SCE HOPPs Overview

Stakeholder Webinar, 7/14/16

Ideas Search at a Glance

SCE Effort

- **Jan:** HOPPs kick-off
- **Feb.-Apr:** Outreach for ideas
- **Apr:** Narrowing of ideas
- **May-June:** Prelim. drafts of applications
- **June-July:** Stakeholder outreach
- **Late July:** HOPPs Advice Letters submission

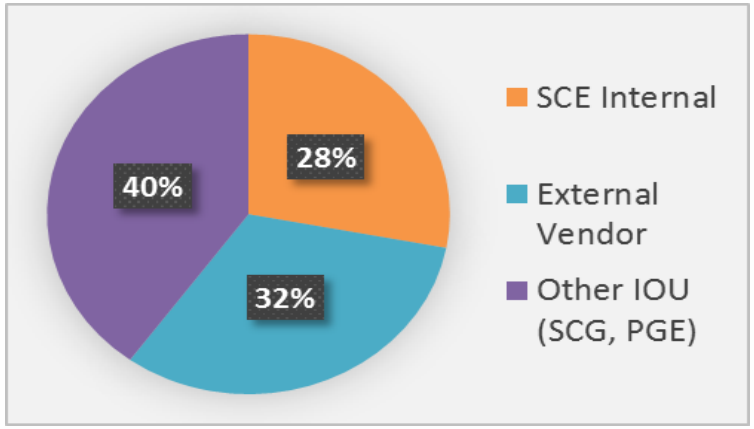
Planning Considerations

SCE's Key Evaluation Criteria

- High-value activity (e.g., by TRC, project volume)
- Capture of stranded and/or incremental savings
- Alternative M&V approach or incentive structure
- Innovation claim (PRP, grid integration, etc.)
- Addresses current market data or knowledge gap
- Savings claim for pilots, trials, non-resource activity

Ideas Index

25 ideas under review



Beyond HOPPs

- Need for clarity in Indus. and Ag. sectors
  - Pump Services and meter-based savings claims
  - Strategic Energy Management meter-based savings claims
- AB 793 alignment with AB 802
  - Monitoring equipment integration with meter-based savings claims
- Technologies and analytics tools, turn-key solutions
  - Evaluation for integration into portfolio through gating process
- Predictive accuracy, acceptable error bands for M&V
  - Desired state to evolve HOPPs requirements
- Role of randomized coefficients model (RCM)

Public Sector Performance-Based Retrofit HOPPs

Current State

Characteristics

- Older, inefficient Public Sector buildings with stranded savings opportunities due to technical and capital resource constraints
- Inefficient equipment is indefinitely repaired to remain in service well beyond standard effective useful life

Challenges

- Commercial Sector characteristics have been historically applied to the Public Sector
- Assumptions such as effective useful life of equipment, code compliance and measure cost from the commercial sector do not allow Public Sector costumers to meaningfully participate in energy efficiency programs

Public Sector Customer	Commercial Sector Customer
For public good	For profit
Risk averse	Calculated risk
Investments based on benefits to public good	Investment based on ROI
Long approval process (often requires council/board approvals)	Approval granted when business case is proven
Complex financing mechanisms	Financial tools are easier to access
Perpetual maintenance	Replace on business case
Tax-based revenue generation	Sales-based revenue generation
Subject to political changes	Insulated from political changes

HOPPs Proposal

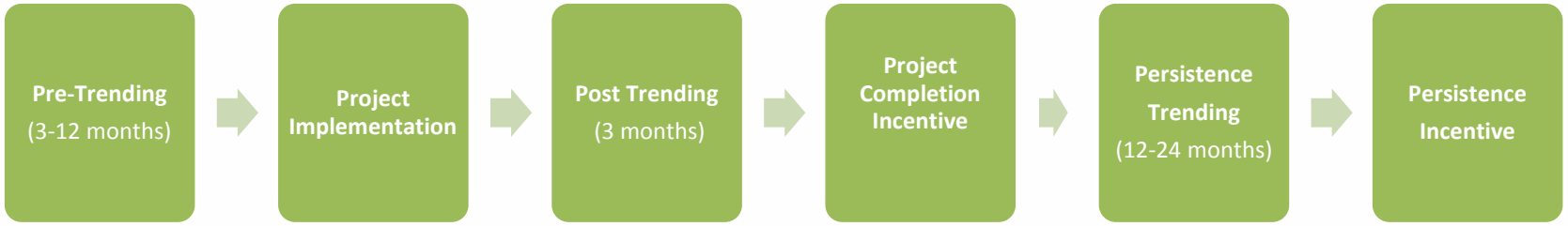
Characteristic	Public Sector Performance Based Retrofit Program
Target Market	Public sector buildings with aged, inefficient equipment in place
Description	This proposal focuses on deep energy comprehensive retrofits to capture stranded savings in Public Sector buildings through demonstrated performance based savings. These monitoring-based "deep energy" retrofits will use metered energy consumption as their baseline. A single point of entry and simplified program process will greatly reduce administrative, implementation, and M&V costs.
Partners	Statewide IOUs
M&V Plan for Claiming Savings	• Use of AMI data to verify retrofit projects and to calculate energy savings that are normalized for weather and other parameters that influence energy usage. • Pre-participation energy usage analyzed to forecast energy usage in the absence of program • Counter-factual load shape compared to actual post-participation energy usage to calculate energy savings
Rationale	• Aligns with public sector Climate Action Plans • Helps to ensure energy savings persistence for long payback investments • Reduce the complexity of multi-measure projects • Provides utility usage visibility to master-metered public sector customers

Additional HOPPs Detail

Incentive Structure - *Customer incentives are tied to savings persistence and can increase or decrease based on actual measured savings*

- **Initial Incentive Payment:** **3** months after installation completed—up to 40 percent of total estimated customer incentive
- **First Persistence Payment:** **12** months after installation completed—customer eligible to receive an additional 40 percent of "trued-up" total estimated customer incentive
- **Second Persistence Payment:** **24** months after installation completed—customer eligible to receive remaining balance of "trued-up" total customer incentive

M&V Plan



- Use normalized pre and post meter data to determine baseline and project savings
- Trend for a period after project completion and provide a performance incentive for persistent savings
- Identify statistical metrics for trending correlations
- Review "quality over quantity" in defining trending periods by analyzing goodness of fit statistics for opportunities to reduce pre-installation trending timeline.

**Customer incentives are tied to savings performance and can increase or decrease based on actual measured savings*

Comprehensive HVAC HOPPs

Current State

Characteristics

Early Retirement (ER)/Commercial Upstream (CUS)	
Scope	Unit replacement
Claim Method	Workpaper
Incentive Recipient	Distributor/Contractor
M&V	No performance measurements

Commercial Quality Installation (CQI)	
Scope	Duct distribution optimization
Claim Method	Workpaper (in development)
Incentive Recipient	50% contractor 50% customer
M&V	Field spot measurements

Commercial Quality Maintenance (CQM)	
Scope	3-year maintenance agreement
Claim Method	Workpaper
Incentive Recipient	Contractor incentive for EE tasks Customer maintenance plan offset
M&V	No performance measurements

Challenges

- Per Gross Realization Rates (GRR), energy savings and demand reductions challenging to forecast for HVAC package units
  - Variability in system performance influences
  - Statewide ER/CUS rates
    - GRR low for kWh (<20%)*
    - GRR high for kW (>150%)*
  - Statewide QM rates
    - GRR high for kWh (132%)**
    - GRR low for kW (37%)**

**SOURCE: Impact Evaluation Study of 2013-14 Upstream HVAC Programs, CALMAC Study ID CPU0116*
*** SOURCE: Impact Evaluation Study of 2013-14 HVAC3 Commercial Quality Maintenance Programs, CALMAC Study ID CPU0117.01*

HOPPs Proposal

Characteristic	Comprehensive HVAC Program
Target Market	Non-res customers who currently select from one or more of the following programs: • Commercial Upstream/Early Retirement (CUS/ER) • Commercial Quality Installation (CQI) • Commercial Quality Maintenance (CQM)
Description	The proposed program promotes a comprehensive, value chain-driven approach to package unit replacement, optimization, and on-going peak performance. Customers and contractors stand to maximize system performance and quickly identify equipment malfunctions due to a mandatory three-year system maintenance agreement. Mandatory HOPPs maintenance requirements are leveraged to help drive persistence of overall systems savings.
Partners	• Electric IOUs • Approved HVAC contractors • American Society of Heating, Refrigeration and Air-conditioning Engineers (ASHRAE) • Western HVAC Performance Alliance (WHPA)
M&V Plan for Claiming Savings	• Use of AMI data to verify retrofit projects and to calculate energy savings that are normalized for weather and naturally-occurring energy savings • Pre-participation energy usage analyzed to forecast energy usage in the absence of program • Counter-factual load shape compared to actual post-participation energy usage to calculate energy savings
Rationale	• Promotes a systems-based, value chain-driven approach • Leverages maintenance requirement to promote savings persistence and verification • Helps avoid piecemeal HVAC savings challenges • Addresses HVAC systems characterization data gap

Additional HOPPs Detail

Program Design Enhancements

ER/CUS
- Key customer engagement and program entry point
- Combined with duct renovation, greater potential for right-sizing
- Customers and contractors motivated to "stack" HVAC offerings based on incentivizing meter-based savings

CQI
- Promotes materialization of energy savings
- Maximizes cooling delivery from new unit

CQM
- Promotes persistence of energy savings
- Continuous program intervention to optimize existing system
- Engine for field data collection

M&V Plan

- Use of Random Coefficient Model (RCM) approach to improve the accuracy of the forecast
- Use of field monitoring data to validate the forecasting accuracy of the billing analysis

Incentive Structure

Timeframe (post-installation)	Milestone	Recipient
<3 months	Equipment installation*	Contractor and customer
	System performance (initial improvement)	Contractor (30%)
12-15 months	System performance (AMI data delivery)	Contractor (20%)
13-18 months	System performance (data analysis and normalization)	Contractor (50%)

** Eligible equipment installation could entail unit and ductwork, or ductwork only.*

Dual-Code On-Bill Financing HOPPs

Current OBF Program State

Characteristics

- Facilitates purchase and installation of qualified (i.e., above-code) energy efficiency measures for non-residential customers
- Program provides zero percent interest financing and loan repayment through the customer's energy bill
- Non-res loan repayment capped at five years; institutions loan repayment capped at ten years
- Eligible activity and associated savings currently spans Customized (Calculated), Express (Deemed), and select Retro-Commissioning (RCx) program areas
- Historical default rate is *less than 1%*

Challenges

- Inability to finance to-code activity
- Costs of bringing aging but functioning equipment up to code
- Time delays for related ex ante approval process
- Complexity of EM&V and documentation requirements

HOPPs Proposal

Characteristic	Dual-Code OBF Program
Target Market	Non-residential and public sector customers (excluding new construction)
Description	The Dual Code On-Bill Financing (DC-OBF) program will provide zero percent interest financing for the installation of energy efficiency measures without requiring customer participation in core incentive programs. DC-OBF helps reach stranded below-code energy savings potential that was stranded by programs that only provided incentives for above-code energy savings.
Partners	Other IOUs and MOUs; CAAs
M&V Plan for Claiming Savings	• Use of AMI data to verify retrofit projects and to calculate energy savings that are normalized for weather and naturally-occurring energy savings • Pre-participation energy usage analyzed to forecast energy usage in absence of program • Counter-factual load shape compared to actual post-participation energy usage to calculate energy savings
Rationale	• Maximizes use of ratepayer funding for eligible loan offerings (no incentive) • Expands eligible financing activity to support capturing stranded savings • Helps qualitatively address knowledge gap on customer desire for zero-interest financing (DC-OBF) versus a rebated incentive (traditional OBF) • Customers self-manage risk associated with over-estimating savings • Acceleration of loan approval process (reduced ex ante technical review) • Savings calculations simplified through use of normalized metered energy consumption

Additional HOPPs Detail

Program Design

	Existing OBF Program (will remain)	DC-OBF
Incentive Eligibility	Full Incentive	No Incentive
Program Type	Non-resource	Resource
Incentive Amount (via Core Programs)	100%*	0%
Above-Code Measures?	Yes	Yes
Below-Code Measures?	No	Yes
Ex Ante Savings?	Yes	No
Ex Post Savings?	No	Yes
Loan Calculation	Ex ante modeled savings projections	Manufacturer data, site inspection, and customer-stated data
Bill Neutrality Calculations	Key program objective	Understood to be not guaranteed

Incentive Structure

- DC-OBF will not offer any incentives, other than zero percent interest
- No changes are being proposed to the existing core program incentive structure for project/measures without OBF
- Post-installation site visit to confirm type and quantity of equipment installed
- Loans may decrease if fewer or different measures found at post-installation visit

M&V Plan

- Pre-installation customer eligibility verification
- Post-installation site visit to verify installation and leverage site data to support billing analysis

**SCE plans to submit an Advice Letter reducing the incentive amount for its existing OBF offering by over 50 percent.*

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