# Leading the Charge with State Standards for Products and Appliances

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# Introduction

# State Product and Appliance Standards

- Fill gaps in federal energy and water efficiency standards.
- Some states use resources developed by the Appliance Standards Awareness Projects (ASAP) to gauge the impacts of product standards.
  - Crafted model bills, estimated savings and greenhouse gas reductions, provided informational resources, and advocated for the standards.

# Presentation Comprises Research from Three States and Studies (paper includes a fourth study)

- New Jersey and one Massachusetts paper reviewed and updated ASAP assumptions to calculate potential energy savings from standards.
- Another Massachusetts study sought to determine who caused the product and appliance savings to happen (see conference paper).
- New York study seeks to determine the volume and portion of sales meeting the standards over time.



# Focus on Four High Savings Product Categories

## Percentage of Total Estimated Savings from Four Product Categories

| Product | MA | NJ | NY |
|---|---|---|---|
| Commercial fryers | 11% | 15% | 18% |
| Computers and monitors | 21% | 29% | 10% |
| Faucets | 27% | 18% | 18% |
| Showerheads | 21% | 16% | 32% |
| ***% of total savings*** | ***80%*** | ***78%*** | ***78%*** |
| ***Cumulative Savings in Billions of BTUs*** | ***564*** | ***915*** | ***19,628*** |

Savings vary due to population, number and type of products included in the standards, and the estimation source: NJ from ASAP, MA from legislators via ASAP, and NY from a study conducted for NYSERDA.


# Estimated Savings Review

# Impetus for Estimated Savings Review

- Evaluation advisory team and evaluation team overlapped in Massachusetts and New Jersey
  - Volume of estimated savings seemed high compared to energy-efficiency program savings.
  - New Jersey Board of Public Utilities (BPU) and Massachusetts Program Administrators (PAs) asked evaluation team to review savings estimates and revise if needed.
    - Initial review and savings updates performed for New Jersey.
    - Deeper dive into savings assumptions and inputs in Massachusetts.

# ASAP followed a sound estimation process

- Used best available data and models from numerous sources to estimate and update savings.
  - California Title 20 data, models, and compliance databases.
  - Numerous federal sources.
  - Other studies and resources from across the nation.
- Revised their approach based on new information and stakeholder feedback.
- Modeled transparency in estimating national-level savings.
- Described general approach for allocating to states.

# ASAP savings method differed from those of many energy-efficiency programs

| Difference | Resolution |
|---|---|
| ASAP held NOMAD* and shipments (a proxy for sales) constant when forecasting savings. | Forecast NOMAD and shipments based on historic trend data (e.g., ENERGY STAR®, Gartner). |
| ASAP used cumulative savings over time when stating the savings achieved in a specific year. | Initial New Jersey method was to divide ASAP savings by the number of years in the cumulative estimate; revised in Massachusetts to use the forecasted NOMAD and shipments. |

* Naturally occurring market adoption

# ASAP savings method differed from those of many energy-efficiency programs

| Difference | Resolution |
|---|---|
| ASAP did not provide details of how they allocated national savings estimates to each state or each fuel. | Calculated each state's portion of national savings using ASAP's original estimates and applied this same portion to our revising national estimates.<br><br>Used prior program or evaluation data or information from the Energy Information Administration to assign savings by cooking and water heating fuels. |
| Product specific issues addressed in paper | |

# Recommended 2025 First-Year Savings Estimates

| Fuel | Unit | New Jersey | | | Massachusetts | | |
|---|---|---|---|---|---|---|---|
| | | ASAP | Rec'd | % of ASAP | ASAP | Rec'd | % of ASAP |
| Electric | MWh | 128,960 | 108,340 | 84% | 68,600 | 49,889 | 73% |
| Fossil fuel | MMBtus (000s) | 475 | 394 | 83% | 330 | 191 | 57% |

New Jersey method only adjusted first-year savings for commercial fryers, computers, and monitors, while Massachusetts adjusted most of the products in the standards.


See paper for
Standards Promulgation Attribution Research


# Verifying Compliance and NOMAD

# NYSERDA is actively engaged in compliance support

- NYSERDA program staff and implementation contractor support manufacturers and retailers/distributors in complying with standards.
- Currently conducting a multiyear evaluation to assess program and characterize the market for PAS product categories.
- Presentation of the learnings of in-progress efforts to obtain sales data and verify compliance and NOMAD.

# Sales Data Search

- NYSERDA relies on two databases to confirm product compliance:
  - State Appliance Standards Database (SASD)
  - Modernized Appliance Efficiency Database System (MAEDbS).
- Require look-ups using model numbers, and not the codes commonly tracked in point-of-sale data (e.g., UPCs or SKUs).
- Evaluators contacted six sales data and market research vendors, but none offered the data needed to verify compliance.
- Industry and trade groups do not track these products.

# Tabled sales search… for now

- Will revisit the sales data search in future evaluation years.
- Other evaluation activities may also yield information that can be used to approximate compliance and NOMAD.

# Exploratory Retailer and Distributor Survey

- Plumbing fixtures & commercial kitchen equipment account for 68% of estimated savings from New York standards.
- Exploratory retailer and distributor survey seeks to:

**Determine awareness of the standards.**

**Document self-reported changes in stocking practices.**

**Characterize sales trends following June 2023 implementation.**

**Understand how quickly sales stock turns over (allow sell-through of products manufactured prior to June 2023).**

# *Exploratory* because prior efforts have faced challenges

| Challenge | Mitigation Strategy |
|---|---|
| Developing a representative sample frame. | Use third-party sources, web scraping, and evaluation and implementation contractor contact lists to develop frame. |
| Finding the right person at locations to answer the survey. | Advance email to 60 possible respondents with follow-up phone calls and carefully worded screening questions. |
| Securing enough responses to meet precision targets. | Offer a $50 incentive, attempt contact up to 10 times. |

# Exploratory Survey Learnings and Responses

- Completed three surveys in four weeks with plumbing fixture suppliers
  - Restaurant supplier sample frame included many businesses that did not sell commercial kitchen appliances.
- Still moving forward with full survey.
  - Currently have 2,251 plumbing supplier contacts for 100 completes.
  - Further cleaning identified 140 restaurant suppliers that sell commercial kitchen appliances.
- Original incentive did not motivate responses; increased to $150
- Respondents confused by some question wording.
  - Revised wording based on feedback from three respondents, and subject matter expert review.
- Plan to conduct a complementary shelf-stocking inventory with 70 retail plumbing suppliers.


# Conclusions

# Conclusions

1. ***Product standards are a powerful tool*** to increase widespread energy efficiency and secure energy savings and carbon reductions.
   - Yield substantial energy savings, even after adjusting for changes in shipments, NOMAD, dated per-unit assumptions, or cumulative versus first-year savings.
2. ***No perfect approach exists*** to estimate potential savings or demonstrate the impact of product standards at the state level.
   - Must turn to non-traditional information sources and accept imperfect assumptions.

# Conclusions

3 ***Passage does not guarantee compliance***, but data availability and methodological challenges can thwart attempts to measure compliance.

4 ***Innovative approaches will be needed*** to determine compliance for standards that lack built-in mechanisms for establishing sales trends.

# Thank You


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# Example: Massachusetts Commercial Fryers

| Assumptions | Shipments | Shipments by fuel | Per-unit savings | Market share | MA % of nation | Annual savings |
|---|---|---|---|---|---|---|
| ***Electricity*** | | ***%*** | ***kWh*** | ***%*** | ***%*** | ***MWh*** |
| ASAP 2020 | 100,000 | 100% | 163 | 29% | 2% | 232 |
| 2023 | 133,000 | 19% | 163 | 26% | 2% | 61 |
| 2024 | 136,000 | 19% | 163 | 27% | 2% | 62 |
| 2025 | 139,000 | 19% | 163 | 28% | 2% | 62 |
| ***Natural gas*** | | ***%*** | ***MMBtu*** | ***%*** | ***%*** | ***MMBtu (thousands)*** |
| ASAP 2020 | 100,000 | 100% | 46 | 29% | 2% | 65 |
| 2023 | 133,000 | 81% | 46 | 26% | 2% | 73 |
| 2024 | 136,000 | 81% | 46 | 27% | 2% | 74 |
| 2025 | 139,000 | 81% | 46 | 28% | 2% | 75 |


# Standards Promulgation Attribution

# Promulgation Backstory

- Massachusetts passed the Climate Act in 2021 that included products standards.
- The PAs, ASAP, and other parties supported the standards.
- Massachusetts Department of Public Utilities (DPU) issued the following order:

"…the [PAs] must be able to show that any savings associated with the appliance standards … are *directly attributable* to the [PAs]' lobbying efforts. The Department finds that the [PAs] *cannot count these claimed savings towards their performance incentive goals without a showing in the Term Report that, but for their actions, the legislation would not have been passed."*
(DPU 2022, emphasis added).

# Interpretation of the Order Varied

- Did it require a binary attribution standard requiring proof that the standards would not have passed without the PAs' intervention, or…
- Did it allow for a partial attribution standard under which the PAs could receive partial credit for influencing passage, even if other stakeholder also played a critical role in the process.

# Evaluation Objective and Methods

- **Objective:** to determine binary and partial attribution for the PAs' role in passage of the standards.
- **Methods:**
  - Program documentation review
  - Secondary research
  - In-depth interviews
  - Consensus process

| Stakeholder Group | # of Interviews |
|---|---|
| PA and implementer staffs | 2 |
| PA governmental relations staff | 1 |
| Bill sponsors, ASAP, industry and environmental advocacy groups | 8 |
| Total # of Interviews | 11 |

# Promulgation Study Findings

- The stakeholders credited ASAP – and not the PAs – as the primary party responsible for the creation and selection of the product standards.
- The PAs' support in the legislative process helped get the proposed standards passed, particularly securing industry support.

## Consensus Group Recommendations

| | Attribution Rate | Rationale |
|---|---|---|
| Binary | 0% | Probably would have passed without the PAs |
| Partial | 20% | PAs did influence passage |

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# Conclusions

Allocation of the savings from promulgating the standards should reflect how states treat attribution and engage ASAP and other entities in their development and passage.