Toys in the Sandbox: Designing Effective State Programs for the US Industrial Sector

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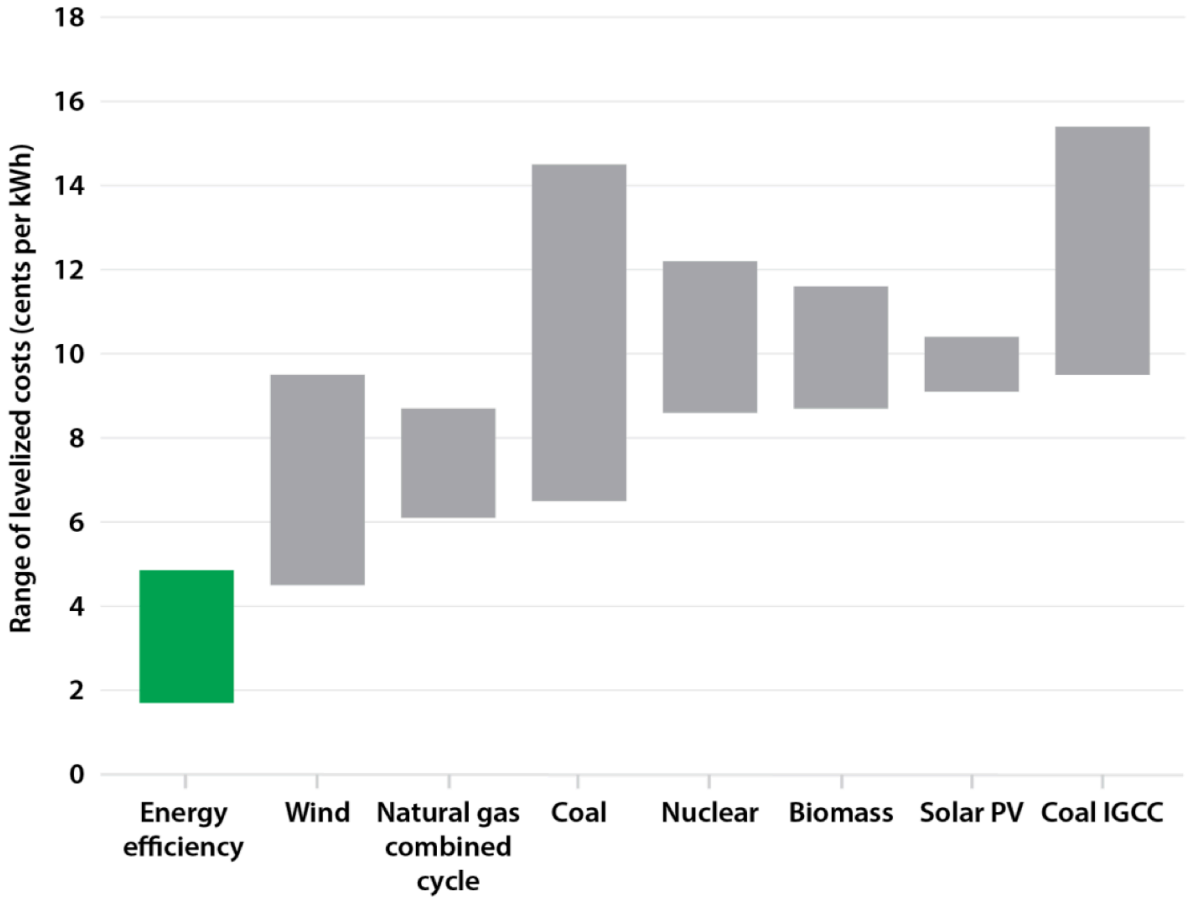
Outline

- Importance of Industrial Energy Efficiency Programs in the U.S.
- Ongoing and Useful Types of State Programs (focus on ratepayer programs)
- Ten Program Features That Contribute To Success
  - Industrial examples
  - Program examples: NYSERDA and Energy Trust of Oregon
- Emerging New Directions

Importance of Industrial Energy Efficiency Programs

- Industry accounts for 1/3 of all U.S. end-use energy
- Industry programs will be needed to meet overall state-level energy efficiency goals in almost all cases
- IEE programs can help deliver a larger slice of the energy savings potential than industrial companies can likely be achieve on their own
- IEE resources are cost-effective
- Effective IEE programs can offer industrial customers significant value (incentives enhance ROI metrics, cost savings, productivity, product quality, hedge against price volatility)
- Rate impacts: reduced energy bills to both industrial participants and all ratepayers in mid- to long-term
- Societal and environmental benefits
- U.S. is beginning an expansion of manufacturing, potentially using more energy

Cost-effectiveness of EE Resources



Levelized costs of electricity resources (utility program costs over 2009-2012)
Source: ACEEE/Molina (2014). Energy supply data from Lazard (2013)

Electric energy resources:

Cost of energy efficiency is cheaper than conventional supply side resources: EE program administrator costs average $0.028 per kWh (Molina, 2014), compared to $0.07-0.15 per kWh for supply resources (Nowak et al. 2013).

Natural gas resources:

Natural gas EE resources cost program administrators on average $0.35/therm across 10 states (Molina 2014). This value is lower than the average citygate price of natural gas of $0.49/ therm nationally in 2013 (EIA 2014).

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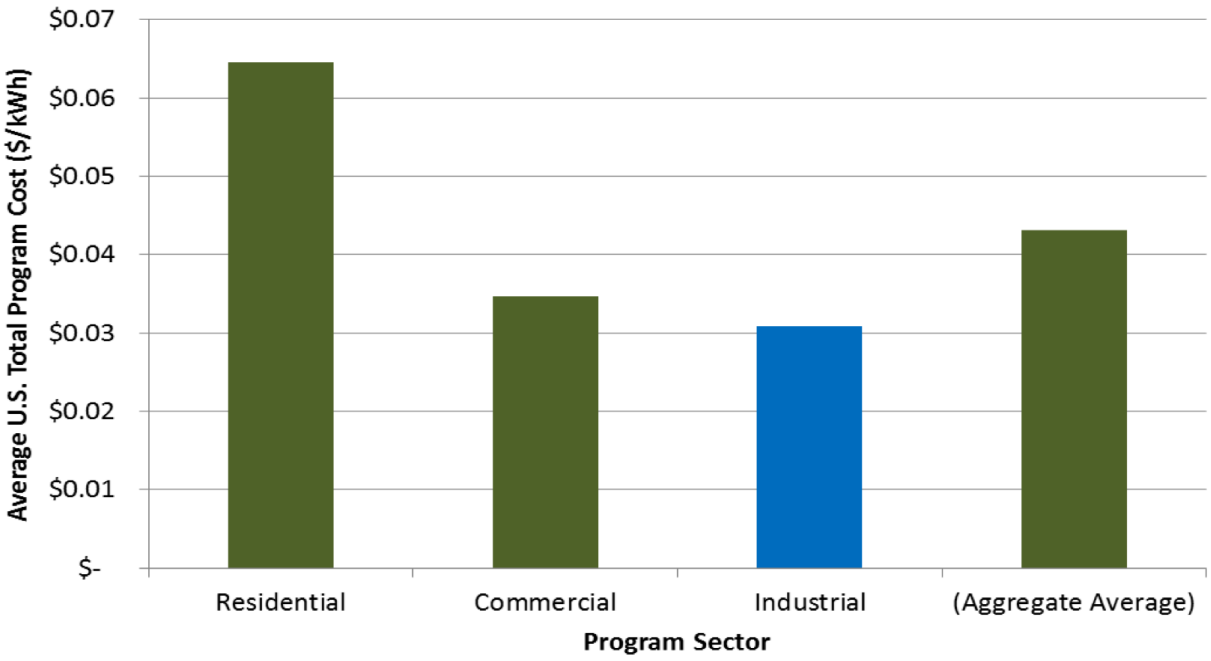
Cost-effectiveness of IEE Resources

Cost of industrial EE resources vs. other customer classes



Source: Aden (2013) based on EIA 2012 DSM, energy efficiency and load management programs data for more than 1,000 utilities www.eia.gov/electricity/data/eia861

- Industry has the lowest cost of saved energy on a national level, although it is important to note that cost structures vary by program and sector at the state level
- Possible factors that may influence program costs: 1) program administrator experience 2) Scale of program, 3) Labor costs, 4) State policy environment, 5) Retail rates (LBNL/Billingsley et al. 2014)

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Ongoing and Useful Types of State Programs

KNOWLEDGE SHARING	• Low-cost or no-cost technical assistance • Workshops and other outreach • Peer exchange between industrial clusters or groups of companies • Success story dissemination
PRESCRIPTIVE INCENTIVES	• Explicit incentives or rebates for specific eligible energy efficient equipment and technologies
CUSTOM INCENTIVES	• Specific EE projects tailored to individual customers • May be a mix of technologies • Incentives or rebates often based on entire energy savings
MARKET TRANSFORMATION	• Streamlined path for introduction of new EE products to market • Address structural barriers to EE
ENERGY MANAGEMENT	• Operational, organizational and behavioral changes through strategic energy management • Continuous energy improvement (e.g. embedded energy manager to provide leadership and continuity for implementing change)
SELF-DIRECT	• Customer fees directed into EE investments in their own facilities instead of an aggregated pool of funds • Eligibility for participation often based on threshold amount of energy use capacity • Verified energy savings

Ten Program Features that Contribute to Success

1. Clearly demonstrate the value proposition of energy efficiency projects to companies
2. Develop long-term relationships with industrial customers that include continual joint efforts to identify energy efficiency projects
3. Ensure program administrators have industrial sector credibility and offer quality technical expertise
4. Offer a combination of prescriptive and custom offerings to best support diverse customer needs
5. Accommodate scheduling concerns
6. Streamline and expedite application processes
7. Conduct continual and targeted program outreach
8. Leverage partnerships
9. Set medium to long term goals as an investment signal for industrial customers
10. Undertake proper project M&V and complete program evaluations

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1. Demonstrate the Value Proposition of EE to Companies

- Document and communicate operating cost savings and other benefits
- Use case studies of companies within the service territory, state or region that have participated in IEE programs
- Incorporate co-benefits often into the cost-benefit analysis of an energy efficiency project *prior* to making an investment decision

➢ NORPAC (Bonneville Power Administration)

Industry Example - NORPAC

Company:

NORPAC, located in Washington, is the largest newsprint and specialty paper mill in North America

The 33-year-old mill produces 750,000 tons of paper per year

Uses 200 MW annually; largest industrial electricity consumer in WA

Project:

Bonneville Power Administration and Cowlitz County PUD funded $25 million of a $60 million project for installation of new screening equipment between refiners to reduce electricity and chemical use

Benefits:

Estimated to save 100 million kWh per year

Equivalent to ~12% reduction in power use

Equivalent to enough energy to power 8,000 Northwest homes

Construction phase of project created 64 full-time family-wage jobs

2 – Long-term relationships
3 – Industrial sector credibility & technical expertise

- long-term relationships with industrial customers that include continual joint efforts to identify energy efficiency projects
- Stability in program personnel and savvy account managers can help build trust between program administrator and customers

➢ETO's customer support has encouraged more cost-effective savings

- Addressing industrial companies' core needs requires understanding a plant's production processes, operating issues, and the market context the plant operates within.
- employing staff/contractor experts that understand the industrial segment and have the technical expertise to provide quality technical advice and support issues specific to that industry and customer

➢Wisconsin Focus on Energy's "cluster approach"

4 - Address Diverse Industrial Customer Needs

Manufacturers use energy differently than the commercial sector, typically having significant process-related consumption.

- Focusing on simple common technology fixes alone will miss many of the opportunities.

A combination of both prescriptive offerings for common crosscutting technology and customized project offerings for larger, more unique projects can best meet diverse customer needs and provide flexible choices to industries.

Energy management programs can help mature customers get continued savings

➢Xcel Energy's programs have been lauded by industrial customers for offering simple incentive applications for providing a full suite of programs – prescriptive, custom, continuous improvement, self-direct and process efficiency.

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5 - Project Scheduling

- Scheduling of energy efficiency investments can be heavily dependent on a plant's operational and capital cycle, as proposed equipment changes must be guided through rigorous, competitive, and time-consuming approval processes
- Programs with multi-year operational planning can best accommodate company scheduling requirements, as scheduling of capital project implementation must consider both operational schedules that dictate when production lines may be taken out of operation as well as capital investment cycles and decision-making processes

➢NYSERDA

Program example: NYSERDA

IEE Programs include:

- **FlexTech**: energy studies coupled with 50% cost share (cap of $1 million)
- **Industrial and Process Efficiency (IPE)**: advanced process and technology installation
  - Incentives for manufacturers and data centers to enhance energy efficiency and productivity
  - New process or improvements to existing process that result in reduced energy/unit production

Outreach process

- 1-on-1 Customer Interaction and Relationship development, Understand customer motivation
- Address specific vertical needs: Key account and Decision-Maker Identification
- Stratify assignments: Industry sector, geography, size; and estimate best kW for each industrial account
- Key Account Managers - single NYSERDA contact
- Team with manufacturing & process experience who speak the customer language
- Not afraid of complex, messy projects

NYSERDA IPE Goals, Savings and Costs

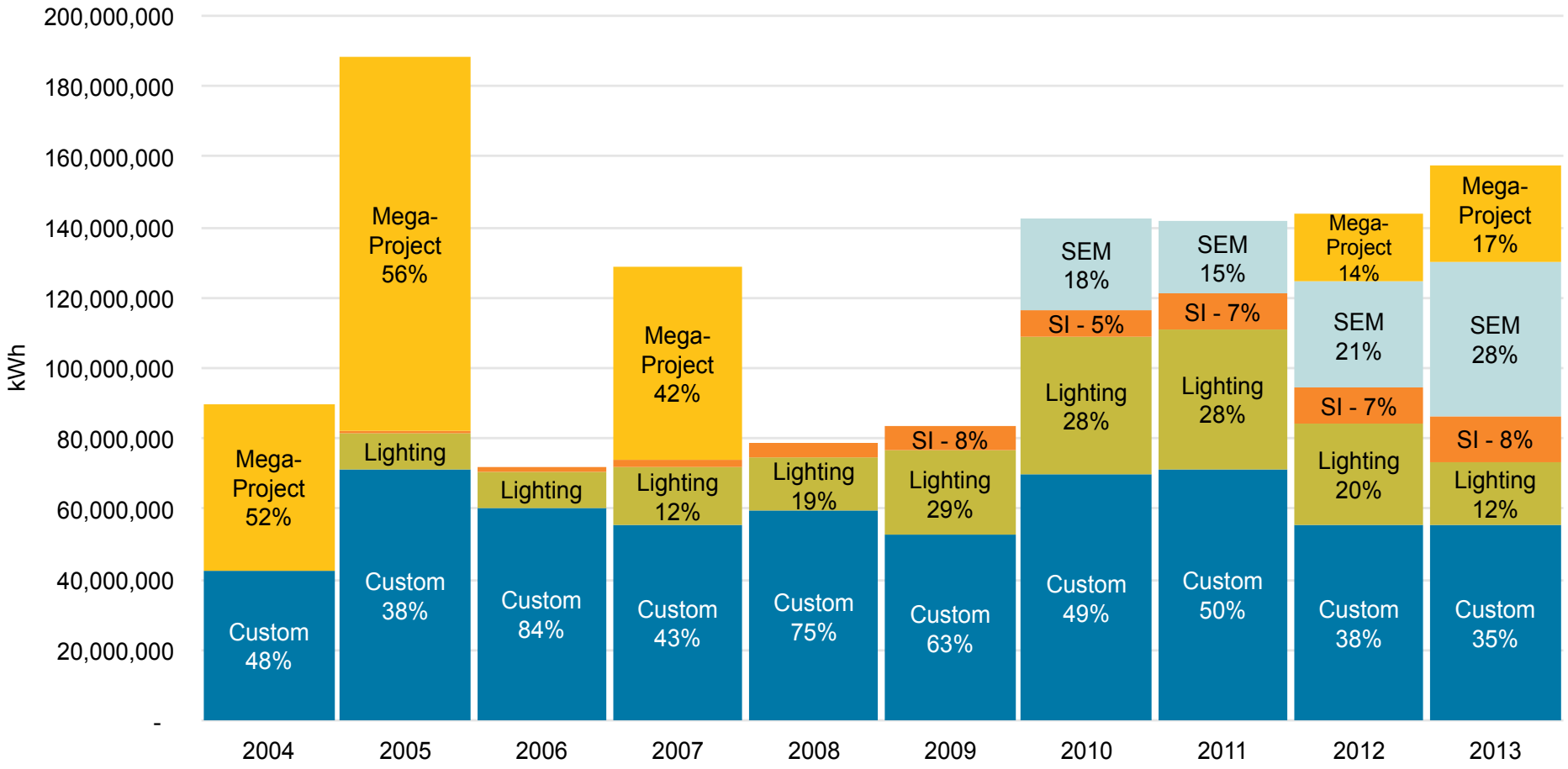
Goals	Save 800,000 MWh and 2.9 million MMBTUs by 2015
Outreach Contracts	Industrial Data Centers
Eligibility	Facilities must pay System Benefits Charge
Funding	$121 million Customer Incentives
Incentive Cap	Electric: $5 million/facility/year Natural Gas: $1 million/facility/year

Energy Savings	Electric (MWh)	Gas (Dth)
Order	800,000	2,940,000
Actual	480,773	2,202,845
% of Goal	60%	75%

Cost Effectiveness	Electric ($/ MWh)	Gas ($/Dth)
Order	$ 177	$13
Actual	$156	$11

Energy Trust of Oregon

Electric Savings in ETO Production Efficiency Program



Emerging New Directions

1. Increasing support for Strategic Energy Management programs
   - Established programs: ETO, WFE, BPA, Efficiency Vermont
   - New programs and pilots emerging: RMP (UT), AEP Ohio, ETO for SMEs, Minnesota, NEEA SEM Cohorts
   - DOE SEP & SEM Accelerator (ISO 50001), Consortium for Energy Efficiency (utility membership)
2. Developing approaches for providing energy efficiency incentives for whole-facility performance (similar to White Certificates) – and link to new proposed EPA rules for power plants
3. Capturing more energy efficiency projects by expanding quantification and recognition of project non-energy benefits
4. Continuing efforts to expand industrial natural gas efficiency programs

For more information

Full report:

http://www.iipnetwork.org/US_IEEprograms

Webinar:

http://www.iipnetwork.org/IEE-webinar2

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