


**PG&E**

## Retro-Commissioning: What's Next?

**NCBC 2006**

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### RCx is the "Big Opportunity"

- ▶ Of course, this is the PG&E perspective
- ▶ Buildings are replaced at 2% per year . . . 98% of the opportunity already exists as a "built building"
- ▶ Studies, LBNL (and others): RCx = 7% savings, or 1 kWh per square foot: Beat that?
  - ▶ T-24 and weather: make it tough
  - ▶ Program skill, provider skill: give us a chance




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### Current Situation, PG&E Territory

- ▶ PG&E: about 43% of the IOU business in CA; will spend about \$950 M in 2006-08 for all programs
- ▶ Two notable partnerships established in past years have strong RCx elements
  - ▶ UC/CSU (statewide)
  - ▶ Silicon Valley Leadership Group
- ▶ However, no "standard" RCx program
- ▶ Recently completed 3-P solicitation did not give us everything we were looking for




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### What are We Looking For?

- ▶ Cost-effectiveness: competes with other ee programs as well as supply side
- ▶ Persistent Savings: We're looking at this as a form of energy procurement competing with other supply side sources—must be able to predict and “count on” it
- ▶ Customer Satisfaction
  - ▶ Programmatic (predictable, high-quality program)
  - ▶ Cost/benefit (results for the money)
  - ▶ Occupant satisfaction (building function)




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### Needed: Utility-Branded RCx Program

- ▶ Establish credibility of RCx as a disciplined service
- ▶ Set consistent expectations for customers
- ▶ Leverage reputation of not only utilities but other national efforts (*e.g.*, Energy Star)
- ▶ Establish norms and expectations around “terms of art” used in the industry
- ▶ Support managed growth in the industry




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### 3-P Summary

- ▶ Solicitation from last fall: many good ideas
- ▶ Several “niche” contracts
- ▶ Did not produce the large-scale, branded program we were looking for
- ▶ RCx expected to be an important element in Spring, 2006 3-P solicitations




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## “Syndromes” to Address

- ▶ Low “conversion” (high “drop-out”) rate
- ▶ Facility capability and fit:
  - ▶ Owner motivation (split incentives, management priorities)
  - ▶ Staff skills and motivation
  - ▶ Staff time and resources
  - ▶ Physical plant
- ▶ Quality/Quantity of “Provider Pool”




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## Demand Savings: Is it There?

- ▶ Conventional Wisdom: RCx produces kWh, not kW
- ▶ Certainly, many system scheduling fixes won’t produce coincident peak kW savings
- ▶ However, lack of demand savings may also be an artifact of measurement methods
- ▶ Bottom line: it would be useful to document legitimate peak demand savings




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## Range of Services

- ▶ One size fits all? Probably not best
  - ▶ Customer size and complexity
  - ▶ Customer motivation and capability
- ▶ A–B–C model
  - ▶ A: Simplest level, prescriptive, fast (test for customer actions before proceeding)
  - ▶ B: More intense diagnostics, temporary metering
  - ▶ C: MBCx, may integrate with Demand Response
- ▶ Drive A to B, B to C




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**Prescriptive Model: Can We Do That?**

Core idea: Based on accepted best practices and known failure rates, implement RCx services in a targeted fashion

- ▶ Economizers (simply assume they have failed)
- ▶ Simultaneous heating and cooling (VAV boxes—assume failure at a given age)
- ▶ Sensor calibration: don't diagnose, simply reset



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**“MBCx.” Monitoring Based Commissioning**

- ▶ Core concept: use metering and monitoring to
  1. Identify savings
  2. Assure persistence (equipment stays in place)
- ▶ Several models
- ▶ Holy grail
- ▶ Can we afford it?



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**Utility Support Services**

Provider Training  
Customer Training  
Diagnostic Tool Development  
Tool Lending Library  
Sample “work scope” documents and commissioning protocols (in partnership with CCC)



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