Getting the Most from Energy Efficiency

Energy Supply Task Force
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Introduction

- The Regulatory Assistance Project (RAP) is a global, non-profit team of energy experts, mostly veteran regulators, advising current regulators on the long-term economic and environmental sustainability of the power and natural gas sectors. ([www.raponline.org](http://www.raponline.org))
  - Foundation-funded; some contracts
  - Non-advocacy; no interventions

- Ken Colburn is a Principal at RAP. His experience as an air quality regulator came as Air Director for the State of New Hampshire and as Executive Director of NESCAUM.
“If EE Was There/That Good/etc., It Would Already Be Done by the Market”...

• “If there were a $20 on the ground, someone would have already picked it up.”

• Genuine problems:
  – Lack of information or awareness
  – Split incentives (renter vs. landlord, capex vs. operating, etc.)
  – Lack of initial capital

• Perpetual canards:
  – “Rebound” (vs. “Spillover”)
  – “Low-hanging fruit is all picked”
If EE isn’t prominent in your state’s CPP plan, your state doesn’t have a least-cost plan.
Unfortunately, Air Regulators Have Little Experience with EE

• Minimal use of EE as a compliance option to date
  – Some set-asides under the NOx Budget Rule, early 2000’s
  – Very limited inclusion in SIPs
  – EPA’s 2012 *Roadmap*

• Why?
  – Emission reductions must be “quantifiable, non-duplicative, permanent, verifiable, and enforceable” (aka “RSVP/E”)
  – Certainty, dependability of EE programs (EM&V)
  – Foreign to air regulators; “juice not worth the squeeze”

• Additional Problems
  – 40+ years of delegation under prescriptive Clean Air Act
  – Poor efforts by EPA; EPA Regional Offices; etc.
And, Some Problems for EE in the CPP

• Worst Problems:
  – EPA inattention to EE under mass-based approach
    • No EE project happens “automatically”
    • Absence of clear pathways for private EE to get allowance value (= ~half of total annual EE investments)
    • Leaves impression of favoring rate-based approach?
    • Mass-based is lowest-cost, and essential for multi-sector carbon programs (e.g., transportation, refineries, etc.)
  – Business-as-Usual EM&V (Should be “streamlined”)
  – Credit for Early Action in 2013-2021 (Needed)
  – CEIP issues (Only allows EE for low-income)
EE Focus Is Vital for the States

• Clean Power Plan compliance, plus other forthcoming regulations (ozone, PM, haze, etc.)
• Fundamentally changing economy
• Power sector transformation
  – No longer only managing supply, now demand too
  – New York REV, etc.
• Climate and other risks
• All of the above => high risk of stranded costs
More Stringent Ozone Standards
(EPA, Ozone Concentrations, 2010)

EPA announced new NAAQS for ozone on 10/1/2015:
70 ppb
(vs. 75 today)
2050 U.S. Water Sustainability Challenges
(Roy et al, 2010)

Steam generation consumes ½-1 gallon per kWh (withdrawals are far greater)
• Good CPP choices can help air quality; good air quality choices can help CPP compliance

• Ditto for increasing water concerns

• Integrated multi-pollutant, multi-media approach can lower cost, risk (see RAP’s IMPEAQ paper)

www.raponline.org/document/download/id/6440
U.S. economy and electricity demand growth are linked, but relationship is changing
U.S. Refrigerator Energy Use Over Time vs. Size and Price

Source: David Goldstein, http://switchboard.nrdc.org/blogs/dgoldstein/some_dilemma_efficient_applian_1.html
Newer U.S. homes are 30% larger but consume about as much energy as older homes

*Note: Averages for space heating and air conditioning reflect only those households that heated or cooled their homes in 2009.
U.S. Refrigerator Energy Use Over Time vs. Size and Price

Housing? vs. Size and Price Economy?

Caution: Stranded cost risk!

Source: David Goldstein, http://switchboard.nrdc.org/blogs/dgoldstein/some_dilemma_efficient_applian_1.html
EE = Lowest Cost and Risk Generally

Lower electricity-related CO2 emissions reflect lower carbon intensity and electricity use

Source: U.S. Energy Information Administration, Annual CO2 Analysis
These results have already led to the cancellation of 10 planned transmission upgrades in New Hampshire and Vermont, saving $260 million.
Power sector employment declines, except for renewable electricity generators

The electric power generation sector lost more than 5,800 jobs from January 2011 through June 2014 despite a gain of nearly 1,800 non-hydro renewable electricity generation jobs, according to the latest data available from the Bureau of Labor Statistics (BLS).
What CPP Questions Should You Be Asking?

• Good news: States have broad CPP discretion

• Are state leaders (Gov, Leg, DEQ, PUC, SEO, etc.):
  – Integrating energy and multi-pollutant planning?
  – Favoring the mass-based approach?
  – Allocating allowances for all sources of MWh and “Negawatt-hours”? (e.g., auctions, output-based)
  – Cautious about new energy infrastructure investments?
  – Considering ways to reward early EE actions?
  – Streamlining EM&V for EE?
  – Working with the RTO/Balancing Area folks?

• Key: “Horse before cart” and “Skate to where the puck will be”
  http://www.raponline.org/featured-work/skate-to-where-the-puck-is-going-to-be
About RAP

The Regulatory Assistance Project (RAP) is a global, non-profit team of experts that focuses on the long-term economic and environmental sustainability of the power sector. RAP has deep expertise in regulatory and market policies that:

- Promote economic efficiency
- Protect the environment
- Ensure system reliability
- Allocate system benefits fairly among all consumers

Learn more about RAP at www.raponline.org

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