

A Preview to the 2015 Intelligent Efficiency Conference Webinar

Intelligent Efficiency in Massachusetts

October 22nd, 2015

1:00pm to 2:00pm EST

Moderator: Ethan Rogers, ACEEE

Panelists:

- Arah Schuur, Mass. DOER
- Penni McClean-Conner, Eversource
- Badri Raghavan, FirstFuel



Moderator

Ethan Rogers
Senior Program Manager, Industry
American Council for an Energy-Efficient Economy
erogers@aceee.org



Intelligent Efficiency Webinar

Webinar housekeeping:

- Webinar will be recorded
- All attendees phones will be on mute
- Please submit questions via the webinar portal chat box
- Technical issues: MKelly@aceee.org

The American Council for an Energy-Efficient Economy (ACEEE)

- ACEEE is a nonprofit 501(c)(3) that acts as a catalyst to advance energy efficiency policies, programs, technologies, investments & behaviors.
- Nearly 50 staff based in Washington, D.C.
- Focus on end-use efficiency in industry, buildings, utilities & transportation
- Other research in economic analysis; behavior; national, state & local policy.
- Funding:
 - Foundation Grants (52%)
 - Contract Work & Gov. Grants (20%)
 - Conferences and Publications (20%)
 - Contributions and Other (8%)



www.aceee.org

Intelligent Efficiency

INTEGRATED, RELIABLE, and SMART.

People-Centered Efficiency

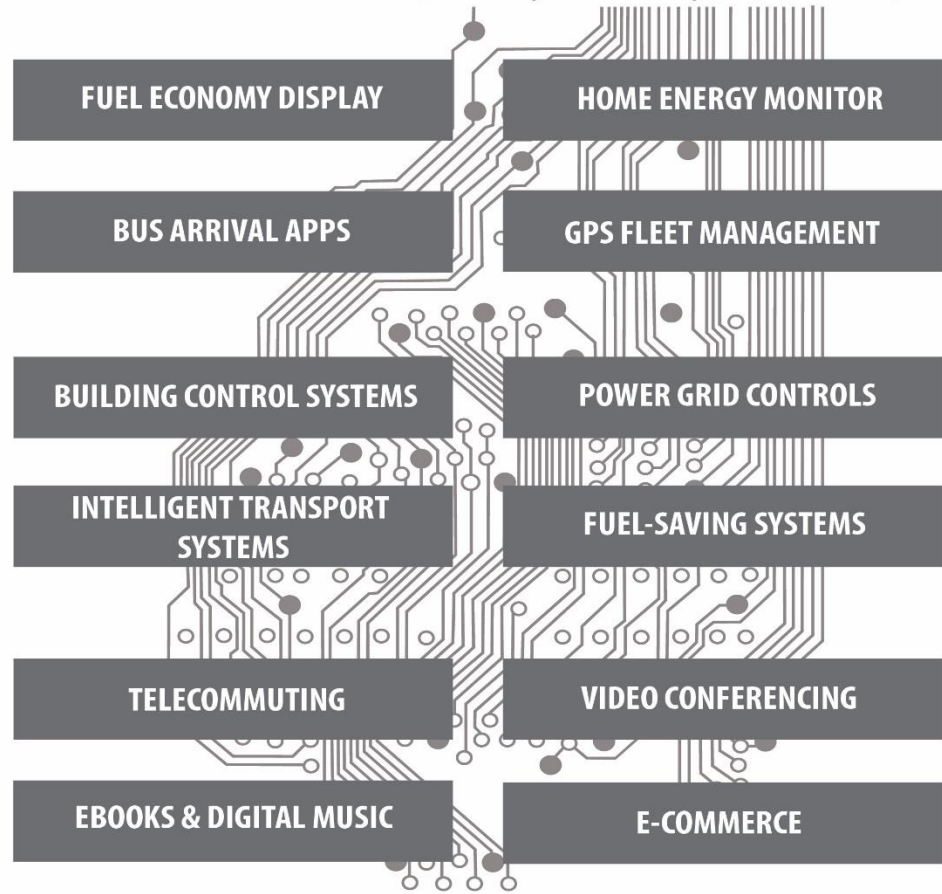
Providing real-time information and management tools that enable users to lower energy consumption in response to changing information

Technology-Centered Efficiency

Using sensors, controls, and software to automate and optimize energy use

Service-Oriented Efficiency

Shifting behavior and organizational structures to reduce energy-intensive activities



2015 Intelligent Efficiency Conference



Westin Waterfront
Boston, Massachusetts
December 6 – December 8th, 2015

Information & Communications Technologies (ICT) and:

- Evaluation, Measurement & Verification
- Economic Potential & Co-Benefits
- Customer Engagement
- Efficiency Program Design
- Policy and Environmental Compliance

A Preview to the 2015 Intelligent Efficiency Conference Webinar

Intelligent Efficiency in Massachusetts

Moderator: Ethan Rogers, ACEEE

Panelists:

- Arah Schuur, Mass. DOER
- Penni McClean-Conner, Eversource
- Badri Raghavan, FirstFuel

- Question & Answer
- Conference Details



Panelists



Arah Schuur

Director of Energy
Efficiency Division

Massachusetts
Department of Energy
Resources



Penni McClean-Conner

Senior VP and Chief
Customer Officer

Eversource



Badri Raghavan

Chief Data Scientist

FirstFuel



Arah Schuur
Director Energy Efficiency Division
Massachusetts Department of
Energy Resources



Intelligent Efficiency

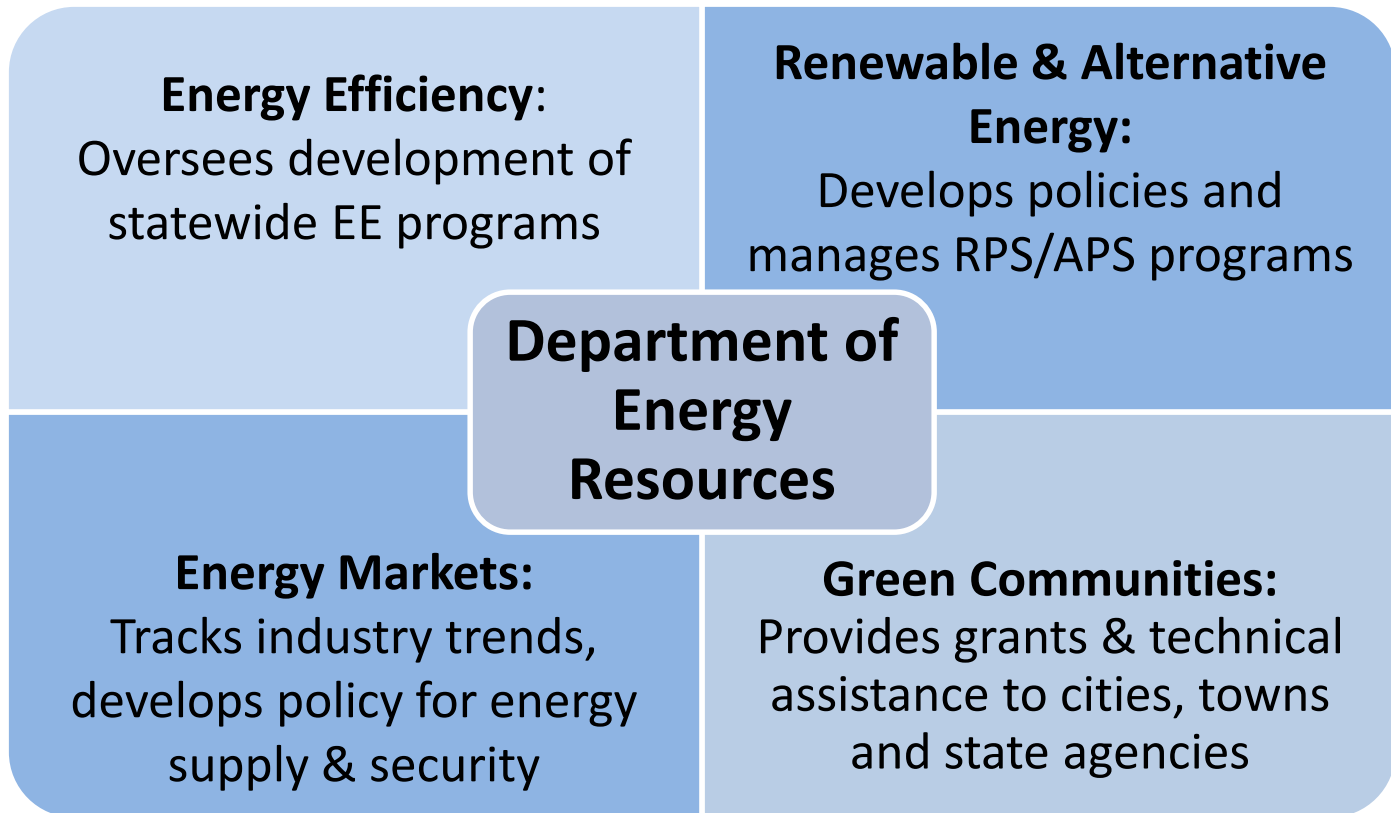
Arah Schuur

**Director of Energy Efficiency Division
Massachusetts DOER**

October 22, 2015



DOER: Massachusetts Energy Office



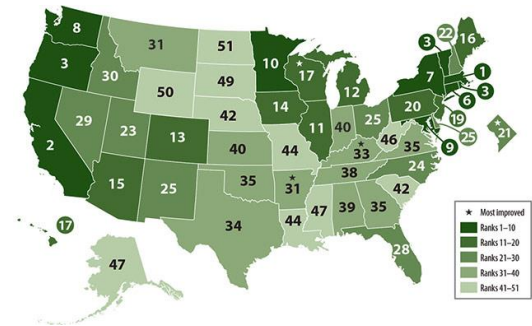
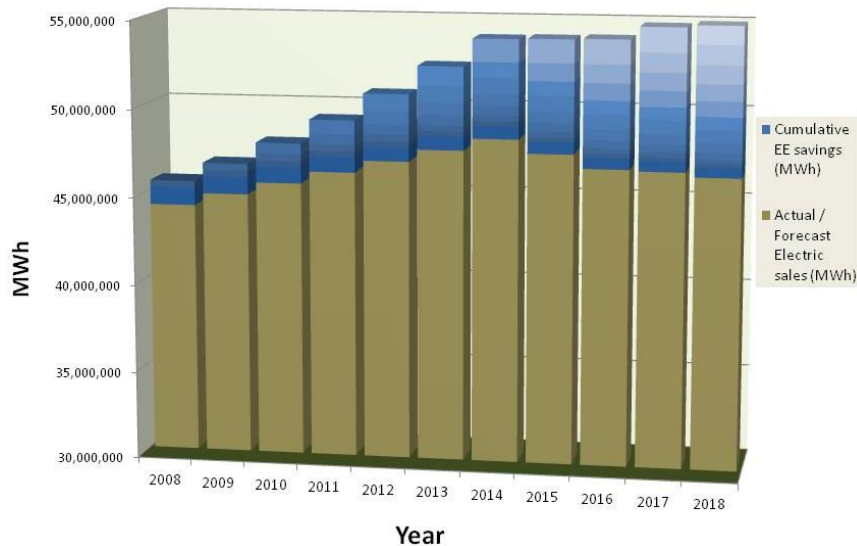
Massachusetts Department
of Energy Resources

Creating A Cleaner Energy Future For the Commonwealth

Energy Efficiency in Massachusetts

- 2008 Green Communities Act requires “all cost-effective energy efficiency”
- Utilities coordinate on statewide EE plans: “Mass Save®”
- Planning overseen by Energy Efficiency Advisory Council, a broad stakeholder body, chaired by DOER

Cumulative impact of EE on MA electric load



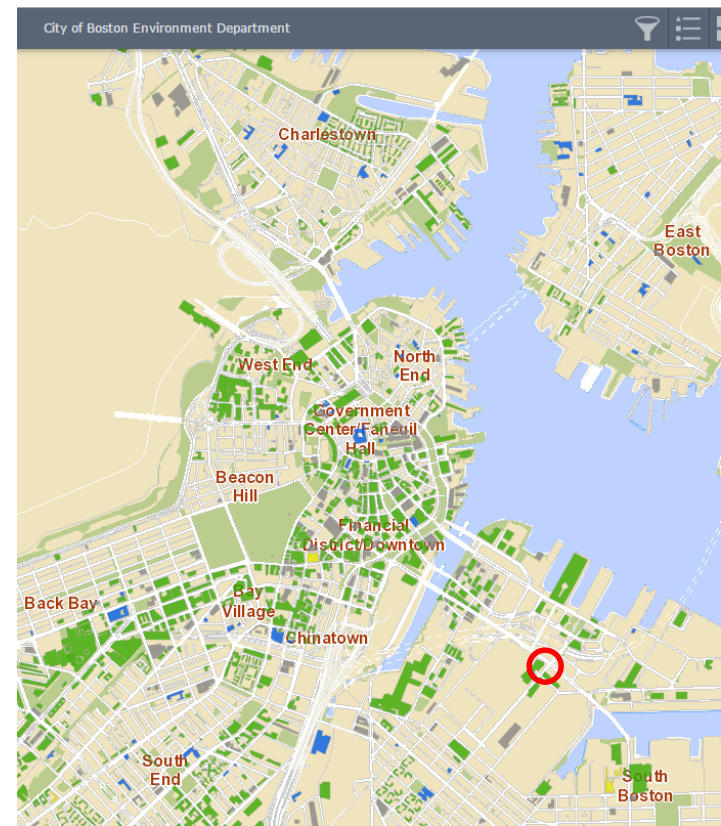
**MA #1 ranking from
ACEEE ~~four~~ years in a
row**

five!



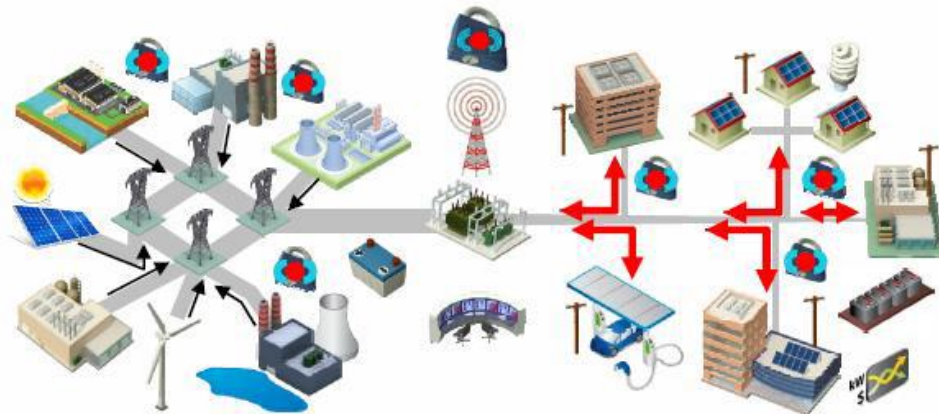
Boston's Focus on Data

- Energy data – availability, transparency, utility → action
 - Building Energy Reporting and Disclosure Ordinance (BERDO)
 - Tying better data with Mass Save and other programs to maximize action
- Looking at district and micro grid opportunities and demonstrations



What's on the horizon for IE in MA?

- **Continuing to innovate in our energy efficiency programs**
 - More information (Mass Save Data)
 - Demonstration of new technologies
 - Demonstration of performance-based efficiency
 - Continue to lead by example
- **Grid Modernization**
 - Integration of non-wire technologies and energy storage
 - New technologies, business models, opportunities



DER

Massachusetts Department
of Energy Resources

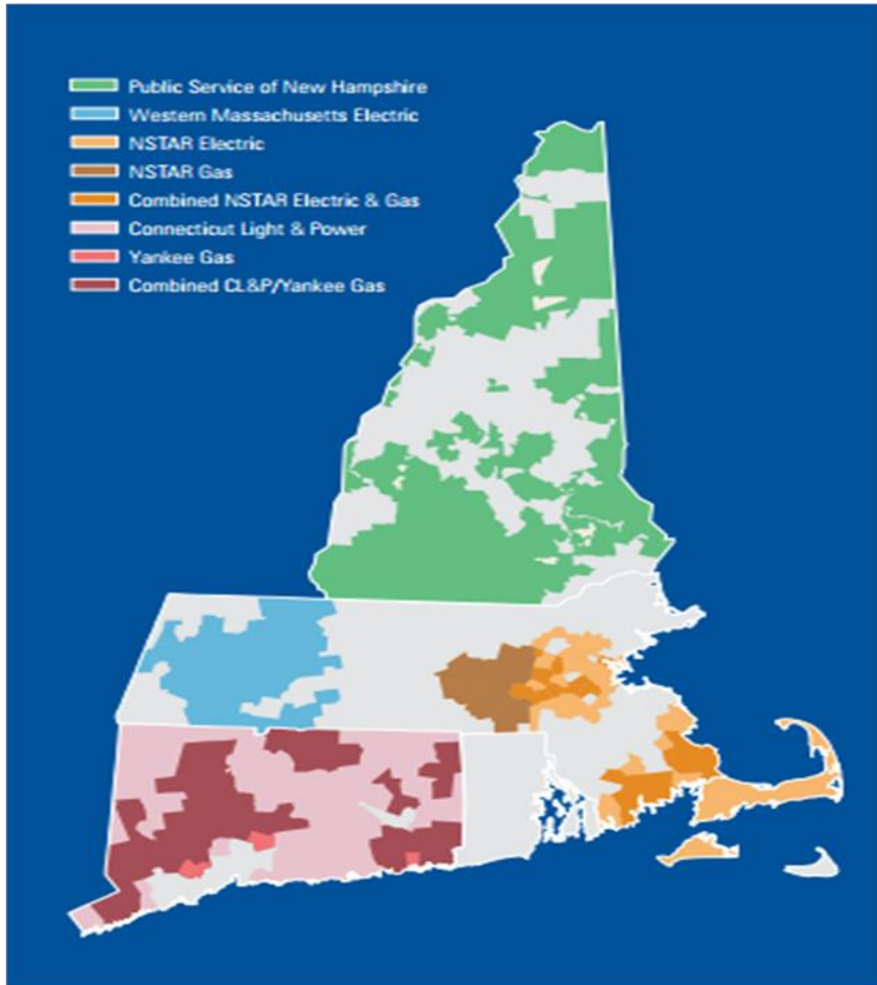


Penni McClean-Conner
Chief Customer Officer & Senior VP
Eversource

2015 ACEEE Intelligent Efficiency Conference Webinar

ACEEE Webinar
Penni Conner chief Customer Officer & SVP
10/22/15

Eversource is the largest energy provider in New England



Company Mission

We are one company focused on delivering reliable energy and superior customer service

We seek to be the region's most respected energy provider.

We meet the highest expectations of customers, shareholders and regulators by:

- Meeting and exceeding our performance targets while driving efficiency and managing costs
- Providing reliable service and accurate information
- Demonstrating inclusive, respectful, honest and ethical behavior

Safety First and Always

EVERSOURCE

Eversource EE Formula

Strong
Customer
Relationships



Innovative
technologies

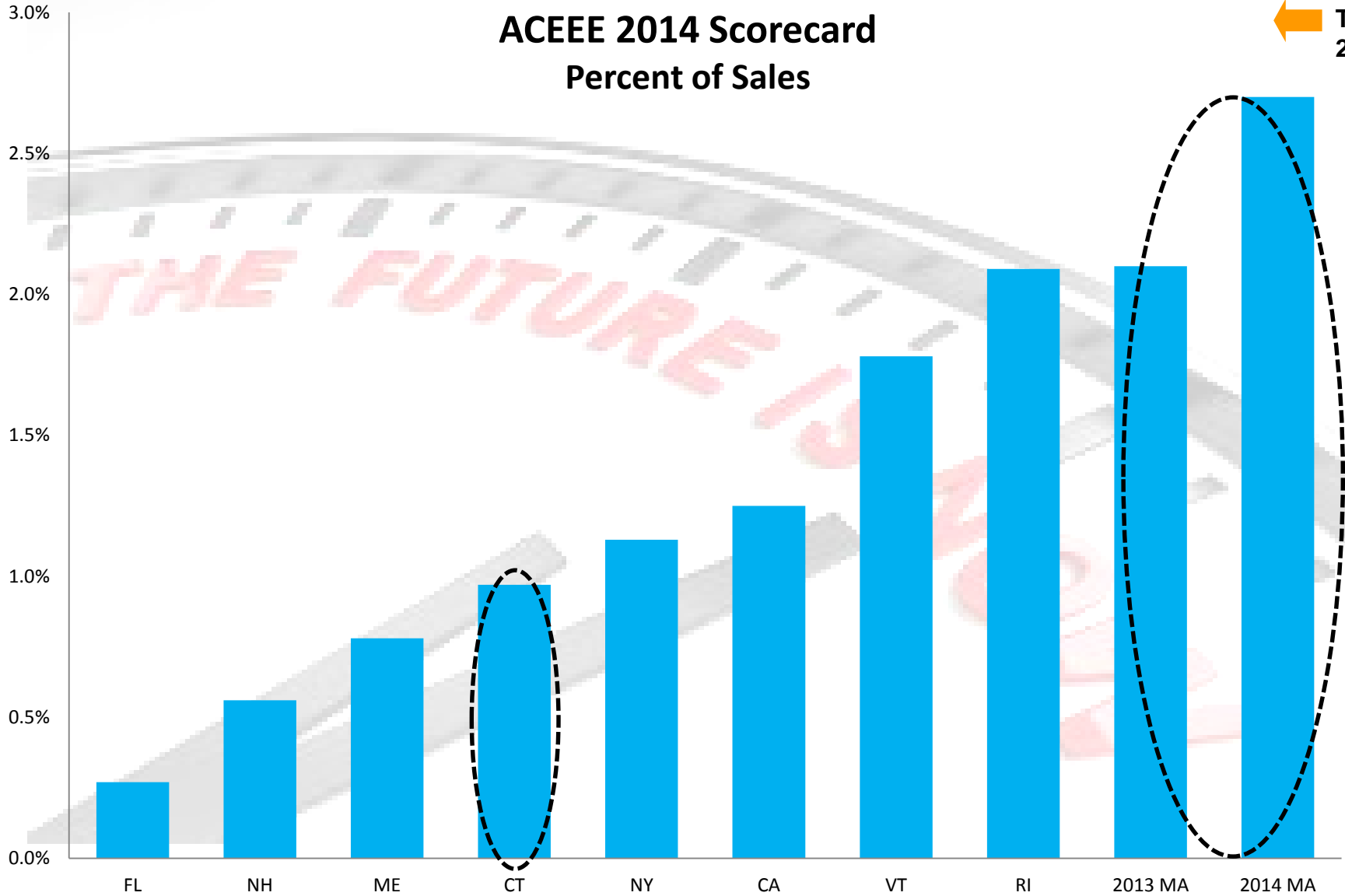


Diverse team

EE Goals as % of Sales

ACEEE 2014 Scorecard
Percent of Sales

← Target 2016+



We know our customers.

APPROXIMATELY

2%

OF CUSTOMERS

Account For

80%

OF Usage

EMC²



Gillette®



FOXWOODS
RESORT + CASINO

WHOLE
FOODS
MARKET



Boston
Children's
Hospital

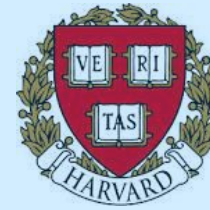
Until every child is well™

Baystate  Health

SIMON
PROPERTY GROUP



SOUTHCOAST
HEALTH SYSTEM



PARTNERS.
HEALTHCARE



DIGITAL REALTY TRUST



UNITED
TECHNOLOGIES



Boston Properties

ESPN



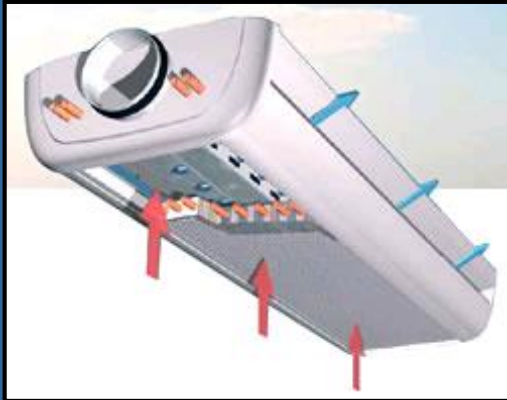
Massachusetts
Institute of
Technology



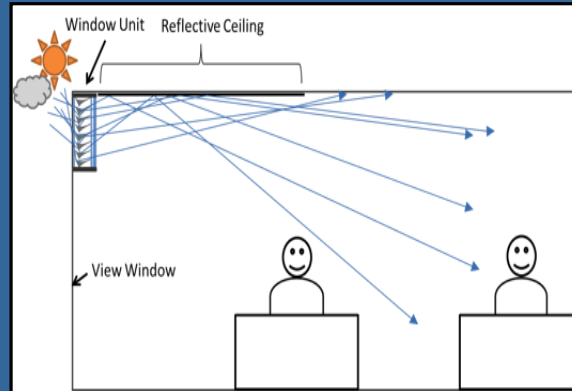
And we all know them all!!

We are promoting innovating technologies.

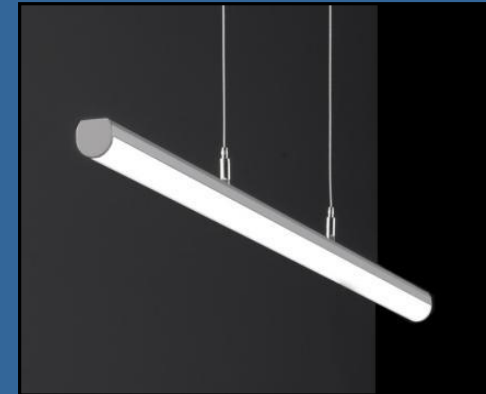
Chilled Beams



Daylighting



LED Lights



Spray Foam Insulation



Hi Efficiency Pumps



Our team is the real secret sauce.





Badri Raghavan

Chief Data Scientist

FirstFuel Software

braghavan@firstfuel.com



ACEEE Intelligent Efficiency Webinar

10/22/15

FIRST FUEL

ANALYTICS | BUILDING SCIENCE | SOFTWARE



CUSTOMER INTELLIGENCE PLATFORM FOR THE ENERGY INDUSTRY



We harvest the insights within **energy meter data...**



...to deliver **customer intelligence** via 'zero-touch' analytics...



...to **engage utility customers** and **meet energy savings targets** at scale.

DATA ANALYTICS TO DRIVE ENERGY INTELLIGENCE

1 MINIMAL DATA INPUTS

FROM UTILITY

BUILDING ADDRESS



1 YEAR ELECTRIC METER DATA + GAS DATA



FROM FIRSTFUEL

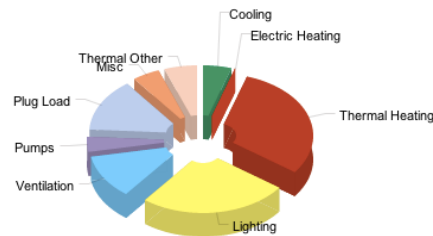
LOCAL WEATHER DATA



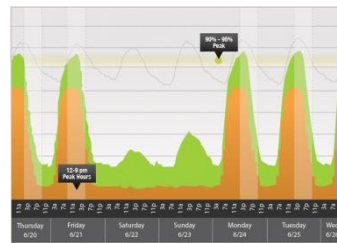
GIS MAPPING / SEMANTIC SEARCH



2 CONVERTED TO ENERGY INTELLIGENCE

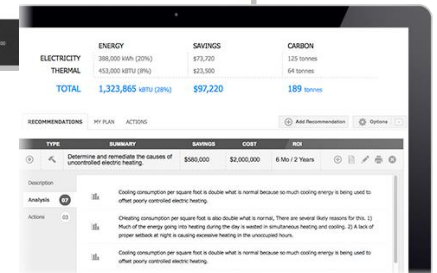
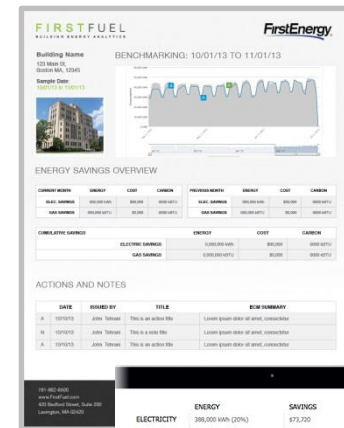


END-USE DISAGGREGATION



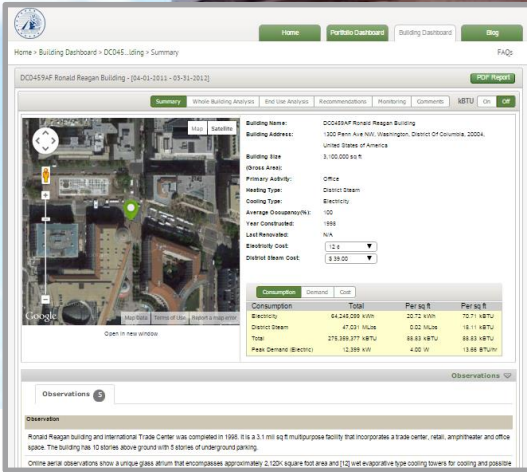
BASELINE & FORECASTING

3 GENERATE SAVINGS OPPORTUNITIES



GENERAL SERVICES ADMINISTRATION

Comprehensive Portfolio Efficiency Management



“GSA has been very impressed by the energy usage information that FirstFuel provides for us. FirstFuel assists the GSA in meeting our energy efficiency and savings goals in our buildings.”

Dorothy Robyn

Former Commissioner Public Buildings Service

FirstFuel will cover 300 GSA facilities nationally; GSA was awarded the federal energy & water management award in 2014

Meet congressional mandate EISA 432 and Presidential EO 13693 requirements

100% compliant energy audits

Support GSA’s goal of 3% annual energy usage reduction

51 GWH in energy savings measures committed to

Gain building operator buy-in & commitment

75%+ operators logging actions on FirstFuel portal

Extract more value from large smart meter investments

\$21 Million in energy savings identified

MOAKLEY COURTHOUSE: A CASE STUDY

MA0050ZZ Moakley Courthouse - [05-01-2011 - 04-30-2012]

PDF Report

Summary

Whole Building Analysis

End Use Analysis

Recommendations

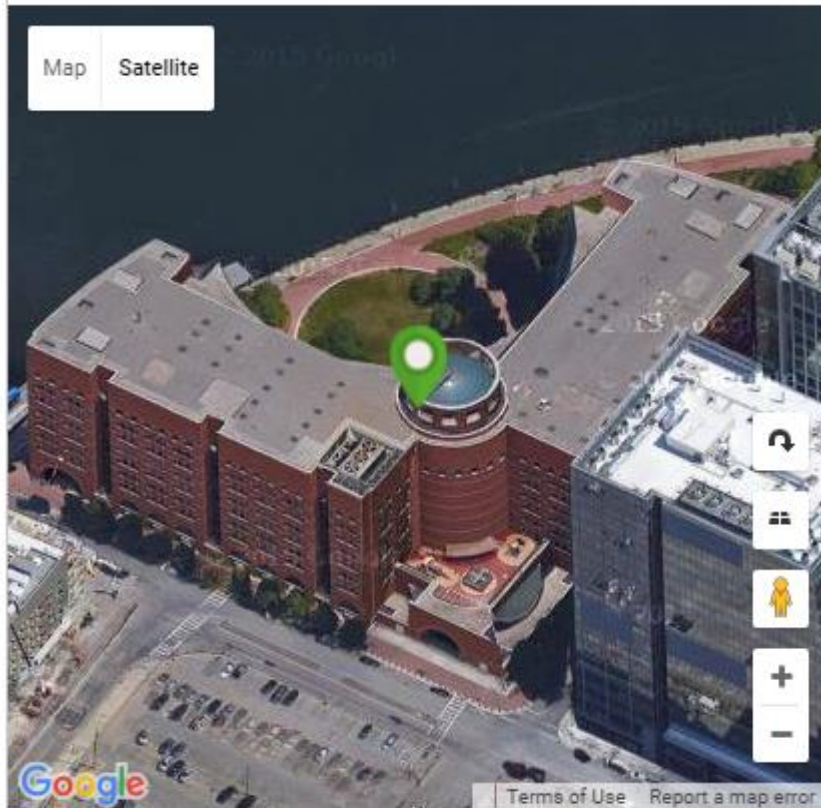
Monitoring

Comments

KBTU

On

Off



Building Name: MA0050ZZ Moakley Courthouse
Building Address: 1 Courthouse Way, Boston, Massachusetts, 02210, United States of America
Building Size (Gross Area): 945,420 sq ft
Primary Activity: Office
Heating Type: Gas
Cooling Type: Electricity
Average Occupancy(%): 100
Year Constructed: 1994
Last Renovated: 2012
Electricity Cost: 18 ¢ Per kWh
Gas Cost: 1 ¢ Per cf

Consumption

Demand

Cost

Consumption	Total	Per sq ft	Per sq ft
Electricity	17,691,026 kWh	18.71 kWh	63.85 kBTU
Gas	33,246,602 cf	35.17 cf	36.22 kBTU
Total	94,605,782 kBTU	100.07 kBTU	100.07 kBTU
Peak Demand (Electric)	3,475 kW	3.68 W	12.55 BTU/hr

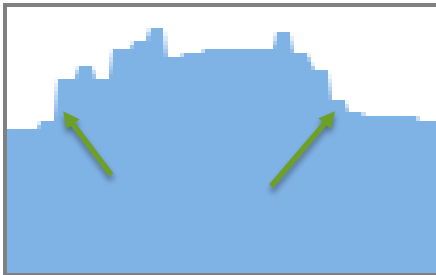
MOAKLEY COURTHOUSE: A CASE STUDY

AUDIT

PLAN AND ACT

TRACK SAVINGS

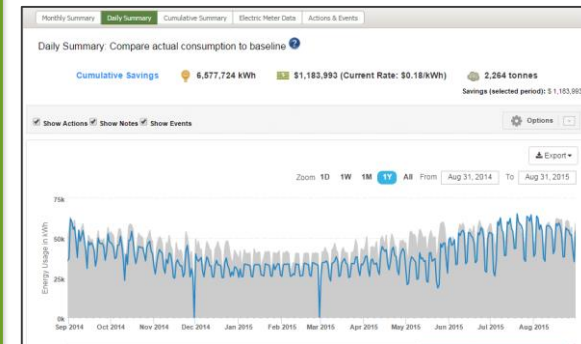
Wed 04 May, 2011



Consumption is beginning during early morning hours and tapering off during late night hours.

SUMMARY	SAVINGS	COST
Occupied/Unoccupied Building Automation Schedule Modification	\$97,200	\$5,210 to \$22,470

FirstFuel “coaches” the building manager to reschedule equipment so that it properly mimics the occupancy schedule of the building.



Consumption Decrease:
6.6 GWh
Energy Savings:
\$1.2 Million*

* Energy reduction/savings reflect total since May 2012 across multiple measures

Questions



Questions for...



Arah Schuur

Director of Energy
Efficiency Division

Massachusetts
Department of
Energy Resources



Penni McClean-
Conner

Senior VP and
Chief Customer
Officer

Eversource



Badri Raghavan

Chief Data
Scientist

FirstFuel



Ethan Rogers

Senior Program
Manager, Industry

ACEEE

2015 Intelligent Efficiency Conference



Westin Waterfront
Boston, Massachusetts
December 6 – December 8th, 2015

Featured Speakers:

Katherine Hamilton, 38th North Solutions
Penni McClean-Conner, Eversource
Gene Rodrigues, ICF International
Abigail Daken, US EPA
Dian Grueneich, Stanford University
Maria Fields, Joule Assets
Mark Dyson, Rocky Mt. Institute
Karen Horkitz, Cadmus
Clay Nesler, JCI
Richard Tonielli, ComEd
Ethan Goldman, VEIC
Rona Newmark, EMC

Topics that will be covered in the Intelligent Efficiency Conference

Information & Communications Technologies (ICT) and:

- Evaluation, Measurement & Verification
- Economic Potential & Co-Benefits
- Customer Engagement
- Efficiency Program Design
- Policy and Environmental Compliance

2015 Conference Schedule

	Dec 6 th Sunday (Day 1)	Dec 7 th Monday (Day 2)	Dec 8 th Tuesday (Day 3)
Morning		<ul style="list-style-type: none"> • Breakfast • Keynote • Networking break • Breakout Sessions (x4) 	<ul style="list-style-type: none"> • Breakfast • Featured Panel • Networking break • Breakout Sessions (x4)
Lunch		<ul style="list-style-type: none"> • Lunch with Speaker 	<ul style="list-style-type: none"> • Lunch
Afternoon		<ul style="list-style-type: none"> • Breakout Sessions (x4) • Networking break • Breakout Sessions (x4) 	<ul style="list-style-type: none"> • Breakout Sessions (x4) • Networking break • Trading Space
Evening	<ul style="list-style-type: none"> • Welcoming Reception 	<ul style="list-style-type: none"> • Networking Reception 	

Trading Space

Tuesday December 8th, 3:30 to 5:00pm

In this session attendees will be offered a few minutes to present information on their research, new product or service, or initiative and ask for data, assistance, participation, or funding. The objective of the Trading Space is to facilitate connections that lead to new research, products, services, projects, and collaborative endeavors.

To submit your idea for a slot in Trading Space:

E-mail your contact information and submit a description of your pitch in 50 words or less to industry@aceee.org. Please include **2015 ACEEE Intelligent Efficiency Conference – Trading Spaces** in your subject line.

NOTE: You must be registered for the conference in order to have your topic accepted.

To register for the 2015 ACEEE Intelligent Efficiency Conference:

<http://aceee.org/conferences/2015/ie#Registration>

ACEEE Research Reports

- *A Defining Framework for Intelligent Efficiency*
- *Intelligent Efficiency: Opportunities, Barriers, and Solutions*
- *Smart Freight: Applications of Information and Communications Technologies to Freight Systems*
- *The Energy Savings of Smart Manufacturing*

All can be downloaded from aceee.org

Thank you for attending!

To register for the 2015 ACEEE Intelligent Efficiency Conference:

<http://aceee.org/conferences/2015/ie#Registration>

Ethan A. Rogers

Senior Manager – Industry

202-489-6861

erogers@aceee.org

Visit ACEEE on the Web:

www.aceee.org