



# Low Cost/No Cost Ways to Reduce Your Energy Bills

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# Today's Topics

- Retro-commissioning
- Associate Awareness Initiatives
- Utility Role
- Operations & Maintenance
- Other

# Retro-Commissioning



- Overview
  - Original settings were designed to minimize energy consumption
  - Many stores not operating as designed
- Objective
  - restore to design specifications.
- TJX Primary Focus: ***Lighting***



# TJX Lighting Control

- 3 Levels of lighting
  - ***Night*** Level
    - Minimal lighting
  - ***Employee*** Level
    - Half pattern- 50% of ambient throughout
    - NO spots, wall washers, valences, gondolas, etc
  - ***Customer*** Level
    - 100% lit



# TJX Lighting Control

## ***Common Malfunctions***

- Reasons?
  - Original electrical construction?
  - Commissioning processes?
  - Remodels and alterations?
  
- Night lighting:
  - Too many ambient fixtures on night circuits?
  - Unnecessary fixtures? (spots, tracks, gondolas, back rooms, etc)
  - Store leaves night lights on because:
    - Not enough light to safely exit
    - Unknown/inconvenient switch location
    - Security
  
- Employee lighting:
  - Spots, tracks, wall wash, valence, gondolas, etc may be on employee circuit
  - Accessory lighting often installed “aftermarket”
  - Half pattern may be too much
  - Half pattern may be insufficient for tasks, so store overrides



# “Penalty” Cost of Lighting Control Malfunctions

Sales floor on “ <i>Night</i> ”	\$12,000/yr
Sales floor on “ <i>Employee</i> ”	\$3,500/yr
Back rooms on “ <i>Night</i> ”	\$3,000/yr
Valence on “ <i>Night</i> ”	\$3,500/yr
Valence on “ <i>Employee</i> ”	\$1,000/yr
Track lights on “ <i>Night</i> ”	\$1,000/yr
Lamp Gondola on “ <i>Night</i> ”	\$1,000/yr

# Retro-Commissioning



- Challenges:
  - Every store different (circuits, sub-panels, etc)
  - Poor panel labeling and as built drawings
  - “Dark test” can only be done off-hours
  - Diagnostics difficult for average electrician
    - Some corrections are simple at the panel
    - Some corrections require costly re-circuiting
  - Finding & training qualified contractors

# Retro-Commissioning



- Actual Results:
  - **Good:**
    - Many stores have been improved
  - **Bad:**
    - Time clocks and other “fixes”
    - Man-hours
  - **Ugly:**
    - Turned up other problems (dedicated circuits, e-lights, etc)

# Retro-Commissioning



- Lessons Learned:
  - Improve new construction standards
    - Tighter specs
    - More rigorous plan review
    - Project Manager training
    - Initial commissioning
  - Improved documentation
    - Original plans, as-built, remodels
    - Panel labeling
  - Effective partner is a MUST

# Awareness Programs



Objective: *Improve Store Participation*

## Challenges:

- Store management is focused on other issues
- We have taken energy out of their hands
- No real incentive, no real accountability
- Every store is different; difficult to develop generic training materials

# Awareness Programs



- Implementation approaches
  - Broadcast vs. Focused
    - Broadcast- Sent to all stores
    - Focused: Selective distribution
      - Prioritized By Cost Region
      - Prioritized by exception (high use, high LF, etc)
- Approach depends upon:
  - Goals & Objectives
  - Support capability

# Awareness Programs



- **Status:**
  - Work in Progress
  - Trying to leverage current “Green” trends
  - Implementation Approach : Broadcast w/Focused Follow-up
  - Survey being developed for store managers
- **Goals:**
  - Improve training and end-user awareness
  - Identify stores with issues
- **Results:** ***TBD!***



# Utility Activities

- Best Rate- Mixed results
  - Pro-active v. reactive v. non-existent
- Audits- Minimal results
  - Recommendations too custom
- Billing errors- Minimal results
- Pilots, Special Rates, DR, etc - Minimal



# Utility Role

- **Biggest Saver Challenge!**

# Exception Reporting



- 1000's of accounts
- Cannot practically evaluate every account/store
- Exception Reporting enables us to identify problems & savings opportunities
- 2 Fundamental Types
  - Billing Data
  - EMS



# Exception Reporting- Billing Data

- Challenges:
  - Normalizing
  - Multiple variables
    - Weather, billing cycles, type of store, etc.
  - Available Man-hours
- Status:
  - Outgrown existing system
  - Currently upgrading
- Results:
  - Historical: high level screening yields gross problems
  - New Systems- TBD!

# Exception Reporting- EMS Data



- All stores use NOVAR
- EMS Operations Center at HQ
- Exception Reporting:
  - 3 AM
  - Overrides

# Exception Reporting- EMS Data



- Challenges
  - Diagnostics very time consuming
  - Contractor limitations
- Status
  - Limited success...
    - Struggling w/ diagnostics & corrections
  - Developing contractor(s)

*We can find 'em, we can't fix 'em!*



# HVAC Set Points

- Every degree reduces energy consumption approximately 3%
- Service calls increase
- Dealing with Complaints:
  - “Squeaky wheel” approach

# HVAC Set Points



- Lessons Learned
  - Timing
    - Implement before heating/cooling season starts
    - If mid-season, incremental phase-in
  - Breakpoint
    - As you approach/exceed breakpoint, calls increase
      - Ex: calls doubled 74-75
  - Needs “top down” support



# Demand Management

- Demand Response
  - Status: 300 stores, different regions
  - Results:
    - Strong cash flow
    - Learning curve
- Demand Limiting
  - Status: Identifying/prioritizing opportunities
  - Results: TBD!

# Other



- **Occupancy sensors**
  - Status: Currently under review
  - Challenges: Every store is different
  - Results: TBD!
- **Sub-metering**
  - Status: Wish List
  - Challenges: Not enough time in the day!!!
- ***Ideas?***