comment on Programmatic Guidance Ruling at 5.

481 PG&E, Comment on Phase IV Scoping Memo at 13.

482 *See* Ordering Paragraph 7 and Attachment B to D.11-07-039. The fact that it was only in February of 2012 that SCE started to provide the required custom projects

Footnote continued on next page

As set forth in the Phase IV Scoping Memo, the custom ex ante review process adopted in D.11-07-030 shall continue in the 2013-2014 transition portfolios. The utilities are directed to ensure that custom measure and project calculation tools or methods are consistent with the adopted DEER values and assumptions as applicable. The utilities shall bring all custom measure and project calculation tools used in the 2013-2014 ex ante calculations into compliance with the 2011 DEER Update. Commission Staff shall develop direction for the utilities to follow for individual custom projects, which may span the 2010-2012 and 2013-2014 program cycles (and thus multiple DEER versions) when moving through the various application stages, to satisfy our requirement that their ex ante values utilize the current DEER version.

17.1.4.2. Custom Project and Measure Gross Realization Rates

The 2006-2008 evaluations published by Commission Staff in 2010 indicated areas where net savings values needed improvement. For many custom project activities, the 2006-2008 evaluation results for gross savings were well below the currently adopted gross realization rate adjustment of 90% (adopted in D.11-07-030) for custom project ex ante reporting. Table 1: 2006-2008 Gross Realization Rates for Evaluated Custom Projects summarizes overall gross realization rate values from the 2006-2008 evaluation reports for the utilities' customized measure and project programs. Our concern grows from our observation that the gross realization rate for these types of projects has fallen

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summary list (for Commission Staff to select projects to review), makes SCE's strong critiques of the custom project ex ante process particularly puzzling.

from a 2002-2003 evaluation result of about 90%,[483] to a 2004-2005 evaluation result of about 80%,[484] to the most recent 2006-2008 evaluation result in the range of 70%. We recognize that these values were developed for programs with different customer and project mixes and that the responsibility for program evaluation has shifted from the utilities to the Commission Staff. We also recognize that the economic conditions during these time periods were different. However, this declining trend calls for action to ensure that these activities are cost effective and assist the utilities in meeting our policy objectives.

Table 1: 2006-2008 Gross Realization Rates for Evaluated Custom Projects

	Claimed Gross Savings			**Evaluated Gross Savings**			**GRR**		
	GWh	**MW**	**MMT***	**GWh**	**MW**	**MMT***	**kWh**	**KW**	**Therms**
PG&E	911	128	53	503	70	40	55%	54%	74%
SCE	822	118		629	91		76%	77%	
SoCalGas			15			11			73%
SDG&E	180	29	3	142	20	2	79%	69%	69%
Statewide	1,913	275	71	1,274	181	52	67%	66%	74%

*MMT is Million Therms

As noted above, in comments the utilities and others claim in their comments that changes have already been made to program rules and

[483] 2003 Statewide Nonresidential Standard Performance Contract (SPC) Program Measurement and Evaluation Study, for SCE, December 2005, at ES-1, reports a GRR for source BTU of 0.89 with a 90% confidence interval of 0.83 to 0.96.

[484] 2004-2005 Statewide Nonresidential Standard Performance Contract Program Measurement and Evaluation Study, Volume 1, for SCE, September 2008, at ES-2, reports a GRR for source BTU of 0.79 with a 90% confidence interval of 0.69 to 0.89.

implementation activities to raise these values. However, we have not been provided quantitative evidence that supports claims.

Our adopted custom measure and project review process was conceived both to help motivate improvements to the ex ante values for those projects and to motivate the utilities to respond to Commission Staff reviews with appropriate program design changes. We expect the utilities to respond to Commission Staff reviews by taking steps to change the program activities to improve both gross and net results. To that end, we direct Commission Staff to conduct net-to-gross (net of free ridership) screenings as part of its ex ante project reviews process. We encourage the parties to put forward proposals for changes to custom programs during the portfolio development process, which may include proposals for pilot programs, aimed at improving net-to-gross and gross realization rates. We note that the net to gross ratio for custom programs has held steady at approximately 0.5 in evaluations since 1998[485] and expect to see changes in approach that could improve that ratio. Studies conducted over the course of these years have offered multiple strategies to improve program influence and should be considered in proposed changes. Additionally, we direct the utilities to make programmatic changes to their custom programs per the recommendations and findings in recent evaluation studies. However, we retain the current default Gross Realization Rate (GRR) value of 0.90 for use in the 2013-2014 transition portfolio.

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[485] *See* Section 5.3, 06-08 Final Evaluation Report for PG&E Fab, Process and Manufacturing Contract Group (Itron, February 2010), available at http://www.calmac.org (Study ID CPU0017.01).

17.1.5. Ex Ante Value Gross Savings Baselines

17.1.5.1. Parties' Positions

All ex ante gross savings calculations must establish a baseline against which the installed measure is compared in order to establish savings. Several parties raise issues about the baseline to be used in calculation or setting ex ante gross savings values.

As a general matter, SCE requests a more clearly defined ex ante review process for calculated projects, including clarifications to "vague requirements for project baselines" and "guidance as to what is expected to document project baselines."[486] Apparently unaware of our policy regarding early retirement, several parties comment that the use of code baselines hampers progress toward deeper retrofit savings.[487]

In cases where a code baseline is appropriate to use under our current policy, parties raise non-compliance issues and voice the concern that the code baseline estimates savings for measures with high levels of non-compliance. For example, the Pool Solutions Group claims that minimum code requirements for pool pumps are frequently ignored by both homeowners and pool professionals.[488]

SDG&E/SoCalGas provide a cautionary note that for the Residential New Construction program the "standard method for calculating savings has always

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[486] SCE opening comments on ALJ Ruling regarding program guidance at 7-8.

[487] *See* for example, City of Oakland, opening comments on Phase IV Scoping Ruling at 6, and NEESCO opening comments on ALJ Ruling regarding program guidance at 9.

[488] Pool Solutions Group opening comments on ALJ Ruling regarding program guidance at 6.

used Title 24 as the base case to determine savings, therefore it is not clear what energy efficiency savings would be achieved if incentives were provided to meet Title 24."[489]

In cases where the pre-existing equipment is the appropriate baseline, parties suggest alternative methods to establish baseline. For example, PG&E suggests the DEER approach to establishing the incandescent lamp baseline for Compact Fluorescent Lamps that replace those lamps be replaced with an approach based on lumen service levels rather than field observations of use that include customer choices.[490]

17.1.5.2. Discussion

In D.11-07-030, we adopted an approach to establishing a baseline for ex ante gross savings values.[491] This approach requires the review of the evidence related to one of the two baseline choices: (1) the pre-existing equipment used in the early retirement case; or (2) new equipment that is feasible to use and is code-compliant or an industry standard practice. Evidence relating to the reasons for the equipment replacement is used to make the baseline choice.

We note that D.11-07-030 may not reflect our clarification that the compelling evidence standard for the determination of baseline equipment must be applied to both possible outcomes.[492] Specifically, D.11-07-030 notes that it is necessary to establish, by a preponderance of evidence, that the program has

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[489] SDG&E/SoCalGas opening comments on ALJ Ruling regarding program guidance at 6.

[490] PG&E opening comments on DEER at 17.

[491] D.11-07-030, Appendix I to Attachment B.

[492] D.11-07-030 at 40.

induced the replacement rather than merely caused an increase in efficiency in a replacement that would have occurred without the program.

We direct Staff to update and distribute to the service list of this proceeding Appendix 1 of Attachment B to D.11-07-030, to incorporate clarifications provided here regarding baseline for gross savings estimates, and to indicate that a preponderance of evidence on the motivation for equipment replacement shall be utilized to determine which of the two baseline alternatives is applied for all gross savings estimates.

As with many ex ante value setting activities, there will likely be cases where there is a difference of opinions among experts as to the interpretation of evidence for baseline determination. Commission Staff should use its ex ante review process to establish guidelines on how to evaluate and weigh different types of evidence for the determination of the appropriate baseline alternative.

Once it is established that the program caused the existing equipment to be replaced early, we need to establish the period of accelerated retirement. In our discussion of DEER updates above, we note that DEER contains values for the effective useful life for many technologies and recommend using one-third of the effective useful life as the remaining useful life until further study results are available to establish more accurate values.[493] For the case of program induced early retirement, the remaining useful life of the existing equipment should be used as the starting assumption for the period of accelerated retirement.

As is the case when evaluating evidence for program induced early retirement, evidence for the remaining life and the period of accelerated replacement of the existing equipment can also be reviewed. The use of a DEER

[493] Summary of EUL-RUL Analysis for the April 2008 Update to DEER, KEMA, at 2.

remaining useful life starting point for the acceleration period may be replaced. However, this should be allowed only if credible evidence is available to support an alternative value and that evidence leads Commission Staff to deem it more credible than of the adopted DEER values. Commission Staff should develop guidelines for the evaluation of remaining useful life evidence for the replacement of the DEER default values for specific projects and technologies. We provide this flexibility to utilize alternative remaining useful life values, based upon project or technology specific evidence, in place of the DEER adopted values primarily for use in Staff's review of the utilities' custom project and measure ex ante values.

The choice of an early retirement baseline implies that a dual baseline analysis shall be performed.[494] In the dual baseline analysis, the existing equipment baseline is utilized for the first or "early-retirement" period, also referred to as the "remaining-useful-life" period. For the second period from the end of the remaining-useful-life period through the end of the effective useful life of the new equipment, the baseline is set using the replace-on-burnout or normal-replacement equipment. The equipment used as the second baseline in early retirement must be equipment that is feasible to use and would be compliant with code requirements or industry standard practice. Regulations, codes, and standards applied to a baseline should be those that are known to be effective at the start of that baseline period, due to regulatory action that has been taken and will be effective at that future date.

The measure or project cost utilized in an early-retirement case is the full cost incurred to install the new high-efficiency measure or project, reduced by the

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[494] EEPMv4, Rule IV.2. and also footnote 9.

net present value of the full cost that would have been incurred to install the standard efficiency second baseline equipment at the end of the remaining-useful-life period. Thus, the early-retirement cost is higher than the incremental cost used in a replace-on-burnout or normal-replacement case, only by the time value of the dollar amount of the standard equipment full installed cost, using our adopted cost effectiveness discount rate to calculate that time valuation. As with all measures, our policy expects that incentives offered for early retirement will not exceed the actual early retirement cost.[495]

We find merit in the concern voiced by NAESCO that the finances of a deep retrofit activity may require convincing a customer to accelerate retirement of older equipment. However, we are equally concerned that the early retirement may push the customer not to do more than minimal code requirements. Early retirements should follow our policy to minimize lost opportunities and cream skimming.[496] We expect efforts aimed at replacing less efficient older equipment with newer better than code or industry standard practice equipment to also pursue deepening the retrofits at those sites by combining lower cost faster payback activities with higher cost longer payback measures.

For new equipment choices that are subject to existing regulations, codes or standards, our current policy provides that the baseline equipment be determined by the regulation, code, or standard requirements. However, there may be instances where there is sufficient evidence or documentation that the efficiency or energy use of equipment that meets the requirements of the

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[495] EEPMv4, Rule IV.4

[496] EEPMv4, Rule II.4.

regulation, code, or standard does not represent the efficiency or energy use of equipment that is typically installed. In those cases it may be appropriate to assign a baseline that equals or exceeds the typical installation in place of the regulation, code, or standard. As noted in parties' comments, there may also be cases where existing regulations, codes and standards are being either ignored or circumvented. Thus, it may be possible for the typical baseline performance to require higher energy use than would be expected (if the regulation, code, or standard was correctly followed or adequately enforced) or lower than would be expected (if the regulation, code, or standard was typically exceeded). We are not prepared to direct any changes to the current practice relative to baseline assignments for these cases. However, we direct Commission Staff, with input from the utilities and other parties, to develop recommendations on: (1) whether it is appropriate to replace the regulation, code, or standard baseline with a typical installation baseline for use in calculating energy savings; (2) under what circumstances and based upon what kind of evidence such a change could be made; (3) if the change to a typical installation baseline is made, how the baseline parameters should be established for use in setting ex ante values; and (4) if this change is made what are the time and budget implications for both Commission Staff and utilities for both ex ante and ex post savings development. In addition, to design their energy efficiency activities in a way to lift the market to levels above the minimum code requirements and standard practice, the utilities should identify and make recommendations for ways to aid or support code enforcement activities through their energy efficiency program activities.

In the cases when there is no regulation, code, or standard that applies, which would normally set the baseline equipment requirements, the baseline must be established using a "standard practice" choice. For purposes of

establishing a baseline for energy savings, we interpret the standard practice case as a choice that represents the typical equipment or commonly-used practice, not necessarily predominantly used practice. We understand that the range of common practices may vary depending on many industry- and/or region-specific factors and that, as with other parameters, experts may provide a range of opinions on the interpretation of evidence for standard practice choice. Here again, we expect Commission Staff to use its ex ante review process to establish guidelines on how to determine a standard practice baseline.

Independent of the baseline selection criteria, we would not expect that new equipment proposed for program incentive support would be simply a like-replacement of the existing equipment in efficiency level, as this would imply either a repair or normal replacement that would not quality as an energy efficiency upgrade, unless: (1) the proposed equipment exceeds standard practice or code, and (2) there is clear evidence that without support, the efficiency level would fall to the standard practice or code minimum.

PG&E raises the proposal that the adopted DEER method for establishing an incandescent lamp baseline for Compact Fluorescent Lamps using observed existing and installed incandescent and Compact Fluorescent Lamps be replaced with a theoretical equivalency based on lamp lighting output level as listed on the product packages. However, PG&E provides no evidence to refute that the DEER adopted method accurately reflects the delivered service levels as experienced at the large number of customer sites inventoried or surveyed as part of the 2006-2008 evaluations. Our policy states that measure and baseline

equipment choices must provide equivalent service levels.[497] By this we mean reliable service that can be delivered over the life of the product under normal operating conditions. In the case of CFLs, we give more weight to the evidence provided by the 2006-2008 evaluations from field observations than the claims placed upon a manufacturer's product packaging.

17.2. Next Steps for Post-2014 Process Reforms

In our guidance to the utilities in A.08-07-021, we "found merit in the proposal of some parties for a 'rolling' budget cycle" and directed the IOUs to explore this approach with parties and Staff and submit proposals in their applications.[498] However, the utilities have yet to develop concrete proposals for the Commission's consideration. In the Phase IV Scoping Memo, the assigned Commissioner again recognized the importance of exploring reforms to improve the energy efficiency regulatory process:

> Having start-stop program cycles, many of which contain the same programs cycle after cycle, seems wasteful, and having to review the entire program portfolio with every new cycle imposes heavy burdens on the Commission, parties, and program implementers.[499]

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[497] EEPMv4, Appendices, at 5, defines energy efficiency as "Activities or programs that stimulate customers to reduce customer energy use by making investments in more efficient equipment or controls that reduce energy use while maintaining a comparable level of service as perceived by the customer."

[498] D.07-10-032 at 95-96.

[499] Phase IV Scoping Memo at 3.

This scoping memo identified two conceptual models – "rolling" portfolio cycles and "evergreen" programs.[500] A plurality of the parties view both concepts favorably, at least at a high-level.[501] For example, WEM notes that rolling portfolio cycles would necessitate a rolling schedule for the evaluation process whereas TURN goes so far as to identify specific programs for evergreen status.[502]

We see benefit in designing a regulatory process that avoids start-stop cycles, if possible. We believe a process that enables the IOUs, with Commission approval, to make longer-term commitments to strategically important measures (or suite or categories of measures) or program delivery mechanisms could be beneficial to the extent it contributes to our long-term market transformation objectives. However, we believe it is premature to authorize specific programs to continue beyond the defined program cycles, until the record has been further developed to address outstanding questions. Critical details have yet to be explored and set forth in proposal that includes the appropriate criteria for

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[500] For purposes of this decision, "rolling" portfolio cycles refer to any set of reforms which obviate the need for arbitrary cycles of preparation, regulatory review, authorization, evaluation, and termination of the program portfolio *in its entirety*. "Evergreen" programs refer to a regulatory scheme in which programs would be authorized to continue, within specified certain parameters and under continuous evaluation and oversight, as long as they meet certain specified criteria.

[501] SCE, NRDC, TURN, DRA, Efficiency Council, Commercial Energy California, EnerNoc, OPOWER, CCSF, and WEM support consideration of rolling portfolio cycles. SCE, TURN, Efficiency Council, Commercial Energy California, EnerNoc, OPOWER, LGSEC, and CCSF support the idea of, at least, some evergreen programs. CFC is concerned that these approaches could cause misalignment between the approval of funding and specific programs causing inefficient programs to continue without proper evaluation of success (CFC Comments on Phase IV Scoping Memo at 4).

[502] TURN Comments on Phase IV Scoping Memo at 4-5.

granting or revoking evergreen status, the evaluation process necessary to support these models, and the regulatory approval processes to effectuate them. We reiterate our support for investigating these reforms. In order to make progress in this area, we direct Commission Staff to work with the parties to develop viable proposals for possible implementation in the post-2014 period. In addition, we take initial steps in this decision to prepare evaluation data, reporting, and management for the demands these models would place on our evaluation system.

18. Evaluation

Evaluation, Measurement, and Verification (hereafter, evaluation or EM&V) activities will continue under the guidelines for collaboration, cooperation, and dispute resolution outlined in D.10-04-029 and adopted for the 2010-2012 program cycle. Provisions within D.10-04-029 define the broad objectives of the evaluation effort, the general distribution of evaluation responsibility between the IOUs and Commission Staff, and the commitment to developing and executing a joint evaluation plan for the full portfolio.

Commission Staff and the IOUs completed version 1 of a joint evaluation work plan on December 20, 2010. The plan was developed by Commission Staff in collaboration with the IOUs by establishing categories of research areas, identifying research needs, and allocating budgets accordingly. The plan has been updated as priorities have shifted and specific evaluation plans have been refined. Supplemental tracking systems are in place to allow stakeholders, IOUs, and Commission Staff to see progress on evaluation activities and to allow for participation in the comment process.

Commission Staff and the IOUs will update and modify the existing evaluation plan to accommodate significant shifts in budgets or programs in the

2013-2014 portfolios. Commission Staff and the IOUs should continue their collaborative processes, which includes Project Coordination Groups, monthly Commission Staff -IOU meetings, and quarterly stakeholder meetings, to gather input and share information on evaluation findings.

Information from the evaluation activities should be made available to IOUs and interested stakeholders as it becomes available. Information emerging from the evaluations will be used to refine and improve programs on an on-going basis, and/or will be available to assist in portfolio design decision and revising frozen ex ante savings parameters for the next program cycle. This expectation applies to adjustments to savings estimates (and updates to specific savings parameters) as well as information that emerges from process and market studies.

18.1. Evaluation Budget

Consistent with the budget for the 2010-2012 evaluation cycles, funding for evaluation activities should be proposed at four percent of the total portfolio budget. The distribution of the budget between the IOUs and Commission Staff should be proposed to remain at 27.5% and 72.5%, respectively. Each utility's evaluation budget will be determined by its proportional share of total program budgets, as consistent with D.10-04-029. A further breakdown of the budgets for specific research activities shall be included in the initial 2013-2014 portfolio update to the joint plan once utility applications are adopted by the Commission.

18.2. Next Steps for Workshops

Commission Staff have completed two of the six workshops mandated under D.10-10-033. The first two workshops addressed Experimental Design and the Application of Market Transformation Metrics. Commission Staff has developed draft agendas and is preparing for the remaining four workshops:

1. Load forecasting and total market gross load impacts;
2. Use of data collected by Advanced Metering Infrastructure;
3. Macro consumption metrics; and
4. Additional evaluation issues.

Upon completion of the workshops, we will consider changes to the evaluation plan and execution of evaluation.

18.3. Next Steps for Program Performance Metrics / Market Transformation Indicators

As part of the workshop series ordered in D.10-10-033, Commission Staff organized a workshop to review and further vet Market Transformation Indicators for use beginning with the 2010-2012 evaluations.[503] Based on the workshop, parties' comments, and current evaluation work, Commission Staff produced a series of recommendations for revisions to the Market Transformation Indicators. With this decision, we now direct Commission Staff to provide the service list of this proceeding the recommended final Market Transformation Indicators that are to be used during the balance of the 2010-2012 evaluation cycle and for the 2013-2014 portfolio, as soon as feasible, but no later than 30 days after the issuance of this decision. We further direct the utilities to submit in their applications any additional Market Transformation Indicators that they believe are appropriate for evaluation of new 2013-2014 programs.

Recognizing the importance and long-term nature of strategic market transformation planning, we authorize Commission Staff to establish an evaluation Project Coordination Group whose primary function will be to

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[503] Resolution E-4385 directs Staff to recommend adoption of MTIs for 2010-2012 to the Assigned Commissioner, who would then issue a Ruling containing the final MTIs. *See* Resolution E-4385, Ordering Paragraph 4.

review, deliberate, and provide feedback on IOU proposals for changing the Market Transformation Indicators adopted in the upcoming Ruling. If mid-cycle changes to Market Transformation Indicators are deemed necessary, the IOUs shall submit a Tier 1 Advice Letter articulating the changes. Alternatively, if Staff deems it warranted, Staff can also prepare a draft resolution to revise Market Transformation Indicators for Commission consideration.

In D.08-07-047 the Commission recognized the need to consider the market effects associated with portfolio programs, and in the guiding principles laid out in this decision, we reiterate this objective. In order to facilitate our review of the 2013-2014 portfolio applications, it is reasonable to require a minimum level of strategic assessment and identification of expected market effects anticipated from specific programs. The IOUs shall identify in their applications, proposals for programs or initiatives that have been designed to accomplish "market transformation." For these programs, the IOUs must effectively articulate the following information through their PIPs:[504]

- A description of the market, including identification of the relevant market actors and the relationships among them;
- A market characterization and assessment of the relationships/dynamics among market actors, including identification of the key barriers and opportunities to advancing demand side management technologies and strategies;
- A description of the proposed intervention(s) and its/their intended results, and specify which barriers each intervention is intended to address;

[504] This information may also support Cost Effectiveness Track 2 methodologies which are considering incorporating market effects into the cost effectiveness calculators. These methodologies are currently being developed by Commission Staff for consideration by the Commission in the upcoming year.

- A coherent program, or "market," logic model that ensures a solid causal relationship between the proposed intervention(s) and its/their intended results; and
- Appropriate evaluation plans and corresponding Market Transformation Indicators and PPMs based on the program logic model. (The IOUs should be prepared to start tracking proposed Market Transformation Indicators immediately in order to establish a baseline, and in cases where the logic model calls for metrics to be differentiated in terms of the sequence and timeframe in which they are expected to be relevant – i.e., leading vs. intermediate vs. lagging indicators of change – each metric should be identified as such).

We require this additional information for, at a minimum, the Statewide Lighting Market Transformation program, the Statewide HVAC Quality Installation and Quality Maintenance programs, Energy Upgrade California, Residential New Construction, Savings By Design, Plug Load/Appliances programs, and third-party programs and/or pilots focused on Commercial and Residential Zero Net Energy. Beyond these identified programs, only programs or sub-programs that include the required information should be proposed as "market transformation-oriented" initiatives. The IOUs may propose new programs or initiatives as "market transformation-oriented," for which they should submit the same information as indicated above, in their PIPs.

18.4. Data Needs for Reporting and Evaluation

The utilities currently report their energy efficiency program accomplishments in the form of detailed claims or "tracking data." The tracking data are the foundation for evaluation activities. This information can be used for measure- and programmatic-level analysis, as well as utility- and portfolio-wide analysis of progress to evaluate whether overarching policy and regulatory goals are being met. Commission Staff and the utilities have made significant progress toward standardizing the tracking data over the past few

years, and we encourage the continued collaboration between Staff and the utilities to further improve the data systems which link ex-ante claimed savings estimates and evaluation updates. With respect to achieving our goal of more timely feedback on portfolio accomplishments, we believe there is a critical need that is informed by the best available information.

Frozen ex ante savings parameters (in the form of the adopted DEER values, Non-DEER Workpapers, and Custom Projects subject to the ex ante review process) and tracking data (in the form of utility reports of program accomplishments based on these ex ante savings parameters) should be submitted and evaluated as part of a systematic process that creates a connection between ex ante savings parameters, unverified tracking data, and impact evaluations (which verify tracking data, and also determine whether adjustments to the ex ante claim parameters are necessary).

We believe that a closer connection between these data flows will have the effect of improving transparency of updates to ex ante parameters based on evaluation, integrating these findings into the next program cycle, and informing necessary adjustments to potential and goals (and, in turn, future programs) on a regular basis. Commission Staff and the utilities are currently working collaboratively on tracking database submittals that will automatically look-up and pull data from a database of frozen ex ante input parameters that are adopted by the Commission. This system, when complete, will improve the transparency of freezing ex ante values, making and validating claims, tracking portfolio progress, and conducting portfolio level analysis. In D.11-07-030, we ordered the utilities to work with Commission Staff to implement this vision of a streamlined tracking database, and we re-state that directive here. We are not asking the utilities to change their systems; however, we are requiring them to

continue to improve the current data structure and existing systems based on guidance provided by Commission Staff and through collaborative working groups.

Following past precedent, specific reporting requirements for the utilities' submittal of tracking data will be posted to the Energy Efficiency Groupware Application website at http://eega.cpuc.ca.gov. Commission Staff and its consultants will continue to work collaboratively with the utilities in a working group dedicated to data issues to resolve immediate needs and to build toward long-term solutions for implementation in post-2014 portfolios.

Since this is not intended to be a significant change to the utilities' underlying data systems, we do not believe there are significant cost implications from this activity. However, in their applications, the utilities should include a line item in their budget for meeting the requirements for compliance with standardized tracking data submittals per current Commission Staff guidance.

19. Shareholder Incentive Mechanism

Due to the significant number and magnitude of the disputes that arose in implementing the Risk/Reward Incentive Mechanism in the 2006-2008 portfolio cycle and the 2009 bridge year, the Commission took up the issue of making reforms to the mechanism in R.09-01-019. Initially, the focus of that proceeding was formalizing the process of freezing ex ante savings parameters, how to lock in certain values in the mechanism given the "unknowns" associated with custom projects, and how to adjust the incentive level given the reduced risk associated with a mechanism that had no penalty provisions or other consequences for ex post determination of errors in the ex ante parameters.

One of the "unintended consequences" of this proceeding is that utilities were encouraged to place greater emphasis on measures with high annual

savings levels even if their design lives were relatively short, with the result that the majority of 2006-2009 portfolio savings (and a significant portion of projected 2010-2012 program savings) derived from one measure – basic Compact Fluorescent Lamps. While flooding the California lighting market with deeply discounted Compact Fluorescent Lamps achieved a significant amount of short-term savings, it was not the intention of the incentive mechanism. The goal of the incentive mechanism is to foster greater innovation and creativity within the utilities' engineering and management and to ensure that energy efficiency savings (not merely savings accounting) became a top priority for the utilities.

Consequently, the scope of R.09-01-019, and now its successor proceeding, R.12-01-005, considers, consistent with the overall direction of this guidance decision, how the mechanism might place "greater emphasis on programs designed for deeper savings, measures with higher up-front costs and longer design lives, and market transformation efforts (with correspondingly increased challenges associated with program participation levels and achieving savings from these programs)."[505] While an incentive mechanism for the 2013-2014 portfolio will be considered in R.12-01-005, we direct the utilities to reflect in their applications any relevant guidance that is proposed or adopted before the application filing deadline (e.g., the identification of programs in the portfolio that address harder-to-achieve savings versus those with easier-to-achieve savings).

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[505] Assigned Commissioner's Ruling Seeking Further Comments and Production of Data Regarding Energy Efficiency Incentive Reforms, R.09-01-012, filed 12-16-11 at 3.

20. Next Steps and the Process for 2013-2014 Utility Portfolio Applications and Review

20.1. Inclusion of Spillover in Cost-Effectiveness Calculations

In comments on the proposed decision, several parties emphasize their support for inclusion of potential "spillover effects" in cost-effectiveness calculations. We agree that inclusion of such impacts, to the extent they may be quantified or estimated, may more accurately reflect the broader market impacts of the programmatic activities. Several analytical activities are underway in this transition period which may allow valuation of the portfolios from such perspectives in the future.

An example of one potential type of spillover effect is when a customer who participates in a utility energy efficiency program may also reduce energy use in other ways. Another example is when the existence and dissemination of information about a utility's energy efficiency programs may cause customers who do not participate in the programs themselves to modify their behavior. Past impact studies provide some historical indication of these impacts and may be useful in developing appropriate estimates. Market effects analysis has been conducted in the 2006-2008 program cycle and is underway in the 2010-2012 program cycle to quantify the market effects of IOU programs.

Commission Staff should continue to explore methods to quantify these impacts and consider their inclusion in cost effectiveness methodologies in the course of the cost effectiveness "track II" analysis to inform future portfolios.

In the interim, the IOUs may be able to reasonably quantify spillover impacts in the portfolio projections for the 2013-2014 portfolio cycle, and could help us improve estimates over time. Consequently, for their 2013-2014 portfolio applications, the utilities may present estimates of spillover that may result from the proposed programmatic activities, and may propose the inclusion of spillover

effects in their cost-effectiveness analyses and results. This may be provided at either the program or portfolio level. Any such proposals should be vetted with stakeholders and Commission Staff (via workshops or some other transparent process led by the utilities) prior to the application filing. Estimates should be based upon available research and analysis on spillover from programs within the state and possibly from other jurisdictions. We would consider these values during the application approval process.

20.2. Program Implementation Plans

Program Implementation Plans were filed in the previous 2010-2012 efficiency program A.08-07-021. The PIP template was derived through various rulings, workshops, party comments, and coordination between Commission Staff and the IOUs in 2008-2009. The PIP format was further revised after the Strategic Plan was adopted in September 2008. After an October 30, 2008 Ruling,[506] the IOUs were directed to demonstrate how their energy efficiency programs reflected the short–term milestones and programmatic initiatives identified in the Strategic Plan.[507] At that time, PIP templates solicited market transformation planning estimates, and program logic models, so that Commission Staff could understand the programs' linkages to the short- and long-term objectives in the Strategic Plan goals. In addition to the format for statewide programs, D.09-09-047 also adopted a format and process for pilot programs.

This Decision directs the IOUs to file specific information for market transformation programs in their upcoming applications for 2013-2014. In an

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[506] http://docs.cpuc.ca.gov/efile/RULINGS/92972.pdf.

effort to streamline reporting efforts and the review process for Commission Staff, the PIP template for statewide, local and third-party programs may be revised and simplified based on revised PIP templates that Commission Staff shall provide to the service list of this proceedings as soon as feasible, but no later than 30 days after the issuance of this decision.

20.3. Application Structure and Contents

The time available for submission and review of the utilities' applications and for the Commission to adopt 2013-2014 plans and budgets in response to those applications is limited. This requires that the applications contain all information required for the review without the need for supplemental filings. To facilitate the review and approval process, we direct the utilities' in their applications and supporting documentation to follow a common format. We direct Commission Staff to provide a common application outline to the utilities as soon as feasible, for the utilities to use in developing their applications. The application outline will contain both general and specific topics which must be addressed by the utilities in their applications as well as page limit guidelines. The utilities must include discussions of each topic; however, these discussions should be precise yet direct in addressing the topic.[508] In order that the review of applications is able to proceed in a timely manner, the utilities should avoid repetitive discussions in multiple sections but be clear in addressing all direction in this decision relative to proposed activities and application content.

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[507] Decision 09-09-047 at 89.

[508] We require that the utilities' portfolios demonstrate cost-effectiveness when including Codes and Standards advocacy savings and program costs.

20.4. High-Level Application Budget and Cost-Effectiveness Summary Tables

As discussed above, the utilities are required to submit with their applications a prospective cost-effectiveness showing. The showing must provide sufficient detail so that a review can be undertaken of all cost elements of all areas of activities as well as the dollar value benefits arising from the estimated energy savings impacts of those activities. In developing their portfolio budgets and cost-effectiveness showing for their proposed portfolios, the utilities are directed to adhere to applicable Decisions and Rulings and not propose alternative portfolio scenarios based on their preferred changes to existing policy or direction. The aforementioned common application outline (which shall be provided to the utilities by Commission Staff) will provide a list of budget, cost-effectiveness, energy savings and emissions reductions tables that are required to be submitted with each application. These tables shall be completed and provided with each utility's application. Any alterations to the table contents and format must be agreed to by Commission Staff in advance and any such changes must be common to all utilities' submissions.

20.5. Detailed Application Cost-Effectiveness Showing

To support the summary budget and cost-effectiveness tables required above for the utilities' applications, the utilities shall also submit a more detailed cost-effectiveness showing that provides additional information on the energy savings assumptions and costs that were used to derive the values in those summary tables. This submission will consist of cost-effectiveness calculator input-output files; the contents of this submission requirement will also be included in the aforementioned common application outline to be provided by Commission Staff. The cost-effectiveness calculations shall utilize the electric and gas avoided costs, and the DEER values and methods, adopted in this decision.

The non-DEER and custom project assumptions utilized in the required cost-effectiveness submission shall utilize DEER values and methods, when available, and be otherwise based upon the non-DEER workpapers also submitted with the utility applications. The utilities shall supply supporting documentation on the assumptions used to develop the contents of their cost-effectiveness calculator submission to facilitate review by Commission Staff and parties.

20.6. Programs Advisory Groups

In comments on the Phase IV Scoping Memo, SDG&E and NAESCO support restoring the Programs Advisory Groups which had been used in the 2006-2008 program cycle.[509] SDG&E/SoCalGas state that the Programs Advisory Group was "an effective way to include key stakeholders in the design and implementation of programs, and more importantly, foster trust between these stakeholders." SDG&E/SoCalGas go on to propose a specific Programs Advisory Group structure which would include local and statewide Programs Advisory Groups and subcommittees to address specific issues.

In D.07-10-032, we eliminated the Programs Advisory Groups due to concerns that they were "more often forums for the utilities to present decisions already made rather than to seek input in a collaborative manner."[510] The Programs Advisory Groups were eliminated "in favor of the more inclusive and comprehensive strategic planning approach" adopted in D.07-10-032. Today, our strategic planning collaborations continue primarily through the action plans

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[509] SDG&E/SoCalGas Comments on Phase IV Scoping Memo at 5; NAESCO Reply Comments on Phase IV Scoping Memo at 3.

[510] D.07-10-032 at 105.

discussed earlier in this decision. However, we see merit in considering proposals to reinstitute the Programs Advisory Groups. Therefore, we direct the IOUs to include proposals in their 2013-2014 applications to potentially utilize Programs Advisory Groups as a consultative resource for mid-cycle program changes or additions or for post-2014 portfolio planning. The IOUs should include discussion of a possible Programs Advisory Group role in their proposals to improve the competitive solicitation for third-party programs, as discussed above in this decision.

21. Comments on Proposed Decision

The proposed decision of Administrative Law Judge Darwin E. Farrar. in this matter was mailed to the parties in accordance with Section 311 of the Public Utilities Code and comments were allowed under Rule 14.3 of the Commission's Rules of Practice and Procedure. Comments were filed on April 9, 2012, by The Association of California Water Agencies, Build It Green, The California Building Performance Contractors Association, The California Construction Industry Labor Management Cooperation Trust, The California Energy Efficiency Industry Council, The California Housing Partnership Corporation, The California Center for Sustainable Energy, The City and County of San Francisco , The Division of Ratepayer Advocates, The Eastern Municipal Water District, Ecology Action, EnerNOC, Inc., Efficiency First, Green for All/Ella Baker Center/Greenlining Institute, The Irvine Ranch Water District , The Local Government Sustainability Energy Coalition, The National Association of Energy Service Companies, The National Consumer Law Center, The Natural Resources Defense Council, OPower, The Pacific Gas and Electric Company, Portland Energy Conservation

Incorporated,[511] Proctor Engineering Group Limited, OuEST, The Southern California Edison Company, The San Diego Gas & Electric Company, The Sierra Business Council, Simple Energy, Inc., Solar City, The Switch Lighting Company, The Utility Reform Network, The West Basin Municipal Water District, and Women's Energy Matters,[512]

Reply comments were filed on April 16, 2012 by the Association of California Water Agencies, the Association of Monterey Bay Area Governments, Marin Energy Authority, the Building Performance Institute, the California Center for Sustainable Energy,[513] the California Construction Industry Labor Management Cooperation Trust, the California Energy Efficiency Industry Council, California Housing Partnership Corporation, the City and County of San Francisco, the Division of Ratepayer Advocates, Eastern Municipal Water District, EnerNOC, Inc., the Ella Baker Center/Greenlining Institute/Green for All, Inland Empire Utilities Agency, Irvine Ranch Water District, the Local Government Sustainable Energy Coalition, the National Consumer Law Center, the Natural Resources Defense Council, Pacific Gas and Electric, San Diego Gas & Electric/SoCalGas, Sierra Business Council, Southern California Edison, The Utility Reform Network, West Basin Municipal Water District, Women's Energy Matters.

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[511] PECI also filed a motion for acceptance of late-filed comments, which is hereby granted.

[512] Simple Energy and Switch Lighting filed concurrent motions for party status. These motions are hereby granted.

[513] CCSE also filed a motion for acceptance of late-filed reply comments, which is hereby granted.

Several substantive and non-substantive changes have been made in response to the parties' comments and reply comments, as described elsewhere in this decision.

22. Assignment of Proceeding

Mark J. Ferron is the assigned Commissioner and Darwin E. Farrar and Julie A. Fitch are the assigned ALJs in this proceeding.

Findings of Fact

1. Energy efficiency portfolios as a whole must have a benefit cost ratio greater than one (i.e., the net benefit must be positive).
2. The Total Resource Cost and Program Administrator Cost cost-effectiveness tests are used to determine the cost-effectiveness of the energy efficiency portfolio.
3. The forecasted cost of renewable energy is higher than the forecasted cost of wholesale energy and capacity market purchases.
4. The primary source of our ex ante values is the DEER.
5. Staff's proposed ex ante update has followed our guidance and focuses on the expected High Impact Measures in the utilities' portfolios.
6. The 2011 DEER Update utilizes building simulation methods that are similar to those used in all previous versions of DEER.
7. Non-DEER ex ante values will often depend upon DEER.
8. A low Net-To-Gross value indicates that much of the savings resulting from the activity would have occurred without utility portfolio support.
9. Our potential and goals studies now incorporate Heating, Ventilation, and Air Conditioning interactive effects.
10. The Final Potential Study report has been released and is publicly available on the Commission website for parties to review.

11. The draft potential study methodology misinterpreted the 2006-2008 evaluation results (which indicated that 20% of all refrigerators were recycled). After subsequent revisions, the final Potential Study corrects this error.

12. The Potential Study projected that the market potential for basic Compact Flourescent Lamps in would decline to zero by 2018.

13. By 2014, PG&E plans to roll out behavior programs to 20% of households; SCE plans to roll them out to 0.4% of households; SDG&E plans to reach 3.3% of households; and SCE plans to emphasize the home energy audits and to maintain its programs on a pilot scale.

14. The use of the IOUs' program plans to estimate behavior potential would lead to potential estimates, and thus energy savings goals, that are orders of magnitude greater for PG&E than for SCE.

15. The Staff Proposal for 2013-2014 Energy Efficiency Goals recommended that, consistent with past Commission decisions, the 2013-2014 goals should:

a. Be aggressive yet achievable;
b. Support long-term planning;
c. Encourage a focus on long-term savings; and
d. Be based on the best available information.

16. In the 2006-2008 portfolio the realization of Codes and Standards savings as a portion of the total portfolio did indeed act as a hedge, as the policy intended.

17. It is important that we continue to encourage the utilities to develop the market for new technologies through both emerging technology and mainstream incentive programs.

18. It is equally important that measures are not pushed through to code before they are market ready, and that we do not incent the utilities to do so.

19. We have not witnessed the consistent, effective transition of emerging technologies into mainstream incentive programs in past portfolios.

20. The goals adopted in D.04-09-060 were applied on a net basis.

21. D.08-07-047 adjusted the IOU-specific goals to a gross basis.

22. The IOUs should support more strategic, statewide long term energy efficiency programs in the portfolio design.

23. The purpose of Codes and Standards goals is to give the IOUs credit for their specific contributions to new energy savings via their Codes and Standards advocacy work, which should not include naturally occurring savings or the advocacy work of other entities.

24. Cumulative goals encourage IOUs to invest in long-lived energy efficiency measures that produce persistent savings and are also needed for planning purposes, such as for supply-side procurement decisions.

25. Staff recommended that cumulative goals for the 2013-2014 transition portfolio be based exclusively on:

- The annual goals for 2013-2014;
- Recovery of unmet goals based on 2010-12 ex-ante planning assumptions pursuant to D.11-07-030 and D.10-12-052; and
- Recovery of savings from the effects of decay.

26. The proposed goals do not include recovery of savings from unmet goals prior to 2010, or recovery of any shortfalls relative to 2010-2012 ex-post savings in the event evaluation results in downward adjustments.

27. The study to evaluate assumptions regarding decay is not completed.

28. Stakeholders and their interests in energy efficiency financing are diverse. There is no "one size fits all" financing program design that will work for all customers segments and all market actors.

29. Successful energy efficiency financing program designs require attention to multiple aspects of customer needs, consumer lending laws, and other legal and regulatory constraints.

30. The existing OBF program for non-residential customers has successfully reached customers, particularly in the small business and institutional markets.

31. SDG&E/SoCalGas have had the most successful OBF program and their staff has acquired useful experience with the design and implementation of financing programs among the IOUs.

32. Some geographically distributed and diverse financing programs have been supported by American Recovery and Reinvestment Act funding in 2011 and 2012 and have been successful in piloting potential financing approaches that should be replicated and/or standardized for offerings statewide in the future.

33. Consistent statewide financing program designs with standardized terms offer the potential to attract larger amounts of private capital to assist customers in making energy efficiency improvements to their buildings.

34. Development of a customer database related to financing programs, while protecting individual customer confidentiality, will help inform stakeholders about target markets, risks, and expectations to better tailor financing offerings and bring additional capital to California.

35. There are 44 local government partnerships statewide and they focus on three broad areas of activity: (1) retrofit of local government buildings, (2) promotion of utility core programs, and (3) pursuit of energy efficiency activities identified in the Strategic Plan.

36. There is a strong need for local government programs that can provide deep retrofits.

37. Many local governments are better positioned to administer energy efficiency programs than they were seven years ago.

38. Authorizing pilots in the 2013-2014 transition portfolio would provide local governments the opportunity to develop a track record.

39. A key objective underlying the proposed pilots is to determine if local governments are in a position to plan and administer energy efficiency programs, absent utility support or intervention.

40. IOUs should expand their commitment to third-party implementation.

41. With effective oversight, performance based contracts can effectively mitigate risk that ratepayer contributions do not produce commensurate value.

42. There has been an exceptional rise in new, nimble, mission driven, third-party service providers, and increasing dynamism in customer demand for efficient technologies and services.

43. Streamlining and standardizing delivery of programs can create less confusion among programs and possibly encourage new entry into the market.

44. The Strategic Plan emphasizes reducing plug loads as part of residential market transformation strategies.

45. The establishment of a comprehensive residential retrofit program and reduced interest rate financing for whole house energy improvements, called for in AB 758 has resulted in significant investment in building a statewide Energy Upgrade California program infrastructure to train contractors, establish quality assurance procedures, build a statewide web portal, and conduct marketing and outreach.

46. Although a stepwise declining incentive structure for a ten-year period could add to program complexity, it may hasten market development and

heighten urgency amongst contractors and homeowners by providing a clear end to incentives.

47. A ten-year stepwise declining incentive would also help reduce ratepayer costs for the program over the long term.

48. The California HVAC replacement rate for residential and non-residential units may be as high as 800,000 units per year, for a total annual market of about $1 billion. Space cooling constitutes seven percent of residential electricity consumption and a higher percentage of peak demand.

49. Streamlining the review and approval of HVAC replacement jobs that are being considered for expansion into Energy Upgrade California whole house jobs seems the most important first step towards increasing HVAC contractor participation in Energy Upgrade California.

50. Streamlining Energy Upgrade California program application and job approval procedures more generally is essential to developing contractor support for the program.

51. No party supports establishing Energy Upgrade California incentives for home energy ratings at the time of sale.

52. The Energy Upgrade California "basic" program was designed to appeal to moderate income households considering a lower cost whole house energy upgrade investment and as a program entry point for contractors new to the whole house energy performance business.

53. The results of the IOUs' "whole building" pilot projects would help to inform our guidance on the statewide Energy Upgrade California multifamily program for the 2013-2014 period.

54. Plug load, appliances, and "miscellaneous" uses comprise about 66% of current California home electricity usage, with plug loads (televisions, personal

computers, and office equipment) accounting for about 20% of home electricity usage alone.

55. The Appliance Recycling Program can continue to remain cost-effective.

56. Early expert coordination can reduce costs to ratepayers and consumers of associated with Zero Net Energy residential building codes by 2020, and support both market stability and long range planning.

57. A Zero Net Energy Roadmap should include and be based on best estimates for cost-effective combinations of onsite renewable energy and energy efficiency for the range of building types.

58. D.09-09-047 approved $1 billion in commercial energy efficiency programs for both existing buildings and new construction for the 2010-2012 program cycle.

59. The December 7, 2011 Programmatic Guidance Ruling solicited comments on a Staff Proposal for the various market segments within the IOUs' energy efficiency portfolio.

60. Local Government Partnerships often cater to small and medium commercial customers and have knowledge of these customers within their city and county confines. Local governments can also leverage insight on neighborhoods within a city, to further engage small commercial customers.

61. Energy efficiency audits can help customers identify additional energy efficiency opportunities.

62. Collaboration on Emerging Technologies is important between Commission Staff, the IOUs, and other industry stakeholders.

63. Measures of energy savings after energy efficiency installations are not readily available for commercial building projects.

64. Performance data at the building, tenant, or end use level is pertinent information, and proposals to increase measurement, retention, and utilization of such information should be included in the 2013-2014 transition applications.

65. Increasing the measurement of energy and energy savings may encourage additional financing for energy efficiency projects.

66. Split incentives are an inherent market barrier in tenant leased space in the commercial sector.

67. There is benefit to reducing the number and complexity of programs by consolidating lighting measures into a single statewide program.

68. To facilitate market transformation and a long-term savings strategy, measures for all lighting sectors need to focus on market transformation.

69. The current function of the Lighting Market Transformation program is important and the program should remain.

70. The 2011 Potential Study indicates substantial achievable savings are available from these advanced lighting measures.

71. Light-emitting Diode and Compact Fluorescent Lighting technologies tend to be complementary.

72. In California there is substantial energy saving potential from the replacement of inefficient incandescent down lamps that are deployed in buildings all across the state with more efficient LED down lamps.

73. Progressive increases in building and appliance efficiency standards are a critical component of achieving the State's long-term energy efficiency goals.

74. The 2010-2012 Codes and Standards program is projected to account for 19% of the IOUs' total portfolio energy savings and 17% of total demand reduction.

75. Pilots, demonstrations, training and outreach programs expose customers to new technologies and practices and ultimately result in higher rates of market acceptance and consequently higher rates of compliance.

76. Statewide IOU Emerging Technology Program efforts in 2010-2012 have experienced several challenges.

77. Current Emerging Technology Program expenditures reflect extremely low program activity levels.

78. With over two-thirds of the program cycle behind us, the IOUs have spent less than one-quarter of their original Emerging Technology Program budgets.

79. The current slow rate of program activities (and especially the relatively low number of projects targeting scaled field placements and demonstrations) indicates that the Emerging Technologies program is underperforming.

80. The Emerging Technologies Program plays a critical cross-cutting role in technology development and deployment that spans all major market sectors and end uses.

81. Technology assessments are important for assessing performance claims and driving new technologies into the energy efficiency portfolio.

82. Given the cross-cutting role of the Emerging Technologies Program, there is a need for the Emerging Technologies Program to utilize a robust collaborative approach.

83. The Emerging Technologies Program represents a major strategy that can help meet Zero Net Energy goals and identify opportunities for advancing future Codes and Standards.

84. The Emerging Technologies Program can be used to bring market actors together in order to increase coordination and funding, leverage Research and Development opportunities, and support collaborative prospects.

85. Utility programs can play two roles that support our workforce training objectives. The IOUs can:

a. Enact "supply-push" strategies, such as training and certification programs, which produce the high-road workforce needed to meet our clean energy goals; and
b. Enact "demand-pull" strategies, such as skills standards and certification requirements for utility incentive programs, which create demand for and sustain high-road jobs and companies.

86. The utilities are actively involved in "supply-push" strategies through their workforce education and training programs.

87. The IOUs have begun requiring contractors participating in programs such as HVAC quality installation and maintenance and Energy Upgrade California to receive certain training.

88. The utilities have accumulated some experience with the sector strategy approach through their participation in the CALCTP initiative.

89. 30 – 50% of new HVAC systems and 85% of replacement systems are installed incorrectly.

90. The HVAC market is a prime target for testing the expansion of a sector strategies approach to a larger and more complex market (than, for example, the advanced lighting controls market addressed by CALCTP).

91. A pre-determined set-aside for workforce education and training budgets for the residential sector is inappropriate.

92. One of the state's largest end uses of electricity is in the treatment, heating, and conveyance of water in California.

93. The concept that saving water saves energy is dubbed the "water-energy nexus.

94. Parties recommend that leak detection and pressure management programs be offered by the IOUs.

95. Water systems efficiency is the most critical new strategy to capture additional water/energy nexus benefits in the energy efficiency program.

96. The IOUs should focus their water/energy nexus proposals in their 2013-2014 applications from the source of the water to the distribution point and through the system.

97. Agricultural and industrial customers are the largest end users of water in the state.

98. The Strategic Plan articulated a vision of a statewide ME&O program that includes integrated demand-side management messages and inspires consumer action.

99. A great deal of useful market and demographic research was developed by the Commission and the utilities during 2009 and 2010 in support of the development of the Engage 360 brand.

100. In energy efficiency proceedings, the Commission has at different times used either the before-tax or the after-tax WACC as the discount rate.

101. The avoided cost of ancillary services accounts for the decrease in the additional services needed to deliver electricity due to load reductions resulting from energy efficiency.

102. The current DEER methodology, which includes the use of building simulation, meets our expectations and directions for the DEER update.

103. Continuing a statewide ME&O campaign in general to educate consumers about the impacts of energy use, as well as to spur immediate energy-related action, is valuable.

104. The Energy Upgrade California brand name provides a viable and appropriate platform to build on and transform from the name of a single residential retrofit program to a broader campaign for demand-side ME&O information and energy efficiency actions.

105. To maintain consistency across demand side resource proceedings, Staff proposed that we apply the same discount rate used in evaluating other demand side resources to the energy efficiency portfolio.

106. The Engage 360 brand was conceived as an umbrella brand for statewide ME&O activities that started with building a movement and tapping into networks of community leaders.

107. The Engage 360 brand does not resonate with consumers because it has no obvious connection to energy use.

108. The Flex Your Power brand, and its associated brand Flex Alert, was created during the California energy crisis of 2000 and 2001 and inspired by emergency energy shortages necessitating emergency conservation by consumers. It is not an appropriate brand platform for generalized energy education and demand-side actions, especially those that relate to use of natural gas.

109. The Flex Alert brand is appropriate for continued use in system emergency situations.

110. Energy Upgrade California is a brand that is currently associated with a single residential retrofit program, funded jointly by the California IOUs and using American Recovery and Reinvestment Act stimulus funding through the CEC and local governments.

111. Energy Upgrade California is a brand that has the potential to be expanded to be associated with general energy knowledge and education

primarily by residential and small commercial customers. Energy Upgrade California also contains emphasis on consumers taking immediate and permanent action, because of the use of the word "upgrade."

112. To be effective, a statewide ME&O campaign must be coordinated with all of the other local and program-specific ME&O messages targeted at residential and small commercial consumers.

113. PG&E has the staff resources and expertise to serve as the utility coordinator on behalf of all utilities whose ratepayers fund the statewide ME&O campaign beginning in 2012 and continuing in 2013-2014.

114. CCSE has the experience and vision to execute the statewide ME&O campaign in 2013-2014 in coordination with Commission Staff, the CEC, the utilities, and local governments.

115. The Energy Upgrade California web portal utilizes the rebate finder database from the Engage 360 web portal, which provides valuable functionality to consumers.

116. SDG&E was authorized in a January 31, 2012 ACR to spend up to $588,000 on a contract to ensure Energy Upgrade California web portal maintenance and upgrading during 2012.

117. Approximately $48 million of the original $60 million funding for 2010-2012 statewide ME&O activities has not been spent.

118. The residential HVAC Quality Installation and Quality Maintenance programs, commercial HVAC Quality Installation and Quality Maintenance programs, and funding for the Western HVAC Performance Alliance are key programs in our efforts to transform the HVAC industry.

119. The Final Report on the status and impact of benchmarking is expected to be released in March 2012 and will provide recommendations on how to improve benchmarking activities at the utilities.

120. Integrating demand side program offerings has been an objective of the Commission since 2007.

121. Commission Staff is currently overseeing an independent third-party evaluation to assess the success of the Statewide Integrated Demand Side Management Program and disseminate lessons learned.

122. Though the Commission previously directed the Integrated Demand Side Management taskforce to utilize external subject matter experts in its deliberations, only one external subject matter expert was invited to participate in taskforce meetings.

123. The utilities experienced challenges over the 2010–2012 portfolio cycle in developing a statewide integrated audit tool as required by the Commission.

124. There are few examples of integrated marketing campaigns and collateral that actively promote the full range of Demand Side Management resources to customers.

125. Early Integrated Demand Side Management program evaluation efforts identified a lack of quantifiable or integrated data for Integrated Demand Side Management program and pilot efforts over the 2010–2012 portfolio.

126. With the adoption of this Decision, the demand response portfolio cycle of 2012-2014 and the energy efficiency portfolio cycle of 2013-2014 will be in sync starting in 2015.

127. The Continuous Energy Improvement pilot has almost reached its participation level goals and initiated a Continuous Energy Improvement process evaluation beginning in 2012 to develop lessons learned and best-practices.

128. Utility Continuous Energy Improvement program representatives have identified the need to include a focus on mid-sized non-residential customers.

129. Ex-ante savings estimates are the foundation for portfolio planning and reporting accomplishments, and the starting point for evaluation and verification.

130. We currently require that Commission Staff review all utility proposed non-DEER assumptions and values.

131. For many custom project activities, the 2006-2008 evaluation results for gross savings were well below the currently adopted gross realization rate adjustment of 90%.

132. The net to gross ratio for custom programs has held steady at approximately 0.5 in evaluations since 1998.

133. Commission Staff have completed two of the six workshops mandated under D.10-10-033.

134. Commission Staff organized a workshop to review and further vet Market Transformation Indicators that were initially proposed for 2010-2012 evaluations.

135. Based on the workshop, parties' comments, and current evaluation work, Commission Staff produced a series of recommendations for revisions to the Market Transformation Indicators established for the 2010-2012 portfolio and proposing new Market Transformation Indicators (and identifying next steps) for the 2013-2014 portfolio.

136. The utilities currently report their energy efficiency program accomplishments in the form of detailed claims or "tracking data."

137. The tracking data are the foundation for evaluation activities.

138. Commission Staff and the utilities are working collaboratively on tracking database submittals that will automatically look-up and pull data from a database of frozen ex ante input parameters that are adopted by the Commission. This system, when complete, will improve the transparency of freezing ex ante values, making and validating claims, tracking portfolio progress, and conducting portfolio level analysis.

139. The majority of 2006-2009 portfolio savings (and a significant portion of projected 2010-2012 program savings) were derived from basic Compact Fluorescent Lighting, a measure with a short design life but high annual savings levels.

140. We see merit in proposals to reinstitute the Programs Advisory Groups.

Conclusions of Law

1. The goals for the 2013-2014 transition portfolio should be informed by the 2011 Energy Efficiency Potential Study.

2. The most appropriate value to use in this proceeding for GHG emissions reductions is the value which has already been litigated and approved in prior Commission proceedings.

3. The after-tax Weighted Average Cost of Capital should be used for the 2013-2014 energy efficiency cycle.

4. Parties' request that only noncontroversial DEER values be updated should not be adopted.

5. Piloting and ex ante value research for new measures is necessary to ensure the utility portfolios can respond to technology changes and innovations in the future while maintaining accurate impact and cost-effectiveness forecasts upon which budgeting decisions can rely.

6. Based upon older evaluation results the DEER should be updated with 2006-2008 evaluation Net-To-Gross results rather than the older DEER values.

7. Similar measures delivered by similar activities should have single statewide DEER values unless recent evaluations show a significant variation between utilities and that difference is supported by a historical trend of evaluation results.

8. The utilities should not curtail custom measure and project activities due to low gross savings or Net to Gross results.

9. The utilities should be allowed to request, in their non-DEER workpaper submissions, that an Emerging Technology measure be assigned a Net to Gross value at or above the 0.85 default value.

10. Heating Ventilation and Air Conditioning interactive effects should be incorporated into DEER.

11. The inclusion of Heating Ventilation and Air Conditioning interactive effects into DEER places a similar requirement for inclusion of those effects into non-DEER workpapers and custom measures and projects calculations.

12. Staff's recommendations for updates to DEER are reasonable.

13. It is reasonable and prudent to set consistent assumptions for program participation at 5% of households, signaling our expectation that behavioral programs should be substantively, but not excessively, represented in IOU program portfolios.

14. The IOUs should be allowed to apply alternate behavioral programs to achieve their goals if they find other approaches to be more effective.

15. The Commission should adopt the approach to behavioral programs proposed in the Final Study.

16. The Staff Proposal for 2013-2014 Energy Efficiency Goals is reasonable provided the adopted goals include the final DEER values and avoided cost methodology.

17. Our adoption of goals for each utility based on the 2011 Potential Study does not in any way prevent the utilities from proposing programs and estimating savings that exceed the adopted goals if they are convinced that additional attainable potential not identified in the Potential Study exists.

18. Codes and Standards savings are overestimated in the draft Goals Proposal, and should be adjusted for attribution and realization of verified savings.

19. It is prudent to develop and hold utilities accountable for separate Codes and Standards and IOU program goals.

20. The proceeding record is not sufficient to allow us to address questions regarding how to define what technologies should qualify to meet the emerging technologies goals.

21. It is reasonable to continue to set IOU program goals on a gross basis.

22. There is no inherent reason why Codes and Standards and IOU programs goal structures should be aligned.

23. It is not reasonable for the IOUs' portfolios to include free riders in order to meet cost-effectiveness requirements

24. Energy efficiency portfolios as a whole must have a benefit cost ratio greater than one (i.e., the net benefit must be positive).

25. The OBF program for non-residential customers should be continued, offered on a consistent basis statewide, and improved, if possible, such as by offering longer loan terms for more comprehensive projects, in 2013-2014.

26. Successful financing programs that were originally supported by American Recovery and Reinvestment Act stimulus funding in 2011 and 2012 should be continued in 2012, 2013, and 2014, if they can meet the following criteria:

- Potential for scalability to larger target markets;
- Ability to leverage ratepayer funds with private loan capital;
- Ability to test unique and/or new program design and delivery options;
- Ability to serve previously-unserved or under-served markets;
- Ability to offer low interest rates to consumers; and
- Effective utilization of total combined ratepayer funding support from all sources.

27. Utilities should analyze how financing can be offered in combination with rebates and incentives, and whether incentives may be scaled back and/or offered as alternatives to financing, to maximize overall portfolio cost-effectiveness.

28. SDG&E/SoCalGas should be required to hire as soon as possible in 2012, on behalf of all utilities and stakeholders and co-funded by all utilities, an expert financing consultant to develop new programs and conduct stakeholder processes to inform those programs.

29. New statewide financing program strategies should be designed and proposed in 2012 for piloting in 2013 and full-scale rollout in 2014 in the following areas:

- A credit enhancement strategy for the single-family residential market as well as any other strategies that operate within existing statutory constraints;
- A financing program strategy designed specifically for the multi-family residential market that includes both credit enhancement and an on-bill repayment option and/or tariff-

based energy efficiency improvement reimbursement mechanism that may require legislative change to fully implement;

- A credit enhancement strategy for the small business market; and
- An on-bill repayment strategy for all non-residential customers.

30. An OBR strategy for all residential customers should not be required to be developed by the utilities at this time, though this is still a goal for the Commission in the future. Utilities may propose pilot approaches in the single-family residential sector in 2013-2014 within existing statutory constraints in the residential market.

31. Currently, disconnection of utility service for residential customers for non-payment of a third-party charge on a utility bill not related to the provision of utility service is prohibited by Public Utilities Code Sections 777.1(e) and 779.2(a).

32. For each new statewide financing program area, the expert financing consultant should be required to recommend functional roles and structure and identify who could serve the following functions, at a minimum:

- Financing program administrator;
- Credit enhancement manager;
- Administrator of interest rate buy downs (if applicable);
- Capital providers;
- Lenders/loan originators;
- Servicing agent and/or clearinghouse for data flow from lenders to OBR facility; and
- OBR billing administrator.

33. Each new statewide financing program area should be designed as a uniform statewide program.

34. New statewide financing programs should be submitted as resource programs.

35. Credit enhancements are an appropriate use of utility ratepayer funds, similar to rebates or other incentives, to encourage energy efficiency investments.

36. A new OBR program for non-residential customers should not require bill neutrality but should require that customers are presented with an estimate of expected energy savings and bill impacts prior to agreeing to a project.

37. A new OBR program for non-residential customers should require pro-rata allocation of funds in the event of partial payments received from customers.

38. The IOUs should support more strategic, statewide long term energy efficiency programs in the portfolio design.

39. The Codes and Standards goals should give the IOUs credit for their specific contributions to new energy savings via their Codes and Standards advocacy work, and should not include naturally occurring savings or the advocacy work of other entities.

40. Policies and programs supporting California's Zero Net Energy residential goals should support marketplace stability and long term planning.

41. Ratepayer-funded Residential New Construction programs should strive to support development of Zero Net Energy compliant residential buildings across the market segments, including multifamily, single family, and affordable housing developments.

42. The IOUs should consult with the California Energy Commission, Commission Staff, builders and other stakeholders regarding appropriate incentive levels for this increased building efficiency performance.

43. The IOUs should collaborate with the California Energy Commission, our Staff, and other expert stakeholders to develop a Zero Net Energy Roadmap that

identifies efficiency measures likely to be adopted into Title 24 California Energy Commission Standards in 2017 and 2020 for inclusion in future IOU Residential New Construction program cycles.

44. It is reasonable to offer higher subsidies for new technologies to spur market adoption and development.

45. The Emerging Technologies Program should work closely with the California Energy Commission's Codes and Standards program to support the advancement of emerging technologies and their integration into future codes.

46. Senate Bill 454 requires recipients of utility incentive dollars to warrant that they have complied with building permit requirements and utilized licensed contractors.

47. The California Advanced Lighting Controls Training Partnership program should be continued.

48. It is not prudent to spend significant amounts of ratepayer funds on expanded water-energy nexus programs until the cost-effectiveness of these programs, and particularly the net benefits that accrue to energy utility ratepayers, are better understood.

49. Successful local government programs should be continued in the 2013-2014 period.

50. The local governments should be allowed to submit Program Implementation Plans (that utilize the same template established for the IOUs' programs) and budgets for proposed regional pilots in the 2013-2014 applications. The Program Implementation Plans should showcase how the pilot would support the identified benefits of local government program administration as described by LGSEC in its comments

51. In developing their Program Implementation Plans, prospective local governments should refer to the Strategic Plan Menu of Local Government Strategic Actions.

52. Consistent with this decision's preference for deep retrofit programs, a goal of the local government pilots should be to achieve deep energy efficiency savings.

53. Consistent with the current standard established in D.05-01-055, the IOUs should identify a minimum of 20% of funding for the entire portfolio that will be put out to competitive bid to third parties for the purpose of soliciting innovative ideas and proposals for improved portfolio performance.

54. The Energy Upgrade California program should be structured as both a short-term resource acquisition program and a market transformation program, with clearly articulated program objectives in both areas.

55. The delivery of the Energy Upgrade California whole house program should be closely coordinated with the delivery of residential plug load/ appliance programs. Market transformation objectives for the Energy Upgrade California program should reflect market transformation objectives for these end uses as well the broader objectives of whole house deep energy retrofits.

56. Requiring contractors to warrant that they have obtained applicable permits and having the IOUs collect copies of permit numbers (and/or permits, where feasible) prior to awarding incentives is reasonable and advances California's peak energy use reduction goals.

57. Senate Bill 454 does not imply that utilities have authority or responsibility for enforcing building energy or water code standards.

58. All ratepayers should have the opportunity to benefit from participation in California's deep energy use reduction programs such as the Energy Upgrade California program.

59. The IOUs should submit evaluation reports of their 2012 Energy Upgrade California multifamily pilot projects in the 2013-2014 application proceedings, no later than three months after completion of those projects.

60. The IOUs should include a plan and timeline for proposing and implementing a statewide Energy Upgrade California multifamily program in their 2013-2014 transition period applications that addresses the Commission Staff Energy Upgrade California multifamily program recommendations summarized above.

61. Use of the Engage 360 brand name should be discontinued because it is confusing to customers and is not generally associated with taking energy actions.

62. The emergency portion of the Flex Your Power campaign, called Flex Alert, should be continued and coordinated with an overall statewide demand-side ME&O program restructured under the Energy Upgrade California name in 2013-2014.

63. The utilities should propose a comprehensive statewide ME&O campaign and budget for 2013-2014 utilizing the Energy Upgrade California brand name as a larger umbrella for demand-side actions by residential and small commercial consumers, as well as generalized energy education.

64. The statewide ME&O proposal should be filed in a separate application for statewide ME&O by no later than August 3, 2012. The application should explain how all statewide ME&O activities will be coordinated with local and program-specific marketing activities and budgets for energy efficiency, demand response,

distributed generation, low-income and any other relevant demand-side programs in 2013-2014.

65. The utilities should be authorized to spend an additional maximum of $5 million in 2012 out of the statewide ME&O energy efficiency budget on Energy Upgrade California marketing and outreach to transition to a larger umbrella for the statewide ME&O campaign in 2013-2014.

66. PG&E should serve as the statewide utility coordinator and contracting agent for the statewide ME&O campaign, on behalf of all utilities whose customers fund the program beginning immediately.

67. CCSE should serve as the statewide ME&O program implementer, under contract with PG&E no later than July 1, 2012, and in coordination with Commission Staff, CEC Staff, the utilities, and local governments operating demand-side programs.

68. CCSE should have a budget of at least $500,000 in 2012 for startup activities associated with the statewide marketing and outreach campaign.

69. The utilities should consult with CCSE, Commission Staff, the CEC, local government and third-party Energy Upgrade California program purveyors in the design of both 2012 transition and 2013-2014 efforts for statewide ME&O involving Energy Upgrade California and the Energy Upgrade California web portal.

70. The utilities should spend a minimum of $ 5 million and a maximum of $10 million in 2012 out of the remaining statewide ME&O budget on augmenting programmatic activities associated with the Energy Upgrade California residential retrofit programs run by utilities, the CEC, local governments, and/or third parties. These may include additional funding for the Energy Upgrade California program itself, financing programs, and/or workforce, education, and

training now associated with American Reinvestment and Recovery Act-funded components of Energy Upgrade California. Criteria should be developed to fund the most successful and/or replicable of these programs.

71. Additional unspent 2010-2012 ME&O funds should be returned to ratepayers either by reducing balancing accounts or utilizing funds already collected to fund 2013-2014 statewide ME&O activities.

72. Web portal content from Engage 360, including the rebate finder and any other useful content, should be fully migrated to the Energy Upgrade California web portal, with the Engage 360 web portal decommissioned by no later than the end of 2013.

73. The January 31, 2012 ACR on the Energy Upgrade California web portal in 2012 should be affirmed, with the clarification that SDG&E should have contracting flexibility to ensure the most expeditious way to continue maintenance and upgrades to the Energy Upgrade California web portal in 2012.

74. Future authority and funding for the demand response portion of Integrated Demand Side Management activities should be considered in energy efficiency proceedings starting with the energy efficiency applications for 2013-2015.

75. The statewide Integrated Demand Side Management program and related integration goals and objectives should continue to be pursued in the 2013-2014 transition portfolio.

76. Since not all of the relevant resource proceedings are on concurrent cycles, it is reasonable for the utilities to make their proposals and funding requests for demand-side resource integration activities in their energy efficiency applications.

77. The costs associated with funding strategies to actively engage the workforce education and training sector should be shared between the Continuous Energy Improvement and the Workforce Education and Training Statewide Program budgets.

78. Once early Continuous Energy Improvement evaluation findings become available, Continuous Energy Improvement Program Implementation Plans should be revised to describe how programs will be modified mid-cycle in consideration of these findings.

79. The Commission Staff should perform the review and make recommendations as to the ex ante values we should adopt.

80. Our Staff should have significant latitude in performing DEER and other policy oversight functions and, absent specific directives to the contrary, should not be required to consult with or otherwise utilize any other groups to perform this work.

81. The collaborative approach and dispute resolution process articulated in D.10-04-029 do not apply to the DEER update process.

82. While we require that Staff seek input from parties on ex ante values, Commission Staff should recommend ex ante values that reflect the best estimate of expected real portfolio accomplishments based upon the most appropriate and accurate data available.

83. The ex ante values used for planning should be the best estimates of the likely accomplishments of the utilities' proposed portfolios.

84. While we generally agree with parties' request that ex ante values be adopted and held constant throughout the portfolio cycle, mid-cycle updates of ex ante values should occur where, for example, newly adopted codes or standards take effect during the cycle.

85. Because the codes and standards changes that will be effective by 2014 should be known by the end of 2012, DEER should be updated for use in 2015 and beyond planning.

86. The utilities are not yet in full compliance with the review requirements we set forth in D.11-07-039, and revisions to the custom project ex ante review process should not be made at this time.

87. The current default gross realization rate value of 0.90 should be retained for use in the 2013-2014 transition portfolio.

88. Each utility's evaluation budget should be determined by its proportional share of total program budgets, consistent with D.10-04-029.

89. In order to facilitate our review of the 2013-2014 portfolio applications, it is reasonable to require a minimum level of strategic assessment and identification of expected market effects anticipated from specific programs.

90. Frozen ex ante savings parameters and tracking data should be submitted and evaluated as part of a systematic process that creates a connection between ex ante savings parameters, unverified tracking data, and impact evaluations. The goal of the incentive mechanism should be to foster greater innovation and creativity within the utilities' engineering and management and to ensure that energy efficiency savings (not merely savings account) became a top priority.

O R D E R

IT IS ORDERED that:

1. No later than July 2, 2012, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall file applications to establish energy efficiency programs and budgets for 2013 and 2014.

2. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall use the new avoided cost calculator (which includes the recommended data inputs) and the after-tax Weighted Average Cost of Capital as the discount rate.

3. Commission Staff shall continue their efforts to update cost-effectiveness methodologies. In particular, Staff shall continue to explore issues related to calculation of the discount rate so that improvements may be made to the energy efficiency cost-effectiveness methodology for use in planning future portfolios

4. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall include in their portfolio applications a prospective showing of the estimated Total Resource Cost and Program Administrator Cost ratios for their proposed portfolios.

5. In their review of utility proposed ex ante values for new measures, Commission Staff shall balance the need for accurate ex ante values with the equally important need to continuously augment the portfolios with new technologies that offer promise.

6. Commission Staff shall strive for uniform statewide Net-To-Gross planning values that represent typical expected results in the Database of Energy Efficient Resources update for the next planning cycle for measures in which the variation between utilities is not significant.

7. Commission Staff shall undertake research in support of Database of Energy Efficient Resources updates when the existing evaluations results, analysis methods and other research literature are found lacking.

8. The proposed dispositions for issues provided in Attachment A to this Decision are adopted and Commission Staff shall modify the final Database of

Energy Efficiency Resources 2011 release to include all changes in those proposed dispositions.

9. Commission Staff shall provide notice to the service list of this proceeding within five days of the effective date of this Decision of the location of the final Database of Energy Efficiency Resources 2011 release which shall be utilized for 2013-2014 program planning and reporting.

10. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall use the clarifying direction contained in the adopted dispositions for issues in Attachment A to this Decision in ex ante value filings required by this Commission.

11. Commission Staff shall provide separate Net-To-Gross values for gas and electric projects that are developed for those types of projects alone, unless the values are sufficiently similar that a single value is warranted.

12. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall not curtail custom measure and project activities due to low gross savings or Net-to-Gross results.

13. Commission Staff shall track the results of its custom project and measure review activities, as well as related 2010-12 impact evaluation activities, and report any results on Net-to-Gross values in a timely manner so as to inform the adoption of ex ante update values for the next program cycle.

14. Commission Staff shall assign a new Net-to-Gross category for Emerging Technology measures with a default Net-to-Gross value of 0.85.

15. Commission Staff shall accept or reject a proposed Emerging Technology measure classification and set any Emerging Technology measure's Net-to-Gross ratio at a higher value than the default value as it deems appropriate.

Energy Savings Goals

16. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall endeavor to exceed the behavioral programs participation minimum of 5% of the households represented in their program portfolios, by pursuing behavioral programs on a greater scale if they believe this goal underestimates potential in this area.

17. The goals for the 2013-2014 transition portfolio based on the 2011 Potential Study are adopted.

18. The compliance rates shall remain constant at 85% for appliances and 83% for codes.

19. Codes and Standards goals are adopted on an adjusted net basis.

20. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall be given credit for 100% of evaluated savings from 2006-2008 on that persist into future program cycles, and shall be responsible for making up one half of the decay.

Financing

21. By no later than August 1, 2012, San Diego Gas & Electric Company and Southern California Gas Company shall hire, on behalf of themselves, Pacific Gas and Electric Company, and Southern California Edison Company, and co-funded by all of the named utilities, an expert financing consultant to design new pilot financing programs for 2013-2014 and to convene working groups on the new

program design and data collection needed to support scalable financing programs in the future.

22. In their 2013-2014 program portfolio filings, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall propose a statewide portfolio of financing programs funded at a level of at least $200 million statewide over the two-year period, consisting of the following components:

a. Continuation of and improvement to the on-bill financing programs currently in the utility 2010-2012 portfolios for non-residential customers;

b. Continuation of successful financing programs that were originally supported by American Recovery and Reinvestment Act stimulus funding in 2011 and 2012 and implemented by third parties, local governments, and/or via the California Energy Commission; and

c. A set of new financing programs to be designed in 2012, and then offered consistently on a statewide basis, in pilot form in 2013, and on a larger scale in 2014.

23. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall propose new statewide financing programs in their 2013-2014 portfolio applications for piloting in 2013 and full-scale offering in 2014, to include the following elements:

a. A credit enhancement strategy for the single-family residential market and any other proposed single-family program approaches operating within existing statutory constraints;

b. A financing program strategy designed specifically for the multi-family residential market that includes both credit enhancement and an on-bill repayment option and/or tariff-based energy efficiency improvement reimbursement

mechanism that may require legislative change to fully implement;

c. A credit enhancement strategy for the small business market; and

d. An on-bill repayment strategy for all non-residential customers.

24. The on-bill repayment strategy for non-residential customers proposed for 2013-2014 shall not require bill neutrality and shall allow for pro-rata allocation of payments between utility bill obligations and loan repayment.

25. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall, beginning in 2012 and in consultation with the expert financing consultant hired by San Diego Gas & Electric Company and Southern California Gas Company and a working group convened by the consultant, develop or contribute to a larger-scale database or databases of financing related data and information, that can be shared publicly after appropriately masking individual customer confidential information, and that consists of the following minimum types of information:

a. Customer type;

b. Host site characteristics;

c. Utility payment history;

d. Borrower credit scores and energy project repayment history;

e. Energy project performance data; and

f. Billing impacts comparing pre- and post-installation utility bills.

26. By the end of the third quarter of 2012, the expert financing consultant hired by San Diego Gas & Electric Company and Southern California Gas

Company shall present 2013 pilot program design details in a written program plan and a public workshop.

27. No later than January 1, 2013, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall continue to provide On-Bill Financing programs and funding consistently statewide.

28. No later than August 1, 2012, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall provide funding for selected successful financing programs previously supported by American Recovery and Reinvestment Act funds in 2011 and 2012.

29. In their 2013-2014 energy efficiency program portfolio applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall address their strategy for maximizing portfolio cost-effectiveness by offering financing programs in coordination with rebate/incentive programs, either by offering financing in lieu of rebates and/or by lower incentives in cases where financing is also provided. The financing programs shall be considered resource programs designed to deliver additional energy efficiency savings beyond those available through other programs.

30. In their 2013-2014 energy efficiency program portfolio applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall propose a methodology to estimate incremental savings delivered by the statewide financing programs towards their energy savings goals, while avoiding double-counting of savings from other programs.

31. In 2013-2014 statewide financing programs, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall not require that all measures supported by financing programs be part of another utility incentive program.

Local Government, Government Partnerships and Third-Party Delivery

32. The 2013-2014 applications of Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall include a separate set of criteria for increases in local government programs and shall be consistent with the overarching goal of deeper retrofits.

33. To the extent that Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, or Southern California Gas Company rejects any of the suggested criteria, its 2013-2014 application shall list those criteria and the rationale for rejecting them. The 2013-2014 applications shall also include the Program Implementation Plans (PIPs) of local government programs/partnerships that meet the expansion criteria, and a separate set of PIPs that meet the expansion criteria that were rejected.

34. Any Program Implementation Plan submitted by a local government shall demonstrate the extent to which the proposed regional pilots:

a. Leverage additional state and federal resources so that energy efficiency programs are offered at lower costs to ratepayers;
b. Address the water / energy nexus;
c. Develop and deploy new and existing technologies;
d. Address workforce training issues;

e. Address hard-to-reach customer segments such as low to moderate income residential households and small to medium sized businesses; and

f. Include an organizational chart that identifies the local governments that are part of the proposed regional pilot, a narrative description for each of their roles, and plans to coordinate.

35. Commission Staff shall conduct and/or oversee the evaluation of any local government pilots selected, in a manner consistent with the process set forth for evaluation of utility programs in Decision 10-04-029 and other decisions.

36. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall contract for selected regional pilots and Commission Staff shall serve as a joint contract manager in the contract.

37. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall identify a minimum of 20% of funding for the entire proposed 2013-2014 energy efficiency portfolio that will be put out to competitive bid to third parties for the purpose of soliciting innovative ideas and proposals for improved portfolio performance.

38. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall file with their 2013-2014 applications a table ("Third Party Procurement Table") identifying all current Purchase Orders (or comparable contracts/agreements) between the utility and third parties funded through energy efficiency balancing accounts. The table shall include:

a. The utility's unique purchase order number;

b. vendor name;

c. detailed description of the procured activity;

d. whether procurement supports utility- implemented program(s) or third-party implemented program(s);

e. whether the vendor was chosen through competitive solicitation or bilaterally;

f. start date;

g. end date;

h. purchase order amount;

i. whether service is provided on a "performance basis" (Yes or No);

j. description of performance basis terms and conditions, as applicable; and,

k. determination of whether the purchase contributes to the utility's General Order 156 goals.

l. Complete Purchase Orders (or comparable contracts/agreements) for every entry identified in the Third-Party Procurement Table.

39. The 2013-2014 applications of Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall explain which existing third-party programs should be extended in 2013-2014 and why. If renegotiations of third-party implementer contracts will be necessary, the utility shall explain how it will ensure a timely start. In addition, each utility shall identify which existing third-party programs should be discontinued in 2013-2014 and why.

40. The 2013-2014 applications of Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall identify additional opportunities to enlist new third-party implemented programs through competitive solicitations.

Reducing the Number and Complexity of Programs

41. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall exclude the separate statewide Heating, Ventilation and Air Conditioning and new construction programs from their transition portfolio applications. However, the cross-sector collaborative activities and information-sharing tools that have been developed through these programs need not be discontinued.

42. The 2013-2014 applications of Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall identify the elements of the existing statewide Heating, Ventilation and Air Conditioning and new construction programs they recommend maintaining, and the remaining programs in which those activities and tools will be "housed" and funded.

Program Guidance for the Residential Sector

43. The 2013-2014 applications of Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall reflect a recognition of the Energy Upgrade California program as a market transformation-oriented program.

44. Commission Staff shall use a Database for Energy Efficient Resources default net-to-gross ratio of 0.85 as a floor for Energy Upgrade California custom projects.

45. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall include in their 2013-2014 Energy Upgrade California proposal strategies to better leverage the program to achieve energy savings from plug loads, appliances, lighting, and/or swimming pools.

46. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall include in their 2013-2014 applications a proposal for a ten-year stepwise declining incentive structure for the Energy Upgrade California whole house program.

47. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall include a streamlined Heating, Ventilation and Air Conditioning Emergency Replacement Energy Upgrade California protocol in their 2013-2014 applications, based on the approach provided in Attachment B.

48. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall consider in their 2013-2014 applications whether a streamlined Heating, Ventilation and Air Conditioning Emergency Replacement Energy Upgrade California protocol should be available only to top-performing contractors with consistently strong quality assurance records or those with stronger building performance certification credentials.

49. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall include in their 2013-2014 applications a "Fast Track" Energy Upgrade California job approval protocol based on the Heating, Ventilation and Air Conditioning Energy Replacement Protocol. This proposal shall apply more generally to the Energy Upgrade California program.

50. If needed, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall propose changes to the Heating, Ventilation and Air

Conditioning Upstream Incentives program to bring it into alignment with Senate Bill 454, while preserving it as a cost-effective program.

51. No incentives for equipment requiring a building permit shall be provided any contractor or customer without that contractor or customer certifying that s/he has complied with all permit requirements and utilized a licensed contractor.

52. Programs proposed by Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall comply with Senate Bill 454 requirements, and all applicable programs shall support Heating Ventilation and Air Conditioning permit acquisition as a matter of course.

53. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall institute the following changes to support Heating Ventilation and Air Conditioning (HVAC) permit acquisition in conjunction with their HVAC and Energy Upgrade California programs:

a. Energy Upgrade California jobs involving HVAC replacements must include submittal of the HVAC permit number and a contractor certification that appropriate permits have been obtained, for inclusion in program records.

b. Show in their 2013-2014 applications all programs to which the requirements above apply (and present copies of the incentive/rebate applications or other documentation) evidence that they are in full compliance with Senate Bill 454 and this decision.

54. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall consult with local governments, as well as regional and statewide government

entities and include in their 2013-2014 proposals a budget for and a narrative description of the role that these entities shall play in advancing Energy Upgrade California objectives in 2013-2014.

55. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall work with the Commission Staff, the California Energy Commission and others to convene a workshop to review Energy Upgrade California workforce training needs upon completion of Energy Upgrade California process evaluations in 2012.

56. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall identify contractor and technician training objectives for the Energy Upgrade California program, consistent with its role as a market transformation program.

57. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall explore changes to the "basic" Energy Upgrade California program pathway to make it more appealing to moderate income households and shall propose these changes in their 2013-2014 applications.

58. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall establish Middle Income Direct Install programs in 2013-2014, if they have not yet done so, and shall explore expansion of eligible Middle Income Direct Install measures to improve the program's comprehensiveness.

59. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall consult with relevant stakeholder groups, experts, and Commission Staff to

develop a concrete proposal for implementing voluntary training and outreach partnerships with California's real estate industry in their 2013-2014 applications.

60. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall work with local governments and the California Energy Commission to identify jurisdictions wishing to pilot incentives for Whole House Home Energy Rating System II assessments and/or ratings as part of the Energy Upgrade California program.

61. Commission Staff, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall work collaboratively with the California Energy Commission and other stakeholders to identify approaches to adequately broaden the allowable software under the Energy Upgrade California program while containing costs required for needed Commission Staff reviews.

62. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall clearly define the "whole house" program in their Program Implementation Plans for the 2013-2014 transition portfolio and include in their 2013-2014 Energy Upgrade California program estimates of the number of single-family homes they plan to participate in the program in the 2013-2014 transition period.

63. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall include in their 2013-2014 applications the criteria they use to determine the best delivery channel for any given plug load or appliance incentive or intervention in their plug load and appliance Program Implementation Plans for the 2013-2014 transition period.

64. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall clearly identify in their 2013-2014 applications the selected delivery channels for all measures included in the Home Energy Efficiency Rebate and Business and Consumer Electronics programs and identify where synergies allow for more coordinated engagement work with retailers and manufacturers across the Home Energy Efficiency Rebate and Business and Consumer Electronics programs.

65. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall simplify and streamline the plug load and appliance programs in their 2013-2014 applications to maximize synergies with manufacturers and retailers and reduce administrative costs.

66. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall explore how their Business and Consumer Electronics and Home Energy Efficiency Rebate programs can support manufacturers' implementation of voluntary product specifications that support the development of mandatory "horizontal standards" for plug loads and appliances.

67. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall include in their Home Energy Efficiency Rebate and Business and Consumer Electronics 2013-2014 program proposals a strategic discussion of how they will use these programs to advance market transformation toward Title 20 codes and standards changes.

68. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall

include a reoriented Appliance Recycling Program in their 2013-2014 transition period proposals, and shall take all feasible steps to minimize costs associated with this program while maximizing savings.

69. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall include in their 2013-2014 applications a timeline by which increased levels of incentives supporting the more efficient building codes expected to be adopted in Title 24 can be incorporated into their Residential New Construction programs.

70. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall identify in their 2013-2014 applications (1) market barriers to achieving residential Zero Net Energy homes by 2020 and (2) the mechanisms that their proposed Residential New Construction programs will employ to address any such barriers starting in 2013.

71. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall identify in their 2013-2014 applications potential pilot projects or trials to test new program designs that would improve marketplace innovation and engagement and homeowner awareness within the 2013-2014 timeframe.

72. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall participate in efforts to develop a Zero Net Energy Roadmap that identifies efficiency measures which are likely to be adopted in the Title 24 Residential New Construction Standards in 2017 and 2020, for inclusion in their Residential New Construction program cycles beginning in 2015.

Program Guidance for the Commercial Sector

73. The implementation plans in the 2013-2014 applications of Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall detail how the Direct Install and Deemed Incentive programs can utilize and coordinate with the Local Government Partnership Programs, and Business Improvement Districts. Their Program Implementation Plans shall include a showing how they will utilize Business Improvement Districts to engage customers.

74. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall examine the effects of an audit requirement on customers implementing three or more measures. They shall set forth the results of this examination in their 2013-2014 applications.

75. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall propose to pilot the Building Energy Asset Rating System tool in their 2013-2014 applications.

76. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall file Program Implementation Plans in their 2013-2014 applications that reflect raised incentive levels for Emerging Technologies in the 2013-2014 period.

77. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall include in their 2013-2014 applications proposals to improve the measurement, retention, and use of performance data.

78. In their 2013-2014 applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and

Southern California Gas Company shall incorporate new approaches for their commercial programs to achieve deeper energy retrofits and packages of measures.

79. In their 2013-2014 applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall propose programs focused on overcoming the split-incentive barrier in multi-tenant buildings.

80. In their 2013-2014 applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall submit an approach for dealing with split incentives that includes incentives for sub-metering and plug load control technologies for both owner and non-owner occupied buildings.

Lighting

81. In their 2013-2014 applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall propose and budget for upstream rebates in the Primary Lighting subprogram for basic Compact Fluorescent Lamps to capture the remaining market potential of Compact Fluorescent Lamps, less any of the same potential captured through the Energy Saving Assistance Program during the same period.

82. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall include a Statewide Lighting Program in their 2013-2014 applications.

83. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall

continue supporting the technology assessment of pre-commercialized lighting measures in the Emerging Technology Program in their 2013-2014 applications.

84. In their 2013-2014 applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall propose a Lighting Innovation subprogram to support advanced lighting technologies aimed at early adopters.

85. In their 2013-2014 applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall propose a Primary Lighting subprogram in the Statewide Lighting Program for the purpose of supporting lighting measures that have reached a greater level of commercialization.

86. In their 2013-2014 applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall propose a Lighting Market Transformation subprogram within the Statewide Lighting Program.

87. In their 2013-2014 applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall only propose rebates for general service screw base Light Emitting Diodes products that are consistent with the quality standards developed by the California Energy Commission.

88. In their 2013-2014 applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall only propose rebates for Light Emitting Diodes products that have a United States Department of Energy Lighting Facts® label.

89. In their 2013-2014 applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall propose upstream rebates for specialty Compact Fluorescent Lamps products, with the exception of dimmable Compact Fluorescent Lamps products, in the new Primary Lighting subprogram.

90. In their 2013-2014 applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall propose upstream rebates for dimmable linear fluorescent ballasts in the new Primary Lighting subprogram.

Codes and Standards

91. In the Codes and Standards program implementation plan sections of their 2013-2014 applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall include a detailed description for the statewide "Planning and Coordination Subprogram" that implement the "integrated dynamic approach." The program implementation plan should include an outline of the relevant roles of each of the Codes and Standards sub-programs relative to other IOUs programs and non-IOUs initiatives, as well as program objectives, strategies, expected outcomes, and program budgets.

92. In their 2013-2014 applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall propose expansion of their Codes and Standards programs through coordinated initiatives with the statewide Workforce Education and Training programs. This shall be a non-resource sub-program with the primary objective of providing technical training and certification programs for contractors and technicians, specifically, targeting new

and advanced technologies that are candidates for adoption into future Reach Codes, Building Codes and Appliance Standards.

93. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall partner with the California Energy Commission to support their marketing, outreach and education activities to improve compliance with codes and standards.

94. In their 2013-2014 applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall examine and propose pilots to test the use of incentives to support critical improvement code compliance consistent with the following threshold criteria:

- Existing (adopted) codes and standards with documented and verified low compliance rates and a minimum two-year gap between the date the standard has been adopted and its effective date;
- Existing (adopted) and/or new Reach Codes; and
- Future codes and standards that have yet to be adopted by the California Energy Commission but have undergone technology assessment through the Emerging Technologies Program, and for which Codes and Standards Enhancement studies have been prepared.

95. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall work with the California Energy Commission and Commission Staff to obtain recommendations on (a) potential local jurisdictions to target for Reach Code adoption, and (b) specific areas of low code compliance based on documented/verified low compliance rates for existing codes, for the purpose of exploring the use of incentives to augment code compliance.

Emerging Technologies Program

96. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall leverage findings from existing research, as well as findings from current evaluation and the Commission Potential and Goals studies, to obtain robust market potential estimates on targeted technologies and systems.

97. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall utilize enhanced market behavioral research to address customer and end-users acceptance and adoption of new technologies, in particular for technologies that are being considered for transfer into the energy efficiency portfolio.

98. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall include in their Emerging Technologies Program implementation plans in their 2013-2014 applications the following:

b. For each of the three program goals, provide a detailed plan (program activities) on how the six program elements will be utilized to meet the goals (including updates to the quantifiable targets (objectives), timeline, and budgets) while addressing the various market sectors and end-uses;

c. Provide a planning budget allocation by market sectors and end-use for each program element.

d. Provide a budget for the following key market sectors: Residential, Commercial, Industrial and Agricultural, and for the following key end-uses: Heating Ventilation and Air Conditioning advanced technologies, Plug-Loads and controls, Lighting, Integrated building design and operation, and Other;

e. For each program element, provide a planning budget allocation for short-term projects (within the program-cycle) versus long-term projects (projects that will exceed 3 years).

f. For Technology Assessments, provide a planning budget allocation for assessing new advanced and/or unproven technologies versus emerging and/or under-utilized technologies.

99. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall coordinate with the Codes and Standards program and the California Energy Commission's Codes and Standards programs to (a) support the advancement of emerging technologies and approaches, including demonstration of technologies, that are candidates for adoption into future codes and standards as well as Reach Codes, and (b) identify critical early planning workforce training needs for advanced technologies.

100. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall establish a "Collaborative" membership category in the Emerging Technologies Coordinating Council.

101. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company may further develop and expand the Technology Resource Incubator Outreach program trial solicitation.

102. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall include an Appendix to the Emerging Technologies program implementation plan in their 2013-2014 applications that details clear path of approaches and specific projects activities for transitioning new technologies from major external initiatives into the utility programs.

103. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall revise and update their Emerging Technologies program implementation plan to address the directives included in this Decision, including details on its programmatic initiatives that will accomplish the reductions in plug loads and advancing building integrated design and operation solutions to achieve the Zero Net Energy goals of the Strategic Plan.

104. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall develop Residential and Commercial roadmaps that encompass existing building retrofit and new construction programs for Commission Staff's review by the end of the fourth quarter of 2013, in preparation for their inclusion in their 2015 and later energy efficiency portfolios.

Workforce Education and Training

105. In their 2013-2014 applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall propose continued support of the California Advanced Lighting Controls Training Partnership sector strategy in the 2013–2014 transition period.

106. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall explore partnership opportunities that will result in shared resources and/or co-funding and describe these arrangements in their program implementation plan as it applies to the California Advanced Lighting Controls Training Partnership program.

107. In their 2013-2014 applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall submit a plan to test the sector strategy approach for Heating Ventilation and Air Conditioning, beginning with the non-residential sectors.

108. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall endeavor to have skills standards for Heating, Ventilation and Air Conditioning installations established by the end of 2013.

109. In their 2013-2014 applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall develop a Heating Ventilation and Air Conditioning sector strategy pilot in concert with the statewide Heating Ventilation and Air Conditioning Commercial Quality Installation program.

110. In their 2013-2014 applications, the workforce education and training program plans of Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall address any and all recommendations made in Workforce, Education and Training Needs Assessment.

111. In their 2013-2014 applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall include information regarding Heating Ventilation and Air Conditioning quality installation, California Advanced Lighting Controls Training Partnership certified installations, and any other sector strategy-induced skill standards set forth in this decision.

112. In the California Advanced Lighting Controls Training Partnership and Heating Ventilation and Air Conditioning pilot initiatives, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall explore and, if appropriate, propose to pilot mandatory and/or voluntary incentive-based approaches to promoting high-road skill standards in the 2013–2014 program period.

Water-Energy Nexus Programs

113. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall include proposals in their 2013-2014 applications to increase targeting of agricultural and industrial customers.

114. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall propose to continue to offer measures and services to the water sector through their calculated energy efficiency savings programs in the 2013-2014 portfolio, as they currently do.

115. In their 2013-2014 applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall propose 2013-2014 efforts (either through limited, water sector focused pilot programs or through targeted efforts within the existing calculated savings programs) that go to leak-loss detection and remediation, and pressure management services for water entities that are utility customers.

116. Commission Staff shall develop a robust record in the 2013-2014 application proceedings or in another energy efficiency rulemaking to identify

potential cost-effective water-energy nexus efficiency programs, including strategies to overcome barriers to adoption and deployment of the identified measures.

Marketing, Education, and Outreach

117. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall file standalone applications, separate from their 2013-2014 energy efficiency portfolio applications, no later than August 3, 2012 for a statewide marketing, education, and outreach (ME&O) program for 2013-2014 with the following characteristics:

a. Provides general energy education and demand-side management program information for residential and small commercial customers. General education includes, but is not necessarily limited to, information about the impacts of energy use and energy costs and rates. Demand-side management program information includes, but is not necessarily limited to, demand response, energy efficiency, distributed generation, and low-income programs.

b. Utilizes the Energy Upgrade California brand name as a larger umbrella platform to encourage demand-side actions.

c. Describes how any local and program-specific ME&O activities for energy efficiency, demand response, distributed generation, low-income programs, and any other relevant demand-side programs will be coordinated with the statewide program.

d. Includes a budget for continuing the emergency portion of the Flex Your Power campaign, called Flex Alert, and coordinating it with the overall statewide ME&O campaign under the Energy Upgrade California umbrella.

e. Utilizes the market and demographic research conducted in support of the Engage 360 campaign to craft an approach to statewide ME&O in 2013-2014 under the Energy Upgrade California umbrella brand.

f. Continues the current emphasis on prompting residential and small business customers to immediately take action related to their energy use.

118. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company may spend a maximum of $5 million in 2012 out of the 2010-2012 statewide marketing, education, and outreach energy efficiency budget on Energy Upgrade California marketing and outreach to transition to a larger umbrella for the statewide campaign in 2013-2014.

119. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall spend a minimum of $5 million and a maximum of $10 million in 2012 out of the remaining 2010-2012 statewide marketing, education, and outreach budget on augmenting programmatic activities associated with the Energy Upgrade California programs run by the utilities, the California Energy Commission, and local governments, including associated financing and/or workforce, education, and training programs. These utilities shall developed criteria, in coordination with Staff of this Commission and the California Energy Commission, to offer additional funding to the most successful and/or replicable programs.

120. Unspent 2010-2012 marketing, education, and outreach funds beyond those identified in Ordering Paragraphs 115 and 116 above shall be returned to ratepayers either by reducing energy efficiency balancing accounts or utilizing funds already collected to fund new statewide marketing, education, and outreach activities in 2013-2014.

121. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall consult with Commission Staff, California Energy Commission Staff, the

California Center for Sustainable Energy, local governments and third-party Energy Upgrade California program purveyors on:

a. Budget and criteria for augmenting any programs related to Energy Upgrade California in 2012.

b. Budget for and design of marketing, education, and outreach activities in 2012 to transition toward a statewide approach for utilizing the Energy Upgrade California brand more broadly for energy education and demand-side management actions by residential and small commercial customers.

c. Budget for and design of the Energy Upgrade California web portal.

d. The content of their statewide marketing, education, and outreach applications due to be filed at the Commission no later than August 3, 2012.

122. For the 2013-2014 statewide marketing, education, and outreach campaign, as well as for transition activities in 2012, Pacific Gas and Electric Company shall serve as the utility coordinator and contractual agent on behalf of itself, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company, effective immediately.

123. For the 2013-2014 statewide marketing, education, and outreach campaign, Pacific Gas and Electric Company, on behalf of itself, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company, shall contract with the California Center for Sustainable Energy (CCSE) no later than July 1, 2012 to begin activities to allow them to fully implement the program beginning in 2013. A total of at least $500,000 shall be allocated to CCSE for the remainder of 2012. The budget for 2013-2014 shall be proposed in the utility 2013-2014 applications.

124. For the 2013-2014 statewide marketing, education, and outreach campaign, both Pacific Gas and Electric Company and the California Center for

Sustainable Energy shall consult with Commission Staff, California Energy Commission Staff, local governments, and other relevant entities as identified by agency Staff, in the design and oversight of the program and shall establish appropriate stakeholder feedback, coordination, and governance structures based on this consultation.

125. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company and Southern California Gas Company shall serve their 2013-2014 applications for statewide marketing, education, and outreach for demand side resources, including energy efficiency, demand response, distributed generation, and electric energy storage to the relevant service lists, including: Rulemaking (R.) 07-01-041, R.10-05-004, R.10-12-007, R.08-12-009, R.09-11-014, and Application 11-03-001 et al.

126. The January 31, 2012 Assigned Commissioner's Ruling (ACR) on the use of statewide marketing and outreach funds to support the Energy Upgrade California web portal in 2012 is affirmed, with the clarification that San Diego Gas & Electric Company is authorized to utilize the most expeditious contractual path to ensure that the web portal is maintained and upgraded as otherwise required in the January 31, 2012 ACR.

127. The web portal content from Engage 360, including the rebate finder and any other useful content, shall be fully migrated to the Energy Upgrade California web portal, with the Engage 360 web portal decommissioned, by no later than the end of 2013.

128. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall continue their benchmarking activities in 2013-2014.

129. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall revise their existing Integrated Demand Side Management Program Implementation Plans for the 2013-2014 transition portfolio, and shall include a clear plan to obtain input from stakeholders and experts on each of the eight tasks identified in Decision 09-090-47.

130. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall include in their revised Integrated Demand Side Management Program Implementation Plans a detailed accounting of the Integrated Demand Side Management pilot programs and projects.

131. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall work with Commission Staff to ensure that an adequate level of detail is provided in their reports on Integrated Demand Side Management pilot efforts.

132. Commission Staff shall continue to monitor and provide input into the audit tool development processes of Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company, to ensure that these products are designed in a reasonable manner and timeframe.

133. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall include in their revised Integrated Demand Side Management Program Implementation Plan a clear plan to pursue integrated marketing in the 2013–2014 program cycles.

134. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall include data collection plans in their revised Integrated Demand Side Management Program Implementation Plan in the 2013–2014 portfolio applications that:

a. Consider current reporting expectations for each of the Demand Side Management strategies;

b. Identify the common information that is currently collected for Demand Side Management resources; and

c. Propose a strategy for reporting integrated Demand Side Management information.

135. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall include the demand response, distributed generation, and Advanced Metering Initiative portions of their Integrated Demand Side Management-related costs in the Integrated Demand Side Management budget requests included in their 2013-2014 applications, with justification for why funding should be continued.

136. The 2013-2014 applications of Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company, including their proposals and funding requests for demand-side resource integration activities, shall be served on parties in the other relevant energy efficiency proceedings.

137. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall propose to continue to support the Continuous Energy Improvement program in their 2013–2014 portfolios and shall include a Continuous Energy Improvement Program Implementation Plan in their 2013-2014 applications.

138. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall include strategies in their 2013-2014 applications to actively engage workforce education and training sector strategy efforts.

139. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall propose expansion of the Continuous Energy Improvement pilot scope to include mid-sized non-residential customers in the 2013–2014 portfolios in the revised Program Implementation Plans they submit with their 2013–2014 applications.

140. Once early Continuous Energy Improvement evaluation findings become available, Continuous Energy Improvement Program Implementation Plans shall be revised to describe how the program will be modified mid-cycle in consideration of these findings.

141. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall make appropriate adjustments to their participation and incentive calculation rules and update their ex ante value calculations in response to codes and standards changes.

142. Commission Staff shall prepare and release a plan for Database of Energy Efficient Resources (DEER) updates that covers the anticipated mid-cycle codes and standard changes and a subsequent DEER updates to be used for planning portfolios 2015 and beyond

143. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall utilize Database for Energy Efficient Resources (DEER) assumptions, methods, and data in the development of non-DEER values whenever appropriate, and

shall follow Commission Staff direction relating to the determination of appropriate application of DEER to non-DEER values.

144. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company, when adding new measures to their portfolios, shall (1) utilize due diligence when developing the proposed ex ante values such that those new ex ante values represent the expected electricity and natural gas savings, costs, and lifetime of the measure; (2) undertake research, in collaboration with Commission Staff, as required, to establish reasonable expected values; and (3) pilot promising new technologies and utilize the results of research undertaken during the piloting period to improve the ex ante values. Commission Staff shall allow new additions to be utilized in the portfolio prior to all necessary research being completed, when appropriate, by approving interim ex ante values.

145. Commission Staff shall review the processes used to derive ex ante values in other jurisdictions and make recommendations for improvements to the Commission's process for consideration prior to beginning the ex ante update for the post-2014 cycle.

146. The custom ex ante review process adopted in Decision 11-07-030 shall continue in the 2013-2014 transition portfolios.

147. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall ensure that custom measure and project calculation tools or methods are consistent with the adopted Database of Energy Efficient Resources values and assumptions as applicable.

148. Commission Staff shall develop directions for Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric

Company, and Southern California Gas Company to follow for individual custom projects, which may span the 2010-2012 and 2013-2014 program cycles.

149. Commission Staff shall assign, at its discretion, net-to-gross (net of free ridership) values as part of its ex ante project reviews process.

150. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall make programmatic changes to their custom programs per the recommendations and findings in recent evaluation studies.

151. Commission Staff shall, with input from Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, Southern California Gas Company, and other parties, develop recommendations on:

a. Whether it is appropriate to replace the regulation, code, or standard baseline with a typical installation baseline for use in calculating energy savings;

b. Under what circumstances and based upon what kind of evidence such a change could be made;

c. If the change to a typical installation baseline is made, how the baseline parameters should be established for use in setting ex ante values; and

d. Assuming the above change, what are the time and budget implications for both Commission Staff and utilities for both ex ante and ex post savings development.

152. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall identify and recommend ways to aid or support code enforcement activities through their energy efficiency program activities.

153. Commission Staff shall work with the parties to develop proposals for "rolling portfolio cycles" and/or "evergreen programs" for possible implementation in the post-2014 period.

Evaluation

154. Commission Staff, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall continue collaborative efforts to gather input and share information on evaluation findings.

155. Information from the evaluation activities shall be made available to Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, Southern California Gas Company, and interested stakeholders as it becomes available.

156. Information emerging from the evaluations shall be used to refine and improve programs on an on-going basis, and/or shall be available to assist in portfolio design decisions and revising frozen ex ante savings parameters for the next program cycle.

157. In their 2013-2014 applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall propose funding for evaluation activities at four percent of the total proposed portfolio budget.

158. In their 2013-2014 applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall propose that the distribution of the Evaluation budget between them and Commission Staff shall remain at 27.5% and 72.5%, respectively.

159. Commission Staff shall recommend adoption of Market Transformation Indicators for the balance of the 2010 portfolio and for the 2013-2014 portfolio.

160. Commission Staff shall establish an evaluation Project Coordination Group whose primary function will be to review, deliberate, and provide feedback on proposals of Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company for changing the Market Transformation Indicators to be adopted in an upcoming Ruling.

Next Steps

161. If mid-cycle changes to Market Transformation Indicators are deemed necessary, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall submit Tier 1 Advice Letters articulating the changes.

162. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall identify in their 2013-2014 applications, proposals for programs or initiatives that have been designed to accomplish "market transformation."

163. In their 2013-2014 applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall include a line item in their proposed budgets for meeting the requirements for compliance with standardized tracking data submittals in a manner consistent with guidance provided by Commission Staff.

164. The 2013-2014 applications and supporting documentation of Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas &

Electric Company, and Southern California Gas Company shall follow a common format.

165. To support the summary budget and cost-effectiveness tables required herein, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall make a detailed cost-effectiveness showing that provides information on the energy savings assumptions and costs that were used to derive the values in the summary tables.

166. In their 2013-2014 applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall supply supporting documentation on the assumptions used to develop the contents of their cost-effectiveness calculator submission to facilitate review by Commission Staff and parties.

167. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall include proposals in their 2013-2014 applications to potentially utilize Programs Advisory Groups as a consultative resource for mid-cycle program changes or additions for post-2014 portfolio planning.

168. The Executive Director shall cause this decision to be served on the service lists of: Rulemaking (R.) 07-01-041, R.10-12-007, R.10-05-004, R.08-12-009, and Application 11-03-001 et al.

169. The motions for party status of the California Building Performance Contractors Association, NRG Answers, Switch Lighting Company, and Simple Energy, Inc. are granted.

170. All other motions outstanding in this proceeding as of the date of this decision and not specifically mentioned in this decision are denied.

This order is effective today.

Dated _____, 2012, at San Francisco, California.

ATTACHMENTS

Attachment A: Summary of Changes to Database for Energy Efficiency Resources 2011

A. Summary of changes to the draft DEER2011 Update proposed by the DEER team in response to party comments.

SCE[514]

1. **Description of Issue:** The reduction in baseline wattage for linear fluorescent fixtures due to the phasing out of older magnetic ballasts does not take in to account the significant existing stocks of these older ballasts. Similarly, the change to calculation of RUL based on lamp life, instead of ballast life that has been historically used, also does not consider significant stocks of older magnetic ballasts.

DEER team proposed disposition of Issue:

As discussed in Appendix A-1 of the "DEER Database: 2011 Update Documentation", older or standard magnetic ballasts have been prohibited for commercial applications since 1990. Any standard magnetic ballast still in service in 2013 or later would have been in service for almost twice its expected life in typical applications. The DEER team does not consider the EUL of such ballast as a reasonable choice for the basis of the DEER default RUL of one-third the EUL.

The revised RUL is based on revisions to federal and state standards that prohibit the shipment of the most commonly applied T12 lamps by July 2012. Since T8 lamps require the use of electronic ballasts, the DEER team believes it is reasonable to revise the RUL to be based on lamp life, which is shorter than ballast life, since, as lamps burn out, both ballast and lamp will need to be upgraded to more efficient equipment. The DEER team also subtracted a year from the RUL calculated based on lamp life to account for the 2013 effective date of DEER and the likelihood that the removed lamps will have been in service for approximately one year. However, the DEER team acknowledges that some customers may have older lamps in storage, which means the one year reduction in RUL would not be applicable.

[514] SCE opening comments at B2-3.

Based upon the above discussion, the DEER team proposes to revise the RUL to be based solely on the nominal lamp life of T12 lamps without subtraction of one year using the formula below as revised from the draft documentation.

RUL = 20,000 hr lamp life / bldg EFLH / 3.

2. **Description of Issue:** SCE is concerned that the development of the lighting profiles developed for residential CFL savings estimates may contain problems related to installation analysis and the use of a sinusoid annualization.

   DEER team proposed disposition of Issue:

   It is important to note that the CFL installation and operations analysis described in the "DEER Database: 2011 Update Documentation" was only utilized to develop updated annual operating hours for residential CFLs. Utilizing the sinusoidal annualization resulted in slightly higher annual operating hours than not utilizing that approximation. However, when the DEER team examined the CFL usage profiles from the 06-08 residential upstream lighting evaluation lighting logger data those use profiles were found to be similar to those developed for DEER 2008. Therefore, the usage shapes and resultant interactive effects factors from 2008 were retained, and only annual operating hours and coincident demand factors have been updated. The DEER team shares IOU concerns about the development of revised usage profiles and intends to further analyze the 2006-2008 upstream CFL data for the next DEER update.

   Based upon the above discussion, the DEER team does not propose any changes at this time in response to the comment; however the issue of updating the residential lighting use profiles using recent metering results will be reconsidered for the next DEER update.

3. **Description of Issue:** The calculation of coincident factor in Appendix A-2-3 appears to not align with the DEER peak demand definition.

   DEER team proposed disposition of Issue:

   The lighting analysis described in Appendix A-2 of the "DEER Database: 2011 Update Documentation" was not used to revise the unit energy savings (UES) values for nonresidential lighting measures contained in the 2011 DEER Update. As further background, the logger research described in Appendix A-2 resulted in developing individual profiles for each day of the week. While the DEER definition is based on the three day average (or nine total hours), the analysis in

Appendix A-2 averages all five weekdays (or fifteen total hours) since it cannot be known on which the DEER peak demand period falls.

Based upon the above discussion, the DEER team does not propose any changes at this time in response to the comment; however the update of non-residential lighting energy savings parameters utilizing recent metering results, upon which Appendix A-2 is based, will be reconsidered for the next DEER update.

4. **Description of Issue:** The modeling of residential "foliage" appears to be inconsistent across climate zones.

DEER team proposed disposition of Issue:

The calibration process for the residential DEER models uses both thermostat schedules and shading of overall solar gain as variable parameters to create models that match heating and cooling annual energy use targets. The target UEC values vary by climate zone, building type and building vintage and thus the thermostat and solar shading schedules vary by these same parameters. The heating and cooling target values have not been updated since the DEER2008 update.

Only the hottest climate zone (CZ15) required modifications to the default shading schedule; the shading is effectively increased to lower cooling energy requirements. The shading schedules have not changed for the DEER2011 update relative to the DEER2008 values.

Based upon the above discussion, the DEER team does not propose any changes at this time in response to the comment; however the calibration of residential heating and cooling energy use to updated target values will be reconsidered for the next DEER update.

5. **Description of Issue:** Large package air conditioner measures (>= 760 kBtuh) appear to have the incorrect efficiency specified for the code baseline.

DEER team proposed disposition of Issue:

This issue was identified and documented by the DEER team on 12/5/2011 and will be fixed in the update. The Code/Standard Technology for some HVAC measures incorrectly describes the 2005 Title-24 code required technologies instead of the 2008 Title-24 code required technologies. The associated energy impacts are correct, only the code technology *descriptions* are incorrect. The table below provides details of the corrections incorporated into the DEER2011 Update in response to this issue and comment.

Measure ID	Incorrect Code/Standard Technology Description	Corrected Code/Standard Technology Description
NE-HVAC-airAC-Pkg-lt65kBtuh3phs-12p0seer NE-HVAC-airAC-Pkg-lt65kBtuh3phs-13p0seer NE-HVAC-airAC-Pkg-lt65kBtuh3phs-14p0seer	Pkg AC SEER = 9.70; EER = 9.22; Clg EIR = 0.306; Supply Fan W/cfm = 0.445794; no econo	Pkg AC SEER = 13.00; EER = 11.06; Clg EIR = 0.256; Supply Fan W/cfm = 0.379; no econo
NE-HVAC-airAC-Split-lt65kBtuh3phs-12p0seer NE-HVAC-airAC-Split-lt65kBtuh3phs-13p0seer NE-HVAC-airAC-Split-lt65kBtuh3phs-14p0seer	Split AC SEER = 10.00; EER = 9.50; Clg EIR = 0.297; Supply Fan W/cfm = 0.433; no econo	Split AC SEER = 13.00; EER = 11.06; Clg EIR = 0.256; Supply Fan W/cfm = 0.379; no econo
NE-HVAC-airAC-SpltPkg-135to239kBtuh-10p8eer NE-HVAC-airAC-SpltPkg-135to239kBtuh-11p5eer NE-HVAC-airAC-SpltPkg-135to239kBtuh-12p0eer	Pkg AC EER = 9.50; Clg EIR = 0.275; Supply Fan W/cfm = 0.419; Cond Fan W/Btuh = 0.0079; w/ econo	Pkg AC EER = 10.80; Clg EIR = 0.262; Supply Fan W/cfm = 0.269514; Cond Fan W/Btuh = 0.00535136; w/ econo
NE-HVAC-airAC-SpltPkg-240to759kBtuh-10p5eer NE-HVAC-airAC-SpltPkg-240to759kBtuh-10p8eer NE-HVAC-airAC-SpltPkg-240to759kBtuh-9p8eer	Pkg AC EER = 9.30; w/ furnace; w/ econo	Pkg AC EER = 9.80; w/ furnace; w/ econo
NE-HVAC-airAC-SpltPkg-65to89kBtuh-11p0eer NE-HVAC-airAC-SpltPkg-65to89kBtuh-11p5eer NE-HVAC-airAC-SpltPkg-65to89kBtuh-12p0eer NE-HVAC-airAC-SpltPkg-90to134kBtuh-11p0eer NE-HVAC-airAC-SpltPkg-90to134kBtuh-11p5eer NE-HVAC-airAC-SpltPkg-90to134kBtuh-12p0eer	Pkg AC EER = 10.10; Clg EIR = 0.262; Supply Fan W/cfm = 0.385; Cond Fan W/Btuh = 0.0054; no econo	Pkg AC EER = 11.00; Clg EIR = 0.257; Supply Fan W/cfm = 0.298; Cond Fan W/Btuh = 0.0053; no econo
NE-HVAC-airAC-SpltPkg-gte760kBtuh-10p2eer NE-HVAC-airAC-SpltPkg-gte760kBtuh-9p5eer NE-HVAC-airAC-SpltPkg-gte760kBtuh-9p7eer	Pkg AC EER = 9.00; w/ furnace; w/ econo	Pkg AC EER = 9.50; w/ furnace; w/ econo
Note: All energy impacts were correct, only the Code/Std Technology description was wrong		

6. **Description of Issue:** The absence of specialty building types with long operating hours limits the use of DEER to typical buildings and forces specialty buildings to have workpapers or be handled via a custom measure.

   DEER team proposed disposition of Issue:

   At this time only the building types available in DEER may be used for non-DEER workpaper values. does allow the use of the current DEER building types to represent other non-DEER buildings types. However, there is no existing EM&V data to support the claim that the typical building types in DEER should have longer operating hours. However, the utilities may utilize a customized calculation approach in situations where it is desired to use site specific parameters to develop energy savings estimates. The customized approach should be utilized for activities that target a building with operating parameters that are substantially different than the DEER assumptions. However, it is expected that in these cases there will be a M&V plan for measurement activities to support the operating hour claims during the custom project review process.

   Based upon the above discussion, the DEER team does not propose any changes at this time in response to the comment.

7. **Description of Issue:** A small food store building type should be added.

   DEER team proposed disposition of Issue:

   The DEER team agrees that additional building types should be considered for future updates. At this time, however, only the building types available in

DEER may be used. Commission Staff does allow the use of current DEER building types to represent other non-DEER buildings types. For the specific case of *small food store*, it is acceptable to use the DEER Grocery Store building or to use a mixture of building types such as Grocery Store and Small Retail. The utilities may propose equivalent relationships between DEER and non-DEER buildings through the workpaper process. Commission Staff has approved utility proposed relationships in several existing utility workpapers.

The DEER team has added a customized building type weight feature to the READI tool to accommodate the utilities desire to utilize a combination of existing DEER building types to represent a typical composite building type within their program activities. The weights used to create a new building type will be subject to review by Commission Staff; once approved, the new weighted building type will be incorporated into the DEER database and the associated energy impacts will be able to be referenced as DEER impacts.

8. **Description of Issue:** The draft DEER does not address measures that are known to be missing from older versions of DEER such as exterior lighting.

   DEER team proposed disposition of Issue:

   The DEER team has updated the values for residential exterior CFL lighting in the DEER2011 update. There are currently no values for other types of exterior lighting. The utilities must propose values for other types of residential or all non-residential exterior lighting via the submission of non-DEER workpapers.

9. **Description of Issue:** Updated measure load shapes referenced in the Technology Group Sections should be verified and/or adjusted with metering data planned with EM&V work. Alternatively, load shapes could be simplified to reduce mismatches.

   DEER team proposed disposition of Issue:

   The term "load shape" was mistakenly used in Section 4 of the "DEER Database: 2011 Update Documentation" to refer to the usage profiles of luminaires and screw-in CFLs. The DEER team intends the term "load shape" to represent the normalized hourly impact of a measure. The DEER team has revised the DEER documentation accordingly.

   Using the DEER2011 Update impact modeling results, the DEER team has augmented the impact profiles (load shapes) for the following measure cases:

i. Residential central HP
ii. Commercial packaged and split HP
iii. Residential clothes washer and dishwasher
iv. Residential building shell

Using the DEER2011 Update impact modeling results, the DEER team has augmented the impact profiles (load shapes) for the following measure cases:

v. Residential indoor lighting
vi. Residential refrigerator/freezer, indoors
vii. Residential refrigerator/freezer, outdoors
viii. Residential duct sealing
ix. Residential refrigerant charge
x. Residential refrigerant charge + duct sealing
xi. Commercial CFL indoor lighting
xii. Commercial non-CFL indoor lighting
xiii. Commercial chillers
xiv. Commercial split/packaged AC, high efficiency
xv. Commercial split/packaged AC, refrigerant charge
xvi. Commercial split/packaged AC, duct sealing

The DEER team has posted the above listed DEER2011 load shapes on the DEER website DEER2011 for 13-14 page[515]. These load shapes will also be included into the 2013-2014 E3 cost effectiveness calculators made available for use by the utilities in their application filings.

10. **Description of Issue:** The draft DEER does not include a method for utilizing standardized lighting savings methodologies for technologies not included in the current draft.

DEER team proposed disposition of Issue:

In response to this comment and request from the utilities, the DEER team has augmented the DEER2011 database and the READI tool to allow DEER lighting savings methodologies to be utilized to calculate savings for technology combinations (measures) not included in the standard set of DEER measures. This new feature can also be utilized in conjunction with the customized weighting feature described earlier. The technologies used to create a new

[515] *See* http://deeresources.com/DEER2011/download/DEER2011UpdateLoadshapes.zip.

lighting measure will be subject to review by Commission Staff; once approved, the new lighting measure will be incorporated into the DEER database and the associated energy impacts will be able to be referenced as DEER impacts. This new features is described in more detail below.

The energy impacts associated with all DEER2011 lighting measures are scaled based on a single set of energy impacts for each lighting category. The lighting categories are:

i. Commercial indoor general lighting, including linear fluorescent and HID fixtures
ii. Commercial indoor CFL general lighting
iii. Commercial exit lighting
iv. Residential indoor general lighting
v. Residential outdoor lighting

Direct energy and demand impacts (the impacts due to the lighting end-use change only, excluding HVAC interactive effects) for each category vary by building type, building vintage (new, existing, or specific vintage years) and building location. HVAC interactive effects are applied to these direct energy impacts to determine the basis for whole-building energy impacts.

The DEER2011 READI database interface tool provides a means to create new lighting measures based on the existing sets of scalable energy impacts (listed above) combined with the appropriate HVAC interactive effects factors. A proposed new measure definition references a proposed-for-installation lighting technology along with a code baseline lighting technology, and in the case of early retirement, a pre-existing lighting technology. This new measure definition will then be applied to the standard DEER energy impacts and HVAC interactive effects to create a proposed "customized" DEER set of energy impacts. Upon review and approval by Commission Staff, a new "custom" DEER measures, based on the adopted DEER method, will be incorporated in the standard measure list and will be able to be referenced as a DEER measure.

The DEER2011 READI database interface tool also allows for weighting the energy impacts associated with existing building types together to create a new set of energy impacts for the custom weighted building type. The weights used to create the new building type will be subject to review by Commission Staff; once approved, the new weighted building type will be incorporated into the DEER database and the associated energy impacts will be able to be referenced as DEER impacts.

Integral LED lamp technologies present a particular challenge for determining ex ante savings in that the READI tool does not include applicable wattage reduction ratios for these technologies. The DEER team is also concerned that the annual operating hours values currently in DEER (either non-CFL or CFL) may not be representative of operating hours for installed integral LED lamps. At this time Commission Staff is reviewing utility 2010-2012 phase 2 workpaper submissions for LED technologies which include proposals for wattage reduction relationships as well as annual hours of use. Commission Staff is working with the utilities to develop acceptable workpaper values for integral LED technologies. Once approved these workpapers shall apply until these technologies are incorporated into the READI database interface tool via the new measure technology feature described above or are added into the DEER database in the next DEER update.

11. **Description of Issue:** Additional specifications for commercial dX cooling equipment should be added for small units with SEER > 14 and large units with EER > 12.

    DEER team proposed disposition of Issue:

    Technologies representing the higher SEER units have not yet been added for the DEER2011 Update. The DEER team will work with the IOUs to develop a workpaper that includes estimation methods for SEER rated units that meet the latest CEE specifications. Once approved by Commission Staff, these values will be utilized until the next DEER update. The DEER team will address additions needed for the latest CEE specification in the next DEER update.

12. **Description of Issue:** DEER should be subject to some type of "open-book" sensitivity testing of results. Regression approaches should be used to develop savings which would produce more accurate results compared to simulation outputs for every combination of measure, building type, building vintage and climate zone.

    DEER team proposed disposition of Issue:

    The DEER team does not propose any changes at this time in response to the comment; however the DEER team will seek input from parties to determine where and when to use a particular analysis approach from the range of available techniques and to choose approaches that make the most sense given the weight of evidence and requirements for a particular measure or program activity.

PG&E[516]

1. **Description of Issue:** Clarify the correct table of interactive effects and operating hours to be used for non-DEER lighting measures

   DEER team proposed disposition of Issue:

   This issue is addressing a workbook of Lighting HVAC interactive effects that included a reference to an outdated residential lighting hours-of-use. Though this reference did not affect the HVAC interactive effects values contained in the workbook, the workbook was re-published with the corrected lighting hours-of-use on 12-13-2011 and the link provided on the "DEER2011 for 13-14" page of DEEResources.com. (http://deeresources.com/DEER2011/download/LightingHVACInteractiveEffects_13Dec2011.xls) Note that the final tables of DEER Lighting HVAC interactive effects will be impacted by the disposition of NRDC issue #2 below, such that the spreadsheet listed here will be superseded by the final DEER2011 Update version of HVAC interactive effects factors.

2. **Description of Issue:** Clarify which interactive effects should be used for LED lighting measures

   DEER team proposed disposition of Issue:

   The DEER HVAC interactive effects tables contain interactive effects factors based on IOU, building type, building location, building vintage and lighting type. The lighting types are:

   - Non-CFL (for commercial buildings only)
   - Exit fixtures (for commercial buildings only)
   - CFL (for both commercial and residential building types)

   All LED lighting measures that replace existing incandescent or CFL fixtures are to use the HVAC interactive effects for the CFL lighting type.

   All LED lighting measures that replace linear fluorescent or HID lighting fixtures are to use the HVAC interactive effects for the Non-CFL lighting type.

[516] PG&E opening comments at 21-23.

All LED lighting measures that replace existing Exit fixtures are to use the HVAC interactive effects for the Exit Fixture lighting type.

3. **Description of Issue:** DEER should specify that the Code/Standard Field value for a lighting measure be used as a base case for a Replace On Burnout/NEW measure

DEER team proposed disposition of Issue:

The DEER2011 database includes measures that can be utilized for the following measure application types: replace on burnout (ROB) and normal replacement (NR) with both these cases usually referred to as the ROB case; new construction (NC) and capacity expansion (CE) with both these cases referred to as the NC case; early retirement (ER); and early retirement for RUL period only (ERRUL). In the READI database interface tool the "supported applications" field for a measure specifies the cases for which energy impacts are available for the measure. Measures that support ROB, NC, and ER application types have impacts for the above code or above standard practice case. Measures that support ER and ERRUL application types have impacts for the above pre-existing case. The above pre-existing impacts apply for the RUL period and the above code or above standard practice impacts apply to the post RUL period. Measures that only support the ERRUL only have impacts for the above pre-existing case since these measures just meet code or standard practice thus do not have savings that can be claimed in the post-RUL period. For ROB and NC measures the above code or above standard practice impacts apply to the entire EUL.

The DEER team, during the investigations related to this comment, noticed that some measures did not have the proper "supported applications" field setting and additionally some measures did not have the required impacts for the above code or above standard practice case. These issues have been corrected and database revisions have been made to include code baselines as described below by lighting technology class.

- There is a group of linear fluorescent and HID measures in the DEER2011 database where measure and code technologies are identical. These measures were incorrectly identified in the database as "New Construction" and "Replace on Burnout" measures. The DEER team has revised and correctly identified these measures as "Early

Retirement" with savings only for the RUL period. In addition, T5 lamp measures which had negative above-code savings have been revised to remove the negative savings by correctly setting the code base equal to the measure.

- Exit signs in the DEER2011 database did not have code baselines. Exit signs have been covered by federal standards since January 1, 2006, therefore the DEER team added code baselines for all exit sign measures. These measures have been revised to specify the support of "Early Retirement", "New Construction" and "Replace on Burnout" measure application types.
- Some linear fluorescent and HID measures in the DEER2011 database were missing code baselines. The DEER team has added code baselines that are consistent with federal and state (Title 20 and Title 24) standards for these measures.
- There are some 4 foot linear fluorescent, 8 foot linear fluorescent and HID fixtures that do not have federal or state code requirements governing the efficiency of the fixture components. Examples are 3-lamp linear fluorescent ballasts, very high output (VHO) linear fluorescent lamps, and metal halide fixtures less than 150 watts. The DEER team has established code baselines for these fixtures using the same criteria as other covered fixtures.

Note that screw-in CFLs and pin-based CFL fixture retrofits are not covered by code at this time so no code baseline was assigned to these lighting technologies in the DEER2011 update. Additionally, with the exception of Exit Signs, LED technologies are not included in the DEER2011 update. The DEER team expects to more closely examine the appropriate baseline to use for these technologies under alternative installation circumstances during the next DEER update process to identify if alternate "supported applications" should be implemented for these technologies.

The DEER2011 READI database interface tool has been revised to allow the development of custom lighting measures as described under SCE item 10 above. Each lighting technology available to use in describing a new measure will include references to an appropriate code baseline technology to be used in both ROB and NC measure cases. Additionally, for early retirement measures, the

existing technology case shall be used for the RUL period while the code baseline case shall be used for the period following the RUL.

4. **Description of Issue:** DEER needs to specify what value should be used as a base case for a working measure that is retired before it burns out when the life of the measure has exceeded the Remaining Useful Life (RUL) period.

DEER team proposed disposition of Issue:

There are two issues here: first, if equipment retired before it burns out fits the CPUC definition of equipment eligible to be treated, for utilities savings claims purposes, under the early retirement (ER) rules; and second, what savings values to utilize during the early retirement or accelerated retirement (RUL) period.

Not all equipment retired before it burns out is eligible for consideration to be treated as a program induced early retirement. Sometimes, as in the case of new construction, the early retirement baseline is not an option. However, when early retirement is an option the evidence that supports program induced early retirement must be weighed against the evidence supporting a replace-on-burnout or normal replacement baseline or new construction choice. It is necessary to establish that a preponderance of evidence indicates the program has induced the replacement rather than merely caused an increase in efficiency in a replacement that would have occurred in the absence of the program. Once the preponderance of evidence review has established that the program caused the existing equipment to be replaced earlier than would have happened in the absence of the program, there is a need to establish the period of accelerated retirement. DEER contains values for the effective useful life (EUL) for many technologies and recommends using one-third of the EUL as the remaining useful life (RUL) until further study results are available to establish more accurate values. For the case of program induced early retirement, the RUL of the existing equipment should be used as the starting assumption for the period of accelerated retirement.

As noted in the PG&E item 3 above, the DEER2011 database includes measures that can be utilized for the early retirement (ER) and early retirement for RUL period only (ERRUL) cases. Measures that apply for the ER case must have impacts for the above pre-existing case as well as the above code or above standard practice case; the above pre-existing impacts apply for the RUL period and the above code or above standard practice impacts apply to the post RUL

period. Measures that apply for the ERRUL only have impacts for the above pre-existing case since these measures just meet code or standard practice thus does not have savings that can be claimed in the post-RUL period.

5. **Description of Issue:** DEER (or this update) should specify which CDF value should be used when there is no climate zone and vintage variation.

DEER team proposed disposition of Issue:

The exact nature of this issue is ambiguous, so the DEER team provides three alternate directions to be followed in the appropriate cases as described below.

For the case where the whole-building energy impacts for a DEER measure have no climate zone or vintage variation, there will be only one CDF per building type. In this case the location and building vintage will be listed as "any" in the DEER2011 database. As an example, this is the case for residential outdoor lighting measures in DEER.

For the case where the direct energy impacts (end-use impacts not including the HVAC interactive effects) for a DEER lighting measure have no climate zone or vintage variation, whole-building impacts are accounted for via the DEER Lighting HVAC interactive effects tables. The whole building impact including HVAC interactive effects have location (climate) and building vintage variation. If the location and vintage information are know that information should be used to select the correct HVAC interactive effects factors to apply to the direct end-use impact when calculating the whole building energy impacts. For the situations where the climate zone location or building vintage is not known, the climate zone and/or vintage weighted HVAC demand interactive-effects values can be used. The DEER Lighting HVAC interactive effects tables and DEER2011 database impact tables include a location entry for overall "utility service territory" (the "IOU" location) and for a weighted "Existing" vintage (the "Ex" building vintage). The demand factors based on these selections can be used when the location or vintage is not known.

For custom measures and projects the DEER methods for calculating CDF and HVAC interactive effects are to be utilized. When possible and appropriate, based on similarity of a DEER measure to the custom measure or project, DEER values shall be used. As discussed in SCE item 10 above, the READI database interface tool has capabilities to develop new lighting measures as well as customized weighted building types and measures. Custom lighting measures and projects shall utilize these DEER methods and values to the extent possible.

When an appropriate DEER values is not available, the DEER methods shall be utilized to the extent possible. The DEER definition for peak demand savings applies to all deemed and custom measures and projects. DEER CDF values should be used as appropriate, however, the DEER peak demand savings definition can be utilized directly when sufficient site metered data for a custom measure or project is available to accurately estimate the demand reduction during the DEER defined demand period using the DEER peak demand calculation method.

The DEER demand impact is defined as the average demand impact, for an installed measure, as would be "seen" at the electric grid level, averaged over the nine hours, between 2PM and 5PM, during the three consecutive weekday period which contains the highest average temperature during the 12PM to 6PM period for those three days. For analysis using the CEC adopted Title 24 weather files, which are used as the DEER reference weather files, the dates that correspond to this definition, are provided in the DEER documentation. DEER methods utilize the kWh consumed during each hour as representing the average demand for that hour. The DEER method than calculates the average of the nine average demand values for the defined peak period hours. When the peak electric demand savings for a custom measure or project is being determined based upon metering during current weather conditions, the metered data would need to be projected into the DEER reference weather files or the metered data would need to be collected during a period which represents the equivalent conditions as the DEER peak definition. A current weather period which represents the equivalent conditions as the DEER peak definition period may not be the same dates as for the DEER reference files.

6. **Description of Issue:** Since interior residential lighting hours of operation changed, DEER needs to specify what interactive effects should be used to calculate non-DEER residential lighting work papers.

DEER team proposed disposition of Issue:

The DEER team evaluated how the HVAC interactive effects would change based on the new residential lighting impacts hours-of-use. Since the normalized profile of usage did not change significantly, the ratio of whole-building impact to direct impacts (that are referred to as the HVAC interactive effect factors) did not change significantly. For the DEER2011 update, the residential lighting interactive effects have not changed based on lighting hours-of-use.

Note that the final tables of DEER Lighting HVAC interactive effects have been impacted by the disposition of NRDC issue #2 below.

7. **Description of Issue:** For commercial HVAC equipment, the savings impact for package/split AC and HP units still reference EER and does not reflect IEER for part-load operations. DEER should list savings impacts referenced to IEER for this equipment.

   DEER team proposed disposition of Issue:
   DEER values for 2013-2014 shall be based on EER as in previous versions. Additionally, the code baseline shall be based on EER ratings. The DEER team will investigate the development of savings estimates based on IEER for the next DEER update. The utilities may propose, via the non-DEER workpaper process, methods to map between IEER and DEER EER based values for use prior to the time DEER includes IEER based values.

8. **Description of Issue:** For residential HVAC equipment, PG&E recommends the SEER and EER combination for split system AC be revisited and updated. The EER rating of 11.61 for the 16 SEER units appears low. According to AHRI, there are over 6,000 units with 16 SEER and 12 EER combinations. This 11.61 EER and 16 SEER do not match the CEE specifications. The EER and SEER for AC should align with the Heatpump unit (index# 216) which is 12.06 EER and 16 SEER.

   DEER team proposed disposition of Issue:
   The DEER team will work with the IOUs to develop a workpaper that includes estimation methods for SEER rated units that meet the latest CEE specifications. Once approved by Commission Staff, these values will be utilized until the next DEER update.

9. **Description of Issue:** The whole house fan measure is omitted from this version of DEER. PG&E recommends it be added back into DEER.

   DEER team proposed disposition of Issue:
   This measure was included in the DEER2011 database, but was not viewable via the DEER2011 READI database interface tool due to an incorrect label in the Technology Type classification table. This issue has been fixed and the whole house fan measure now appears under the "HVAC – Ventilation and Air Distribution" use category and the "HVAC Technology – Whole House Fan" technology type.

10. **Description of Issue:** The Evaporative Cooler measure (direct, indirect, direct/indirect) impacts on the gas side seem exponentially high. Input parameters used in the Quest DEER modeling should be revisited.

    DEER team proposed disposition of Issue:

    This measure was not updated from DEER2005. The DEER team investigated the simulation methods and software used to develop the 2005 savings estimates and identified issues that are believed to have caused the therm savings results to be incorrectly estimated. Additionally, some of the 2005 DEER building models for the evaporative cooler measure were re-analyzed using the DEER2011 software that includes improvements to the evaporative cooler operations, and the results the re-analysis showed that negative gas impacts were near zero.

    Based upon the above discussion, the DEER team proposes the continued use the existing kWh and kW impacts with the gas impacts set to zero. The DEER2011 database has been updated to reflect this change. This measure shall be updated with the next version of DEER.

11. **Description of Issue:** For the thermostat measure the hotter climate zones (central valley) have huge negative savings impacts on both the kWh and therm savings. PG&E recommends this anomaly be reviewed.

    DEER team proposed disposition of Issue:

    The DEER2011 energy impacts for this measure are carried over from the DEER 2005 energy impacts and were put out for review at that time. The energy impacts are based on the SCE paper "Programmable Thermostats Installed into Residential Buildings: Predicting Energy Saving Using Occupant Behavior & Simulation". This paper describes the analysis of the programmable thermostat measure based on 2004 RASS data for reported thermostat use by occupants with manual thermostats and with programmable thermostats and detailed energy simulation based on the resulting thermostat schedules. No data have been presented to indicate that the basis for this measure needs to be updated. This measure will be reviewed again for the next update and if new information indicates that assumptions or inputs require updating those changes will be incorporated into the next update.

    Based upon the above discussion, the DEER team does not propose any changes at this time in response to the comment; however the issue of updating

the residential thermostat usage assumptions for both baseline calibration as well as the programmable thermostat measure using recent RASS and other survey results will be reconsidered for the next DEER update.

12. **Description of Issue:** The savings differ by Residential HVAC type for the clothes washer measures. If this is a whether dependent measure, DEER should specify how to weight this measure by HVAC system type.

    DEER team proposed disposition of Issue:
    Upon investigation, the DEER team discovered errors in the analysis of residential clothes washers such that domestic hot water (DHW) and dryer energy savings were significantly underestimated. The energy savings results for these measures have been updated to show correct DHW and dryer energy savings. In addition, the results for individual HVAC system types will be weighted based on published DEER HVAC weights to produce results for a "weighted" HVAC type.

13. **Description of Issue:** DEER should specify methodology for the appliance measures posted so that utilities can develop savings for other efficiency levels than those posted (e.g., clothes washers with MEF of 2.4).

    DEER team proposed disposition of Issue:
    Clothes washer efficiency measures require the identification of typical annual energy use values for washing machine energy, dryer machine and heating energy, and DHW energy (if any). These assumptions have been developed by the DEER team and included in the document "ENERGY_2007 Clothes Washers Workbook_4_final.xls". This document has been added to the DEER update website. The DEER team will work with IOUs to develop similar enduse values as well as overall energy savings estimates for higher efficiency clothes washers.

14. **Description of Issue:** DEER should specify the methodology for weighting residential HVAC systems together for each IOU service territory to simplify measure parameters.

    DEER team proposed disposition of Issue:
    The residential HVAC weights were developed as part of the non-DEER ex ante process for the 2010-2012 cycle. The documentation and derivation of the weights that was provided to IOUs during the ex ante review process, however,

was not included into the DEER2011 documentation. The DEER team will take the following action to supply additional information and documentation:

a. The DEER2011 database will be augmented to include HVAC-weighted results for all measures that have impacts for multiple HVAC types.
b. The values used to weight HVAC system types will be added to the DEER database and will be accessible using an updated version of READI.
c. A workbook documenting how the database tables were developed will be published. (DEER2011-Weights-Development.xls)
d. The residential HVAC weights were published on Basecamp in the "2010 ED workbooks" project on 1-27-2011 (https://energydivision.basecamphq.com/projects/4484275/file/70967195/DEER2010-2012ResidentialImpacts%20v1_4.zip)
e. The commercial HVAC weights were published on Basecamp in the "2010 ED workbooks" project on 3-4-2010 (https://energydivision.basecamphq.com/projects/4484275/file/45436342/DEER%20Lighting%20Measure%20Workbook%20-%203Mar2010.zip)

SDG&E[517]

1. **Description of Issue:** Table ES-1 shows an increase in operating hours for residential interior operating hours, but a decrease of 32% in overall savings compared to 2008. This doesn't make sense given that wattage reduction in the current draft is only slightly less than the wattage reduction used in 2008.

DEER team proposed disposition of Issue:

This comment points out a typographical error in the "DEER Database: 2011 Update Documentation". The DEER teams has identified and corrected the following typographical errors to the "DEER Database: 2011 Update Documentation".

a. Page ES-2, Table ES1, first row; the hourly estimates for internal CFL as in the 2011 and 2008 columns were reversed.

b. Page ES-5; Table ES-5, last row, first column add the words "and Specialty" to the first cell in the measure columns. The cell should read " Residential Basic and Specialty CFL's"

[517] SDG&E/SoCalGas opening comments Attachment at 3-4.

c. Page 4-12, Table 4-12 Delta Watts CFLs – Commercial sector. The estimates in the column labeled "2008 Delta Watts" were inadvertently copied from column 4 "Pre Wattage". However, much of the information in this section was NOT utilized in the DEER2011 update; therefore all unused portions of this section have been removed.

d. Page 6-4, Table 6-1, Master Table of NTGR, column 4, NTGR in the 2008 DEER v2.05, all of the commercial and industrial values in this column should be corrected from 0.54 to 0.64.

e. Page 13-2,13-4 and 13-5, Tables 13-1, 13-4 and 13-5, The measure name in the first column is given as Residential Gas Storage/ Instantaneous Water heaters with EF >.62. This description should be replaced with the words "Residential Gas Storage Water Heaters with EF>.62 and EF<=0.65" in all three tables where this measure name is given to describe the characteristics of gas water heaters.

2. **Description of Issue:** The DEER documentation at ES-2 notes that EPACT will prohibit the shipment of most 4 foot and 8 foot T12 lamps as of July 14, 2012. SDG&E specifically asks "Does this mean that there will not be a dual baseline for these measures (T12 fixture retrofits) moving forward?" SDG&E also requests that specific RUL values for linear fluorescent measures be included in DEER.

   DEER team proposed disposition of Issue:
   See the same issue under SCE item 1 above.

3. **Description of Issue:** Please provide data and references for the energy savings factors (ESF) use in the calculation of savings for low flow showerheads and faucet aerators.

   DEER team proposed disposition of Issue:
   The DEER team proposes that these measures revert to non-DEER workpaper values that will be updated and submitted with the utilities 2013-2014

applications. All information on energy savings for these measures will be deleted from the DEER2011 Update database and documentation.

EnerNOC[518]

1. **Description of Issue:** Clarify the specific values for lighting hours and coincidence factors in non-residential buildings.

   DEER team proposed disposition of Issue:
   This comment seems to relate to SCE comment 1 above. Appendix A-2 of the "DEER Database: 2011 Update Documentation" was not used to revise the UES values for nonresidential lighting measures contained in the 2011 DEER Update. Refer to Appendix A-1 for all documentation on assumption and method changes that relate to non-residential lighting energy savings values.

2. **Description of Issue:** The draft DEER appears to be missing several specific building types. Clarify if this is an oversight or if these buildings fall into an "other" category.

   DEER team proposed disposition of Issue:
   See SCE comment 7 above. The utilities can propose, via the workpaper process, a new building type composed of multiple existing DEER building types. The READI tool can be used to weight up multiple DEER building type results into a new customized building type.

3. **Description of Issue:** Existing logger data (from 2006-2008 EM&V) used to develop proposed hours may not accurately reflect the number of lighting hours in most non-residential buildings.

   DEER team proposed disposition of Issue:
   See previous comment above. See also SCE comment 6 above.

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[518] EnerNOC opening comments at 7-8.

TURN[519]

1. **Description of Issue:** TURN is concerned that non-residential lighting operating hours have not been updated, while the draft DEER documentation states that "the HOU [hours of use] values based on the 2006-2008 evaluations are lower for most building types than those in DEER 2008" which suggest that savings for non-residential lighting measures may be overstated.

   DEER team proposed disposition of Issue:
   The DEER team shares the concern that some of the non-residential lighting usage profiles, hours-of-use and peak coincidence factors may be causing over-estimates for some non-residential lighting measures in situations. Due to time limitations an update for these parameters was not able to be completed for this update. DEER lighting parameters for many non-residential buildings that represent common facilities of participants in the utilities programs were found to be in good agreement with the 2006-2008 evaluation results. Work will continue to analyze the 2006-2008 non-residential lighting data for input into the DEER update process.

   Based upon the above discussion, the DEER team does not propose any changes at this time in response to the comment; however the issue of updating the non-residential lighting kWh, kW and therm values using recent metering results will be reconsidered for the next DEER update.

2. **Description of Issue:** The increase in operating hours for residential exterior CFLs is surprising, especially compared to the decrease (10% increase vs. 32 percent decrease) in operating hours for residential interior CFLs. TURN recommends continued investigation and update.

   DEER team proposed disposition of Issue:
   The DEER team shares the concern that some of the residential lighting usage profiles, hours-of-use and peak coincidence factors may require further examination to insure metering data anomalies are identified and corrected. However, at this time the values used for the DEER2011 Update are considered the best available information and the most appropriate to use.

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[519] TURN opening comments at 3-4.

Based upon the above discussion, the DEER team does not propose any changes at this time in response to the comment; however the issue of re-examining the residential lighting metering results to correct for any identified data anomalies will be considered for the next DEER update.

3. **Description of Issue:** For non-early retirement measures (such as replace on burnout and new construction), DEER assumes the basecase is a minimally code compliant technology "whereas it is entirely feasible that current standard practice exceed those standards." TURN recommends investigation of standard practice and that DEER code baselines be revised to standard practice baselines.

DEER team proposed disposition of Issue:

For new equipment choices that are subject to existing regulations, codes or standards, current policy (found in Appendix I of D.11-07-030 and updated in this decision) provides that the baseline equipment be determined by the regulation, code or standards requirements. There may be instances where there is sufficient evidence or documentation that the efficiency or energy use of equipment that meets the requirements of the regulation, code or standard does not well represent the efficiency or energy use of typical installed equipment. In those cases it may be appropriate to assign a baseline that better represents the typically installed equipment in place of equipment defined by the regulation, code or standards. There may also be cases when existing regulations, codes and standards are being ignored or circumvented. Thus it may be possible in some cases for the typical baseline performance to lead to higher energy use than would be seen if the regulation, code or standard was correctly followed or adequately enforced. However, at this time the DEER team does not have sufficient reliable quantitative evidence to recommend a change in DEER baseline assumptions.

Based upon the above discussion, the DEER team does not propose any changes at this time in response to the comment; however the issue of examining evidence that could support moving to a "market typical" baseline for selected measures will be examined during the next DEER update process.

NRDC[520]

1. **Description of Issue:** NRDC states that the proposed estimates of residential interactive effects are substantially higher than in other states.

   DEER team proposed disposition of Issue:
   When the assumptions behind the values used by these other programs are carefully evaluated, the differences can be explained.

Minnesota

Table 1.1 shows the State of Minnesota published HVAC interactive effects factors as calculated by the method of Rundquist[521]. The heating IE Factor in the Rundquist method is proportional to the Perimeter Fraction, which is the proportion of building floor area that lies within 15 feet of an exterior wall. The basis of this calculation is the assumption that the core of the building is in a cooling mode throughout the year, and only the perimeter will experience negative heating interactive effects (heating takeback). The residential building values published for Minnesota make the same building shape assumption as the commercial building, where in reality a residential building would have a much higher Perimeter Fraction. As shown by the alternate calculation in Table 1 the HVAC IE factor for a single family home according to the Rundquist method should be double the value of the commercial building. Moreover, the Rundquist method was developed 19 years ago using a commercial building energy model. The resulting high internal heat gains, the absence of duct heat loss and other factors make this resource questionable as a tool for estimating residential interactive effects, even when appropriate geometry adjustments are made.

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[520] NRDC opening comments at 6 and Attachment B at 29.

[521] Rundquist, R., K.F. Johnson, and D.J. Aumann. 1993. "Calculating Lighting and HVAC Interactions," ASHRAE Journal, November 1993.

Table 1 Minnesota Heating HVAC Interactive Effects Factors (Minnesota, 2012a and 2012b)

				Heating Calculations						Cooling Calculations		
	Building Type	Floor L1	Floor L2	Perimeter Fraction	Therm/ kWh	Effic- iency	Fraction heating	IE Factor, Therm/kWh	Take- back	Fraction Cooling	COP	IE Factor
Published	Commercial	80	150	0.5	0.03413	75%	0.39	-0.0088738	-26%	0.33	3	0.11
Published	Residential	80	150	0.5	0.03413	75%	0.39	-0.0088738	-26%	0.33	3	0.11
Alternate	Residential	30	30	1	0.03413	75%	0.39	-0.0177476	-52%	0.33	3	0.11

Northwest States

The Regional Technical Forum of the Northwest Power and Conservation Council has published a workbook describing energy savings for compact fluorescent lighting in residential buildings. One parameter listed in this workbook is the space heat interaction factor, which is given as 22%. This parameter is actually an electric-only impact for the entire market. Its calculation begins with the change in heating load per unit change in lighting energy for a single building. A factor of 47% is then applied to account for the fraction of heating in the market that is electric, and a divisor of 1.07 is applied to account for the average efficiency of an assumed mix of electric resistance and heat pump systems.

$$\text{Electric Space Heat Interaction} = \left(\frac{Change\ in\ Heating\ Load\ \times Electric\ \ Heat\ Market\ Share}{Change\ in\ Lighting\ Load\ \times Heating\ Efficiency}\right) = 22\%$$

In the same workbook, the heating interactive effects factor for a single residence with gas-only heat is listed as -0.0295 Therms of gas per kWh of lighting savings, or 87% heating takeback. This falls right in line with the DEER factors listed in Table 22.

Table 2 DEER 2011 Heating Takeback

IOU	Building Vintage	No Cooling	DX Cooling
PG&E	Existing	-97%	-83%
PG&E	New	-92%	-79%
SCE	Existing	-71%	-71%
SCE	New	-76%	-68%
SDG&E	Existing	-63%	-65%
SDG&E	New	-63%	-65%

Vermont

The Technical Reference User Manual of Efficiency Vermont (2010) indicates the use of the Rundquist method for determination of HVAC Interactive Effects. For residential buildings, the manual shows the fraction of hours in heating to be zero. No rationale is presented in the manual to explain why this was done.

2. **Description of Issue:** NRDC comments on the draft DEER2011 database state that residential HVAC interactive-effects for therms associated with lighting measures have increased from the previous reported values.

DEER team proposed disposition of Issue:

The residential HVAC interactive effects factors changed from the DEER2008 (version 2.05) database to the DEER2011 database due to the documented updates in the residential models and simulation tools. However, none of these updates were expected to cause the gas interactive effects (or "heating take-back") to increase.

The authors of the NRDC comments, in their Attachment B attempted to calculate residential HVAC interactive effects factors for the 2011 DEER release using what they term "DEER simulations". The details of these calculations are not revealed in Attachment B, but the results do not consistently match the actual DEER2011 HVAC interactive effects factors as published. As shown in Table 3 the heating IE Factors for a single family residence increase by less than 1% for existing buildings and decrease by about 5% for new construction.

Table 3 Trends in DEER HVAC Interactive Effects Factors for Single Family Residence

		Heating IE Factor			Cooling IE Factor		
IOU	Building Vintage	2006-2008 Evaluation Appendix B	DEER 2011	Change	2006-2008 Evaluation Appendix B	DEER 2011	Change
PG&E	Existing	-0.0266	-0.0267	0.6%	1.030	1.030	0.0%
PG&E	New	-0.0256	-0.0243	-5.1%	1.058	1.070	1.1%
SCE	Existing	-0.0212	-0.0213	0.7%	1.075	1.080	0.4%
SCE	New	-0.0215	-0.0207	-3.7%	1.100	1.100	0.0%
SDG&E	Existing	-0.0191	-0.0192	0.5%	1.034	1.040	0.6%
SDG&E	New	-0.0208	-0.0194	-6.8%	1.053	1.060	0.7%

Investigation by the DEER team, while researching the NRDC comments, uncovered an error that caused the heating "take-back" for residential lighting measures to be over-estimated due to the inclusion of non-IOU heating fuel in the calculation. The DEER database and support workbooks will be updated with the correct residential HVAC interactive effects factors. Note: none of the results used as input to the HVAC IE factor calculations will change, but the process itself will be corrected to properly account for non-IOU heating fuel.

B. Summary of changes to the draft DEER2011 Update proposed by the DEER team identified during the investigation of party comments or directed by Commission Staff.

1. **How issue was identified:** SCE comments and Commission Staff direction
Description of Issue: There is false precision in the DEER energy impacts due to too many significant digits being reported in the DEER database and calculated results.

DEER team proposed disposition of Issue:

The DEER database interface has been modified to report results with 2 to 3 significant digits. All data written to CSV file (i.e. downloaded from the DEER database using READI) will have 3 significant figures; data shown as "DEER Energy Impact Values" within READI will have 3 significant figures. HVAC interactive effects values for kW and kWh will be rounded to two decimals, therm values will be rounded to two significant figures. Note: data stored in the DEER2011 database tables used to calculated measure impacts may retain a greater number of significant figures; all values reported as DEER energy

impacts will follow the guidance described above.

2. **How issue was identified:** PG&E via direct email on 1-20-2012
   Description of Issue: Lighting energy impacts for education buildings are not consistent with reported HVAC interaction factors and reported coincident demand factors.

   DEER team proposed disposition of Issue:
   An error was identified and documented on the DEER2011 FAQ on 12/14/2011 regarding the coincident demand impacts for education buildings. The DEER database will be updated with the correct coincident demand factors for all education buildings.

3. **How issue was identified:** DEER team review while investigating party comments
   Description of Issue: The "existing vintage" energy impacts were calculated by weighting individual building vintage impacts together based on building stock data. This process did not properly account for the latest vintage (built after 2009), causing the reported existing vintage energy impacts to be approximately 2% too high. It was also noted that the energy impact values and the common units values used to normalize the energy impact values were weighted separately. The correct method to weight these values is to calculate the normalized impacts (simulated impacts divided by common units) before weighting the values. This error can cause the normalized weighted impacts to be 2-3% high or low.

   DEER team proposed disposition of Issue:
   The weighting process has been corrected and the existing vintage energy impacts have been recalculated based on the normalized vintage-specific results. The vintage-specific energy impacts will not be changed, only the process that weights the vintage-specific results into a single "Existing" vintage will be corrected. To accomplish this correction and recalculation all vintage values have been added into the database and the weighting process feature has been added into the READI tool. These additions to the database and the READI tool also enable the DEER team and the utilities to develop new weighted measures for DEER based upon existing DEER measures using customized weighting of those measures. This capability is further described elsewhere in this document.

4. **How issue was identified:** DEER team review while investigating party comments
   Description of Issue: The profile for residential dishwasher measure is not the intended dishwasher profile, but is the same profile utilized for clothes washers.

   DEER team proposed disposition of Issue:

   The usage profile used for the residential dishwasher measures was replaced with an appropriate residential dishwasher usage profile. The DEER2011 database and documentation were updated with new results and descriptions. Note: direct energy impacts for the dishwasher and hot water heater associated with these measures will not change, only the HVAC interaction effects and the peak demand impacts are changed.

5. **How issue was identified: Commission Staff** review of party comments

   Description of Issue: What NTG value should be used for custom measures and projects which include the installation of technologies providing both gas and electric savings.

   DEER team proposed disposition of Issue:

   This discussion applies to custom measures and projects which are implemented at a single site as well as planned and installed as a single project.

   Custom measures and projects which are predominately electric technologies shall use the DEER NTG for custom electric technologies and that NTG shall also be applied to any gas savings that may result as an added benefit from that technology application. Similarly, custom measures and projects which are predominately natural gas technologies shall use the DEER NTG for the custom natural gas technologies and that NTG shall also be applied to any electric savings that may result as an added benefit from that technology application.

   Measures and projects that contain a mix of electric and gas technologies shall have separate NTG values applied to their respective gas and electric savings. These measures or projects can be reported as separate gas and electric claims using the DEER NTG for the respective custom gas and electric technologies. Alternatively, these measures or projects can be reported as a single claim with separate electric and gas NTG values. These separate gas and electric NTG values shall be calculated using the DEER NTG for the respective custom gas and electric technology weighted up into composite gas and electric NTG values

based upon the contribution to gas and electric savings for each measure relative to the total gas and electric savings or all measures. For the weighting calculation, electric savings from gas technologies shall utilize the gas technology NTG and gas savings from electric technologies shall use the electric technology NTG.

6. **How issue was identified:** Commission Staff review of party comments

   Description of Issue: Should DEER NTG values for a single measure have common statewide values? For a single measure, should a single DEER NTG values be applied to kWh, kW, and therm savings and participant costs?

   DEER team proposed disposition of Issue:

   Following Commission direction the DEER team has made two adjustments, as described below, to the draft NTG value tables.

   1) Statewide average NTG values are provided for measures installed using similar delivery approaches for which the variation in the IOU-specific NTG values is twenty percent or less. The statewide average values are calculated by weighting individual measure NTG values by its share in total energy savings.

   2) Whenever possible, based upon the underlying NTG data availability, similar measures are mapped into individual DEER measure NTG table entries based up their predominate technologies being either gas or electric. For example, domestic water heaters will have separate measure specifications for natural gas burners versus electric resistance elements versus electric heat pump technologies. For electric technologies, the measure NTG shall be based upon the kWh NTG value unless the measure is predominately a demand reduction measure. A single NTG value will be provided for each measure NTG table entry and that NTG value shall be applied to the kWh, kw, therm savings and participant cost parameters for that measure when used in a utility claim for that measure.

Attachment B: HVAC Emergency Retrofit Protocol

This attachment contains the emergency repair guidelines for Participating Contractors in the Sacramento Municipal Utility District Home Performance Program. Work on a piece of malfunctioning equipment may start after the Participating Contractor submits a Jobs Reporting Template (JRT) with a completed Advanced (pre-retrofit) tab to California Building Performance Contractors Association through the Vision database[522], regardless of the standard 72-hour pre-retrofit verification window, under the following conditions:

1. The repair must be considered an emergency: Repairs are considered an emergency when an HVAC system cannot operate properly or is non-functional, thus causing the homeowner to be very uncomfortable or distressed at a level that is unsafe and even hazardous.

Emergency repair items consist of the following:

d)Heating systems not working or critically malfunctioning

e)Cooling systems not working or critically malfunctioning

f)Significant holes in roofs/walls where the home cannot reach the required depressurization limits for blower door testing according to BPI-BA[523] Technical Standards

2. A complete pre-retrofit assessment must be completed: Contractors must perform a full test-in assessment and build an energy model of the work-scope via the JRT, including the emergency retrofit, that demonstrates an energy savings of 20% or greater for the project to qualify as an emergency retrofit job. Files, including the JRT and energy model, are to be submitted via the Vision database reporting system prior to any work being performed (failure to send the results prior to installing the new

[522] "Vision" database is a tool developed by ICF Consulting about construction jobs. The database documents pre and post retrofit tasks per BPI standards required for the Energy Upgrade California (EUC) program.

[523] Building Performance Institute (BPI)- Building Analyst (BA).

equipment will deem the project not eligible for the Emergency Retrofit Protocol). Contractors may "swap out" only the malfunctioning equipment prior to receiving an Authorization to Proceed for any other home performance improvements that may be planned (should there be any other home performance measures proposed). Final test-out results must be provided to CBPCA through the Vision database within three business days after the emergency measure is installed.

Contractors must complete the PRE-retrofit tab of the JRT, as usual, plus the following elements to qualify the project:

a.) "Notes" section of the JRT: include what system or issue needs removal or repair, and include why it is deemed an emergency;

b.) Energy model of the emergency repair work-scope, plus any additional work-scope items for additional savings, showing at least a 20% energy savings; and,

c) Pictures of the system or issue

3. The following modeling guidelines must be followed for the emergency repair:

a) Any item replaced on an emergency basis will be modeled using the vintage table value; and,

b) All other items are accepted as reported.

4. Contractors must "right-size" the new unit. Right-sizing is a critical piece of home performance. Contractors are to use Manual J[524] and Manual D[525].

5. The following guidelines will dictate a homeowner's rebate:

a) If the homeowner decides not to go forward with additional home performance work beyond the unit change-out within 30 days, the job will be deemed

[524] Manual J is a protocol developed by the Air Conditioning Contractors of America (ACCA) using HVAC electrical load calculations to determine how much heating and/or cooling, and therefore correct size air conditioning unit, a house needs.

[525] Manual D is a protocol developed by ACCA to determine the ideal duct design and sizing for a home.

completed and the homeowner can apply for the whole-house Advanced Program rebate if the energy savings are at least 20%; or,
b) If the homeowner decides to go forward with additional home performance work within 30 days, the rebate will be delayed until the job is complete.
c) If the emergency retrofit work does not meet the Advanced Program's 20% threshold, the job will be eligible only for the stand-alone SMUD non-home performance HVAC rebate, whose amount will depend upon that program's specifications. In addition, the Participating Contractor making the emergency repair must be on SMUD's approved HVAC contractor list to be eligible to offer the stand-alone rebate.

6. Quality Control measures as a result of an emergency retrofit job: Two emergency repairs per Participating Contractor will be allowed before CBPCA increases the non-emergency pre-retrofit inspection rate for that contractor (this is the pre-retrofit QA Verification that ensures home performance principles are being followed). After the first two emergency repairs, each subsequent emergency adds a pre-retrofit QA Verification to that Contractor's queue of non-emergency jobs.

Attachment C: 2013 – 2014 WE&T Course Listings / Programs

Green Collar Sector	Admin.	Class Location	Ed. Level (1)	Collaborators (2)	Class Length (3)	# of Times / yr	Approx Annual Cost (IOU)	Approx Annual Cost (Collaborator)	Continuing Education, Entry Level, or Both (4)	Class Component - Codes & Standards	Class Component - Integration - Existing Bldgs (5)	Class Component - Zero Net Energy(6)	Class Component - Low Income Outreach (7)	Class Component - Emerging Technology(8)	Class Component - Sector Strategies (9)	Class Component - Needs Assessment (10)	Targeted Market Sector (11)	IOU Course Contact	Phone
HVAC																			
Designers, Architects, & Building Contractors - Existing																			
Designers, Architects, & Building Contractors - New																			
Designers, Architects, & Building Contractors - General (New & Existing Buildings)																			
Building and Energy Managers																			
Non-HVAC Installers																			
Codes & Standards																			
Energy & Environment - K-12																			
Careers in Energy Management - College																			
Trade Level Apprenticeship or Pre																			

(See below for definitions and instructions to complete this table.)

2013 – 2014 WE&T Course / Program Listing Legend:

	Column Header	Definition	Code
1	Ed. Level(1)	Education Sector	CSU, UC, K-12, CC (Community College), Trade / Labor (including IOU only courses),
2	Collaborators(2)	External Entities Partnering with the IOU to provide resources for training effort (ex: facilities, materials, trainers, outreach)	List Name of Collaborator
3	Class Length(3)	Number of days	Half-Day, Full Day, Two Day, Three Day, Annual (if traditional school schedule), etc.
4	Continuing Education, Entry Level, or Both(4)	Indicate if the target audience for the class are entry level participants or continuing education or both.	C - Continuing Education, E - Entry Level, Both - B
5	Integration - Existing Bldgs(5)	The class incorporates other demand side technologies (EE, DR, & DG) via an integrated systems approach.	Include the designation EE, DR, and/or DG to indicate which demand side resources are covered by the class.
6	Zero Net Energy(6)	The class addresses primarily new buildings, incorporating all demand side technologies (EE, DR, & DG) in a whole building perspective.	X - if applicable
7	Low Income Outreach(7)	The class is actively promoted to low income participants and a procedure is in place to make it more affordable and convenient for these entities to participate.	X - if applicable
8	Emerging Technology(8)	the class includes training for emerging technologies	X - if applicable

9	Sector Strategies	The class is offered as part of a more comprehensive "sector strategy" (pursuant to SDG&E AL 2260-E-B / 2041-G-B *et al.*) effort involving educational / training partnerships with external partners and addresses recommendations identified in the Statewide WE&T Needs Assessment, published by UCB in March of 2011.	X - if applicable
10	Needs Assessment	The class addresses a recommendation area included in the Statewide WE&T Needs Assessment.	Indicate which NA recommendation area the class addresses; SS - Skill Standards, C - Certifications, JP - Job Placement.
11	Market Sector(8)	Indicate what market sector the course caters to. Use the same market sectors identified in the Strategic Plan. If codes & standards are included in the training indicate by including "C&S" after the market sector identification.	Commercial, Residential, Industrial, Agricultural

Attachment D: Integrated Pilot Programs (2013 – 2014)

(See below for definitions and instructions to complete this table.)

Integrated Pilot Program Legend:

	Column Title	Definition	Code

Pilot Program	Demand Side Resources Included (1)	Enabling Technologies Included (2)	Emerging Technologies Included (3)	Existing or New Construction (4)	% of ZNE Anticipated (program / avg project) (5)		Anticipated Savings kWh (program / avg project)		Anticipated Savings KW (program / avg project)		Anticipated Savings Therms (program / avg project)		Program Cycle Budget Allocation (6)	Estimated Avg Cost Per Building	Accounts Included in the Pilot (7)	Notes

1	Demand Side Resources Included	Indicate which demand side resources are being included in the pilot	Include all that are applicable: EE, DR, DG
2	Enabling Technologies Included	Indicate if there are any integration enabling technologies included in the program offering	Include all that apply: AMI, S - Storage, O - Other (describe in "notes" column)
3	Emerging Technologies Included	Indicated whether technologies considered "emerging" are included in the pilot. Include a short description of the technology/ies in the "Notes" column.	X - If Yes
4	Existing or New Construction (3)	Indicate what customer segment the program targets	RNC - Residential New Construction, RE - Residential Existing, NRNC - Non-Residential New Construction. NRE - Non-Residential Existing. RB - Residential Both (existing and new), NRB - Non-Residential Both (existing and new)
5	% of ZNE Anticipated	Indicate estimated % of annual load will be saved when compared to similar standard buildings (Fill in two columns one for program and one for avg per project in the program)	Indicate a "%" for each: program / avg project
6	Program Cycle Budget Allocation	Indicate the overall budget allocated to this pilot including the dollars dedicated to the pilot as well as dollars contributed by other programs to support the pilot. Include the % split and sources of other funding in the "notes" column.	$ Overall Budget for Pilot
7	Estimated # of Existing or New Customer Accounts Included in the Pilot	Indicate the number of existing customers participating in the pilot as well as the number of new accounts that will be created via new construction	Include a combined number for new and existing customer accounts participating in the pilot.

		included in the pilot.	

(END OF ATTACHMENTS)

Document comparison by Workshare Professional on Monday, May 07, 2012 10:04:23 AM

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Document 2 ID	PowerDocs://CPUC01/580865/1
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Moved cell	
Split/Merged cell	
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