

Telling the "Story" of Program Influence for Custom Programs in California

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Methods and Data Sources

- NTG methodology used for this research was the standard Nonresidential Self-Report Approach (SRA)
 - Originally developed for 2006-2008 evaluation
 - Refined in early stages of this evaluation
- Four sources of free-ridership and spillover information:
 - Program files;
 - Decision Maker (telephone) surveys
 - Utility and Program Staff Interviews
 - Small number of targeted interviews with market actors to substantiate ISP
- Both CATI and In Depth Interviews roughly 50-50 split
- Weighting of project level results to population
- Final step review/adjust for early replacement and dual baseline projects (double counting issue)



Number of Completed Surveys

- A substantial number of NTG surveys were completed, 1,388 in total.
- These were roughly proportional to the population of completed projects for each IOU

Completed Surveys as a Percentage of Total Projects for IOU Core and Third Party Programs

Utility/Fuel Sampling	Total Numb Projects	Total Number of Projects		Completed Surveys		
Domain	Total Number of Projects	% of Total	Completed Surveys (N)	% of Total		
PG&E Electric	6,994	50%	558	40%		
PG&E Gas	1,270	9%	230	17%		
SCE Electric	3,052	22%	367	26%		
SDG&E Electric	1,469	11%	125	9%		
SDG&E/SCG Gas	1,066	8%	108	8%		
Total	13,851	100%	1,388	100%		



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Detailed NTG Findings



Weighted Net-to-Gross Ratios by IOU Fuel Domain

- On a Statewide basis, the NTGR across all program categories averaged 0.48 for electric programs and 0.53 for gas programs.
- These values indicate a resulting medium low level of program influence, and are similar in magnitude to NTGRs from the past several evaluation cycles





Weighted NTG Results - Statewide

- Significant levels of free ridership were found to have continued into this 2010-2012 program cycle.
- Evaluated NTGRs were similar in magnitude to those from the results of evaluations dating back to program year 1998







NTG Findings by Variables of Interest





Analysis by Measure Type



Electric Measures



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Gas End Uses

- New Construction projects had the lowest NTGRs.
- Steam trap NTGRs were the highest. These levels are slightly better than Industrial Steam Trap NTGR levels from PY2006-2008





Electric Results by Baseline Status

- Major Renovation and Add-On Measure categories had the highest levels of program influenced adoptions.
- Program influence for Capacity Expansion projects was very low
- Early Replacement results did not make strong case for program influenced adoptions.





Electric Results by Incentive Level

- Definitions: Low < \$50,000/project; Medium \$50,000 \$200,000/project; High >\$200,000/project
- Results relatively insensitive to incentive level





PG&E Results by Business Type

- Poorest results are for Water Supply/Irrigation and Sewage Treatment • Facilities. Oil/gas extraction also unfavorable.
- Results for Agriculture, Forestry consistent with Ag Pumping findings. •
- Computer Storage Device Manufacturing NTGRs most favorable. These are • manufacturers, not Data Centers







Key Factors Influencing NTGRs



Key Factors Approach

- Predominantly a qualitative approach to examine key project drivers.
 - The intent was to look more deeply, into the qualitative factors that drive the numerical results.
- Looking for factors that correlate with low/high free ridership programs.
- Did not do formal regression/correlation coefficient analysis however.
- First examined the key contextual factors within each project, and then summarized across all evaluated projects within a set group.



Common Themes

- Corporate policy is a major driver of most projects. Corporate standard practice is nearly-universal as a decision influence, along with environmental policies
- Weaker performing programs exhibited one or more other strong drivers that may be contributing to poor performance.
 - PGE2222 EEOP a majority of projects have automation benefits in addition to energy savings. Also, a significant percentage of projects were already in an advanced stage.
 - New construction projects have many non-energy efficiency drivers: e.g. firms involved including chains/big box stores are advanced in their adoptions of energy efficiency
 - Replacement of failing equipment a common theme for SCE Core and 3P programs
 - Environmental compliance is present in decisions for UC/CSU, SDGE3117 NR BID, and New Construction pgms



Example Table for PG&E Programs

	PGE Core Comm	Energy Efficiency Services for Oil Production	New Construction	Heavy Industry PGE2223	RCx Group RCx Group	Other 3P PGE
	Ind Ag	PGE2222	PGE21042			
Distribution of NTGRs						
High - 0.76 to 1.00	9%	0%	10%	5%	14%	13%
Medium High- 0.51 to 0.75	30%	7%	24%	55%	50%	42%
Medium Low- 0.26 to 0.50	49%	50%	43%	32%	36%	38%
Low - 0.00 to 0.25	12%	43%	24%	8%	0%	7%
Program/Program Grouping NTGR - Electric	0.47	0.37	0.46	0.62	0.62	0.47
Program/Program Grouping NTGR - Gas	0.63	N/A	0.39	0.57	0.63	0.68
Key Project Drivers						
Project Maturity						
Project is in the capital and/or operating budget	5%	33%	11%	3%	7%	0%
Equipment has already been ordered	1%	22%	6%	0%	0%	0%
Corporate Policy/Practice						
Measure is part of corporate standard practice	67%	46%	61%	68%	86%	62%
Measure is installed elsewhere in company, in places that do not offer rebates	14%	41%	22%	3%	7%	1%
Company has environmental policy in place	53%	22%	78%	49%	71%	52%
Energy Efficiency A Secondary, not Primary, Benefit						
Measure automates existing manual processes	11%	65%	11%	14%	7%	13%
Measure improves workplace quality	14%	0%	33%	0%	7%	14%
Environmental Compliance						-
Measure is associated with environmental compliance (e.g., pollution reduction)	6%	0%	0%	3%	0%	7%
Market Segment						
Measure is installed by a market segment that is ahead of curve on energy efficiency	10%	33%	17%	0%	0%	4%
Measure is installed by national chain/big box firm	10%	0%	22%	0%	0%	6%
Project Cost vs. Rebate						
Rebate is very small % of overall project cost	7%	28%	11%	16%	0%	1%
Project Context						
Measure is part of an expansion/remodeling	16%	26%	28%	14%	7%	7%
Measure installed to replace failing equipment	20%	4%	0%	5%	29%	18%





Key Findings and Recommendations



Conclusions

- Significant free ridership has persisted into this program cycle
 - Statewide NTGRs of 0.48 for electric programs and 0.53 for gas programs.
 - Evaluated NTGRs similar in magnitude to those dating back to PY1998.
- **Insufficient adjustments have been made** with respect to either program designs or implementation procedures *in order to reduce free ridership.*
- Certain market segments and energy efficient measure categories experienced higher free ridership.
 - Water/Wastewater and Agricultural Pump Overhauls had particularly low NTGRs



- Adopt procedures to identify and affect projects with low program influence.
- Adjust the set of technologies that are eligible for incentives
 - Actively highlight and promote technologies that are less welladopted, cutting edge, or emerging technologies
 - Designating the proper baseline is critical
 - Incent based on bundling of mandatory requirements or optional features
 - Use a comprehensive rather than a prescriptive approach to discourage free ridership.



- Adopt procedures to limit or exclude known free riders. Critically examine the key reasons behind the project before the incentive is approved, for example:
 - Has the project already been included in the capital or operating budget?
 - Has the equipment already been ordered or installed?
 - Is the measure one that the company or other comparable companies in the same industry/segment routinely installs as a standard practice? Is the measure installed in other locations, without co-funding by incentives? Is the measure potentially ISP?
 - Is the project being done, in part, to comply with regulatory mandates (such as environmental regulations)?
 - Are the project economics already compelling without incentives? Is the rebate large enough to make a difference in whether or not the project is implemented?
 - Is the company in a market segment that is ahead of the curve on energy efficiency technology installations? Is it part of a national chain that already has a corporate policy to install the proposed technology?



- Adopt procedures to limit or exclude known free riders. Critically examine the key reasons behind the project before the incentive is approved, for example:
 - Is the company in a market segment that is ahead of the curve on energy efficiency technology installations? Is it part of a national chain that already has a corporate policy to install the proposed technology?
 - Does the proposed measure have substantial non-energy benefits? Is it largely being considered for non-energy reasons (such as improved quality or increased production)?

By conducting a brief interview before the incentive is approved, the implementer can better assess the likely degree of free ridership and can then decide if the project should be excluded or substantially re-scoped.

Each item above can be tied to a new or enhanced program rule or guidance and program administrators can point to these requirements and minimize concerns over unfair/arbitrary decisionmaking.



- Make and/or pilot changes to the incentive design
 - Consider tiering incentives by technology class.
 - Adopt a Payback Floor, excluding projects for which the payback time is less than 12 months.
 - Offer bonuses to incent desirable behavior, e.g., installation of multiple measures or installation by a first-time participant
- Use a sophisticated program design reflecting a comprehensive mix of program features and leveraging an array of delivery channels
- Use a broad mix of program features and delivery channels to market projects.
- More information is needed on industrial project costs, nonenergy costs and benefits, net present value analysis, and associated participant cost-effectiveness analysis.
- Rules of thumb, such as assuming that incentives represent half of incremental costs, appear to have been used instead of actual incremental costs, as proxies.





THANK YOU

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