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Power System Transformation, Utilities, and Energy Efficiency

Consortium for Energy Efficiency Winter Meeting

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Power reform – we know it is coming
Accelerating Technology

A lot of grid side stuff

https://vtdigger.org/2018/01/14/oversubscribed-northern-vermont-power-grid-costing-utilities-millions/
Smart Buildings

Smart Energy

Smart Health

Future Internet

Internet of Things

Smart Cities

Smart Living

Smart Transport
States will develop their own ways
Principles, Framework, Questions

- Utility centric?
- Embrace competition?
- Performance models?
- Regional cooperation?
- Driven by cost?
- Driven by climate policy?
- Driven by vision? Ego?
For Utilities: Questions

• Competence
• Bias
• Sensitivity
• Commitment
• Trust
For Utilities: Needs

- Policy Vision
- A Job They Can Do
- Compensation for the Job
- Consistency
- Trust
Energy efficiency remains a priority

- Reduces the **cost** of whatever else happens
- Reduces **footprint** of whatever other investment the system needs
- Strengthens built environment **infrastructure**
Yet attention to energy efficiency at PUCs is diminished next to supply and grid-side issues

Xcel solicitation returns 'incredible' renewable energy, storage bids

Utility Dive
8 Jan 2018
Restoring Attention to Energy Efficiency

- Program innovation
  - Connect to economic development
  - Connect to social priorities
- Context for the power sector of the future
  - Empowering customers and **customer choice**
  - New emphasis on **services**
- **Strategic deployment** based on new info
What Counts? That Depends...

A “Layer Cake” of Benefits from Electric Energy Efficiency

**Utility System Benefits**
- Power Supply
- T&D Capacity
- Environmental
- Losses and reserves
- Risk
- Credit and Collection

**Participant Benefits**
- Other Fuels
- Water, Sewer
- O&M Costs
- Health Impacts
- Employee Productivity
- Comfort

**Societal Benefits**
- Air Quality
- Water
- Solid Waste
- Energy Security
- Economic Development
- Health Impacts
Vermont Energy Efficiency Savings Value

Updated Externality and NEB Values, $/MWh.

- Risk
- DTQ NEB
- Other Fuel
- O&M
- Other Resources
- Externalities
- Avoided Resources
- Line Losses
- Distribution Capacity
- Transmission Capacity
- Capacity
- Energy

Not included in Utility Revenue Requirement

Included in Utility Revenue Requirement

Created with assistance from Efficiency Vermont, based upon data from their annual reports and personal communications.
Can we use all this DATA?
Context of performance, what does energy efficiency deliver?

- Utility outputs
- Societal outcomes
NY PSC: 6 REV Policy Objectives

- Enhanced **customer** knowledge and tools to support bill management
- **Market** animation and leverage of customer contributions
- System wide **efficiency**
- Fuel and resource **diversity**
- System **reliability and resiliency**
- Reduction of **carbon** emissions
Consider NY and EE

- Changing the balance of markets and regulation
- Asking all the important questions
  - Dilemmas included
- Answering their own way
  - For now – in progress, subject to change
- The value of energy efficiency
- Resolving inattentive regulation over years
How many of these reforms are likely to affect energy efficiency?

• Enhanced Distribution System planning
• Locational incentives
• Performance incentives
• Utility as a “Platform”
• Wholesale Market/ Retail Market aligned

• Time-varying rates
• Remove capital and throughput bias
• State Green Bank
• Public Interest Benefit/Cost
Transitions and NY REV

- Uncertainty
- Clarifying utility roles
  - Rate cases
  - Distribution System Implementation Plans
  - Energy Efficiency Transition Implementation Plan
- Updating reward system for performance
- Compatibility of “VALUE-based” EE with a resource standard or system benefit charge based approach
Consider other states: Minnesota, Michigan, Rhode Island

- All considering performance regulation
- All considering enhanced distribution planning
- All value energy efficiency
- Performance metrics can value success of energy efficiency
Does it matter who delivers energy efficiency?

- Only if the rules make it matter
Energy Efficiency is Important

- Who knows that better than you?
Advocacy inside Utilities

- Guide reforms, opportunities
- Position energy efficiency as a winning tactic
  - Shape performance compensation systems
- Energy efficiency is a system resource
  - Really!
Energy Efficiency: A Foundation for the Utility of the Future

- Reduce balance of grid investment
  - And associated effects
    - Cost
    - Environment
    - Risk
    - Local economy
    - Customer satisfaction
About RAP

The Regulatory Assistance Project (RAP)® is an independent, non-partisan, non-governmental organization dedicated to accelerating the transition to a clean, reliable, and efficient energy future.

Learn more about our work at raponline.org