

SMART Scale

Small Market Advanced Retrofit Transformation Program
2014 Building Technologies Office Peer Review



U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy

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Project Summary

Timeline:

- Start date: October 1, 2013
- Planned end date: September 30, 2016

Key Milestones :

- ❖ **June 2014:** Research and develop list of measures needed to enhance Ecology Action's DI 2.0 model to achieve an average of at least 20% energy savings
- ❖ **October 2014:** Identification and Selection of Demonstration Geography
- ❖ **September 2016:** Develop and publish Funding and National Roll-out Plan.

Budget:

Total DOE \$ to date: \$137,981
Total future DOE \$: \$1,8620,190
Total Cost share: \$2,000,000

Target Market/Audience:

- **Target Market:** Small & Medium Businesses (SMB) under 50,000 SQFT
- **Target Audience:** Utility and Government Administrators of SMB energy efficiency programs

Key Partners:

New Buildings Institute (NBI)
Electric and Gas Industries Association
Sacramento Municipal Utility District (SMUD)

Project Goal:

1. Enhance the DI 2.0 program model so that it consistently achieves an average of 20% all fuel energy savings per building.
2. Transfer the ability to deliver deep retrofits to contractors nationwide and assure that these contractors can reach an average of at least 20% savings at scale.

Purpose and Objectives

Problem Statement:

The prevailing delivery model for driving energy efficiency in the SMB market is a zero customer cost, limited measure, direct install program. *This model is (1) not comprehensive, (2) does not achieve deep energy savings (3) does not produce accurate project level savings and (4) is not scalable.*

SMART Scale Target Market and Audience:

- **Market:** Small and Medium Businesses under 50,000 SQFT. This market segment contains 4.6 million businesses nationally and represents 40% of annual national commercial energy consumption.
- **Audience:** Utility and Government Administrators of Energy Efficiency Programs

SMART Scale Impact:

The SMART Scale program will develop a platform to be used by administrators of SMB Energy Efficiency programs that will achieve an average of 20% energy savings per building by offering a comprehensive set of measures, integrated financing tools and expedited project M&V via a contractor-driven delivery model.

Project Endpoints	Measurement
<ul style="list-style-type: none">• Technical ability to cost effectively accomplish an average of at least 20% energy savings per building.• A method for empowering and incentivizing contractors to deliver comprehensive energy efficiency upgrades to commercial customers.• A national scaling plan for rollout of the SMART Scale Program Platform to Utility and Government Partners.	<ul style="list-style-type: none">• Near term: Analysis of weather normalized 12 months pre/post retrofit utility data to confirm project energy savings• Intermediate term: Program and project QA/QC of SMART Scale Program Contractors projects• Long term: Programmatic M&V of Utility and Government SMB EE Programs using the SMART Scale Program Platform

Approach

Focus on technical requirements to deliver an average of 20% energy savings per building. Improve the successful DI 2.0 methodology (which currently achieves 22% electricity savings) by adding HVAC and therm measures.

Development of contractor-centric delivery model. The SMART Scale team will work with a diverse stakeholder group of industry experts to define and refine the delivery method.

Key Issues:

1. Integrate HVAC and therm measures into DI 2.0 methodology to accomplish 20% all fuel savings.
2. Collect 12 months pre/post utility bill data from SMUD and PG&E for accurate project and program M&V.
3. Develop integrated financing tool to support deep projects and improve customer participation rates for SMART Scale projects.

Distinctive Characteristics:

This project is making incremental enhancements to an established and proven program delivery model (DI 2.0) and calculation methodology.

This allows the SMART Scale team to focus on the technical aspects of achieving 20% energy savings and developing the contractor-centric delivery model.

Progress and Accomplishments

Lessons Learned

- Even with Utilities that are partners in the program, securing customer interval data is complicated and time-consuming.
- Delivering an all fuel efficiency program in a territory where gas and electricity are delivered by separate utilities adds significantly to administrative requirements.
- Launching the first phase of the program in coordination with an already up and running program has expedited the start of field implementation.
- Delivering phase one of the program in California presents challenges that are not expected in territories where little or no energy efficiency work has been completed.

Progress and Accomplishments

Accomplishments

Develop comprehensive measure list and begin field implementation.

Develop M&V Protocol and begin M&V implementation.

Develop finance tool criteria and engage with potential finance partners.

Progress and Accomplishments

Market Impacts

- **Up-leveling the way small and medium energy efficiency programs are designed, administered and delivered.**

Provide a roadmap and set of tools for utility and government energy efficiency program administrators.
- **Increased contractor capacity to sell, specify, install, and report savings**

Provide contractors access to portfolio level lead generation, integrated financing tools, software-augmented auditing, and streamlined M&V.
- **Completion of comprehensive energy efficiency projects.**

Phase one activities are being delivered through Ecology Action's ongoing efficiency program for SMUD. Field implementation is underway and is on track to accomplish the year one goal of 15 completed projects by October 2014.

Project Integration and Collaboration

Project Integration:

Program staff have regular coordination meetings with SMUD and PG&E.

Partners, Subcontractors, and Collaborators:

- **New Buildings Institute:** National leader in applied building science facilitating market transformation through advanced design, policy and technology solutions. NBI provides services and tools to the SMART Scale Program and will serve as the lead for M&V, measure identification and the development of reports that demonstrate the energy savings accomplishments of the program.
- **Electric & Gas Industries Association:** National leader in contractor development and management and delivery of streamlined financing for contractors. EGIA leads the contractor stakeholder recruitment and engagement process to vet and roll out the contractor centric delivery model.

Next Steps and Future Plans

Next Steps and Future Plans:

- Ramp up field activities towards to the goal of 15 projects by October 2014.
- Development of the Contractor Centric Delivery model begins Q3 of 2014.
- Engagement with a Utility or Government (TBD) to test the contractor Centric Delivery model begins Q3 of 2014.
- Launch demonstration pilot in March of 2015.

SMART Scale Retrofit Project Snapshot



22%

Annual BTU Reduction*

Leatherby's Family Creamery

- Lighting, Refrigeration retrofit complete
- Annual Utility Savings: \$8,368
- Installation Cost: \$12,517
- Rebate: \$11,891
- HVAC & therm measure retrofit up next

Pre and Post Retrofit Energy Profile (BTU)



*Electric savings based on actuals. Gas numbers are averages from CBECS

REFERENCE SLIDES

Project Budget

Project Budget: Current expenditures are within expectations.

Variiances: The SMART Scale program is under budget at this point. As field activities increase it is expected that the program will return to the projected budget expenditure rate.

Cost to Date: \$137,981 or 7% of total program budget

Additional Funding: N/A

Budget History

October 2013– FY2013 (past)		FY2014 (current)		FY2015 – September 2015(planned)	
DOE	Cost-share	DOE	Cost-share	DOE	Cost-share
\$36,937	\$4,965	\$101,044	\$104,078	\$501,826	\$501,826

Project Plan and Schedule

Project Schedule												
Project Start: October 2013	Completed Work											
Projected End: September 2016	Active Task (in progress work)											
	◆ Milestone/Deliverable (Originally Planned)											
	◆ Milestone/Deliverable (Actual)											
	FY2013				FY2014				FY2015			
Task	Q1 (Oct-Dec)	Q2 (Jan-Mar)	Q3 (Apr-Jun)	Q4 (Jul-Sep)	Q1 (Oct-Dec)	Q2 (Jan-Mar)	Q3 (Apr-Jun)	Q4 (Jul-Sep)	Q1 (Oct-Dec)	Q2 (Jan-Mar)	Q3 (Apr-Jun)	Q4 (Jul-Sep)
Past Work												
Research and develop list of measures needed to enhance Ecology Action's DI 2.0 model to achieve an average of at least 20% savings								◆				
Completion of Draft Implementation Plan									◆			
Identification and Selection of Demonstration Geography									◆			
Recruit and train contractors to implement enhanced DI 2.0 energy efficiency retrofits											◆	
Implementation of enhancement to DI 2.0 Methodology											◆	
Convene National Stakeholder group												
Develop and publish Funding and National Roll-out Plan												