



BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Create a Consistent Regulatory Framework for the Guidance, Planning, and Evaluation of Integrated Demand Side Resource Programs.

Rulemaking 14-10-003
(Filed October 2, 2014)

**JOINT ASSIGNED COMMISSIONER AND
ADMINISTRATIVE LAW JUDGE'S RULING
REQUESTING RESPONSES TO QUESTIONS**

Summary

This purpose of this Ruling is to provide an overview of the workshop held on March 11-12, 2015, in Rulemaking 14-10-003 and to get responses to questions resulting from the workshop. The comments will be used to make foundational determinations in this Rulemaking.

1. Background

On October 2, 2014, the Commission established this Rulemaking to consider the development and adoption of a regulatory framework to provide policy consistency for the direction and review of demand-side resource programs. According to the Order Instituting this Rulemaking, the framework is envisioned to be a unified mechanism to authorize and direct the Commission-regulated electric and gas utilities to achieve demand response reduction and load shaping using integrated demand-side resources.

Following a December 5, 2014, prehearing conference, the assigned Commissioner and Administrative Law Judge (ALJ) jointly issued a Ruling and Scoping Memo laying out the initial scope and schedule for the proceeding.¹ As part of the schedule, the Scoping Memo stated that a series of workshops would be held to educate the parties and the Commission on the multiple aspects of the integration of demand-side resources.

The initial two workshops were referred to as Learning Sessions and included a series of presentations on current integration efforts by the Commission and by other entities both within and external to the state of California. The purpose of the two Learning Sessions was to create a base knowledge of integration as well as to be informed of new integration efforts throughout the country.

On March 11-12, 2015, the ALJ facilitated a two-day highly interactive workshop with several small group discussions. The objectives of the workshop were to develop ideas for a) defining the integration of demand-side resources, b) determining the problems with current integration efforts, and c) shaping a goal for integration.

2. Overview of March 11-12, 2015 Workshop

Parties began day one of the workshop by introducing themselves and providing one attribute of the ideal integration effort. The attributes given included the following terms: comprehensive, targeted, responsive, measurable,

¹ Joint Assigned Commissioner's and ALJ's Ruling and Scoping Memo, January 5, 2015.

reliable, flexible, scalable, optimized, sustainable, green, customer-centric, networked, manageable, impactful, optimized, and digitally-descriptive.²

The ALJ then provided a brief overview of past Commission directives on the integration of demand-side resources including the directives in the Long-Term Energy Efficiency Strategic Plan and Decision (D.) 09-09-047.³ Workshop participants⁴ were divided into smaller groups and asked to select two positive and two negative attributes of the current integration efforts undertaken by the Commission. Positive attributes included illustrative, timely, and widely-available; negative attributes included narrow, delinked, and non-scalable.⁵

Staff from the Commission's Energy Division identified and presented a list of key problems with the current integrated demand-side management efforts. The problems range from policy objectives working at cross-purposes to the programs not being consistently cross-promoted.⁶ Workshop participants then brainstormed and added to the list of problems including the need to look at the customers' perspective, a market failure to provide an equivalent revenue

² The complete list of ideal integration effort attributes is provided in the attached workshop notes.

³ The handout provided by the ALJ, "*Commission Directives for Integrating Demand-Side Resources*," is included in the attached workshop notes.

⁴ A list of workshop participants is included in the attached workshop notes.

⁵ See the attached workshop notes for the complete list of attributes of current integration efforts.

⁶ The Energy Division handout, "*Why are Current Efforts Not Succeeding*" is included in the workshop notes.

stream opportunity, an over-focus on rate-base versus performance-base, and inefficient program administration.⁷

The workshop participants were divided into small groups and asked to prioritize the problems. After a series of small and larger group discussions, the participants categorized and preliminarily ranked the problems.⁸

Next, the workshop participants brainstormed synonyms and related words for integration and then discussed the many aspects of demand-side integration. The purpose of the brainstorming activities was to begin to shape a definition or definitions of the integration of demand-side resources. The workshop participants were organized into small groups where they developed the following definitions for the integration of demand-side resources:

- The management of interactive, load-modifying (versus strictly behind the meter) “DERs”⁹ to enable a cleaner, smarter and more cost-effective power grid which gleans locational benefits, satisfying system, customer and community needs.
- Meeting customer energy needs with coordinated demand-side resources to support state policy goals.
- Identify system and customer needs, given societal goals, and incentivize solutions from a portfolio of DERs to optimize operations and meet those needs.
- Creation of regulatory framework to enable acquisition of demand-side resources to maximize greenhouse gas reduction and optimize systems (electric and gas) and meet customer needs at minimized societal cost.

⁷ The complete list of additional problems is included in the attached workshop notes.

⁸ See the attached workshop notes for the preliminary problem definitions and ranking.

⁹ DERs are distributed energy resources.

- Market and regulatory tools to meet customer needs, reduce and manage loads, support system and local reliability, optimize grid utilization and provide economic and environmental benefits.
- Process of identifying grid needs and customer wants, identifying the value of DER attributes, creating a process/framework that enables cost-effective, optimization of these resources to ensure reliable efficient operation of the grid while supporting customer choice and maximizing consumer benefits, consistent with state/local goals and policies.
- Customized suites of resources that provide value and meet customer energy needs in an economically and socially responsible manner.
- In order to achieve California greenhouse gas reduction and to optimize the electric and natural gas systems, we need to integrate customer-side technologies, behavior, and market forces through the support and cooperation of private and public partnerships that will lead to innovation and integration by maximizing customer value and participation.
- The tool to achieve system and environmental benefits.

One group was not able to come to consensus on a definition. In discussion, the group stated that while they had agreed on the substance of the definition, they could not agree on the words to use for the definition.

The second day of the workshop focused on three key items:

1) Developing a goal for the Commission's integration efforts; 2) Developing ideas toward resolution and prioritization of the problems previously discussed; and 3) Establishing objectives for integration efforts.

The ALJ again organized the participants into small groups and instructed them to develop a goal or goals for the integration of demand-side resources taking into account the information discussed throughout the workshop: *e.g.*, the

problems and the attributes for both current and ideal integration efforts. The ALJ further instructed the group that a goal should be broad, generic, long-term, and not strictly measureable or tangible.

As a result of small group discussions, four groups developed single goals:

- Make the provision of energy services cleaner, more reliable and efficient by identifying key market failures and regulatory interventions that will unlock the potential of customer-side resources to promote these outcomes.
- A successful open marketplace that dynamically communicates and is driven by customer needs, grid needs and policy needs including greenhouse gas reductions.
- Coordinate, consolidate, and bring coherence to all demand-side resources building a responsive, continually evolving system that recognizes their embedded interdependencies in service of a sustainable (economically, environmentally, and equitable) energy future.
- Identify and capture ways that demand-side resources can be coordinated to add value to the system through lowering total costs, reaching strategic goals (greenhouse gas reductions, integration in terms of reliability, and safety) and/or providing customer benefits.

One group developed an overall goal with sub-goals:

- To create a framework to support the accelerated contribution of distributed energy resources to reducing greenhouse gas reductions.
 - Sub-goal 1: To enable customer awareness, choice and ease of participation in distributed energy resources by giving them improved cost and value signals, and infrastructure.

- Sub-goal 2: To create a distribution system market that facilitates and accelerates third party provision of one-touch services and products, and that functions as the sole location for compensation for the diverse values of distributive energy resources.
- Sub-goal 3: To enable transmission and procurement planning processes to rely upon distribution system market and on distributive energy resources.

Three other groups developed multiple goals, as follows:

- Group 1: 1. Large-scale customer uptake to optimize integrated demand-side management opportunities.
 2. Design and implement a framework to overcome barriers and enable integrated demand-side management for customers, the grid, and the environment.
- Group 2: 1. Lower environmental and customer costs.
 2. Equal playing field to deliver integrated demand-side management services for utility and non-utility providers.
 3. Energy users and system managers who can benefit from integrated demand-side management services are provided with these services.
- Group 3: 1. Societal goals of greenhouse gas reductions and supporting local economies, jobs and solutions.
 2. Customer goals of widespread adoption, cohesive, comprehensive, affordable, customized, relevant, satisfaction, and awareness.
 3. Implementation goals of orderly transition, safety net, feedback loop and adaptability, and customer outreach and education.
 4. System goals of optimized load and generation, increased efficiency, reliability, resiliency and security, and integration with planning and procurement.

The workshop participants then formed small groups in order to each develop three objectives for the integration of demand-side resources. The ALJ instructed the groups that objectives should be targeted, specific, measureable,

tangible and short term. The groups developed several sets of objectives which included objectives such as 25% of customers implement more than one distributive energy resource from a single touch point by the end of 2020. Other objectives developed during the workshop are listed in the attached workshop notes.

During a series of workshop activities, participants took the problems identified the previous day, addressed questions regarding the problems, began to develop solutions to the problems and then reprioritized the problems based on the new information. The result of this prioritization is as follows. (Each problem is described, as the assigned Commissioner and the ALJ understand it.)

1. Market Failure of Revenue Streams: A party who invests in demand-side resources (usually the building owner) typically cannot fully capture the full value of the bill reductions that flow from that investment, either because ownership of buildings often changes hands during the lifetime of the investment or because the building owner does not pay the utility bill. This also strongly deters third-party investment in otherwise cost-effective measures, especially energy efficiency, due to the inability of the investor to fully capture the related benefit stream. Further, some cost savings, such as avoided distribution upgrades, may not be captured at all due to the reality that avoided transmission and distribution costs are averaged across the whole system. These factors reduce the customer's motivation to contribute toward system cost savings that the customer will never capture.
2. Lack of Access to Data: Third-parties are limited in their ability to identify and serve customers because they lack the data needed to understand where the electric system needs demand-side solutions, what integrated or demand-side service can provide those solutions, and which customers are eligible and should be targeted.

3. Demand-Side Resources do not Adequately Impact System Planning, Investments & Operations: Currently demand-side resources (e.g., energy efficiency, demand response, behind the meter solar) are only partially accounted for when planning generation, transmission, and distribution infrastructure. The same is true for system operations. The omissions result in investments and/or operation of resources that could have been displaced or deferred by demand-side resources. Demand-side resources must be integrated into system planning and operations for its full value to be properly assessed and captured.
4. Current Efforts Do Not Address Grid Needs: Demand-side resource policies and incentives do not align with the needs of transmission and distribution system operators. The integration of demand-side resources should resolve problems for the grid and, ideally, reduce grid revenue requirements.
5. Current Efforts are too Focused on Rate-Based versus Performance Based: The existing regulatory framework rewards utilities for installing transmission and distribution infrastructure by allowing them to book those capital expenditures as rate base. This creates a disincentive for utilities to avoid capital cost through effective acquisition of demand-side resources. Likewise, no performance incentives currently incent utilities to procure integrated demand-side resources.
6. Current Efforts are Not Forward Looking: Integrated demand-side resource policies and incentives must meet tomorrow's customer and system needs, not yesterday's.
7. Integration is Divorced from Rate-Making: Rate design for customers has not been coordinated with integrated demand-side resource policies limiting the motivation a customer has to take action. If customers have the right economic signals, they will be better motivated to take the right integrated actions.

3. Questions for Parties

As a result of the workshop, the assigned Commissioner and ALJ have developed questions to determine foundational issues regarding the scope of this proceeding as well as the definition and goal of the integration of demand-side resources.

In the January 5, 2015 Joint Assigned Commissioner and ALJ Ruling and Scoping Memo, we discussed the question of the breadth of this proceeding, *e.g.*, should the breadth of the proceeding be narrowed to only energy efficiency and demand response or broadened to include all related proceedings. The Scoping Memo noted that following a series of workshops, more detail on the breadth of the proceeding would be determined. Hence, as a result of the March workshops, we look again at the breadth of this proceeding. We find this deliberate approach particularly important in this proceeding as the subject relates directly to ongoing decision making in other proceedings.

There are two sets of questions in this ruling: one set is specifically associated with the definition of integration and the goal of integration and the second is specifically associated with the breadth of the proceeding. We remind parties that in addressing questions on the goal of the integration of demand-side resources, parties should not confuse the goal of integration with the goal of this proceeding. We want to develop a goal for the integration of demand-side resources for California.

Pacific Gas and Electric Company, San Diego Gas & Electric Company, Southern California Edison Company, and Southern California Gas Company are directed to file responses to these questions; parties are invited to file responses to the questions. The responses shall be filed no later than May 15, 2015 and replies are to be filed no later than May 29, 2015.

Questions Regarding Definition and Goal

1. The workshop participants developed several definitions for the integration of demand-side resources or integrated demand-side management (see pages 4 through 5 above). These definitions have similarities and differences. Is there one definition that stands out as the most appropriate to be used or do you suggest a different definition? Should the Commission define both the integration of demand-side resources and integrated demand-side management?¹⁰ If so, please comment on both terms.
2. Should the Commission adopt more than one definition for the integration of demand-side resources and why or why not?
3. The workshop participants developed several goals for the integration of demand-side resources (see pages 6 through 7 above). Should the Commission consider having one overarching goal or it should it have several goals? Why?
4. If the Commission selects one goal for the integration of demand-side resources, what should that goal be? Remember that a goal or goals should be broad, generic, long-term, and not strictly measureable or tangible.
5. If the commission determines that it needs several goals for the integration of demand-side resources, what should the structure of these goals entail? For example, should there be an

¹⁰ Consider whether the concepts of the “integration of demand-side resources” and “integrated demand-side management” are distinct concepts that should be defined separately for use in this proceeding. Integrated demand-side management (or integrated demand-side technologies or integrated demand-side options) is typically envisioned as something utilities or third parties offer to customers. Integrated demand-side actions or behaviors as something customers do. The California Energy Efficiency Strategic Plan observes that “integrated packages of demand-side management solutions are a consistent theme throughout each of the Chapters in this Plan.” It sets the goal to “deliver integrated demand-side options that include efficiency, demand response, energy management and self-generation measures” such that “customers realize increased energy savings at lower cost through the implementation of a menu of demand-side management options.” (California Energy Efficiency Strategic Plan, 2008 at 73).

- overarching goal with sub-goals or should there be several goals based on categories? Please explain why.
6. If the Commission determines it should have an overarching goal with sub-goals, what should these be and why?
 7. If the Commission determines it should have several goals based on categories, what should the categories be and what should the goals be based on the category and why?

Questions Regarding the Breadth of this Proceeding

1. Are the descriptions of each of the seven problems provided above on pages 8 and 9 accurate? What additions or clarifications are needed?
2. Following workshop discussions on the problems with current integration efforts, related questions and working toward solutions, the workshop participants reprioritized the identified problems. Do you agree with the final prioritization of problems and why? How would you prioritize the identified problems and why?
3. Some of the definitions, goals, and objectives suggested by parties imply that the effective integration of demand-side resources requires demand-side resources to be better integrated with utility system planning, investment, and operation, as well as CAISO planning and operations. Is this correct? Do you agree? Should this broad challenge be addressed in this proceeding? Why and how?
4. If identified as an objective of this proceeding, how should system planning and benefits be considered in a way that does not duplicate what is being considered in the distribution resources plans (or long-term planning process) proceedings?
5. Should policies supporting the integration of demand-side resources maximize system benefit, including greenhouse gas reductions, maximize customer participation and benefits, or some combination of the two? In the integration of demand-side resources, how can we harmonize the needs and wants of customers with system needs, including greenhouse gas

- reductions? Should financial benefits and/or customer incentives for the integration of demand-side resources be uniform across the state and/or service territory or differentiated by locational value?
6. Should the Commission shift from the current framework of encouraging the integration of demand-side resources through individual customer revenue streams from bill reductions and utility incentive payments to a different framework in which those benefit streams can be commoditized (bought and sold) to meet system needs (*e.g.*, MW, MWh, flexible resource adequacy, greenhouse gas reductions)? Should the Commission create an open procurement or similar framework through which the integration of demand-side resources meets system needs? How can such a framework reflect customer needs, wants and benefits? How can such a framework encourage integrated customer actions?
 7. How can the long run benefits of distributed energy resource investments be monetized and captured in an environment where ownership and occupancy of residential and commercial buildings changes in a much shorter time frame than the life cycle benefits of those investments?
 8. How can the various benefits of distributed energy resource investments that are considered in a complete cost-effectiveness evaluation be converted into financial benefits that flow to those who finance such investments (which may or may not include onsite customers receiving the energy service)?
 9. How can ratemaking better consider and reflect the value of the integration of demand-side resources? Are there any steps this proceeding could or should take on this issue? What level of priority should this issue be within this proceeding?

10. Is it important that any framework that emerges from this proceeding encourages third parties or utilities to deliver, and customers to take, integrated packages of technologies, at the same or within a limited time frame? How important is this (i.e., integrated demand-side management or actions) as compared to the integration of demand-side resources into system planning, etc., as discussed above? Should this proceeding take up both issues? Why or why not?

IT IS RULED that:

1. Pacific Gas and Electric Company, San Diego Gas & Electric Company, Southern California Edison Company, and Southern California Gas Company are directed to file responses to the questions contained in this Ruling. The responses shall be provided in the same order as the questions. The responses shall be filed no later than May 15, 2015 and replies are to be filed no later than May 29, 2015.

2. Other parties to this proceeding are invited to file responses to the questions contained in this Ruling. The responses shall be provided in the same order as the questions. The responses shall be filed no later than May 15, 2015 and replies are to be filed no later than May 29, 2015.

Dated April 15, 2015, at San Francisco, California.

/s/ MICHEL PETER FLORIO

Michel Peter Florio
Assigned Commissioner

/s/ KELLY A. HYMES

Kelly A. Hymes
Administrative Law Judge

ATTACHMENT 1

Workshop Package

The following attachment includes

- 1) List of Attendees/Organization Represented
- 2) Final Workshop Agenda
- 3) Workshop Notes transcribed from Workshop Flip Charts
- 4) Handout: Commission Directives for Integrating Demand-Side Resources
- 5) Handout: Problems Statements and Associated Barriers

March 11-12, 2015 Workshop Attendance List

Name	Organization Representing
Jennifer Berg	Association of Bay Area Governments
Mindy Cray	Blue Point Planning
Eugene Wilson	California Clean Energy Committee
Anthony Harrison	California Energy Efficiency Industry Council
John Herter	California Energy Storage Alliance
Karen Mills	California Farm Bureau Federation
Simon Baker	California Public Utilities Commission
Dorris Chow	California Public Utilities Commission
Jeanne Clinton	California Public Utilities Commission
Rory Cox	California Public Utilities Commission
Noel Crisostomo	California Public Utilities Commission
Commissioner Florio	California Public Utilities Commission
Cathy Fogel	California Public Utilities Commission
ALJ Kelly Hymes	California Public Utilities Commission
Bob Leven	California Public Utilities Commission
Joy Morgenstern	California Public Utilities Commission
Lisa Paulo	California Public Utilities Commission
Matthew Tisdale	California Public Utilities Commission
Melissa Kasnitz	Center for Accessible Technology
Megan Myers	Ctr for Energy Efficiency & Renewable Technologies
Stephanie Wang	Center for Sustainable Energy
Brian Korpics	Clean Coalition
Nora Sheriff	CLECA
Jamie Mauldin	Coalition of California Utility Employees
Eric Woychik	Comverge
Nicole Johnson	Consumer Federation of California
Mona Tierney-Lloyd	EnerNoc
Steven Moss	Environmental Defense Fund
Christina Torok	Evergreen Economics
Jordana Cammarata	FirstFuel
Carmelita Miller	Greenling Institute
Jennifer Chamberlin	Johnson Controls, Inc.
Jody London	Local Government Sustainable Energy Coalition
Michael Callahan-Dudley	Marin Clean Energy
Karey Christ-Janer	n/a
Merrian Borgeson	Natural Resources Defense Council

Name	Organization Representing
Brian Theaker	NRG Energy, Inc.
Tim Drew	Office of Ratepayer Advocates
Olivia Patterson	Opinion Dynamics
Matt O'Keefe	OPower
David Sawaya	Pacific Gas and Electric Company
Athena Besa	San Diego Gas & Electric Company
William Rostov	Sierra Club
Francesca Wahl	Silicon Valley Leadership Group
Jaclyn Harr	SolarCity
Mark Martinez	Southern California Edison Company
Darren Hanway	Southern California Gas Company
Michael Nguyen	Southern California Regional Energy Network
Cynthia Mitchell	The Utility Reform Network
Laura Wisland	Union of Concerned Scientists
Jim Baak	Vote Solar

**RULEMAKING 14-10-003:
INTEGRATING DEMAND-SIDE RESOURCES**

Workshop

March 11 and 12, 2015

Day 1 – Wednesday, March 11, 2015

Commission Offices
505 Van Ness Avenue
Golden Gate Training Room
San Francisco, CA 94102

- 10:00 am Welcome and Overview of Agenda (15 min)
- 10:15 am Introductions (45 min)
- 11:00 am Commission Directives on Integrating Demand-Side Resources (15 min)
- 11:15 am Current Integration Attempts: Limited Success (30 min)
- 11:45 pm Determining the Problems with Current Attempts (45 min)
- 12:30 pm Lunch (60 min)
- 1:30 pm Prioritizing the Problems (60 min)
- 2:30 pm Defining the Integration of Demand-Side Resources Part 1 (45 min)
- 3:15 pm Break
- 3:30 pm Defining the Integration of Demand-Side Resources Part 2 (45 min)
- 4:15 pm Recap and Brief Overview of Day 2 (15 min)
- 4:30 pm Adjourn

Day 2 – Thursday, March 12, 2015

Commission Offices
505 Van Ness Avenue
Courtyard Training Room
San Francisco, CA 94102

- 10:00 am Welcome and Overview of Agenda (15 min)
- 10:15 am Recap of Day 1 (15 min)
- 10:30 am Creating Solutions to our Integration Problems (90 min)
- 12:00 pm Lunch
- 1:00 pm Prioritizing Our Proposed Integration Solutions (15 min)
- 1:15 pm Shaping an Integration Goal (60 min)
- 2:15 pm Break (15 min)
- 2:30 pm Proposing Objectives for Integration (60 min)
- 3:30 pm Prioritizing Solutions (30 min)
- 4:00 pm Final Remarks (30 min)
- 4:30 pm Adjourn

**WORKSHOP NOTES TRANSCRIBED FROM
THE FLIP CHARTS USED DURING THE WORKSHOP**

DAY ONE NOTES

Attributes of the Ideal Integration Effort

- Across the board
- Easy
- Trackable
- Responsibly
- Data accessible
- Informed
- Customer-centric
- Equal
- Digitally sophisticated
- Creative
- One-stop
- Value
- Simple
- Equitable
- Manageable
- Inclusive
- Leverage
- Achievable
- Customer Needs
- Unpolluting (GHG)
- Wholistic
- Smart
- Cost-Effective
- Strategic
- Sustainable
- Green
- Revenue Stream
- Standardized
- Comprehensive
- Targeted
- System Benefits
- Networked
- Integrative
- Cross-Pollination
- Responsive
- Profitable
- Phased
- Customer Engagement
- Measureable
- Accessible
- Synergistic
- Effective
- Disruptive/Out of the Box
- Broadly applicable
- Reliable
- Flexible
- Cross agency
- Umbrella branded
- Efficient
- Silo buster
- Impactful
- Scalable
- Transforming
- Visionary
- Market based
- Volume strategy
- Market friendly
- Customer trust
- Menu-based
- Rates awareness
- Unbiased
- Transportation inclusive
- Optimized
- innovative

Ideal Integration

- is not necessarily a program – could be a structure/framework – could use performance standards.
- Unified / bundling
- Constraints – compliance and reporting
- Regulatory framework for transforming
- Should be technology neutral
- Volume should be large-scale
- Target customers then groupings
- Move from goals-based and value-based
- The vision should be metrics instead of cost effectiveness protocols
- Harmonized with customer needs/grid needs
- Programs should be trackable
- Move from ratepayer funded to market-based.

CPUC Integration Directives

(See Handout below)

Positive and Negative Attributes of Current Commission Integration Efforts*Positive*

- | | |
|---|--|
| • Positive | • Customized |
| • Illustrative | • Experimental |
| • Timely | • Lessons Learned |
| • Priority | • Widely available |
| • Collaborative (CPUC-CAISO) | • Knowledgeable |
| • Creation of integrative audit | • Passionate |
| • Improved integrative audits | • Creates microgrids and allows for testing for microgrids |
| • Rosenfeldian / impactful (had an impact on consumption) | • Diversity (M/F) |
| • Market making | • Business Expansion |
| • Market opportunity | • Improved coordination |
| • Developed delivery model | • Emerging markets |
| | • One truck roll- (offering a bundle) |

Negative

- Utility role as gatekeeper instead of enabler
- Exclusive (?; administration, options)
- Narrow (technology)
- Lack of innovation
- Inefficient outreach
- No compensation for (or attribution of) value
- Pervasive silos
- Difficult to point to value for customer
- Delinked
- Silos- cylinders of excellence on parallel paths
- Biased or conflicting incentivizing
- Only 15 customized IDSM customers
- Competing goals
- Fragmented
- Very EE centric
- No added value view
- Bureaucratic
- Non-transparent
- Non-scalable
- Misalignment with customer needs, abilities and attributes
- Untapped societal value
- Lack of a framework
- Emphasis on programs, not integration
- Relies on counterfactual

Problems and Barriers associated with Current Integration Efforts

(See handout below on problems and barriers as indicated by Energy Division)

Participants input on problems and barriers

- Market failure of equivalent revenue stream opportunities.
 - Departing load charges
 - No inclusion of PCT or customer value
- Current integration efforts are not forward looking
 - Administratively determined
 - Programmatic approach
 - Is not dynamic or market based; not customer-based
- Divorced from rate-making
 - Outside of general rate case proceedings
- Too focused on rate base vs a performance basis
 - Regulatory foundation is rate based / cost of recovery model
- Built in market failure because of time horizon of current owner versus the building
 - Conflict between building value

Participants input on problems and barriers (continued)

- Lack of access to data
 - Privacy
 - Statutory / Regulatory barriers
 - Control of data
 - Inertia
 - Incremental nature of data
- Inefficient program administration – too many in one area
 - Legislation
 - Communication
- Current efforts do not address grid needs
 - Need to look into future and work back
 - CAISO not modeling
 - FERC and WECC regulations
- Today's programs do not address load reduction and load shaping
 - No framework
- There is no consistent tracking or framework for pilots
 - Lack of definition
 - Lack of data
- Too focused on rate-based versus performance based
 - Cost of recovery model
- No role defined
 - Inertia
 - Time
- Need for a loading order for Integration
 - Definition of roles
 - Inertia
 - Trying to match what the customer wants
- Need an information Center
 - Program centric
- Isolation of customer side from meter
 - Technological barriers: installed meter using ZBY and google uses thread
- Misalignment between customer wants and marketing

Initial Top Eight Problems:

- Lack of access to data: customer and systems data; infrastructure for data access and use; 21st century customer tools; isolation of the customer side from the meter; need an information network
- Policies work at cross - purposes: - leading to (1) in efficient program administration and that IDSM is not consistently cross promoted; market actors typically provide just one technology / resources; and are not forward looking; with insufficient promotion of existing buildings, and not promoting logical bundles, results in inefficient program administration, and current residential rates leave out many customers (smaller non-low income households have poor incentives for participation in IDSM); and there is no tracking framework for customers
- Integration does not adequately impact system: integration does not impact utility planning or address grid needs, today's programs do not address load reduction & load planning, does not promote logical bundles, is not forward looking, too focused on rate-based vs performance based
- Market failure of revenue streams: built-in market failure of revenue streams, not consistently cross-promoted, does not promote logical bundles; market actors typically just provide one resource or technology, customers have to deal with multiple applications, there is insufficient promotion of existing buildings, isolation of customer side from meter, misalignment between customer wants, system needs and marketing
- Current integration efforts are not forward looking: rates are not generally well aligned with future cost expectations, are divorced from, don't integrated grid needs, work at cross purposes, and do not address load reduction and load shaping.
- Integration is divorced from rate making: outside of the GRC, and current residential rates leave out many customers, smaller non-low income households have poor incentives for participation in IDSM, there is poor awareness of time-varying rate options among residential; rates are generally not well aligned with future cost expectations.
- Current efforts are too focused on rate-based versus performance based: (using a regulatory cost of recovery model), and market actors typically provide just one technology/resource;
- Current efforts don't address grid needs: doesn't address load reductions and load shaping; doesn't adequately impact system; current system is not forward looking; doesn't have a cooling strategy; does not promote logical bundles

DAY TWO NOTES

Integration Definitions from Small Group Discussions

- Integrated demand-side management is the management of interactive, load-modifying (versus strictly behind the meter) “DERs”¹¹ to enable a cleaner, smarter and more cost-effective power grid which gleans locational benefits, satisfying system, customer and community needs.
- Meeting customer energy needs with coordinated demand-side resources to support state policy goals.
- Identify system and customer needs, given societal goals, and incentivize solutions from a portfolio of DERs to optimize operations and meet those needs.
- Creation of regulatory framework to enable acquisition of demand-side resources to maximize greenhouse gas reduction and optimize systems (electric and gas) and meet customer needs at minimized societal cost.
- Integrated demand-side resources are market and regulatory tools to meet customer needs, reduce and manage loads, support system and local reliability, optimize grid utilization and provide economic and environmental benefits.
- Process of identifying grid needs and customer wants, identifying the value of DER attributes, creating a process/framework that enables cost-effective, optimization of these resources to ensure reliable efficient operation of the grid while supporting customer choice and

¹¹ DERs are distributed energy resources.

maximizing consumer benefits, consistent with state/local goals and policies.

- Customized suites of resources that provide value and meet customer energy needs in an economically and socially responsible manner.
- In order to achieve California greenhouse gas reduction and to optimize the electric and natural gas systems, we need to integrate customer-side technologies, behavior, and market forces through the support and cooperation of private and public partnerships that will lead to innovation and integration by maximizing customer value and participation.
- The integration of demand-side resources is the tool to achieve system and environmental benefits.

Goals from Small Group Discussions

Group 1: Make the provision of energy services cleaner, more reliable and efficient by identifying key market failures and regulatory interventions that will unlock the potential of customer-side resources to promote these outcomes.

Group 2: A successful open marketplace that dynamically communicates and is driven by customer needs, grid needs and policy needs including greenhouse gas reductions.

Group 3: Coordinate, consolidate, and bring coherence to all demand-side resources building a responsive, continually evolving system that recognizes their embedded interdependencies in service of a

sustainable (economically, environmentally, and equitable) energy future.

Group 4: Identify and capture ways that demand-side resources can be coordinated to add value to the system through lowering total costs, reaching strategic goals (greenhouse gas reductions, integration in terms of reliability, and safety) and/or providing customer benefits.

Group 5: To create a framework to support the accelerated contribution of distributed energy resources to reducing greenhouse gas reductions.

- Sub-goal 1: To enable customer awareness, choice and ease of participation in distributed energy resources by giving them improved cost and value signals, and infrastructure.
- Sub-goal 2: To create a distribution system market that facilitates and accelerates third party provision of one-touch services and products, and that functions as the sole location for compensation for the diverse values of distributive energy resources.
- Sub-goal 3: To enable transmission and procurement planning processes to rely upon distribution system market and on distributive energy resources.

Group 6: 1. Large scale customer uptake to optimize integrated demand-side management opportunities.
2. Design and implement a framework to overcome barriers and enable integrated demand-side management for customers, the grid, and the environment.

Group 7:

1. Lower environmental and customer costs.
2. Equal playing field to deliver integrated demand-side management services for utility and non-utility providers.
3. Energy users and system managers who can benefit from integrated demand-side management services are provided with these services.

Group 8:

1. Societal goals of greenhouse gas reductions and supporting local economies, jobs and solutions.
2. Customer goals of widespread adoption, cohesive, comprehensive, affordable, customized, relevant, satisfaction, and awareness.
3. Implementation goals of orderly transition, safety net, feedback loop and adaptability, and customer outreach and education.
4. System goals of optimized load and generation, increased efficiency, reliability, resiliency and security, and integration with planning and procurement.

Sets of Objectives from Small Group Discussions

Group 1

1. CPUC adoption of workable, implementable, long term decision on framework - including distribution marketplace - by October 2015 (stretching) or December 2015 (feasible).
2. Creation of single touch point distribution marketplace by mid-2017.
3. 25% of customers implement more than one DER from single touch point by end of 2020.

Group 2

1. Year One - cell phone app for smart meter data
2. Year Two -

- develop tool for cost-effectiveness compatible with location value time-based reference price for DER
 - create a map of distribution system opportunities and needs at the circuit level
 - establish standard for data exchange and resource plug and play to facilitate efficient exchange resource of DER products and service
 - identify revenue model for IOU/DER providers to support a distribution system market.
3. Year Three – depending on outcome of two year analysis, launch a distribution system market or new DER tariffs.
 4. Year Four – facilitated 200 transactions under new market/tariff

Group 3

1. Harmonize the ways to assess cost and value across all of the integrated demand-side resources, during this proceeding (complete task one 0.09-09-047)
2. Tools for customers to evaluate and prioritize their IDSR options and the effective and lifestyle appropriate engagement mechanisms (financing, assistance, resources, rebates) during this proceeding (active & functioning)
3. Incorporate value of IDSM into the state's energy planning proceedings. (CEC, CPUC, forecasting, CAISO, etc.) next planning cycle.

Group 4

1. Identify, quantify and compensate the values provided by DSRs
2. Support a robust set of DSR providers that will be able to capture value and innovate. Measure the number of providers, activity level, investment, and marketing.
3. Grid/resource planners increase reliance on DSRs. Measure change in planning procurement.

Group 5

1. Develop tools to harvest the highest value of IDSM for grid benefits at different scales (building, feeder, system, etc.)
2. IDSM animated tariffs – customers enroll to capture value of IDSM.
3. Test & demonstrate transaction structures to harvest cost effective IDSM at specific location.

Group 6

1. The utilities no longer rely on assets as basis for revenue and at the same time create a feasible revenue model that values IDSM.
2. There is a framework and pricing mechanism to allow open market transactions around DSM by 2017.
3. By 2017 harmonize statewide regulatory policies to allow for a successful IDSM environment.
4. By 2017 relevant & useful data is readily available and accessible to consumers and market actors.
5. Effective marketing enables a tipping point in demand for IDSM for a variety of consumers within next 3-5 years.

Group 7

1. Develop a set of value streams (e.g. tariffs, procurement venues, etc.) for locational investments in next 1-3 years.
2. Incorporate the probabilistic value of IDSM investments into system-wide planning in next round of long-term planning.
3. Develop an IT infrastructure for distribution grid operators that will allow ISM resources to be effectively and intelligently dispatched (and valued) by 2020.
4. Provide customer facing tools that allow for adoption of site-specific DSRs which provide individual and grid benefits within next 2 years.

COMMISSION DIRECTIVES FOR INTEGRATING DEMAND-SIDE RESOURCES

- **D.05-09-043:** Ensure expanded use of integrated programs and tracking of program implementation. The goal is to create the best combination of resources to meet a customer's needs while improving cost-effectiveness and avoiding customer confusion.
- **D.07-10-032:** Develop a strategic plan for demand-side options
- **Long Term Energy Efficiency Strategic Plan:** September 2008
- **D.09-09-047:** Established a statewide IDSM program including 8 tasks for the IDSM Task Force

8 Tasks for the IDSM Task Force

1. Development of a proposed method to measure cost-effectiveness for integrated projects and programs including quantification and attribution methods that includes GHG and water reductions benefits and the potential long-term economic and electric / gas hedging benefits;
2. Development of proposed measurement and evaluation protocols for IDSM programs and projects;
3. Review IDSM enabling emerging technologies for potential inclusion in integrated programs;
4. Development of cross-utility standardized integrated audit tools using PG&E's developed audits as a starting point;
5. Track integration pilot programs to estimate energy savings, develop best practices and lessons learned and develop standard integration best practices that can be applied to all IOU programs based on pilot program evaluations and the results of additional integration promoting activities (i.e., EM&V and cost-benefit results);
6. Develop regular reports on IDSM progress and recommendations to the Commission;
7. Organize and oversee internal utility IDSM strategies by establishing internal Integration Teams with staff from EE, DR, DG, marketing, and delivery channels; and
8. Provide feedback and recommendations for the IOU's integrated marketing campaigns including how the working group will ensure that demand response marketing programs approved as category 9 programs are coordinated with energy efficiency integrated marketing efforts.

**WHY ARE CURRENT EFFORTS NOT SUCCEEDING?
PROBLEM STATEMENTS AND ASSOCIATED BARRIERS**

Problem: Policy objectives sometimes **work at cross purposes** causing achievement in one area to undermine achievement in others.

Barriers: Policies promoting cost effectiveness, customer satisfaction, reliability, and greenhouse gas reductions are not being considered in a consistent or integrated fashion.

There is a lack of a high level, long term vision document outlining the benefits of integration, the strategies that will be employed, the agreed upon metrics and how integration fits into other state initiatives such as AB32

There is a lack of identification and definition of terms in integration efforts.

There is lack of clarity regarding whether there is a need for a preferential rate structure for customers implementing multiple demand-side resources

Problem: Integration efforts **do not adequately impact system** planning, investments and operations.

Barriers: There is a tension between the financial interest of utilities, third-parties, participating customers, and non-participating customers.

Organizational silos
Inertia
Complexity

Problem: Integration efforts are **not being consistently cross-promoted** or delivered

Barriers: Strict energy efficiency targets for account managers
Disconnection between multiple programs: funding silos and cliffs; design, and delivery; accountability structures within PA's

PROBLEM STATEMENTS AND ASSOCIATED BARRIERS (continued)

Problem: Integration efforts **do not promote logical bundling of offerings**, i.e. residential (or non-residential) energy efficiency and demand response; energy efficiency and distributed generation for new construction.

Barriers: Inconsistent cost-effectiveness requirements across programs
 Disconnection between multiple programs: funding silos and cliffs;
 EM&V requirements
 Participation in energy efficiency reduces available demand response benefits and associated payments
 Energy efficiency counting rules requiring discounting of savings when buildings are net exporters to the grid
 Program administration separation, i.e. utilities versus CA Energy Commission (residential new construction only)
 Lack of identification and prioritization of potential bundled offerings

Problem: Integration efforts **do not include a cooling load strategy.**

Barriers: Lack of prioritization
 Inconsistent cost-effectiveness requirements across programs
 Disconnection between multiple programs: funding and EM&V requirements
 Incorrect implementation timing

Problem: Market actors typically specialize in **delivery of one resource.**

Barriers: Above barriers shaping program design and delivery
 Lack of diverse industry networks
 Workforce training requirements
 Permitting

PROBLEM STATEMENTS AND ASSOCIATED BARRIERS (continued)

Problem: Customers wishing to implement multiple demand-side solutions must complete **multiple applications** and/or work with multiple parties.

Barriers: Lack of awareness that offering bundles leads to long-term relationship building
 Lack of awareness that offering bundles minimizes administrative and regulatory burden
 Lack of awareness that offering bundles can also meet other goals, e.g. water, labor, or regulation

Problem: Integration efforts are not being undertaken in **new construction or emerging technologies**.

Barriers: Lack of clear Commission guidance or prioritization
 Confusion about alignment of zero net energy goals with distributed resource planning framework and system needs

Problem: Integration is not being fully promoted for **existing residential and commercial buildings**.

Barriers: Major changes are more challenging for existing buildings yet existing buildings have the potential of addressing 45% of electric energy and demand savings in building alteration projects according to the IOUs (2010 - 2012 Codes and Standards Impact Report).
 Existing buildings require customer education and behavior modifications that is not successfully being promoted by existing IDSM efforts. Initial pilots such as Continuous Energy Improvement for non-res customers are positive but have not been ramped up as desired.
 Lack of funding for integration and customer incentives and testing emerging technologies in real world environment
 Need post evaluation to determine impact of project on existing building stock and require success metrics to determine success.

PROBLEM STATEMENTS AND ASSOCIATED BARRIERS (continued)

Problem: Current residential rates leave out many customers: Smaller non-low-income households have poor incentives for participation in IDSM

Barriers: Tiered rates, with tiers not adjusted for household size

Problem: Poor awareness of time-varying rate options among residential customers

Barriers: Utilities have not adequately promoted awareness of optional rates; Most existing time-varying rates are overly complex

Problem: Rates are generally not well aligned with future cost expectations

Barriers: Regulatory inertia in ratesetting proceedings

(END OF APPENDIX A)