Energy Efficiency: Policy, Incentives, and Regulatory Issues

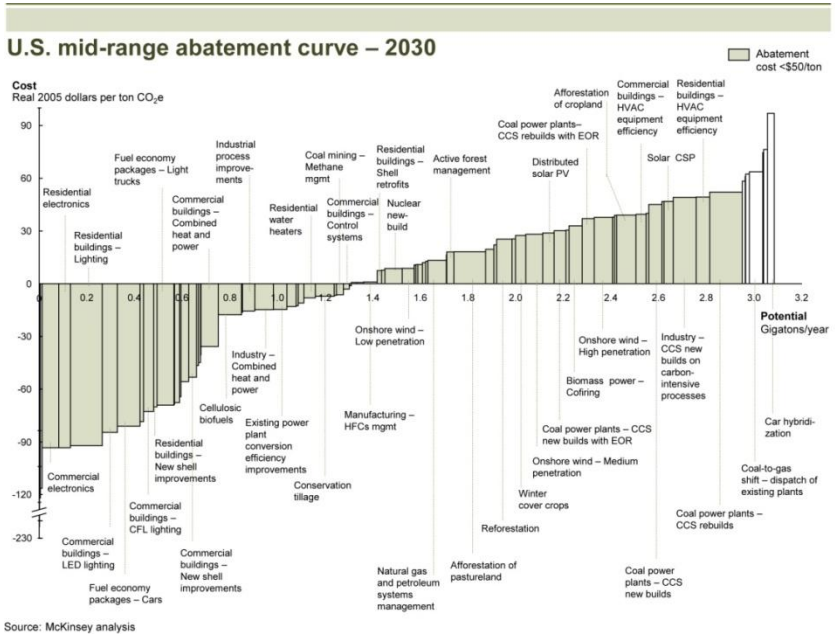
Global Energy Efficiency Workshop
March 6-13, 2010

Outline

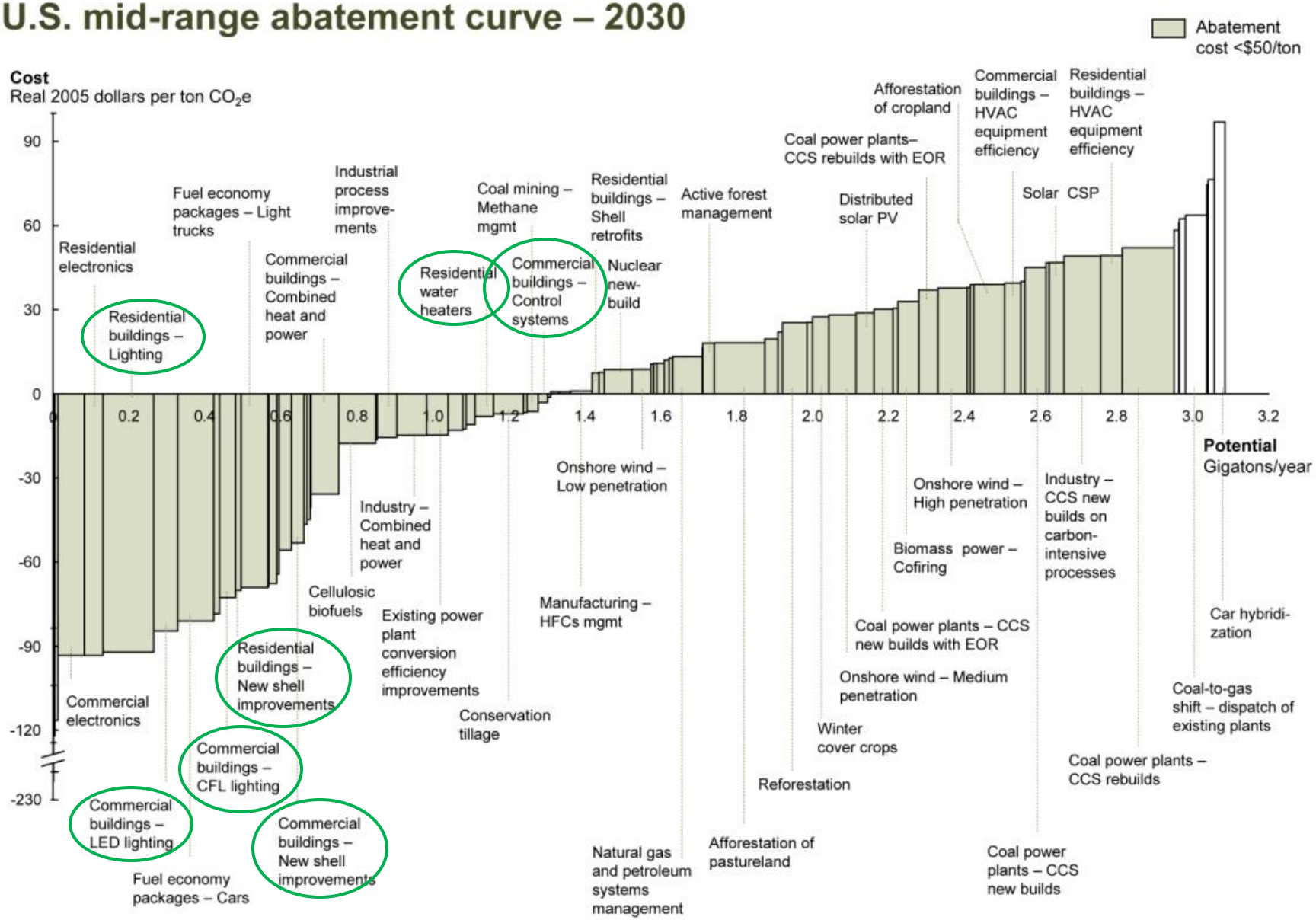
- Energy Efficiency Value Proposition
- Market Barriers
- Efficiency Impacts on Distribution Utilities
- Regulatory Policies to Remove Disincentives
- Shareholder Incentive Mechanisms
- Program Implementation Options
- Cost Recovery Options
- Other Issues

The Energy Efficiency Value Proposition

- Energy Efficiency creates value by:
  - Avoiding energy costs
  - Reducing peak demand and capacity costs
  - Reducing environmental emissions
  - Increasing customer satisfaction
- Energy Efficiency has a significant cost advantage
  - 4 cents per kWh versus 12 cents per kWh for generation
- Energy Efficiency can be implemented quickly, with fewer regulatory approvals than a new generating station
- A key tool for addressing climate change



U.S. mid-range abatement curve – 2030



Source: McKinsey analysis

Implementation Issues

Barriers

- Customers don't understand opportunities and benefits
  - Not promoted in market
- Lack of financing /Payback too long
  - Short term focus or high discount rates reduce interest
- Disconnects between building owners and occupants
  - Building owners don't always pay utility bills
- Utilities have no incentive to promote efficiency if it reduces earnings
  - Customer, environmental, and investor interests need to be aligned

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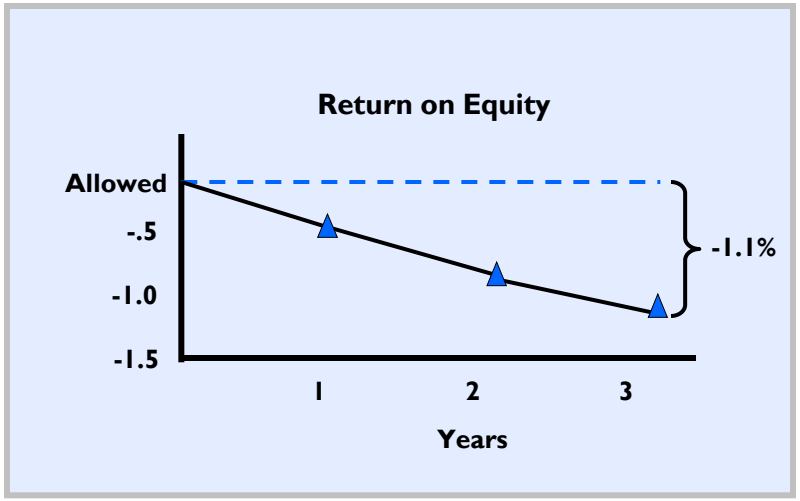
- *Simple, low and no cost programs*
- *Design rates on post-efficiency deliveries*
- *Compensate utilities for lost base revenue*
- *Decouple earnings from revenues*
- *Shareholder incentives*

Efficiency Impacts on Distribution Utilities

- Typically, utilities collect their Revenue Requirement based on deliveries (or sales)
  - Revenue Requirement: $400 million
  - Sales: 10 billion kWh
  - Price per kWh: $.04 per kWh
- If Energy Efficiency reduces deliveries by five percent, the utility will under recover its revenue requirement by $20 million
  - 9.5 billion kWh * $.04 per kWh = $380 million
- Utilities will not promote large-scale efficiency programs if it hurts their "bottom-line"

Regulatory Policies to Remove Disincentives

- A tripling of energy efficiency would have a significant impact on Massachusetts Electric Company



- Revenue Decoupling breaks the link between profit and delivery volumes
- Annual rate cases and rates based on projected deliveries (reflecting the efficiency programs) or "lost base revenue recovery" would also resolve the issue

- Shareholder Incentives are needed to make energy a profitable part of the business
  - **$130 Million invested in regulated assets could be expected to provide a profit of $6 million (after tax)**
  - **National Grid's target incentives relating to a comparable energy efficiency program are $3 million (after tax)**
- A reasonable sharing of the value created will promote innovation and results – Incentives work!

Incentive Mechanisms

- Wide variety of options possible

Share of Savings	Bounty	ROE adder	Judgmental
Utilities keep an agreed share of value created	Per kW and kWh bounty paid for efficiency gains	Explicit adder to allowed ROE or earnings cap for achieving specified program targets	Regulator has discretion after the fact to award incentives for "exemplary" performance

- Ultimately, the incentive needs to be:
  - Large enough to be meaningful

    But
  - Small enough to endure

Implementation Options

Non-Utility/Government

- One entity for entire region
- Common programs and marketing efforts
- Centralized administrative and evaluation efforts

Utility Implementation

- Close working relationship with customers
- Knowledge about customer expansion and new construction
- Decentralized efforts can be overcome by utility coordination
- Can rely on market for much of the effort

Cost Recovery Options

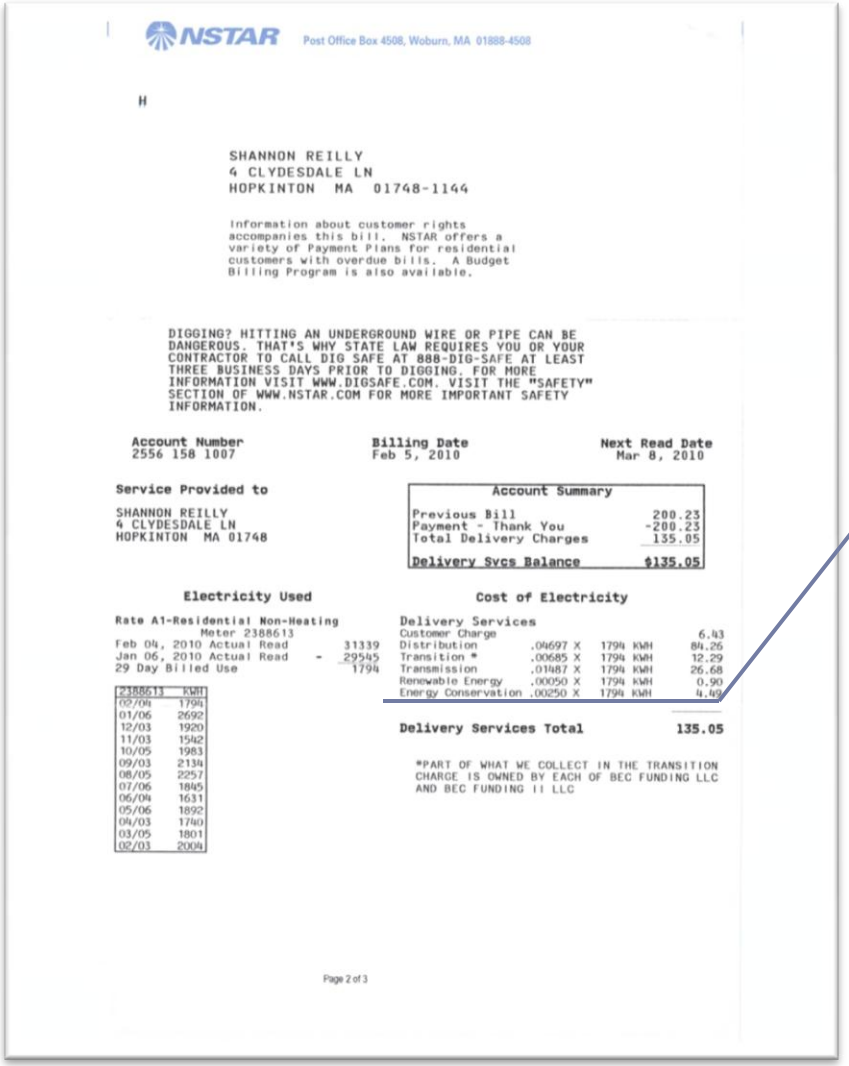
Current Charge

- Pros
  - Efficient -- Pay as you go
  - No unusual recovery risk
- Cons
  - Looks like a tax

Amortization

- Pros
  - Lower Rate Impact
  - Similar to power plants
- Cons
  - Return adds to total cost
  - Rate advantage declines over time
  - Ultimately reduces program flexibility
  - May present accounting issues

Sample Utility Bill



NSTAR Post Office Box 4508, Woburn, MA 01888-4508

H

SHANNON REILLY
4 CLYDESDALE LN
HOPKINTON MA 01748-1144

Information about customer rights accompanies this bill. NSTAR offers a variety of Payment Plans for residential customers with overdue bills. A Budget Billing Program is also available.

DIGGING? HITTING AN UNDERGROUND WIRE OR PIPE CAN BE DANGEROUS. THAT'S WHY STATE LAW REQUIRES YOU OR YOUR CONTRACTOR TO CALL DIG SAFE AT 888-DIG-SAFE AT LEAST THREE BUSINESS DAYS PRIOR TO DIGGING. FOR MORE INFORMATION VISIT WWW.DIGSAFE.COM. VISIT THE "SAFETY" SECTION OF WWW.NSTAR.COM FOR MORE IMPORTANT SAFETY INFORMATION.

Account Number	Billing Date	Next Read Date
2556 158 1007	Feb 5, 2010	Mar 8, 2010

Service Provided to

SHANNON REILLY
4 CLYDESDALE LN
HOPKINTON MA 01748

Account Summary

Previous Bill	200.23
Payment - Thank You	-200.23
Total Delivery Charges	135.05
Delivery Svcs Balance	**$135.05**

Electricity Used

Rate A1-Residential Non-Heating
Meter 2388613

Feb 04, 2010 Actual Read		31339
Jan 06, 2010 Actual Read	-	29545
29 Day Billed Use		1794

2388613	KWH
02/04	1794
01/06	2692
12/03	1920
11/03	1542
10/05	1983
09/03	2134
08/05	2257
07/06	1845
06/04	1631
05/06	1892
04/03	1740
03/05	1801
02/03	2094

Cost of Electricity

Delivery Services

Customer Charge				6.43
Distribution	.04697 X	1794	KWH	84.26
Transition *	.00685 X	1794	KWH	12.29
Transmission	.01487 X	1794	KWH	26.68
Renewable Energy	.00050 X	1794	KWH	0.90
Energy Conservation	.00250 X	1794	KWH	4.49

Delivery Services Total **135.05**

*PART OF WHAT WE COLLECT IN THE TRANSITION CHARGE IS OWNED BY EACH OF BEC FUNDING LLC AND BEC FUNDING II LLC

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Energy Conservation .00250 x 1794 KWH 4.49

Other Issues

- Free riders
  - Address in cost/benefit analysis
- Rate Impacts versus Bill Impacts
  - Rates applied to fewer units after participation
- Rate design
  - Uniform or class specific
- Cross subsidies from non-participants to participants
  - Provide opportunities for all customers
- Verification of savings
  - How much?
  - How long?

Questions?

Contact Information

- For follow-up questions:
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  - 508-380-7780 cell
  - 508-435-8329 fax

Larry Reilly