



Innovation in Retro-Commissioning Program Design:

The Value of Customer Partnerships

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The PSE&G Retro-Commissioning Pilot Program

Energy savings through improved Operations & Maintenance (O&M) practices and no and/or low cost retrofit measures specific supermarkets.



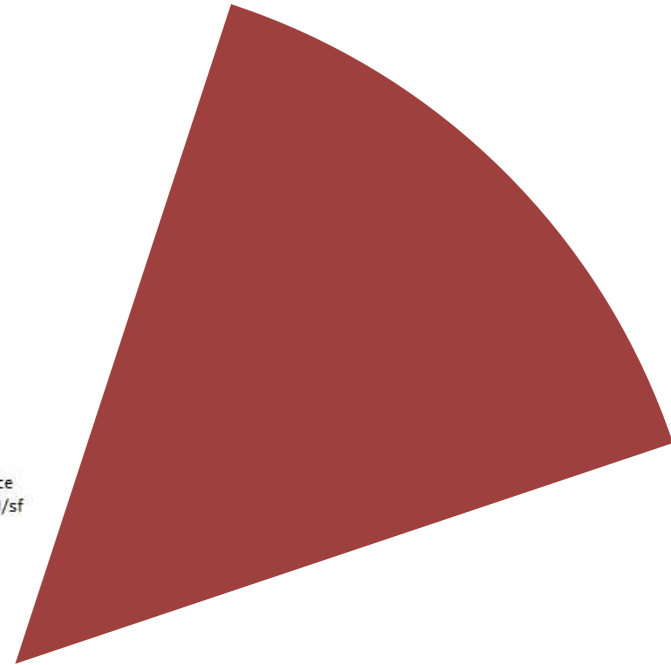
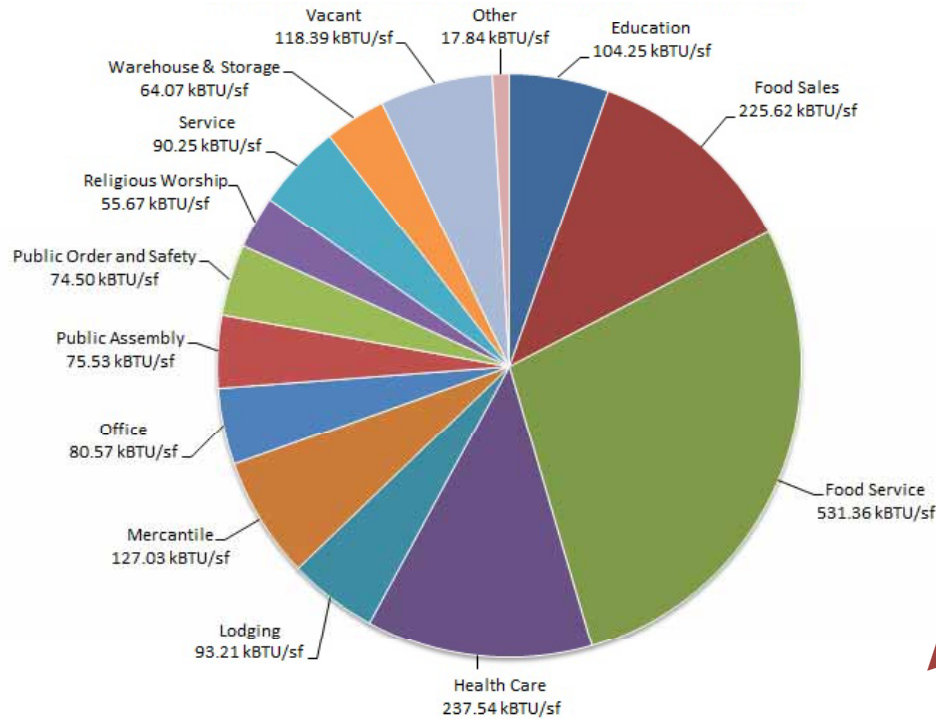
Objectives:

- Document baseline
- Optimize system performance
- Recommend low-cost capital
- Identify O&M best practices
- Develop documentation of O&M
- Provide training



A Market-Specific Approach – Why Supermarkets?

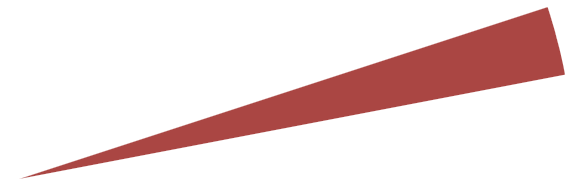
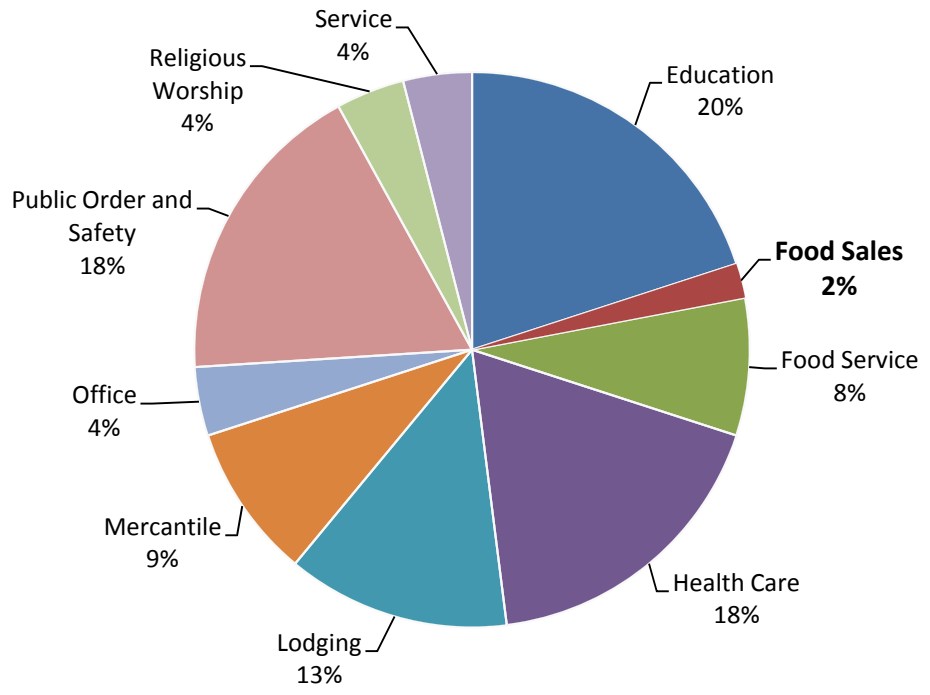
Energy Intensity in New Jersey (kBTU/SF)



Food Sales
225 kBTU/ SF

A Market-Specific Approach – Why Supermarkets?

Energy Efficiency Penetration Rate (by Building Type)



Food Sales 2%

A Market-Specific Approach – Why Supermarkets?

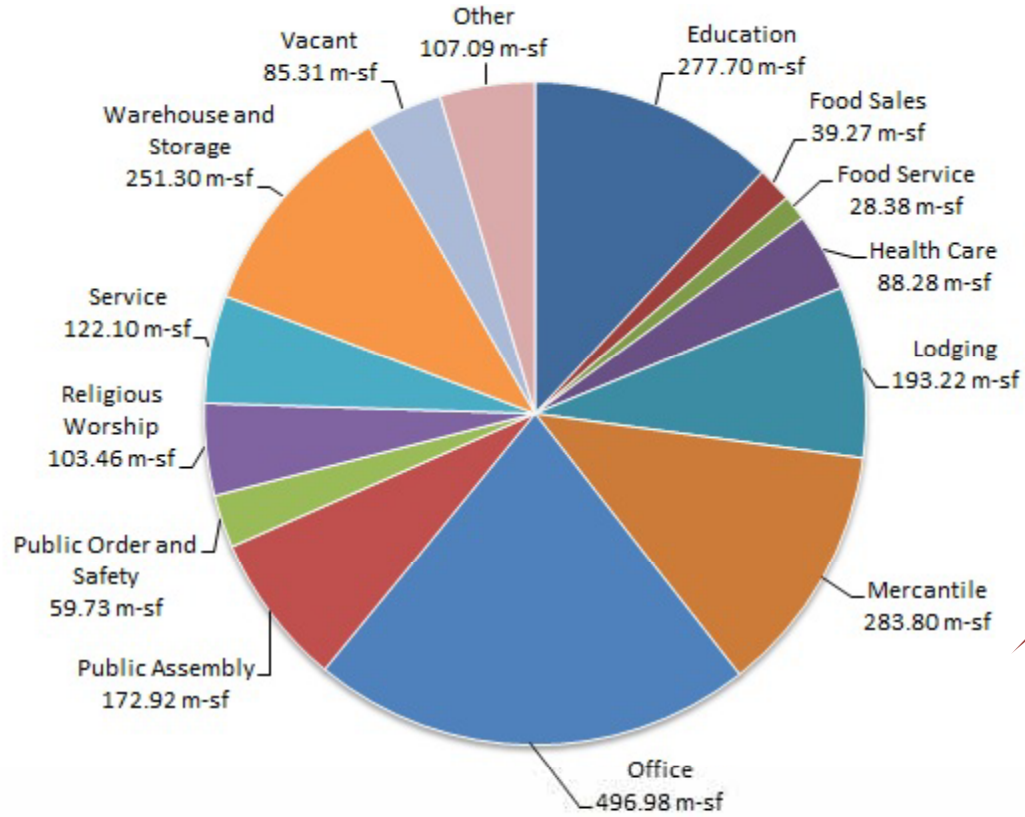


Energy Savings =
Preserve Jobs

- Sales of \$82 billion; \$19 billion of Gross State Product
- 400,000 workers; 15.2% of all private sector jobs
- Feed 9 million people per day
- Spend up to \$10/square foot per year on energy, or \$700,000 per year for an average store

A Market-Specific Approach – Why Supermarkets?

Floor Space in New Jersey (by Building Type)



Food Sales
39.27 M-SF



A Market-Specific Approach – Why Supermarkets?



Utility customer relationships afford the opportunity for partnerships.

A Market-Specific Approach – Why Supermarkets?

- The recession drives grocers to address bottom-line operating costs rather than top line growth.
- The US EPA estimates that \$1 in energy savings is equivalent to increasing sales by \$59.



Obstacles and Opportunities

Obstacle

RCx programs typically target buildings on size, not necessarily those who are both motivated and capable.

Design Strategy

Program selected an energy intensive AND motivated market segment to seek higher savings.



Obstacles and Opportunities

Obstacle

RCx has been misunderstood or underappreciated.

Design Strategy

Utility customer relationships offer unique opportunities to communicate the value of the program from a trusted partner.



Obstacles and Opportunities

Obstacle

Not all buildings are suitable for RCx.

Design Strategy

ASHRAE Tier I audits provide value to the customer and serve to identify suitable programs.

Obstacles and Opportunities

Obstacle

Specific building types require unique knowledge, a single RCx Contractor is not suitable for all.

Design Strategy

Select Contractors based on their experience with the grocery industry.



Obstacles and Opportunities

Obstacle

Building owners must have both the motivation and capacity to make use of RCx.

Design Strategy

Require participation of all responsible parties and train in best practices.

Obstacles and Opportunities

Obstacle

Persistence is only assured under a watchful eye.

Design Strategy

Require compliance with IPMVP and a 12-month M&V period.

Obstacles and Opportunities

Obstacle

M&V alone won't ensure persistence.

Design Strategy

Combine O&M training with continued monitoring and technical assistance for a full year.

The Pilot Program - Participants

PSE&G leveraged customer partnerships to secure participation from facilities that:

- Are 30,000 SF or larger.
- Have not exceeded anticipated design service life.
- Have not recently participated in similar programs.
- Are not considering capital expenditures/retrofits.
- Are well-maintained with BMS/EMS systems.
- Are internally motivated to assure perseverance.
- Are willing to commit staff/service contractors.



The Pilot Program - Phases



**Phase 1:
Benchmarking and Auditing**

**Phase 2:
Investigation/Implementation**

**Phase 3:
Training/Monitoring/
Verification/Support**

The Pilot Program – Interim Program Results

Participation:

>10% of supermarkets within PSE&G territory.

70 kWh/SF average energy intensity.

2,300,000 SF total.

Represents almost half of NJ supermarket chains.



The Pilot Program – Interim Program Results

Results:

346,000 kWh (\$45,000) per store.

Average simple payback of 1 year.

Investment in staff / contractor skills.

Demonstrated of value of proper O&M to Owner.



The Pilot Program – Lessons Learned

- **Overcome the initial customer reluctance.**
- **Align internal goals with program goals.**
- **Strengthen relationship between the service contractor and the building operator.**



The Pilot Program – Emerging Opportunities

- Target remaining 339 supermarkets within participating chains.
- Apply RCx to the same equipment in other types of food sales facilities.
- Contractors' new skill and knowledge transferred to all the work they do.





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Long Beach, CA**

Jan. 28-31, 2013

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