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ESRPP Savings Protocols and Structured Expert Judgement Panels

SAG MT Savings Working Group

June 13, 2022

Agenda

- Brief overview of ENERGY STAR Retail Products Platform

- Overview of Attachment C update on ESRPP savings protocols and Natural Market Baseline

- Rationale and role of structured expert judgement panels on ESRPP Natural Market Baselines

Overview of ESRPP

- ENERGY STAR® Retail Products Platform (ESRPP) market transformation initiative

- Facilitated by Northwest Energy Efficiency Alliance (NEEA)

- **Goal:** Drive manufacturing and product standards and specifications for a portfolio of energy efficiency products sold through the retail channel.

- ComEd joined in Q2 CY2020 and uses midstream incentives to retailers for two product categories; top-loading clothes washers and refrigerators.

Attachment C Update

ESRPP Evaluation Protocol

Purpose

- Provide guidance on data inputs and methods leveraging ongoing evaluation in ComEd territory.

- Attachment C stipulates formalizing MT specific protocols

  MT protocols will need to be developed for individual MT initiatives as they are launched, and may be documented in the IL-TRM or by posting   agreed-upon protocols to the SAG website.

  -Attachment C, Section 1, p125.

Overview of ESRPP MT elements

Logic Model and Market Progress Indicators

- Logic Model provides the relationships and connections between the program activities and the anticipated market changes for each product category.

- Market changes are observed over the short, medium, and long term.

- Market Progress Indicators (MPIs) are used to measure progress towards the desired outcomes.

- Guidehouse reviewed the logic model and MPI list during CY2021.

Barriers → Activities → Outputs → Outcomes

Overview of ESRPP Savings Protocol
Data and Data Cleaning

ESRPP National Sales Portal

Contains monthly sales summaries by product category, and is available to each program sponsor.

1. Unit sales by model number
2. Qualified status of model
3. Per-unit incentive
4. Retailer (for qualified products)
5. Inputs for gross savings (energy factor, capacity, etc.)

Qualified Product Lists (QPLs)

Gather information for unit energy savings (UES) calcs

ENERGY STAR

DOE

CA Energy Comm.

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Overview of the ESRPP Savings Protocol

Data and Data Cleaning

- Assign each model number an efficiency tier

- Tiers vary by product and can be updated each year by the program sponsor.

Tier	Refrigerators	Clothes Washers
Basic	Energy Star Most Efficient, between 10% and 15% more efficient than federal standards	ENERGY STAR, up to 10% more efficient than federal standards
Advanced	Emerging Tech, at least 15 % greater efficiency than federal standards	Energy Star Most Efficient, at least 10% greater efficiency than federal standards
Non-Qualified	All other models	All other models

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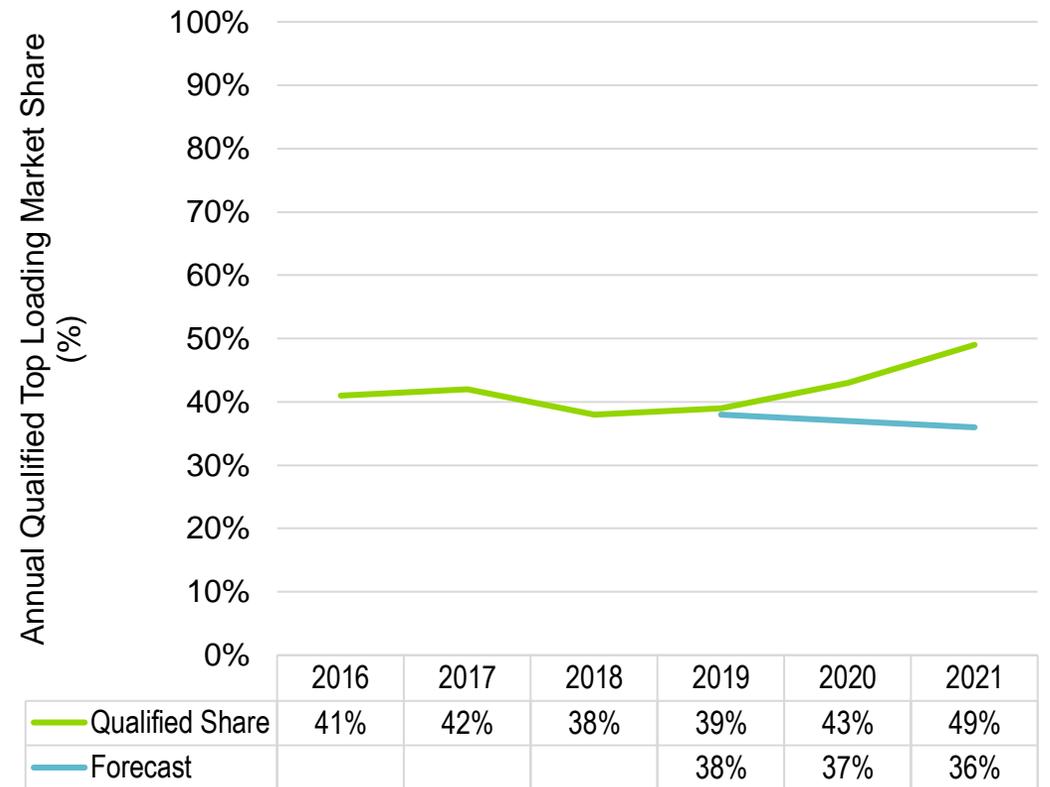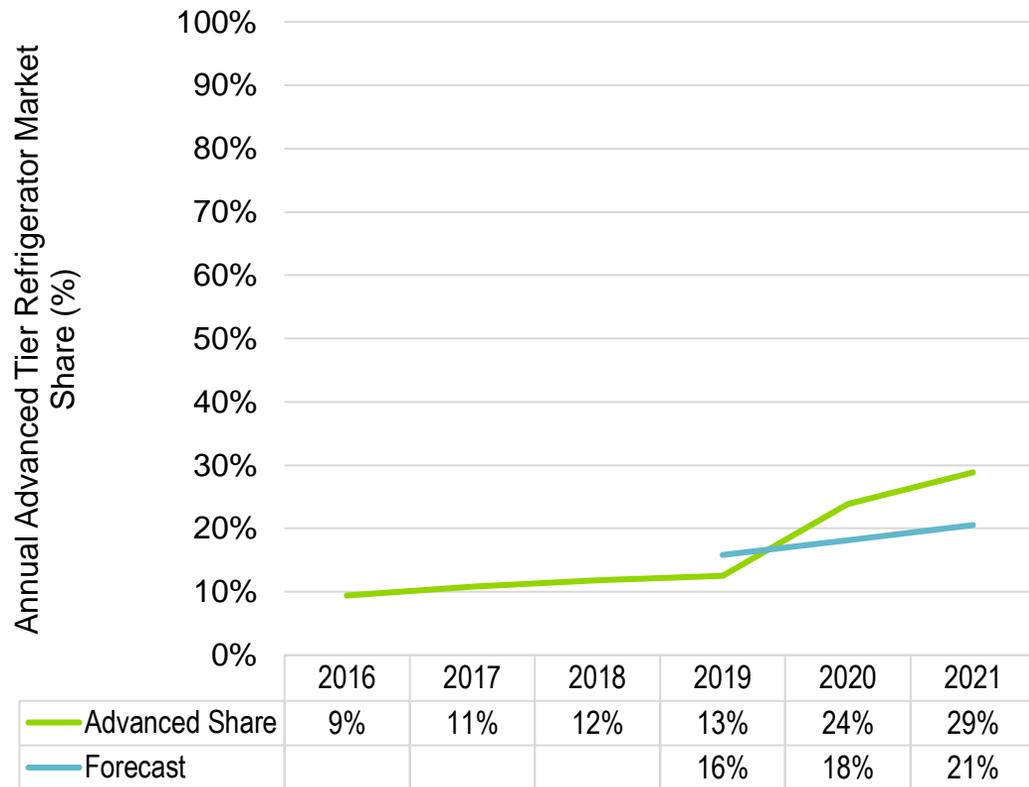
Overview of the ESRPP Savings Protocol

Natural Market Baseline

- Program sponsors get access to 12 months of historical sales data prior to joining ESRPP.

- The Guidehouse Team combined program tracking data from Illinois and Wisconsin Focus on Energy to expand historical data back to 2016.

- Current NMB is linear forecast of market shares based on the historical trends from the combined dataset.

$$MS_n = a + \frac{\sum(year_i - \overline{year})\,(MS_i - \overline{MS})}{\sum(year_i - \overline{year})^2} * year_n$$

Overview of the ESRPP Savings Protocol Natural Market Baseline

	2016	2017	2018	2019	2020	2021
Advanced Share	9%	11%	12%	13%	24%	29%
Forecast				16%	18%	21%

	2016	2017	2018	2019	2020	2021
Qualified Share	41%	42%	38%	39%	43%	49%
Forecast				38%	37%	36%

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Overview of the ESRPP Savings Protocol
Unit Energy Savings

- Leverage algorithms and inputs in the TRM

- 5.1.2 ENERGY STAR Clothes Washers
  - Capacity and IMEF from product lookups
  - Ncycles uses default TRM assumption

- 5.1.6 ENERGY STAR and CEE Tier 2 Refrigerator
  - Difference in Unit Energy Consumption (UEC)

Overview of the ESRPP Savings Protocol
Annual Savings

$$ESRPP\ Savings$$
$$= (UES\ x\ Total\ Market\ Units\ x\ Actual\ Market\ Share)$$
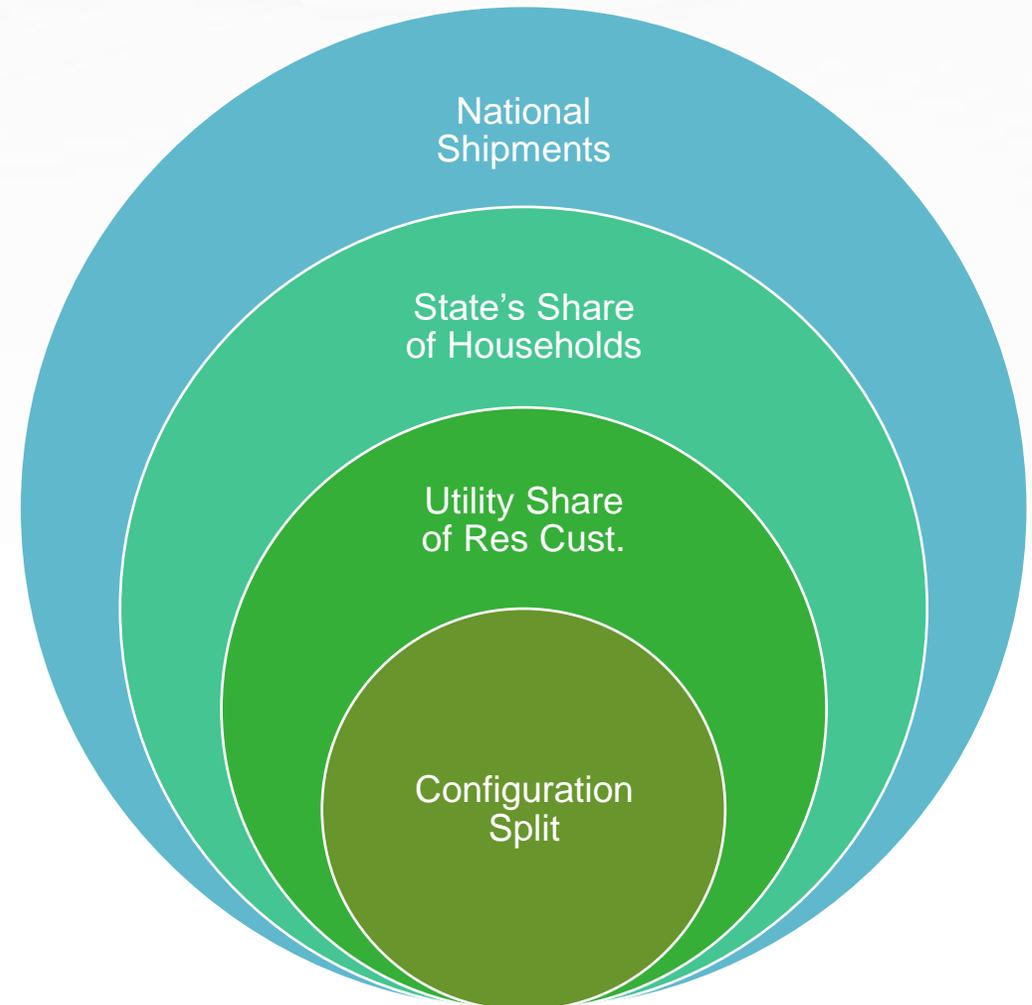$$- (UES\ x\ Total\ Market\ Units * NMB)$$

- *UES* is the difference between sales-weighted average annual kWh for program qualified models and federal baseline models

- *Total Market Units* are the total quantity of qualified model sales from participating retailers plus the estimated quantity of qualified units sold through non-participating retailers

- *NMB* is the forecast natural market baseline market share

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Overview of the ESRPP Savings Protocol
Annual Savings

Non-Participating Retailer Sales

- Based on Association of Home Appliance Manufacturers (AHAM)

- Apply shares and subtract program sales

- Apply 50% of observed net-lift to non-participating retailers
  - Based on Guidehouse literature review conducted during CY2021

National Shipments

State's Share of Households

Utility Share of Res Cust.

Configuration Split

Overview of the ESRPP Savings Protocol
Annual Savings

Account for Savings from Other Programs

- Downstream Appliance Rebates Program
  - Clean data using similar procedures and QPLs
  - Likely to require additional data cleaning
  - Only configurations and efficiency tiers which were incented through ESRPP should be removed
  - Remove the net energy, demand, natural gas savings

How structured expert judgement panels reduce uncertainty for estimating savings

- ComEd and NEEA are the only two sponsors estimating savings from ESRPP solely as a MT program. Most sponsors estimate savings from ESRPP as a RA program rather than MT

- Lots of inherent uncertainty extrapolating from 1 – 3 years of data for Natural Market Baselines (NMBs) forecasted 10 years into future

- We can only observe trends in the tracking data. Cannot fully explain what is driving those trends

- Transparency in NMB and increased rigor increases confidence and defensibility of savings estimates

- The judgement panels will increase confidence that our estimated savings are accurately capturing the effects of ESRPP on the market

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Structured Expert Judgement Panel Description

- **Structured Expert Judgement Panel-** Deliberative process where experts debate before arriving at a collective answer
  - o Multiple rounds of debate and reconsiderations
  - o Panelist are given a prompt with data and individually they're asked to make a judgment and provide their reasoning
  - o Panelists draw on their own experience and they can question each other's (anonymized) reasoning and interpretation of the source materials
  - o Panelists individually submit their 1st round judgment to the moderator (Guidehouse), and then the moderator combines all the judgments and issues a second-round prompt to all panelists
- **Guidehouse will present recommendations from panels to SAG MT WG in Q4 2022**

Draft Criteria for Experts

Draft Criteria

- Expertise in consumer purchasing trends for clothes washers and refrigerators – all configurations (particularly qualified configurations), especially with regard to energy efficiency

- Expertise in manufacturing trends regarding clothes washers and refrigerators – all configurations (particularly qualified configurations), especially with regard to energy efficiency

- Expertise and experience with retailers' stocking and marketing decisions for clothes washers and refrigerators – all configurations, especially with regard to energy efficiency

- Expertise with national trends and regional differences of consumer buying patterns and retailer decisions of clothes washers and refrigerators – especially with regard to energy efficiency

- Familiarity with utility energy efficiency market transformation programs, emerging technology introduction, ENERGY STAR specification development and influence, and Federal efficiency standards work (including test standard development)

Guidehouse is working with Guidepoint to identify and vet potential qualified experts

  o Anonymized Bios will be used to selected experts

Goals of Expert Panels

- **Everything above NMB is attributable to the MT (Market Transformation) program**

- Refine NMBs. Is the baseline reasonable and accounting for all external factors?
    - Explain trends that we might not be able to explain from sales data
    - Increase rigor of baseline estimate
    - Translate qualitative information to quantitative robust savings that can count towards ComEd's ESRPP program.

Sample Questions for Experts on Judgement Panel

- **Question 1:** Consumer Demand Trends for Washers and Refrigerators – National and Regional

- **Question 2:** Influences on Retailers' Stocking and Marketing practices
  - Disaggregate trends of key drivers that promotes sales for certain products
  - Signals that retailers and wholesalers are responding to

- **Question 3:** Manufacturers' Trends for Washers and Refrigerators

- **Question 4:** Are the NMBs derived from participating retailers representative of market share and sales at non-participating retailers? Or do the NMBs need refinement?

Q&A

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