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# ATTACHMENT A

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### ENERGY DIVISION

#### Proposal on Energy Efficiency Finance Activity for 2013-2014 (1/5/2012)

##### Statistics – Energy Efficiency (EE) Finance 2010-2012:

- Current annual program statistics: On Bill Finance (OBF)
  - 2010-2012 Loan Pool Budget: \$41.5M; as of September 2011, \$24.8M has been lent.
  - SCE's \$16M budget is fully committed; requesting more in an Advice Letter.
  - Participants: 1,000 through September 2011
  - Default rate: <1% (so far)
  - New at PG&E this program cycle
- EE potential: NA; Estimated expected energy savings: NA; Benefit cost ratio: NA

##### Market Problems:

- One of the main barriers to achieving the energy efficiency goals laid out by the Strategic Plan and D.09-09-047 is the lack of financing to cover the “first cost” of energy efficiency upgrades. First cost is the upfront investment that pays for testing, measures, and installation; and it can be substantial.<sup>1</sup> Incentives (offering rebates for a portion of the total or incremental cost of the efficiency item, and when available) also partially address these first cost barriers. Finance vehicles can complement these partial subsidies to overcome the remaining first cost barriers.
- Anecdotal evidence that EE financing is needed is plentiful, and the credit crisis of 2008-2011 has made this need more acute. Interviewed program managers, contractors, and end-users all expressed a need for financing to increase energy efficiency adoption. Each said that customers' ability to obtain conventional credit to pay for energy efficiency projects has all but disappeared for residential and small commercial customers, and is far more difficult to obtain for large commercial, industrial and institutional customers.
- The CPUC tasked Harcourt Brown & Carey with identifying where loans and other financial mechanisms are needed and not available for energy efficiency projects. In *Energy Efficiency Financing in California: Needs and Gaps* (July 2011) HB&C identified the following gaps:

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<sup>1</sup> First cost is the amount of “out of pocket” expense for an energy upgrade. For example, Sempra issued an OBF loan to a municipality that upgraded the lighting system in one of its facilities. The total cost of the project was \$34,139. The municipality received a rebate for \$11,000, so the total “first cost” was \$23,139. It requested a loan for \$23,139 for 40 months. With no down payment and monthly loan repayments at \$593, the municipality's first cost would be brought to \$0.

*Residential*

- Existing unsecured loan products (e.g. credit cards or contractor-arranged financing) have high interest rates because they are viewed like any other unsecured loan, have not achieved scale volumes, and depending on the specific loan mechanism, may have high transaction costs.
- Secured loan products, such as home equity loans or second mortgages, are commonly accessed by homeowners for larger energy efficiency upgrades. They are less available in this economy than before.
- Low- and moderate-income populations are served by only a few current lending products.<sup>2</sup> Renters are not served by current lending products.
- Contractors find it increasingly difficult to meet their own working capital needs.

*Commercial and Governmental/Institutional*

- There are few “off balance sheet”<sup>3</sup> options available. Generally, business owners prefer to use debt (which appears on balance sheets) for initiatives that support core business functions, not for energy efficiency.
- Many owners do not qualify for traditional loan underwriting because they may be cash-poor and/or owned by multiple parties.
- When self-financing, property owners do not take on energy efficiency projects with paybacks of more than two to three years.
- Rental properties have split incentives: property owners own building and energy system assets that would be upgraded, but tenants typically pay energy operating costs. Therefore few rental properties receive owner investments for energy improvements.
- Governmental and institutional energy users are not taking full advantage of procurement and financing options for energy efficiency projects, in part due to unfamiliarity or lack of engagement by finance personnel in projects traditionally managed by facilities personnel.
- Already fully-stretched governmental and institutional property owners cannot take on more debt or only qualify for financing with high interest rates.

*General*

- Lenders do not believe that promised (modeled) energy savings will be realized, and therefore do not incorporate energy savings into underwriting analysis.

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<sup>2</sup> In IOU territory, basic energy efficiency measures worth an average of \$1200 per dwelling unit are installed at no cost to the qualifying low-income households via the Energy Savings Assistance Program. The Community and Services Development Department through the federal Weatherization Assistance Program provides similar and additional measures at no cost to additional households.

<sup>3</sup> Loans usually appear on an organization’s balance sheet as debt. Off balance sheet financing occurs when large capital expenditures are kept off an organization’s balance sheet. This is often done to keep debt to equity and leverage ratios lower. Energy upgrade expenses can be shifted off balance sheet via leases and other financing mechanisms; the energy upgrades expenses are then categorized as operating costs.

**Current Program Purpose:**

- OBF offers non-residential customers a way to arrange to pay for energy efficiency upgrades without incurring any up-front costs. Under this program a utility provides customers with unsecured loans which cover 100% of the energy efficiency equipment and installation costs (net of rebates and other incentives). Customers then re-pay the loans through charges that are added on to their regular utility bills. Loan capital is raised through utility rates and the EE budget covers defaults and pays for program administration (on top of the budget figures shown above). Decision D.09-09-047 set the parameters for 2010-2012 OBF; terms include:
  - Interest rate: 0 percent.<sup>4</sup>
  - Commercial and industrial loan minimum and maximum (per meter): \$5,000 - \$100,000.
  - Commercial and industrial loan term: typically 5 years, but may be extended to expected useful life of installed energy efficiency measures.
  - Institutional loan minimum and maximum: \$5,000 - \$1,000,000.
  - Institutional loan term: up to 10 years or expected useful life, whichever is less.
  - Loans are non-transferrable.
  - Partial or non-payment of a loan may result in shut-off of utility service.

**Recommendations for MAJOR Revisions to the current efficiency financing approach:**

1. **Develop an on bill repayment (OBR) framework.** See Environmental Defense Fund's report, *On-Bill Repayment: Unlocking the Energy Efficiency Puzzle*, for more detail and background on OBR. OBR would replace the current source of limited funding for OBF (from ratepayers) with the larger world of private capital. With OBR, borrowers access loans from third party lenders to make EE improvements and then repay the loans via a line item on their utility bills.

Rationale:

- All customer segments can access capital this way. (OBF is unavailable to residential customers)
- It allows customers to see and make immediate tradeoffs between expenditures for EE improvements and lower utility bills, possibly alongside easier access to EE financing,
- It will grow the scale of EE as more customers are able and willing to undertake EE improvements,
- OBR mechanics may offer scale economies that can enable lenders to lower the interest rate charged,
- OBR takes full advantage of utility billing collect mechanisms as long as the cost reimbursement for doing so is cost-competitive, and
- Loan origination and underwriting is outside of the IOUs' core competencies and OBF has high administrative costs compared to the overhead of financial institutions. OBR brings in third party lenders to originate and underwrite loans.

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<sup>4</sup> Note that this is a legal requirement; IOUs are not banks and cannot lend for interest, per the California Department of Corporations.

In order to give lenders added security that they will be paid back compared to traditional consumer or business loans and therefore able to offer lower interest rates, OBR ideally brings two enhanced security dimensions:

- a) Reliance by an efficiency lender on existing utility collections policies and procedures, within the current utility/customer business relationship, for handling any customers with payments in arrears. This includes procedures for partial payments, balanced payment plans, and progressive warnings before service could be terminated. The desire to maintain utility service is expected to add security to an efficiency loan.<sup>5</sup>
- b) An ability to allow the customer and/or property owner to authorize on-bill efficiency loan repayment tied to the meter, and not exclusively to the individual borrower. Therefore, with appropriate notification and disclosure, staff proposes that a successor owner or occupant would continue making efficiency payments for the duration of the loan term. This opens the door for more comprehensive, deeper efficiency actions whose payback periods might extend beyond the anticipated tenure of a current owner or occupant. This likely would reach into a borrower pool of customers who until now have been under-represented in the efficiency improvement market.

Unlike on bill *finance*, on bill *repayment* involves third party capital. Since the IOUs would not be originating loans, they would not be subject to the current limitations set by the Department of Corporations. This means OBR could be available to all types of borrowers, including residential customers. For more information on OBR, please see the attachment: *On Bill Repayment: Unlocking the Energy Efficiency Puzzle* prepared by the Environmental Defense Fund.

2. **Develop and roll out ratepayer supported loan products to offer via OBR.** Loan products can be phased in over time. Who should receive ratepayer subsidized loan products via OBR will be discussed in workshops and other forums, and guided by Commission decision. For discussion purposes, Energy Division proposes that ratepayer-supported loan products can be offered to residential customers, using HVAC replacement as an entry point to up-sell increasingly energy

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<sup>5</sup> For discussion purposes, below is a summary of the utility shut-off/disconnection process and timeline for most residential customers (note that this process has slight variations for residential renters, occupants of master-metered complexes and non-residential customers):

- Day 0: Bill issued
- Day 19: Bill due
- Day 30: Second bill issued showing overdue charges
- Day 42, Day 55: Notices Issued
- Day 62: Outbound call to customer
- Day 66: Customers eligible for non-payment disconnection (exception is if the customers qualify as "sensitive," such as those households with young or old occupants, households with serious illness or disabilities that could be life-threatening if service is disconnected, etc.)
- Day 67, Day 82: Phhone attempt and/or warning letters sent to sensitive customers
- Day 91: Sensitive customers eligible for non-payment disconnection

efficient project options, and to small-medium non-residential customers that most frequently lack capacity or appetite to take on debt for energy efficiency. See “Straw Man Loan Portfolio to offer via On Bill Repayment” (attached) for more detail.

Rationale:

- Leverages ratepayer dollars with private capital by a factor of at least 5:1 (10:1 is a rule of thumb<sup>6</sup>); stretches the reach of ratepayer dollars.
  - There is a real opportunity that is missed by the current portfolio, particularly in the case of emergency “gotta-have-it-now” replacements like water heaters, furnaces in winter and AC in summer. Many customers lack cash-in-hand for these purchases and therefore buy standard (not EE) models with lower price tags via credit card or other unsecured loans. If contractors offer low interest rate loans with fast turn-turn around credit approvals for the higher efficiency purchases, more customers likely will be swayed to buy the more efficient options.
3. **Continue OBF on an interim basis**, as it is currently designed for non-residential customers with sufficient funding to cover loan demand, until the point that OBR and associated loan offerings are available.

Rationale:

- In implementing OBF IOUs developed the internal infrastructure to offer loans ‘on bill’ and the IOUs developed an expanding customer pipeline. To discontinue OBF during the bridge period would needlessly lose momentum and cause distrust with vendors and customers.
  - Experience from OBF informs the program model and performance of OBR and future EE loans. In effect, OBF serves as a pilot of OBR. The longer that OBF runs, the more data will be available, and the more assured lenders will be that energy efficiency loans have low default rates.
  - Despite long ramp-up times for some of the IOUs, the 2010-2012 OBF programs for non-residential customers are wildly popular,<sup>7</sup> and ED expects OBF’s popularity to continue.<sup>8</sup> In addition, the availability of OBR should significantly grow the size of energy efficiency investments for which financing is desirable.
4. **Create an energy loan performance database.** Direct, within legal limits, organizations (including IOUs) to collect and share aggregate (anonymous) energy savings data with entities that provide financing. Data should be whole building-based (as opposed to measure-based) and seek to report both modeled energy savings vs. actual savings.

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<sup>6</sup> Harcourt Brown & Carey. *Energy Efficiency Financing in California: Needs and Gaps*. Page 25.

<sup>7</sup> For example, SCE’s OBF loan program of \$15-16M was fully committed in less than a year.

<sup>8</sup> For more info on the 2010-2012 OBF programs, please visit: <http://www.cpuc.ca.gov/NR/rdonlyres/2CC4EAB4-2D17-4074-9D25-ECFD428B9AF3/0/EE11OnBillFinancing0710.pdf>

Rationale:

- In conversations with ED a number of contractors said that modeled energy savings are not perfectly reliable, and yet these modeled energy savings could be one of the main reference points on which loans for energy upgrades are made. If modeled energy savings can be improved to the point that they match – or come close to matching – actual energy savings, lenders will be more inclined to regularly incorporate energy savings into underwriting practices.
  - Much of the energy savings data collected today is measure-based, which is not easily digested by the lending community. The lending community is more comfortable with assessing “big picture” risks, not whether a higher efficiency air conditioning unit will lower a customer’s utility bill. E.g., what are customers’ (aggregated) before and after total energy expenses? How has consumption changed? What is the loan default experience for [x] customer type?
  - Much of the energy savings data collected today is considered proprietary by contractors and vendors and/or shrouded by strong consumer protection and data privacy laws, making access difficult by lenders.
5. Direct \$180M over two years from the 2013-2014 energy efficiency portfolio into energy efficiency finance to fund the recommendations described above.

	<b>2013-2014</b>
One time billing changes	\$10M
Straw man portfolio	\$130M
Transition period OBF	\$40M
Sharing data	
<b>Total</b>	<b>\$180</b>

Rationale:

- Ratepayer-supported loan programs should, in the long-term, reduce the amount of ratepayer funding needed for energy efficiency. It is expected that the leveraged approach to lending not only will expand the total capital loaned for efficiency, but also will enable reducing a portion of incentive grants, since the full “first cost” will be met by the loan. The end result should be leveraging a much larger scale of efficiency investment using private capital, per dollar of ratepayer support.
- In 2013-2014 there will be a ramp-up period needed to get to the expected annual budget level needed to support financing programs. By 2015, ED expects these budget amounts could become annual, to be adjusted based on experience in the 2013-2014 time period.

If the market demand for loans proves to be higher than the \$170 million for 2013-2014, ED suggests the Commission make additional funding available via portfolio rebalancing down-the-road and/or budget augmentation initiated via Advice Letter or Commission Decision.

**Source or basis for believing efficiency loans will be utilized and absorbed:** Several states and utilities have OBR programs:

- New York began a \$50M OBR program in November 2010 for residential, multifamily and small commercial customers.<sup>9</sup>
  - The loans are offered at 4-6% interest for 5-15 years, and primarily are unsecured loans; there is a secured loan pilot.
  - The New York State Energy Research and Development Authority (NYSERDA) provides 50% of loan capital at no interest to the lender. Thus, lenders offer loans to borrowers at 50% of the normal market interest rate.
  - For the non-residential loans, NYSEDA and the lender share pro-rata on loan defaults.
  - Lenders are paid a \$175 origination fee by NYSEDA; the lenders can charge more fees to the borrowers to cover costs.
  - Underwriting is based on credit scores and utility payment history.
  - Loans can be secured by a mortgage on real property, but loans are subordinate to any current or future mortgage on the property. An energy loan cannot be used to force mortgage payment or foreclosure.
  - Prior to sale of property, seller must provide written notice to purchaser re: the loan obligation; the energy loan obligation also will appear on a title search.
  - Unless satisfied prior to sale, on-bill loan recovery charges will survive changes in ownership with payments continuing on the utility bill. Arrears at the time of the transfer are the responsibility of the incurring customer unless expressly assumed by the purchaser.
  - Partial payment of a utility bill first is applied to utility charges, and then to the on-bill energy loan recovery charge.
  - Monthly repayment charges cannot exceed 1/12<sup>th</sup> of the annual projected energy savings.
  - Utilities use NYSEDA EE funding to defray billing system change costs. Additionally, NYSEDA pays a fee of \$100 per loan and a fee of 1% of loan amount to the utility within 30 days of loan closing to offset IT and servicing costs.
  - Participation is initially limited to 0.5% of each utility company's customers, but NYSEDA can petition the NYPSC to increase the limit.
  - The New York State Public Service Commission can suspend any utility's OBR offering after conducting a hearing and finding that there has been significant increase in arrears or disconnections directly related to on-bill recovery.
- Portland, Oregon's Clean Energy Works (CEW) program is a 500-home (\$8M), residentially-focused, ARRA-funded pilot of OBR with "energy advocates," who oversee/advise/manage energy assessments, financing and installation in one seamless flow.<sup>10</sup>
  - Average loan size is \$12,500; interest rate is 4-6% for up to 20 years.

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<sup>9</sup> "Green Jobs Green New York Program and On Bill Recovery Financing Briefing", a presentation by Jeff Pitkin at the 2011 ACEEE Energy Efficiency Finance Forum, Philadelphia, PA, May 2011. Also ED discussions with CAATFA staff.

<sup>10</sup> Source: ACEEE "What Have We Learned from Energy Efficiency Financing Programs?" Page 15.

- The program launched in June 2009. In February 2011 the program was fully subscribed and had to turn away applicants. In 2010 it received an additional \$20M to expand statewide and to commercial customers.
- CEW targets specific customers by identifying owners of homes with high energy savings and who had the ability to act quickly.
- Loans are for whole home upgrades that could reduce energy by 10-30%.
- OBR programs are offered by Midwest Energy (Kansas) and four rural utility cooperatives in Eastern Kentucky. In addition, the Hawaii Public Utilities Commission recently opened a docket to explore OBF.

**Significant changes to program delivery needed to coordinate financing, OBR, and the retrofit market**

- OBR will require billing system changes by the IOUs.
- A significant effort will be necessary to fully integrate loans/loan making into the program designs in the EE portfolio. For example, every eligible efficiency vendor will need to know the details of available loan products: how they can be accessed, qualifying credit criteria, timelines for approval, etc.
- Assuming there are no new sources of funding for energy efficiency in the near future, offering an increased amount of loans, as proposed here, will come at the expense of funding some existing energy efficiency programs. Deciding which programs to trim or eliminate should be tied to thoughtful deliberation on how to best balance the use of ratepayer funds for rebates vs. loan support.
- It may also be necessary to consider changes to cost-effectiveness calculations and the Risk Reward Incentive Mechanism (RRIM) to reflect the value and contribution of loans and leveraged capital, as opposed to rebates and other more traditional forms of energy efficiency program models.

**Other state programs with which to coordinate**

The California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA) will support a Clean Energy Upgrade program in early 2012 that will facilitate up to \$250 million in market-issued loans via a 10%-15% loan loss reserve contribution for lenders facilitating residential and small commercial upgrades. The loans will be for energy efficiency, solar, electric vehicle and water efficiency projects ranging from \$2,500-\$20,000 residential unsecured projects and \$2,500-\$50,000 residential secured projects, to \$2,500-\$25,000 commercial projects.

CAEATFA projects that 75% of the \$250M will go toward energy efficiency projects (~\$187.5M); 90% (~\$170M) of which will be residential, ~\$18M will be commercial, and 60% of which will be unsecured (~\$100M for unsecured residential). The Clean Energy Upgrade program currently is scheduled to sunset in early 2015, unless extended and perhaps supplemented with additional funds, such as from ratepayers.

## **Straw Man Loan Portfolio to Offer via On Bill Repayment**

This document describes loan products that could be offered with ratepayer support via OBR and recommends the loan products and market segments to target for this support. It has two sections: Residential and Non-Residential. Please see Appendix A (Residential) and Appendix B (Non-Residential) for detailed budget assumptions.

### **I. RESIDENTIAL**

The energy efficiency financing report prepared by Harcourt Brown & Carey (HB&C) in July 2011 roughly estimates that approximately \$8 billion of annual investment is necessary to achieve the residential energy efficiency savings goals laid out in the Strategic Plan. To achieve this \$8 billion investment, the HB&C report says that the California IOUs would need to offer customers approximately \$2.5 billion dollars per year in incentives (30% of the investment amount, assuming current utility program portfolio and rebate levels); yet the current spending level for the California IOUs for the residential sector is \$309M per year, which supports about \$1 billion per year in improvements.

In order to *begin* to address the gap between what is proposed to be spent per year (\$309M) and what otherwise might be desirable to achieve California's savings goals (\$2.5 billion), Energy Division (ED) recommends that ratepayer dollars should be leveraged by private capital to support the following types of loans: unsecured loans, secured loans and a rental property loan pilot (see below). ED also recommends that these loans – and associated programs and contractors – should be centered around HVAC replacement as an entry point to up-sell increasingly energy efficient project options, including air sealing and whole house improvements. (For more detail see Appendix A.)

- Unsecured loans (<\$15K) for contractors to use at point-of-sale with quick credit approval. Target interest rate is <10%; term is 10 years; needs ratepayer-funded credit enhancements to get current market interest rates down to the target interest rate.
- Secured loans (>\$10K) for deeper retrofits, using tiered ratepayer-funded credit enhancements (deeper retrofits = lower interest rates). With credit enhancement, interest rates should be lower than those offered for home equity lines of credit. Application process should be as streamlined as possible. Term is up to 20 years.
- Rental property loan pilot. Split incentives apply to rental properties wherein owners are responsible for both paying for and providing the operations and maintenance of buildings, and tenants are responsible for paying the utility bills. Approximately 17% of California households rent single-family homes.<sup>11</sup> (Note that multifamily buildings are addressed below as a pilot for non-residential customers)

In homes with split incentives, tenants resist making energy improvements because they do not see the benefit of improving a structure or system that they do not own. Moreover, many tenants do not

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<sup>11</sup> California Long Term Energy Efficiency Strategic Plan, page 9. The Benningfield Group Inc. Addendum Report: US Multifamily Housing Stock Energy Efficiency Potential. Prepared for the Energy Foundation. June 10, 2010. Page 2.

expect to stay in their location for extended periods of time, and they have limited appetites for deeper savings opportunities that feature longer returns on investment. Similarly, owners are not eager to take on the upfront costs of energy-related upgrades since they will not directly receive the benefits of lower utility bills.

Because OBR obligations are attached to the meters, EDF and others believe that OBR can overcome split incentive barriers. OBR overcomes tenant concerns that they may not stay in one location for long enough to reap the benefits of their efficiency investments because the debt obligation can be passed on to the next occupant.<sup>12</sup>

Total annual funding from ratepayers needed for residential loans: \$72.5 million. (See calculations in Appendix A.)

Other recommendations for residential energy efficiency finance:

- Apply lessons learned from recent experiences with ARRA-funded financing activity by convening stakeholders.
- Develop standardized loan application and energy efficiency project documentation forms.
- Develop standardized borrower underwriting for the eventual packaging and selling of residential loans in secondary market.
  - Pros: could significantly lower the cost of borrowing capital (interest rate) for borrowers here in California and in the rest of the country; could increase the amount of available capital.
  - Cons: Requires a significant time/resource investment to identify and refine standards, creates real winners and losers (it creates the de facto way things are done and endorses specific companies, lenders, and methods), and perhaps squelches competition and experimentation.

ED wishes to re-emphasize that these loans, pilot, and workshops will *begin* to address the investment gap between what is currently being offered by IOU programs and what is necessary to achieve the Strategic Plan Goals. In the ACEEE report<sup>13</sup> released in September 2011, the authors note that participation rates for successful energy efficiency finance programs in the US are modest: the two programs featured in their report with the highest cumulative participation rates are SMUD with 16% of residential customers, and Connecticut Light and Power Commercial/Industrial/Small Business programs at 8.2%. Both have been in place for 10 years or more.

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<sup>12</sup> This assumes that tenants are notified of the energy efficiency loan obligation when signing a lease and prior to move-in.

<sup>13</sup> "What Have We Learned from Energy Efficiency Financing Programs?" September 2011. ACEEE. Sara Hayes, Steven Nadel, Chris Granda and Kathryn Hottel.

## II. **Non-Residential (includes Commercial, Industrial, Multifamily and Governmental/Institutional)**

Harcourt Brown & Carey estimates that roughly \$1.6 billion of annual investment is necessary to achieve the multifamily, commercial, and industrial energy efficiency savings goals laid out in the strategic plan. The HB&C report states that in the 2010-2012 program cycle, the California IOUs will disburse approximately \$500 million in incentives for energy efficiency which will facilitate more than \$1 billion in investment by property owners. In short, the 2010-2012 programs will spend more than \$150 million a year in rebates (\$500M / 3) to facilitate \$300-400 million in investment when \$1.6 billion in annual investment is necessary.

In order to *begin* to address this gap, Energy Division recommends that ratepayer dollars should be leveraged by private capital to support the following types of loans:

- Unsecured loans (<\$250,000) targeted at small-medium sized non-residential customers with ratepayer-funded credit enhancements. Application process should be as streamlined as possible.

Past energy efficiency research is rich with evidence that small-medium sized businesses are untapped markets and are “hard-to-reach.” Though many are interested in lowering their operating costs, small and medium-sized businesses lack the capital to pay the upfront costs for energy upgrades;<sup>14</sup> there are few loans available for energy improvements; they do not meet the strict underwriting standards for loans;<sup>15</sup> and they do not have access to utility representatives who can encourage and guide them through the improvement process.<sup>16</sup>

Moreover, the market is unlikely to offer loans to small-medium sized organizations without incentives. Banks and energy service companies (ESCOs) who are more likely to offer financing to larger organizations, avoid deals with small organizations because loan administrative costs are too high.

- Rental Property Loan Pilots in Non-Residential and Multifamily Properties. Split incentives apply to rental properties wherein owners are responsible for both paying for and providing the operations and maintenance of buildings, and tenants are responsible for paying the utility bills. Johnson Controls estimated that 50% of the commercial sector is leased space occupied by tenants.<sup>17</sup>

In buildings with split incentives, tenants resist investing in system-wide energy improvements because they do not see the benefit of improving a structure or system that they do not own. Moreover, many tenants do not expect to stay in their location for extended periods of time, and they have limited appetites for deeper savings opportunities that feature longer returns on investment. Similarly, owners are not eager to take on the upfront costs of energy-related upgrades, since they will not directly receive the benefits of lower utility bills.

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<sup>14</sup> ED interviews with lenders and Small Business California.

<sup>15</sup> Harcourt Carey & Brown. “Energy Efficiency Financing in California: Needs and Gaps.” Page 50.

<sup>16</sup> ED interviews with Small Business California.

<sup>17</sup> Based on Johnson Controls survey of commercial properties, 2009. Cited in Harcourt Brown & Carey report: “Energy Efficiency Financing in California: Needs and Gaps.” Page 45.

If OBR obligations can be attached to the meters, EDF forecasts that OBR can overcome split incentive concerns because the debt obligation can be passed on to the next occupant.

Total annual funding from ratepayers needed for non-residential loans: \$57.5 million. For calculations and assumptions see Appendix B.

## APPENDIX A: Residential Budget Assumptions

### Residential Budget Estimate: \$72.5M Annually

#### Recommendations 1 and 2:

- **Unsecured loans (<\$15,000)** for contractors to use at point-of-sale. Target interest rate is <10%; term is 10 years; needs ratepayer-funded credit enhancements.
- **Secured loans (>\$10,000)** for deeper retrofits, using tiered ratepayer-funded credit enhancements (deeper retrofits = lower interest rates). To be utilized, all interest rates must be better than those offered by provide home equity lines of credit. Term is 20 years.

For this straw man exercise, Energy Division (ED) assumes that during the bridge period and beyond, programs and contractors will focus on HVAC replacement as an entry point to up-sell<sup>18</sup> more energy efficient project options, including air sealing and whole house improvements. ED also assumes that whole house retrofits will receive ratepayer-subsidized loans.

EE HVAC (unsecured): Based on the assumption that there are 800,000 HVAC installations in California a year,<sup>19</sup> we assume that 5%<sup>20</sup> of these can be convinced to upgrade to a more efficient unit with better-than-market-rate financing ( $800,000 \times .05 = 40,000$ ). We also assume that the average energy efficiency HVAC unit cost (parts and labor) is \$10,500. *Total annual financing needed for HVAC EE upgrade: \$420M ( $40,000 \times \$10,500$ ).*

EE HVAC + Air Sealing (unsecured): We assume that 25%<sup>21</sup> of those who elected to get financing for an EE HVAC upgrade can be convinced to also do air sealing if given an even more competitive interest rate. We assume that the incremental cost of air sealing is \$2,000 ( $10,000 \times \$2,000 = \$20$  million). *Total annual financing needed for EE HVAC + Air Sealing: \$20 million.*<sup>22</sup>

EE HVAC + Whole House (secured): We assume that 5%<sup>23</sup> of those who elected to get financing for an EE HVAC upgrade can be convinced to also upgrade their home to qualify for the Whole House program.

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<sup>18</sup> Up-selling is a sales technique wherein a contractor convinces a customer to purchase more expensive items, upgrades or add-ons in an attempt to make a more profitable sale – or to expose the customer to other options that were perhaps not considered previously. <http://en.wikipedia.org/wiki/Upselling>. Accessed 11/17/11.

<sup>19</sup> Efficiency First. “Recommendations for Energy Upgrade California Program: Streamlining the Sales Process and Related Matters.” February 25, 2011. Submitted to the Energy Upgrade California Steering Committee.

<sup>20</sup> These are aggressive assumptions for the expected market penetration of ratepayer-subsidized loans, particularly for the early years of these loans’ availability. We assume that lenders will heavily promote the availability of EE loans in 2013 and 2014. We also assume that the IOUs’ marketing, education, and outreach efforts will focus heavily on EE loans.

<sup>21</sup> This is a best guess by Energy Division.

<sup>22</sup> Admittedly the math here should be more complicated: with this EEHVAC + Air sealing scenario, a lower interest rate should be applied to the EE HVAC portion too. This is a rough estimate only.

<sup>23</sup> This is a best guess by Energy Division.

We assume that the incremental cost of upgrading to Whole House is \$1,500. (2,000 x \$1,500 = \$3 million). *Total annual financing needed for EE HVAC + Whole House: \$3 million*

Whole House (secured): We assume that 60 Whole House retrofits will be completed in a week.<sup>24</sup> The average Whole House upgrade is \$13,000. We assume that 50% of customers will take advantage of low interest rate loans. (3,120 x .5 = 1,560) (\$13,000 x 1,560 = \$20,280,000). *Total annual financing needed for Whole House: \$20.3 million*

*Total annual capital needed for residential loans: ~\$464 million*

Coordination with CAEATFA: CAEATFA estimates that it will support a total of ~\$187 million in loans over three years (2012-2014) – an average of roughly \$62 million per year - to residential customers for energy efficiency projects. ED proposes that additional loans with ratepayer funded credit enhancements should be offered to fill the need.

*Revised total annual funding needed for residential loans (2014 and 2015- while CAEATFA’s program is available): ~\$400 million*

Punch line: total annual capital needed for residential loans: \$400 million

**Amount of Ratepayer Investment:** The amount of ratepayer investment is dependent upon the amount of total capital needed (estimated to be \$400 million), the leverage ratio, outreach and marketing, evaluation, and program administration costs.

The Harcourt Brown & Carey report says that typical leverage amounts are 10:1.<sup>25</sup> To be conservative, since subsidized loan programs for residential energy efficiency are relatively rare, ED assumes a ratio of 8:1.

Based on the Green Jobs Green Homes New York OBR program, ED estimates 10% for outreach and marketing, 10% program administration fee, and 5% for program evaluation.

Estimating the Amount of Ratepayer Support Needed Annually	
Total amount of loans: \$400 million; 8:1 Ratio	~\$50 million
Outreach and Marketing (10%)	\$5 million
Program Administration (10%)	\$5 million
Program Evaluation (5%)	\$2.5 million
<b>Total:</b>	<b>\$62.5 million</b>

<sup>24</sup> Energy Division discussions with the California Energy Commission.

<sup>25</sup> HB&C, *Energy Efficiency Financing in California: Needs and Gaps*. Page 25.

**Recommendation 3: Pilot whether loans offered via OBR can overcome split incentives in rental properties.**

Assumptions:

- Loans may be made by lending institutions, a third party, an independent organization or a combination thereof.
- Each pilot will be featured in a case study and data will be shared.

*Total annual capital needed for pilot \$10 million*

## APPENDIX B: Non-Residential Budget Assumptions

### Non-Residential Budget Estimate: \$57.5M Annually

#### **Recommendation 1: Unsecured loans (<\$250,000) targeted at small-medium sized non-residential customers, with ratepayer-funded credit enhancements.**

##### Assumptions:

- The HB&C report estimates that the small commercial sector, defined as less than 150kW or 30,000 square feet, represents approximately 3 billion square feet in California.
- The report also estimates that “an energy efficiency project can generally be expected to reduce annual energy consumption by 25% at a cost of approximately \$2.00 per square foot.” To be conservative, ED estimates that this cost is \$2.50 per square foot.
- ED assumes that the IOUs will heavily promote the availability of the new loans and that 2% <sup>26</sup>of non-residential customers will be convinced to take on an energy efficiency upgrade with better-than-market-rate financing each year.

Square feet x dollar per square foot x penetration

3 Billion square feet x \$2.5 x 2% = **~\$150 million**

*Total annual capital needed for unsecured non-residential loans: ~\$150 million*

The Harcourt Brown & Carey report says that typical leverage amounts are 10:1.<sup>27</sup> To be very conservative since loan programs for non-residential energy efficiency are rare, ED assumes a ratio of 5:1.

Based on the Green Jobs Green Homes New York OBR program, ED estimates 10% for outreach and marketing, 10% program administration fee, and 5% for program evaluation.

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<sup>26</sup> These are aggressive assumptions for the expected market penetration of ratepayer-subsidized loans, particularly for the early years of these loans' availability. This is based on: 1) the strong popularity of the OBF program for which the prime constraint has been the availability of funds and 2) the expectation that the IOUs' marketing, education and outreach efforts for 2013-2014 will heavily focus on energy efficiency loans. This 2% forecast was initially higher. It was tempered by the discussion laid out in ACEEE's "What Have We Learned From Energy Efficiency Financing Programs" report (pages 4 and 5) that indicated that only a few EE loan programs had reached market penetration above 5%.

<sup>27</sup> "Energy Efficiency Financing in California: Needs and Gaps." Page 25.

Estimating the Amount of Ratepayer Support Needed Annually <sup>28</sup>	
Total amount of loans: \$150M; 5:1 Ratio	\$30 million
Outreach and Marketing (10%)	\$3 million
Program Administration (10%)	\$3 million
Program Evaluation (5%)	\$1.5 million
<b>Total:</b>	<b>\$37.5 million</b>

**Recommendation 2: Pilot whether loans offered via OBR can overcome split incentives in leased/multi-tenant commercial buildings.**

Assumptions:

- Loans will be made in the following categories: small office, large office, restaurant, retail, food store, refrigerated warehouse, unrefrigerated warehouse, school, college, health, lodging, small industrial, large industrial.
- These loans may be made by lending institutions, IOUs, a third party, an independent organization or a combination thereof.
- Each pilot will be featured in a case study and data will be shared.

*Total annual capital needed for pilot \$10 million*

**Recommendation 3: Pilot whether loans offered via OBR can overcome split incentives in multifamily rental buildings.**

The HBC report (Appendix B) estimates the EE investment potential in the small commercial is \$6 billion, and in the multi-family housing sector is \$8 billion. Because of the utility history with OBF, ED can make some assumptions about costs and adoption rates for supporting loans to small business. But ED does not have comparable data on market acceptance to make an estimate for multi-family housing; nor do we have forecasts about what loan products might emerge for this sector, or alternatively if there will be a need for a CPUC/utility or governmental role in getting an appropriate loan product developed. Nor do we have any basis at this time for separately estimating a budget for credit enhancements to support possible market offerings of multi-family efficiency financing.

Thus we propose:

- 1) A \$10 million pilot to determine the best mechanisms and participating entities to bring financing products to the multi-family housing market, and
- 2) Parties advise if they have better recommendations for the Commission to contemplate for reaching greater levels of efficiency for this market segment.

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<sup>28</sup> Based on similar assumptions to those listed in Appendix A.

Assumptions:

- These loans may be made by lending institutions, IOUs, a third party, an independent organization or a combination thereof.
- Each pilot will be featured in a case study and data will be shared.

*Total annual capital needed for pilot \$10 million*

### **Appendix C: Miscellaneous**

Basic assumptions for all loans (similar to the loan requirements for OBF)

- Installed energy efficiency measures and/or equipment must meet terms and conditions of one or more rebate/incentive programs offered by the utility (must be cost effective).
- Installed energy efficiency measures and/or equipment must be inspected; ideally by a third party. Sampling a percentage may be acceptable.
- Energy savings realized from the installed measures and/or equipment should be expected to equal or exceed the monthly loan repayment obligations.
- Loans are offered across all IOU service territories. Requirements are consistent across all IOU service territories.