How Technology Improves the Cx/RCx Process

Dave Peck, VP of Channel Sales
2006-08 California RCx Portfolio:
CPUC Evaluation Results

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California Commissioning Collaborative Meeting
Monrovia, CA

Presented by: Bing Tso, P.E. LEED AP
• “RCx is an incremental process that needs to be done over a longer period of time, rather than through a one-time process of dropping in, making recommendations and then moving on.”

• Estimated useful life analysis: 20% of measures failed 3-4 years after installation

• Need to reduce RCx service providers' burden for quantifying energy savings

• Need to balance accurate first-year savings measurement against tracking savings over time

• Need to improve baseline data collection
RCx:
Single-most cost-effective opportunity to achieve energy savings in buildings

But...STATIC
**RCx:** Single-most cost-effective opportunity to achieve energy savings in buildings

**MBCx:** monitors the aggregate “staying power” of ECMs implemented via RCx

But...**STATIC**

But...doesn’t effectively address optimization or additional opportunities for savings
Evolution of RCx

**RCx:**
Single-most cost-effective opportunity to achieve energy savings in buildings

**MBCx:**
monitors the aggregate “staying power” of ECMs initially identified in the RCx process

But...STATIC

But...doesn’t effectively address optimization or additional opportunities for savings

**Data-Driven RCx:**
Adds technology to monitor the persistence of implemented ECMs and provide ongoing, actionable insights
The Case for Data-Driven RCx

Energy Spend

100%

Time

Implement Low- and No-Cost ECMs

Accelerated Savings

Drift…

Savings from Periodic RCx

Maintained Savings through Data-Driven RCx

Additional ECMs continuously discovered through Data-Driven RCx

Adapted from Lawrence Berkeley National Labs, June 2009
Data-Driven MBCx Programs & Pilots

- BC Hydro
- National Grid
- Southern California Edison
- PG&E
- Pepco
- SDG&E
- Xcel Energy
• ComEd has asked Nexant to issue an RFP for MBCx in Chicago. The pilot will include roughly 10 buildings.

• PG&E and SCE have offered MBCx programs for several years. $5 MM dedicated in the latest program cycle.

• National Grid P4P Program requires a 3 year service agreement to ensure persistency of savings.

• NYSERDA’s MBCx pilot started in 2010 and runs through 2015.
How RCx changes with Technology

Core Elements of RCx + Data Intelligence

1. Kick-off meeting with facility staff to understand client’s operations
   - Obtain pertinent information on systems / equipment
     (submittal data, as-builts, sequences, etc.)

2. Investigate & analyze building systems operations (Central Plant, AHUs, Unitary HVAC, etc.)

3. Gather operational and functional performance data to assess equipment and system operation

4. Identify ECMS with associated savings and simple payback

5. Present Master List of Findings to client, assist in selecting ECMS to implement
   - Establish with client the plan for ECM implementation

6. Produce RCx Final Report detailing ECM implementation and energy savings

From RCx to iRCx
Put It All Together

- **Establish Baseline**
- **Find Energy Usage (kWh, kW) Anomalies**
- **Verify Savings**
- **Establish New Baseline**

**Technology**

- **Data Capture**
- **Config & Test**
- **Training**
- **GO-LIVE**
- **LIVE – Monitor (Energy Wasting Conditions)**
- **On-going Commissioning**

Find More ECMs faster than traditional RCx

Identify areas of potential concern prior to RCx team arriving on site

Continuously monitor assets and systems, identify faults and potential energy wasting conditions daily (if any)

From RCx to iRCx
Why Is This Important?

RCx market to grow 18-fold in 5 years

2010
$220 mm market
2,000 RCx agents

2015
$4 billion market
20,000 RCx agents

- Days of “traditional” RCx are numbered
- Data Driven tools enhance analytics and operational efficiency
- More time on ECM implementation, less on investigation and reporting

* Pike Research, 2010
In Conclusion

- Utilities understand the value of RCx and acknowledge it can be improved. Programs nationally are including ongoing M+V and persistence.

- Data driven RCx allows engineers to spend less time investigating savings and more time implementing savings measures.

- Technology plays a role in identifying additional ecm's and savings opportunities and will provide RCx providers with on-going dialogue with their customers.

- Technology will be a driver in this exciting high growth RCx market.
Thank You

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