

BUILDINGENERGY BOSTON

Retro-Cx: Achieving Carbon Reduction Goals through Training and Collaboration

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Northeast Sustainable Energy Association (NESEA)

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BUILDINGENERGY BOSTON

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Conference • Trade Show of the Northeast Sustainable Energy Association (NESEA)

Retro-Cx: Working through Conflict with Collaboration

*achieving energy/carbon reduction goals through training
and a culture of collaboration*

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EdisonEnergy.com



Retro-Commissioning (RCx)

- Systematic process
- Investigating, analyzing & optimizing
- Identification & implementation of low/no cost measures
- Ensuring continued performance

Excellent ROI (return on investment)

Reduces energy costs/ budget

Verifies/ validates environmental criteria

Reduced maintenance

Increased system reliability

Improved occupant comfort

Solve long term operating problems

Adapting RCx

Mission Critical Facilities

- **Healthcare**
- Data Centers
- Trading Floors
- Television Studios
- Museums
- Labs / Validated Systems
- Emergency Power

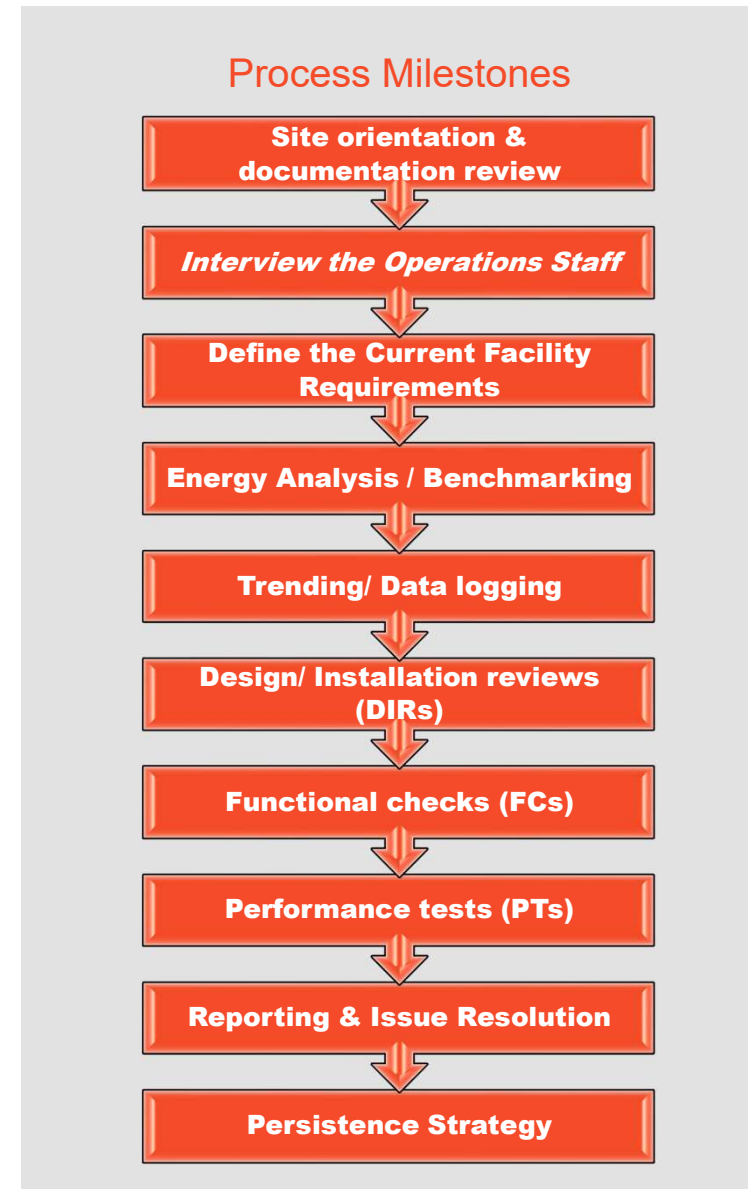
Similar Process, Different Concerns

- Stringent patient requirements
 - Patients' needs, comfort and safety take priority
- Complex energy and HVAC systems
 - Delicate system balance between space types
- Critical nature of the services provided; patients served
 - ECMs need to be easy to implement & sustain
 - Focus on energy without impacting patients' quality of stay and comfort
- Risk / Protection of Valuables (Life)

KEY: Collaboration & Understanding

- Upfront understanding...
 - Facility operational requirements
 - Existing controls capabilities
 - Project goals, expected outcome
 - Personnel involved
 - Coordination & access
- Constraints & Challenges
- Communication protocol
- Issue Remediation Process

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Buildings that Learn – The Role of Operators

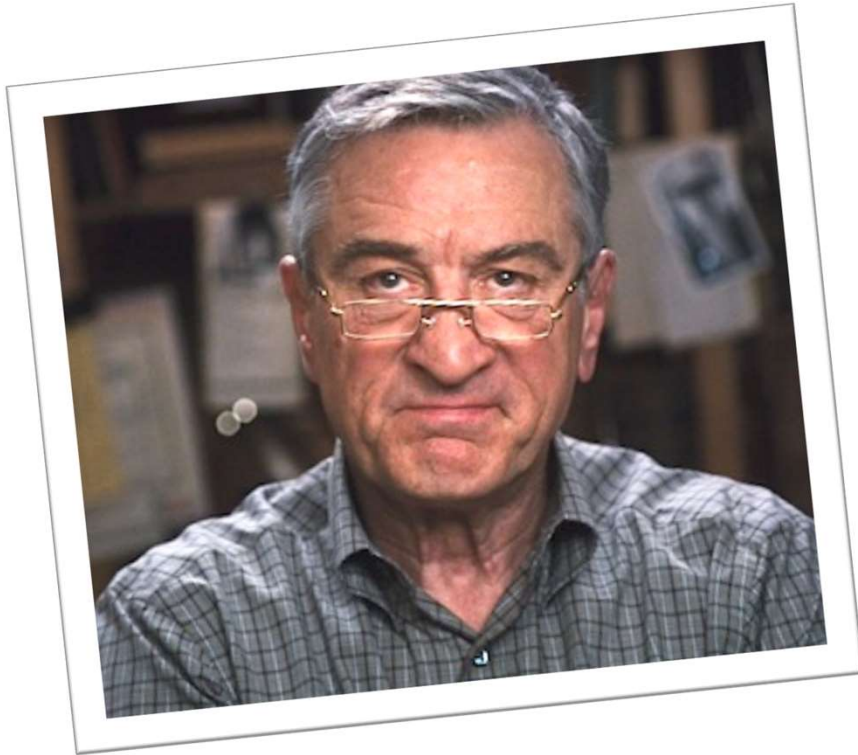
Building operators negotiate between users, technologies and the building, and thus, their understanding of and knowledge about the building is vital for reaching goals of energy efficiency.

- Margrethe Aune & Robert Bye

**The solutions may
already exist!**

**It just needs to be
shared...**

Hesitancy & Hurdles



“

Teamwork begins by building trust. And the only way to do that is to overcome our need for invulnerability.”

**"NEVER
MISS A
GOOD
CHANCE
TO
SHUT UP."**
- will rogers

Results of Good Communication

- Identify Current State of Performance
- Occupants & Usage
- Environment to be Achieved
- Planned / Unplanned Capital Expenses
- Utility Budget / Management
- Operating Schedules / Strategies
- Setpoints & Resets
- Seasonal Constraints
- Past Experiences (Successes & Failures)
 - Information vs. Knowledge

Northwell Health

Launching of an Energy Program



Northwell Retro-Cx Pilot & OsEM Program

Overall Project Goals

- Retro-Cx across 9 Sites
 - NYC, Queens, SI, Long Island
- Develop training program
- Connect to a larger portfolio initiative
- Develop tools for utility tracking, site analysis



SITE VISITS



ISSUES IDENTIFIED & THE ISSUES DATABASE (IDB)



CALCULATIONS & ECM DEVELOPMENT



SCOPES OF WORK, SUMMARIES, MEETINGS



ISSUE RESOLUTION & IMPLEMENTATION



UPDATED IDB & PIVOTS



MATRIX TRACKING & REPORTING



ESC POWERPOINT GENERATION



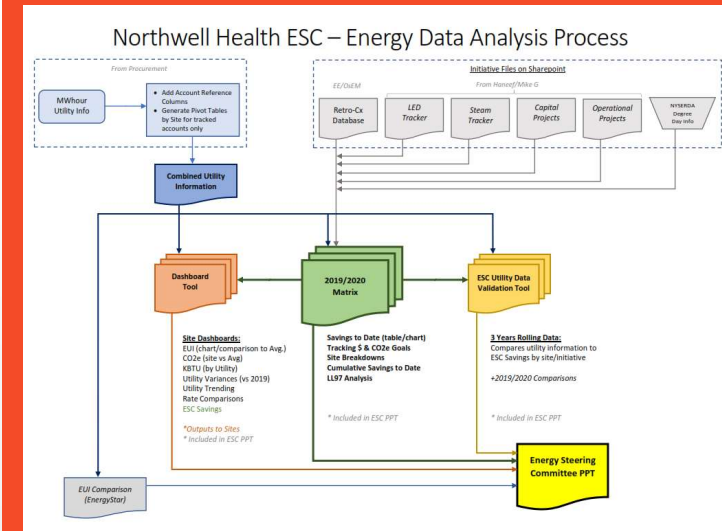
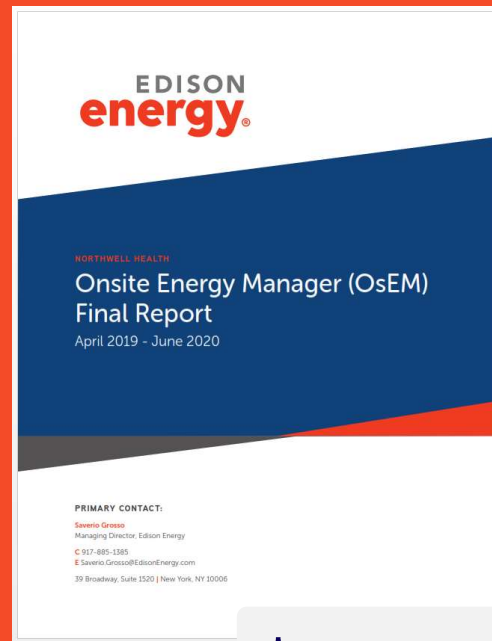
Validated Proof of Concept

\$1.3M goal achieved at 20% of expected cost!

\$157k incentive for OsEM Program – largest & most expansive to date

Further solidified RCx as part of a larger Energy Program

Established a phased approach for 13+ sites



Quarterly Utility Data

Utility Tracking Tool developed to analyze and provide graphs of trends (by site, by utility)



EUI Analysis

Calculation methodology for GHG



Dashboard Tool

Intended for Site Director use to investigate trends, develop goals and provide updates on the ESC team savings to date



Miscellaneous Slides

Initiative Updates
Procurement / Financial Updates
Renewable Strategy



Key Takeaways

Clearly defined goals & understanding of the process

Heavy Input from Operations Team

Written plan, roles, responsibility & scope

Agreed upon functional testing programs & requirements

RCxA provides input to resolve deficiencies

Implementation Team(*work*)

Incorporate a Persistence Strategy at first meeting

Training Tools

“Many ideas grow better when transplanted into another mind than the one where they sprang up.”

Oliver Wendell Holmes

“

The best teachers show you
where to look, not what you
should see”

“ Our overall impression from the data is that **end-users in buildings seldom hamper the process** of making buildings energy efficient.

More common challenges are the small socio-technological adjustments that are necessary in order to make the building work and make the end-users satisfied.

Building operators are in many ways what we can call ‘super-users’ in the sense that they mediate between the buildings and the users.”

**YOU ARE NOT A
TRUE SUCCESS
UNLESS YOU'RE
HELPING
OTHERS BE
SUCCESSFUL**

A Successful Retro-Cx Program...

- Impacts the culture
- Goes beyond just the financials
- Opens the pathway to greater communication
- Empowers others to do more *after you're gone*

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The Edison Energy logo is centered within a large white circle on a red background. The word "EDISON" is in a bold, dark grey, sans-serif font. Below it, the word "energy" is in a bold, orange, sans-serif font with a registered trademark symbol (®) to its upper right.