Accelerate Performance

December 9, 2015
Look out the window
Focus for today

• Why is this approach the best fit for the market?
• How can we leave a lasting legacy in the industry?
• What can I and my organization do to contribute to this unique opportunity?
Accelerate Performance Partners
Why is this initiative critical for you?

DOE
NREL
ComEd
ISE, Eversource, UI (Paul)
UoC
Lend Lease
Xcel
CSBR
State of New Construction
Snapshot

- New construction market
- ComEd Smart Ideas® New Construction Service
- Strategic plan insights
- Innovations for deeper savings
Commercial building share of total

Surviving buildings built before 2015

New buildings built after 2015
Since 2009
482 buildings
87.8 million ft²

completed
pipeline
Strategy
There’s more than one way to scratch a cat.

<table>
<thead>
<tr>
<th>PROGRAM DESIGN COMPARISON</th>
<th>ComEd</th>
<th>Xcel MN</th>
<th>Xcel CO</th>
<th>Focus on Energy</th>
<th>MidAm</th>
<th>NGrid</th>
<th>ETO</th>
<th>SBD</th>
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**EUI incentive**

| Minimum savings threshold | | | | | | | |
| Incentive cap             | | | | | | | |
| Post-construction support | | | | | | | |
| Net Zero support          | | | | | | | |
| LEED support              | | | | | | | |

13
Key lessons

MAJOR THEMES

– Code concerns
– Tailored solutions to meet diverse project needs
– Extra support for projects pursuing deeper savings
Utility strategies for deeper savings

- Movement toward systems-based solutions
- Offer tiered incentives for new construction
- Provide incentives for net zero buildings
- Support commissioning
- Focus on data centers
- Bridge new construction and retro-cx programs
Program benefits

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Number of Respondents</th>
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<tr>
<td>Information/expertise</td>
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<td>Incentives</td>
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<td>Peer review/corroboration</td>
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<td>Free energy model</td>
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Future Direction – Accelerate Performance

“The **greatest opportunity** to identify and influence deep savings is **pre-schematic design**, where the program supports quick early simulations and **EUI targeting**.”

—ACEEE New Horizons for Energy Efficiency: Major Opportunities to Reach Higher Electricity Savings by 2030; Dan York, Steven Nadel, Ethan Rogers, Rachel Cluett, Sameer Kwatra, Harvey Sachs, Jennifer Amann, and Meegan Kelly; September 2015.
Break
Accelerate Performance in practice
RFP Building Performance Targets

Mike Stopka, Director of the Office of Sustainability
Think Differently

We added a supplement to our standards.

The key principles presented in this Supplement are:

1. The primary purpose of HVAC systems is to achieve the highest levels of occupant comfort and productivity.

2. Sustainability requires high Maintainability.

3. The energy performance of HVAC systems shall contribute to meeting the University’s goal of 20% reduction of Greenhouse Gas (GHG) emissions by 2025. (Note: The performance of the building envelope and other passive are also recognized as key contributors to this goal.)
BIG Architects
Clayco/Forum

- EUI – 46
- Hybrid Geothermal w/ Condensing Boilers and Campus Chilled Water
- FCU in residential units

46 kBtu/ft²/yr

Hopkins Architects
Holabird and Root
Gilbane

- EUI – 54
- Condensing Boilers and Campus Chilled Water
- FCU in residential units

54 kBtu/ft²/yr

Perkins + Will
Pepper Construction

- EUI – 52
- Hybrid Geothermal w/ Condensing Boilers and Campus Chilled Water
- Radiant panels with DOAS

52 kBtu/ft²/yr

Studio Gang Architects
Mortenson Construction

- EUI – 51
- Condensing Boilers and Campus Chilled Water
- Radiant Slab with DOAS

51 kBtu/ft²/yr
**PROJECT GOAL LIST:** Project goals help design teams prioritize their focus on the MEP and building performance design. Goals are categorized in three main sections:

- **Mission critical goals** - required by contract and critical to success
- **Highly desirable goals** - not required by contract and have influence on the recommended design
- **If possible goals** - influence recommended design and are considered highly beneficial if included in the solution

### MISSION CRITICAL
- Maximum energy target of 45 KBTU/gsf annually; lower is preferred
- LEED NC version 4, Silver Certification
- Superior occupant comfort
- 100% of occupied spaces physically or visually connected to nature
- Living Building Challenge (LBC) 3.0 Feasibility Study

### HIGHLY DESIRABLE
- Maximum energy target of 35 kBtu/gsf annually; lower is preferred
- Best in class Energy Star equipment or best in class energy efficient equipment
- Passive design strategies (i.e. daylighting, passive solar heating, etc.)
- Achieve ‘retreat-like’ feel using biophilic design principles
- Low recycled air content
- Strong HVAC response to quickly changing occupancy (limit precooling with air)
- Usable daylight in all occupied spaces
- Geothermal system
- Design features that create an interactive sustainable learning experience
- Exceed LEED NC version 4, Silver Certification

### IF POSSIBLE
- Living Building full certification
- Net Zero Energy Design
Evaluate submittals

<table>
<thead>
<tr>
<th>Team</th>
<th>Risk – Confidence performance meets intent</th>
<th>Energy Target</th>
<th>Daylight, Views, Connection to Nature</th>
<th>Comfort and HVAC Response</th>
<th>Maintainability</th>
<th>Innovation</th>
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Great potential in commercial buildings

Where we are today
90 (1020) Existing commercial buildings
(2003 CBEC)

Where we would be if all buildings were built to current code
70.7 (803) New buildings base scenario
(Standard 90.1-2004)

Where we could be with current technologies
40.3 (458) Max Tech energy efficient scenario
(Griffith et al. 2007)

Add renewables and we’re almost to net-zero
12.2 (139) Max Tech energy efficient scenario w/PV

Clockwise from top: NREL/09202, 10884, 10140, 09249, 12637, 11097
Real Value Added

II

III

IV

Costs

Energy Savings

Value Added

0% 100%

0% 100%
Smart Ideas for Your Business® and Accelerate Performance

December 9, 2015
About ComEd

✓ ComEd is an electric delivery company providing service to 3.8 million customers

✓ Service territory covers 11,411 square miles

✓ Gas companies serving the territory:
  - Nicor Gas
  - Integrys
    - Peoples Gas
    - North Shore Gas
Smart Ideas for Your Business – Current Offers

Assessments
- Facility Assessments
- Laboratory Assessments
- Healthcare Assessments
- Data Center Assessments
- Combined Heat & Power Assessments
- Process Efficiency Assessments

Incentives
- Standard/Custom Incentives
- Small Business Energy Savings
- New Construction Service

Discounts
- Business Instant Lighting Discounts (BILD)
- Business Products Discounts

Optimization
- Retro-commissioning
- Rooftop Units
- Compressed Air
- Industrial Refrigeration
- Process Cooling

Resources
- Business Energy Analyzer
Portfolio Challenges & Opportunities

✓ Regulatory pressure for greater savings
  ▪ Clean Power Plan
  ▪ Potential increase in goals set by state government

✓ Advancing energy codes

✓ Integrating smart meter data

✓ Advent of smarter buildings

✓ Building owner interest in performance targets

In general, we need to drive deeper energy savings and evolve the program portfolio for the next generation of energy efficiency.
Smart Ideas for Your Business—Evolution

✓ Accelerate Performance allows ComEd to:
  ▪ Unlock deeper savings
  ▪ Prepare a path for performance-based codes
  ▪ Support customers in innovative ways
  ▪ Connect new buildings directly to ComEd’s Monitoring-based Commissioning
Contact Information

URL:  ComEd.com/BizSavings
Phone:  855-433-2700
Email:  SmartIdeasBiz@ComEd.com
<table>
<thead>
<tr>
<th>Planning</th>
<th>RFP</th>
<th>SD</th>
<th>DD</th>
<th>CD</th>
<th>Construction</th>
<th>Operations</th>
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<tbody>
<tr>
<td>Define an aggressive, measurable energy performance target</td>
<td>Select a design and construction team based on their commitment to achieve the energy performance target</td>
<td>Evaluate substantiation documents for each performance element of the contract</td>
<td>Ensure energy performance is through M&amp;V</td>
<td>Establish an owner approved ongoing performance tracking plan</td>
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Project plan, milestones and next steps
How does this all come together
Utilities going forward

- Pair owners with utilities
- Learn what both groups need
- Test approaches
- Define optimal solutions
- Deliver actual performance on real buildings

Years 1 and 2
Portfolio building owners

Test approaches
Define optimal solutions
Deliver actual performance on real buildings

Years 1 and 2
Pair with collaborators

American College & University Presidents’ Climate Commitment

Association for the Advancement of Sustainability in Higher Education

Architecture 2030

AIA

City Energy Project

Energy Foundation

NBI

USGBC

Years 2 and 3
Key milestones

- **Official launch**
  - Aug 2015

- **Utility program design complete**

- **Utility program launch**

- **Assess utility program cost effectiveness**

- **Scale to additional utilities**

- **End of DOE project**
  - Jul 2018

**2015**
- Partner kickoff meeting

**2016**
- 2-5 pilot projects per partner

**2017**
- Additional 5-15 projects per partner
- Assess building energy savings cost impacts

**2018**
- Scale to additional owners
- Achieve 100 buildings
Critical next steps

- Launch 2–5 pilots per partner
- Set firm goals with owners
- Design incentive offer and gain approvals
- Make it bullet proof