

**PACIFIC GAS AND ELECTRIC COMPANY
2013-2014 ENERGY EFFICIENCY PORTFOLIO
LOCAL PROGRAM IMPLEMENTATION PLAN
THIRD PARTY
INNOVATIVE DESIGNS FOR ENERGY EFFICIENCY APPROACHES
(IDEEA365)**

ANALYTICS ENABLED RETROCOMMISSIONING PROGRAMS

PGE210128

ENOVITY SCHOOL & MUNICIPAL ADVANCED RCX AND TUNE UP

PGE210129

NEXANT TECHNOLOGY ENHANCED RCX

PGE210130

RSG ANALYTICS ENABLED RCX

PGE210131

PECI ANALYTICS ENABLED RCX

MAY 27, 2014

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Subprogram Name: IDEEA365 - Analytics Enabled Retrocommissioning Programs

1) Sub-Program Names:

- a. IDEEA365 – RSG (CLEAResult): Analytics Enabled Retrocommissioning
- b. IDEEA365 – Enovity: School & Municipal Advanced Retrocommissioning & Tune-Up
- c. IDEEA365 – Nexant: Technology Enhanced Retrocommissioning
- d. IDEEA365 – PECI Analytics Enabled Retrocommissioning

2) 2013-2014 Sub-Program ID Number:

Sub-Program ID	Sub-Program Name
PGE210128	Enovity SMART
PGE210129	Nexant AERCx
PGE210130	RSG AERCx
PGE210131	PECI AERCx

3) Type of Sub-Program: Core Third Party Partnership

4) Market sector or segment that this sub-program is designed to serve:

- a. Residential
 - i. Including Low Income? Yes No;
 - ii. Including Moderate Income? Yes No.
 - iii. Including or specifically Multifamily buildings Yes No.
 - iv. Including or specifically Rental units? Yes No.

b. Commercial (List applicable NAIC codes: _____)

Facilities under average sq. ft. of 75,000

NAICS Code	Customer Segment	RSG	Enovity	Nexant	PECI
6111xx	Schools K-12	x	x	x	
92xxxx	Municipal Facilities	x	x	x	
6113xx	State Facilities				x
445110, 54xxxx	Limited Office & Grocery				x

c. Industrial (List applicable NAIC codes: _____)

d. Agricultural (List applicable NAIC codes: _____)

5) This sub-program is primarily resource acquisition:

- a. Non-resource program Yes No
- b. Resource acquisition program Yes No
- c. Market Transformation Program Yes No

- 6) **Primary intervention strategies:**
 a. Upstream ___ Yes X No
 b. Midstream ___ Yes X No
 c. Downstream X Yes ___ No
 d. Direct Install X Yes ___ No
 e. Non Resource ___ Yes X No

7) **Projected Sub-program Total Resource Cost (TRC) and Program Administrator Cost (PAC)**

	RSG	Enovity	Nexant	PECI
TRC	1.08	1.95	1.76	1.36
PAC	1.33	2.32	1.76	1.43

8) **Sub-Program Budget**

Table 1. Sub-Program Budget

Sub Program ID SubProgram Name	Total Administrative Cost	Total Marketing & Outreach	Total Direct Implementation (Customer Services)	Direct Implementation (Incentives & Rebates)	Total 2013-2014 Compliance Budget
PGE210128 Enovity SMART	--	--	\$1,606,052	\$256,963	\$1,863,015
PGE210129 Nexant AERCx	\$209,455	\$463,340	\$774,639	\$425,941	\$1,873,376
PGE210130 RSG AERCx	\$165,025	\$82,513	\$795,248	\$503,547	\$1,546,333
PGE210131 PECI AERCx	\$39,942	\$79,010	\$566,272	\$244,743	\$929,968
Total:	\$414,422	\$624,863	\$3,742,211	\$1,431,194	\$6,212,692

9) **Sub-Program Description, Objectives and Theory**

a) **Sub-Program Description and Theory:**

Retrocommissioning (RCx) of under-maintained schools, municipal and state facilities offers significant energy savings opportunities through the program model offered by the Analytics Enabled Retrocommissioning Programs (AERCx). AERCx uses analytics and remote energy assessments to cost effectively serve smaller facilities (averaging 50,000 sq. ft. or less). AERCx bridges a gap in current RCx programs by reducing the overhead and engineering costs typically associated with traditionally large RCx projects. Smaller facilities can now benefit from energy savings through optimizing and maintaining the performance of their energy systems (including lighting, HVAC controls, and building envelopes).

The primary elements that exist in all for programs are;

- **Partnerships with Software Platform Providers:** Utilizing propriety software services offered by Gridium, First Fuel, Agilis and Retroficiency (Software Providers) AERCx Program Implementers (including Envoyto, PECEI, Nexant and Resource Solutions Group (CLEAResult)) work with Software Providers to ingrate the use of IOU interval meter data to conduce opportunity ranking, individual facility assessment, and monitoring to support implementation of RCx measures.
- **Conduct Remote Building Assessments (RBA):** Data analytics outputs from Software Providers provide information/tools to Implementers so they may conduct building-specific performance benchmarks, base lining, load disaggregation, and customized RCx recommendations for actions at the end-user level, as well as predictive projections of each buildings potential for energy efficiency. RBAs are created completely remotely, requiring no on-site visits, devices, or connectivity to the building systems. Paired with building data aggregated from public sources, the RBA uses only twelve months of time-frequency based interval consumption and weather data. The data outputs are validated for accuracy and completeness.
- **Customer Meetings/Site Verification:** Implementers work directly with customers to verify the accuracy of RBA recommendations, building in information about the facilities energy goals and needs to determine the best set of program recommendations for that site.
- **RCx Implementation:** Implementers offer either a Direct Install model providing their own qualified contractors for measure installation or offer technical assistance/recommendations for on-site facilities staff or its contractors to perform installation.
- **Six-months of Post-installation Remote Energy Monitoring:** Customer are provided and online portal with which to view their disaggregated load profiles and building benchmarking analysis for six months as no additional cost. At the same time, the Implementer will also monitor facility performance following project installation to ensure persistence, inform customer of identified variances, and provide technical support for operational adjustments as needed.

b) **Sub-Program Energy and Demand Objectives:**

Table 2. 2013-2014 Projected Sub-Program Gross Energy and Demand Impacts

Program	KW	kWh	Therms
Enovity Smart	530	4,200,000	250,000
Nexant AE RCx	280	5,500,000	80,000
RSG AE RCx	560	4,200,000	60,000
PECEI AE RCx	150	2,200,000	9,000
Total	1,520	16,100,000	399,000

c) **Program Non-Energy Objectives:**

Demonstrate proof of the concept that remote building assessments utilizing interval meter data can be a cost-effective method for assessing energy savings opportunities and delivering high quality services to customers.

d) **Cost Effectiveness/Market Need:**

The Commercial Buildings Energy Consumption Survey (CBECS) indicates buildings less than 50,000 sq. ft. comprises about 12 percent of California’s commercial building floor space.¹ The California End Use Survey (CEUS) estimated statewide commercial floor space at 4.9 billion sq. ft. and average energy intensity at 13.6 kWh/sq. ft. and 0.26 therm/sq. ft.² Despite their sizable energy use, the number of customers and their diversity makes their market hard to reach with traditional energy efficacy programs.

It is also noted that there is currently a gap in programs offered by PG&E that can cost-effectively service buildings with an average of 50,000 sq. ft. or smaller with RCx measures.

e) **Measure Savings/ Work Papers:**

Calculated measures for customized projects will have different energy savings and data sources depending on the project. Every calculated project will have a pre- and post-inspection to determine the actual energy savings.

No workpapers have been submitted for this program.

10) Program Implementation Details

a) **Timelines:**

Table 3: Milestones

Milestone	Date
Contract with PG&E Completed	August 2013
Data received from PG&E and Entered into Software Platforms	December 2013
Customer Outreach begins	January 2014
All Projects Completed and Uploaded to PG&E	November 2014
Projects verified by PG&E and Paid	December 2014

b) **Geographic Scope:**

AERCx is offered throughout PG&E’s service territory through the four different implementers, however each Implementer’s contracted areas vary based on their

¹ EIA(2006), 2003 Commercial Building Energy Consumption Survey, U.S. Energy Information Administration, <http://www.eia.gov/consumption/commercial/data/2003/>.

² Itron (2006). California Commercial End-Use Survey Results. Prepared for the California Energy Commission. <http://capabilities.itron.com/CeusWeb/Default.aspx>.

proposals and does not overlap by sector or county with one another. While PECI services State facilities throughout the service territory, Enovity, Nexant and RSG cover the following counties:

Alameda	Mendocino	Santa Clara
Butte	Merced	Santa Cruz
Contra Costa	Monterey	Shasta
El Dorado	Napa	Solano
Fresno	Nevada	Sonoma
Glenn	Placer	Stanislaus
Kern	Sacramento	Sutter
Kings	San Joaquin	Yolo
Lake	San Luis Obispo	Yuba
Madera	San Mateo	
Marin	Santa Barbara	

c) Program Administration

**Table 4: Program Administration of Program Components
 (AERCx = Enovity, Nexant, RSG, PECI)**

Program Name	Program Component	Implemented by IOU Staff? (X = Yes)	Implemented by contractors to be selected by competitive bid process (if Yes then enter type of contractor/other market actor possibly used)	Implemented by contractors NOT selected by competitive bid process (list prime contractor and sub-contractor names)	Implemented by local government or other entity (X = Yes)
AERCx	Contract execution	X			
	Program materials development		AERCx		
	Program materials review and approval	X			
	Setting up tracking and reporting systems	X			
	Marketing and program sale		AERCx		
	Program leads and customer relationship management	X	AERCx		
	Training and presentation to PG&E personnel	X	AERCx		
	Customer site visits, installation, data collection and analysis		AERCx		
	Project application processing	X	AERCx		
	Project implementation assistance		AERCx		
	QA inspection and M&EV		AERCx		
	Pre- and post-installation review and approval	X			
	Customer incentive check processing		AERCx		

	Incentive check reimbursement	X			
	Invoice and reporting		AERCx		
	Invoice review and payment	X			

d) Program Eligibility Requirements:

i. Customers

Table 5: Customer Eligibility Requirements

Customer Eligibility Requirement (list of requirements)	PG&E
Non-residential customer	x
Contracted target segment: School, Municipal, State Facilities (limited eligibility for offices and grocery stores)	x
Average of 50,000 sq. ft. facility size	x
Eligible Participating County: See 10.b. above.	x
Has installed and operating electric interval meter	x
Pay the PPP and/or Gas Surcharge	x
Be an electric or natural gas customer of PG&E with an active meter served by PG&E	x
The program funds must directly benefit the customers in the PG&E service Territory from which the funds were collected	x
Signed Site Access Agreement	x
Operating central building automation system (or other type of control system)	x
The measure must be implemented in the facility of an eligible customer	x
The existing equipment must be operating and available for inspection	x
The measure must be a retrocommissioning measure, i.e. a systematic process for optimizing the energy efficiency performance of an existing building by identifying operational deficiencies and making necessary adjustments to correct the deficiencies	x
The measure must exceed applicable government and/or industry minimum efficiency standards to qualify and must operate and produce verifiable energy savings for the life of the product or five years, whichever is less	x
The installation schedule for each measure must show that the installation can be completed by December 1st, 2014	x
Any measure involving cogeneration or fuel-switching is not eligible	x

ii. Contractors/Participants:

Table 6: Contractor/Participant Eligibility Requirements

Contractor Eligibility Requirement (list of requirements)	PG&E
Implementer is responsible for ensuring integrity and qualifications of contractors they subcontract with, which are the Software Providers	X

e) **Program Partners:**

- i. **Manufacturer/Retailer/Distributor partners:** Not applicable to this program
- ii. **Other key program partners:** None.

f) **Measures and incentive levels:**

Customized retrocommissioning measures are in compliance with the PG&E Core Retrocommissioning Rates and Standards. Incentive rates are \$100/kW, \$.09/kWh, (\$.08/kWh after 7/1/14) and \$1/Therm.

g) **Additional Services:**

None

h) **Sub-Program Specific Marketing and Outreach:**

Due to the limited customer eligibility of AERCx, mass marketing techniques are not being applied as it would create customer confusion and disappoint potential customers who may not be eligible. Instead, implementers are using very targeted approaches.

Typical Marketing and Outreach Strategies used by Implementers:

- Direct coordination with PG&E Energy Watch Program and Local Government Partners currently engaging with customer segments
- Direct coordination with PG&E Energy Solutions and Services Account Representatives
- Leveraging existing relationships with customer through previous worked conducted or by coordination with complimentary PG&E programs
- Attending segment-focused meetings at administrative and facilities management staff levels
- Utilized sorted/ranked opportunities through the analytics tools by County and segment to directly target customers

i) **Sub-Program Specific Training:**

No formal training is associated with these programs.

j) **Sub-Program Software and/or Additional Tools:**

- i. List all eligible software or similar tools required for sub-program participation.

Proprietary software platform and data analytics tools are used the following Software Providers: Gridium, First Fuel, Agilis and Retroficiency

- ii. Indicate if pre and/or post implementation audits will be required for the sub-program.

Pre-implementation audit required Yes No

Post-implementation audit required Yes No

- iii. An incentive cap of up to 100% of the program cost is applied to all AERCx Programs.

Customized retrocommissioning measures are offered in compliance with the PG&E Core Retrocommissioning Rates and Standards. Incentive rates are \$100/kW, \$.09/kWh (\$0.08/kWh after 7/1/14), and \$1/Therm.

Table 7: Post-implementation Audits

Levels at Which Program Related Audits Are Rebated or Funded	Who Receives the Rebate/Funding (Customer or Contractor)
\$100/kW	Customer or Contractor (depending on if self-install)
\$.09/kWh (\$0.08/kWh after 7/1/14)	Customer or Contractor (depending on if self-install)
\$1/Therm	Customer or Contractor (depending on if self-install)

- k) **Sub-Program Quality Assurance Provisions:** Please list quality assurance, quality control, including accreditations/certification or other credentials

Project review sampling rates are in accordance with PG&E’s Core Calculated Program Standards and Guidelines.

Table 8: Quality Assurance Provisions

QA Requirements	QA Sampling Rate (Indicate Pre/Post Sample)	QA Personnel Certification Requirements
After installation, Implementer will conduct a site visit to collect verification data	Pre: PG&E Customer Program Standards	Implementer Engineer
Pre-installation site data, calculations and documentation is provided to PG&E for approval	Pre: PG&E Customer Program Standards	PG&E TPS Engineer
Post-installation, final project calculations, reports and documentation are submitted to PG&E for final approval	Pre: PG&E Customer Program Standards	PG&E TPS Engineer
Remedy Installation Issues: Implementer shall facilitate the project remedy of all installation problems that may arise. Implementer shall provide Customer a written notice explaining the discrepancies found. The Implementer shall correct any issues if in a direct install project. The Customer shall resolve any issues for an incentive path project	All installed projects, as applicable	Implementer Program Manager/Engineer

<p>Custom Measures: As part of a detailed evaluation for custom measures, Implementer will review manufacturer specification for energy efficiency measures to be installed to ensure maximum savings will be achieved. Implementer will then use specifications as the proposed case to estimate energy savings. In the absence of specification, Implementer will use either industry standards or historical data (based on similar measures installed in either the 2006-2008, 2009, or 2010-2013 program cycles) to estimate the energy savings. Implementer standards are documented within work papers. Calculations done as part of a detailed evaluation phase will be reviewed by engineers and other applicable Implementer staff prior to submittal to PG&E.</p>	<p>All installed projects, as applicable</p>	<p>Implementer Program Manager/Engineer</p>
<p>Calculations: Implementer shall use the BOA/CBOA tools when possible and supplement the measure calculations with baseline information, which may include, but is not limited to, photographs of equipment/settings (pre and post) or screenshots (for control system updates) to document the existing system/configuration and the post-measure installation system/configuration</p>	<p>All installed projects, as applicable</p>	<p>Implementer Engineer</p>
<p>Physical Verification: Implementer will conduct physical verification of installed, customer-based measures. Implementer will determine for each specific project, whether to spot measure or monitor and trend installed energy equipment to verify installation.</p>	<p>Varies by AERCx Implementer</p>	<p>Implementer Program Manager/Engineer or Contractor</p>
<p>Implementer conducts six months of post installation monitoring for anomaly detection against the baseline model created during the pre-installation analysis</p>	<p>All installed projects, as applicable</p>	<p>Implementer Program Manager/Engineer</p>

l) **Sub-program Delivery Method and Measure Installation /Marketing or Training:**
 Described above

m) **Sub-program Process Flow Chart:**
 While each of the implementers has a slightly different process flow, the sample below is a reflection of the operational flow of the programs.

Step	Activities
Program Kickoff	Meet with PG&E Program Manager to finalize program design elements, timing, and coordination plan.
Program Materials	Develop marketing materials, fact sheets, check lists, and webinar content.
Participant Recruiting	RSG Schools Outreach team has already conducted surveys to assess interest in RCx programs. Work with Local Government Partnerships (LGP) to identify interested Municipal participants. Work with PG&E Program Manager to further target potential schools candidates, using FirstFuel screening and portfolio prioritization capabilities.
Customer Commitment	Obtain customer participation agreements, including commitments from senior supervisors to implement no-cost and low-cost measures.
Analytics Data Capture	FirstFuel will work with PG&E to obtain one year of 15 minute interval data. Data will be handled in a secure manner.
Remote Building Assessment and Online Portal	FirstFuel Remote Building Assessment tool to perform remote site analysis and measure identification. Participants, program staff, and PG&E account managers will have access to an online portal identifying load usage patterns, building benchmarking analysis, energy savings opportunities, and measure identification.
Customer Recommendation Webinar	RSG and FirstFuel will jointly hold a webinar for participants to present the remote assessment analysis and recommendations. Attendees will include facilities managers, school board members, principals, head custodians, and other key stakeholders as needed. Discussion will include best practices for implementing Operational and Maintenance changes.
On-site Measure Verification and Walk-Through	RSG will meet with facilities managers to verify the measures identified by the remote assessment. This is also an opportunity for RSG staff to allay any concerns the school staff may have about any adverse effects of changing temperature setbacks or trimming down ventilation start and end times.
Measure Implementation	Participant staff makes operational and equipment changes directly. RSG can recommend vendors for maintenance and hardware measures that are beyond the expertise of on-site staff.
Savings Validation	Energy savings estimates from measure implementation will be calculated following PG&E RCx guidelines, using Building Optimization Analysis (BOA) and custom calculations as appropriate, and IPMVP Option A when applicable.
Incentive Processing	Process and pay customer incentives using existing processing experience and best practices for speedy payment and a positive customer experience.
Ongoing Anomaly Detection	Provide on-going support to participants through monthly interval data refreshes and anomaly detection.
Monthly Progress Reports	Provide PG&E program staff with monthly progress reports of measures implemented and savings achieved for each project.

n) **Cross-cutting Sub-program and Non-IOU Partner Coordination:**
 N/A

11) **Additional Sub-Program Information**

a) **Advancing Strategic Plan Goals and Objectives:**
 Not applicable

b) **Integration**

i. **Integrated/coordinated Demand Side Management:**
 Not applicable

ii. **Integration across resource types** (energy, water, air quality, etc.):
Not applicable

c) **Leveraging of Resources:**
Not applicable

d) **Trials/ Pilots:**
Not applicable

e) **Knowledge Transfer:**
Not applicable

12) Market Transformation Information:

Not applicable

13) Additional information as required by Commission decision or ruling or as needed:

None.