IL EE Stakeholder Advisory Group:
Market Transformation (MT) Savings Working Group Meeting

Wednesday, February 28, 2024

1:00 – 3:00 pm
Teleconference

Attendees and Meeting Notes

Meeting Materials

Posted on February 28, 2024 meeting page:

- Wednesday, February 28 MT Savings Working Group Agenda
- SAG Facilitator Presentation: Introduction to February 28 MT Working Group Meeting
- Spreadsheet Summarizing Status Updates on Current Illinois MT Initiatives
    - ComEd Presentation: Market Transformation Updates
    - Peoples Gas & North Shore Gas Presentation: CarbinX – Heat Recovery with Carbon Capture
- Slipstream and MEEA Presentation: Stretch Codes and Building Performance Standards Update
- Nicor Gas Presentation: Residential HVAC Gas Heat Pumps
    - Gas Heat Pump Logic Model
    - Gas Heat Pump Market Progress Indicators Spreadsheet

Attendees

Celia Johnson, SAG Facilitator
Jorge Medina Zambrano, Inova Energy Group (SAG Meeting Support)
Abby Miner, IL Attorney General's Office
Alison Lindburg, MEEA
Allen Dusault, Franklin Energy
Alyssa Kogan, Slipstream
Bruce Liu, Nicor Gas
Bahareh van Boekhold, ILLUME
Brady Nemeth, Resource Innovations
Chris Neme, Energy Futures Group, representing NRDC
Corey Grace, Resource Innovations
Courtney Golino, Guidehouse
Dan Streit, Slipstream
David Brightwell, ICC Staff
Dena Jefferson, Franklin Energy
Elizabeth Horne, ICC Staff
Hannah Collins, Leidos

Hannah Howard, Opinion Dynamics
Isabella Gross, MEEA
Jane Colby, Apex Analytics
Jeannette LeZaks, Slipstream
Jim Fay, ComEd
John Lavallee, Ameren Illinois
Jonathan Skarzynski, Nicor Gas
Josh Sharon, ComEd
Jeff Harris, NEEA
Kate Shonk, Citizens Utility Board
Kathryn Collins, Guidehouse
Kim Swan, ComEd
Lili Florez Monroy, Peoples Gas & North Shore Gas
Maddie Koolbeck, Slipstream
Maddie Liput, MEEA
Mark Milby, ComEd
Mark Szczygiel, Nicor Gas
Mathew Abraham, EfficiencyOne
Michael Brandt, Elevate
Michael Frischmann, Ecometric Consulting
Mike King, Nicor Gas
Molly Garcia, Center for Energy & Environment
Molly Graham, MEEA
Nic Crowder, Ameren Illinois
Nick Warnecke, Ameren Illinois
Nicole Karpavich, Resource Innovations
RIck Tonielli, ComEd
Randy Opdyke, Nicor Gas
Rocco Guaragno, Resource Innovations
Ryan Kelly, EfficiencyOne
Shane Perry, Ameren Illinois
Stu Slote, Guidehouse
Thomas Ketchum, South Suburban Action Conference
Thomas Manjarres, Peoples Gas & North Shore Gas
Tina Grebner, Ameren Illinois
Wayne Leonard, Guidehouse
Zack Tyler, Opinion Dynamics

Opening and Introductions

Purpose of the meeting:

1. For Illinois utilities to provide a status update on current Illinois market transformation (MT) initiatives in progress in 2024;
2. To educate participants on the progress of MT codeinitiatives; and
3. To educate participants on the Gas Heat Pumps MTinitiative.

SAG Facilitator Introduction: SAG Planning Process Reminder

- SAG Facilitator Presentation: Introduction to February 28 MT Working Group Meeting
- If anyone has market transformation suggestions for IL utilities to consider as they develop their 2026-2029 EE Plans, share through the Large Group SAG “Energy Efficiency Ideas” process.

- Deadline for EE Idea Submittals – Friday, March 15, 2024

Status Update on Current Illinois MT Initiatives

Nic Crowder, Ameren Illinois; Rick Tonielli, ComEd; Randy Opdyke, Nicor Gas; Thomas Manjarres, Peoples Gas & North Shore Gas

- Spreadsheet Summarizing Status Updates on Current Illinois MT Initiatives
- ComEd Presentation: Market Transformation Updates
- Peoples Gas & North Shore Gas Presentation: CarbinX – Heat Recovery with Carbon Capture

ComEd Market Transformation Initiatives

- Retail Products Platform
  - ComEd has been participating in the Retail Products Platform since 2020, offering incentives to large retailers for refrigerators and top-loading clothes washers facilitated by NIA (National Institute of Appliance Manufacturers).
  - A full program evaluation was conducted in 2022, with the 2023 evaluation currently underway, including input from an expert judgment panel by Guidehouse to understand market dynamics.
  - Based on a successful 2022 evaluation and expected similar results in 2023, a change has been made to retail rebates for refrigerators in 2024 discontinuing point-of-sale rebates for clothes washers.
  - Considering adding additional appliances to the program, such as induction cooktops, among the 8-10 approved items.
- Codes and Standards
  - From the end of 2024, ComEd will be the sole utility sponsor for the program, transitioning from joint efforts in previous years.
- Electric Homes New Construction
  - Initial efforts are underway for the Electric Homes New Construction initiative.
  - There are some challenges in determining the penetration of all-electric homes in the market, but analysis using meter data provides insight into identifying all-electric homes based on electricity usage patterns.
  - A draft logic model developed, progressing towards a full-scale initiative with an understanding of the market. Even considering applying standards for potential savings, similar to programs in California, for items lacking incentives in Illinois like irrigation controllers and shower heads.
- Other Initiatives
  - Appliance standards
  - MT market research

Chris Neme – Is ComEd evaluating adding more efficient induction cooktops as a measure to implement?

- *Mark Milby – ComEd is evaluating the cost-effectiveness of induction cooktops as a downstream measure due to their high incremental cost relative to kWh savings. There is a proposal for an upstream model to better assess the value of induction cooktops in energy efficiency programs. The TRM provides guidelines for evaluating induction cooktops with both electric and gas baseline but there is a small savings delta between electric conventional and induction cooktops. The high incremental cost of induction cooktops compared to the magnitude of*

kWh savings and potential benefits for customers are still being discussed.

- *Chris Neme – Is ComEd promoting it as a market transformation measure or just as an upstream?*
- *Mark Milby: Today it is simply an appliance rebate in our downstream residential program.*

Chris Neme – Is ComEd in the High-Performance Triple-Glazed Windows Market Transformation Initiative?

- *Rick Tonielli – ComEd has been part of the research to date, but still in the monitoring phase.*
- *Mark Milby - Compared to other opportunities, windows are not as impactful from a savings volume standpoint in the near term, but are definitely on the radar for future implementation possibilities.*

Peoples Gas & North Shore Gas Heat Recovery with Carbon Capture MT Initiative

- Introduction of boiler economizer technology with integrated carbon capture. Similar to traditional technology but with increased efficiency due to the carbon capture process.
- CarbinX involves a chemical reaction involved in carbon capture that is exothermic, generating additional heat for the economizer to capture. The combination of energy efficiency and carbon capture benefits generates gas savings estimated at 30% for the current version with up to 50% carbon capture efficiency later in the year.
- Initial installations encountered additional challenges working with the current contractor network. Installations took place in high schools as part of beta tests. Updates are expected later in the year, showcasing the incorporation of this technology into the science curriculum. Information gathered from manufacturer and public sector sites will be shared as part of the beta tests.

Chris Neme – In what form is the carbon captured?

- *Thomas Manjarres – The CO2 in the flu gas reacts with the liquid to produce potassium carbonate, represented as white pearl ash powder. Potassium carbonate serves as a primary ingredient in various industrial processes, including soap, detergent, and fertilizer production. The company engages in a purchase agreement with clients, wherein they buy the produced potassium carbonate (pearl ash) for their product line. This is implemented in a wide range of products including degreasers, shampoos, body washes, hand soaps, and detergents. Clients sell back the produced pearl ash to the company and are compensated with single-use soaps and shampoos for guest rooms instead of cash rebates.*

Chris Neme – Is this a Market Transformation Initiative or is this R&D?

- *Thomas Manjarres – It is transitioning out of the R&D phase and shifting towards establishing supply chains to make the technology accessible to more customers. Efforts are being made to ensure the contractor workforce is trained for installation and servicing. Local off-take agreements are being sought to facilitate the sale of produced potassium carbonate to industrial customers in Chicago, reducing the need for shipping to Canada.*

Chris Neme – Are you calculating the baseline savings and forecasting the potential savings based on the uptake over time?

- *Thomas Manjarres – Peoples Gas and North Shore Gas have been evaluating the best way to model savings. Right now, the focus is on establishing a foothold on this new market initiative to be better able to determine overall savings.*

Efficient Rooftop Units

- Nicor Gas is collaborating with GTI for Illinois market characterization research. Currently partnering with NEEA (NW Energy Efficiency Alliance) and Minnesota Clean Energy for market transformation initiatives as well as Guidehouse on developing a draft logic model for market transformation.
- Plans to present the logic model and market practice indicators in upcoming SAG (Strategic Advisory Group) meetings.

High Performance Windows

- Participation in a multi-utility effort for Illinois territory-specific deliverables in 2024.
- Regular communications with potential collaborators, including discussions with Ameren about co-funding options. Right now, Nicor Gas is working with Guidehouse on developing a natural market baseline.
- There is ongoing participation in PAWS (Partners for Advanced Windows Systems) leadership committee and utility working group.
- ComEd is monitoring activity of PAWS group on high-performance windows.
- Ameren IL attended PAWS meetings as scheduled. Finalizing PY23 Deliverables and working to move forward co-funded pilot efforts in PY24.
- Nicor Gas presented Logic Model & Market Progress Indicators to MT Working Group in October '23. Evaluator review of a Nicor Gas natural market baseline. Continued participation in PAWS leadership committee and utility working group.

Luminaire Level Lighting (LLL) Controls

- Ameren is still developing field engagement strategies, including training, education, marketing materials, collateral, and support. Collaboration with the evaluator will continue to refine these efforts, with updates to be shared with the group as progress is made.

Secondary Glazing System

- Nicor Gas is considering submitting a new work paper idea for the TRM process this year. They are in the early phases of partnering with GTI Energy to explore potential savings on secondary windows in the commercial space. For commercial buildings there is more electric heating, which secondary glazing systems could help with, but at this point we there are no implementation activities planned, solely monitoring.
- ComEd is monitoring the activity of the PAWs group.

MT Code Initiatives: Stretch Codes and Building Performance Standards

Jeannette LeZaks, Slipstream and Alison Lindburg, Midwest Energy Efficiency Alliance

- Slipstream and MEEA Presentation: Stretch Codes and Building Performance Standards Update

Stretch Codes MT Initiative

- The code initiatives project is now fully funded by ComEd; there was past support from several other IL utilities.
- Stretch energy codes define higher energy efficiency standards for new construction while building performance standards target efficiency upgrades in existing buildings.
- Illinois legislation mandates the availability of stretch codes, providing municipalities with the option to adopt higher efficiency standards. The project involves working with municipalities to overcome barriers to adopting stretch codes and developing support programs with utility company support.
- ComEd is also developing savings and attribution methods aligned with market transformation protocols.
- In discussions surrounding policy adoption, there's an emphasis on municipalities adopting a stretch code, with utilities playing a crucial role in assisting compliance. This challenge persists regardless of whether municipalities opt for a stretch or base code, as not all buildings adhere precisely to the required standards. Utilities are poised to offer various support mechanisms, although specifics are yet to be fully detailed.
- The project collaborates closely with Guidehouse. Key components led by the Slipstream/MEEA team include the energy savings framework and program plan, with discussions on certain aspects of the framework underway. Guidehouse is tasked with developing the evaluation plan, with comprehensive presentations expected in the coming months.
- Recap of 2023 progress:
    - Data gathering and foundational analysis completed. The energy savings framework and natural market baseline have been completed and compiled new construction data by municipality.
    - Developed energy use intensity metric for base energy code; applied EUI for stretch code required by CEJA to calculate savings impact per square foot
    - Conducted interviews and surveys with municipalities to assess utility influence on adoption with collaboration with utilities and Guidehouse.
- Goals for 2024:
    - Finalize method to avoid double counting in market transformation and resource acquisition programs, especially for stretch code.
    - To sort out the evaluation plan over the next several months as well as align energy savings frameworks, market progress indicators, and the logic model.
    - The aim is to complete alignment by May for the market transformation working group meeting.
    - Guidehouse planning an expert judgment panel for evaluation.
    - Finalize consideration of triggers for revising the natural market baseline and understand program influence on construction timelines.
- Updates:
    - The development of an energy savings framework document is underway, providing detailed calculations for both adoption and compliance. Separate calculations for adoption and compliance due to differing variables.
    - Adoption calculations are based on the number of MT units, defined as square feet of new construction.
    - Growth is projected over the next 10 years to determine the natural market baseline curve.
    - Estimation of adoption likelihood for municipalities without utility support considered, factoring in external influences like federal funding and political dynamics.

- Overview of Municipal Data Collection:
    - Surveys were conducted with a sample of municipalities, including a survey sent to 150 contacts across Northern Illinois through the Metropolitan Mayors Caucus (MC).
    - Responses received from 30 unique municipalities, with a total of 35+ respondents, some municipalities having multiple respondents.
    - Instrument developed collaboratively with Guide House and funding utilities, administered through an online platform.
    - Survey results indicate varying levels of consideration among municipalities regarding the adoption of stretch codes and BPS (Building Performance Standards).
    - Some municipalities are not considering adopting either stretch codes or BPS, while others are uncertain.
    - These findings suggest the need for significant support to assist municipalities that are undecided or not considering adoption, while also highlighting the potential for market transformation opportunities.

  Chris Neme – What could be done to improve response rates?
    - *Jeannette LeZaks – I'm assuming there is some self-selection bias. Slipstream will be describing in supporting documents what we suggest about collecting data in the future. There is an idea about an ongoing survey, but a lot of them just are not considering it.*

- Considerations on Triggers for Future NMB Changes:
    - Discussion on potential updates to the natural market baseline considering future external impacts and code adoption cycles.
    - Codes are typically updated on a three-year basis, with stretch codes progressively becoming more efficient.
    - Metrics for baseline reassessment may include mass adoption of stretch codes or unexpected shifts in adoption patterns due to various factors.
    - Regular code compliance studies are crucial to track changes over time. There is a proposal for expert judgment panel feedback on potential metrics requiring baseline reassessment.
- Avoiding Double Counting:
    - Proposed graphic representation of the current resource acquisition approach, focusing on municipalities and buildings undergoing energy-saving programs.
    - The illustration depicts buildings undergoing common new construction programs, with savings derived from exceeding base code standards. The proposal suggests considering RA (Resource Acquisition) savings (green) and MT (Market Transformation) savings (yellow) when municipalities adopt stretch codes.
    - RA savings are still captured by utilities, while MT savings reflect the impact of stretch code adoption.

  Elizabeth Horne – Building CD&E (based on graphic), are they the same buildings or square feet, right?
    - *Jeannette LeZaks –The depicted are likely not identical in size or type. Savings calculations vary based on building type. Further details will be provided in the energy savings framework document.*

- Considerations for Program Influence Relative to Construction Timelines
    - The timing of municipal adoption of the stretch code may vary and predicting specific municipalities' adoption dates may be challenging.
    - Proposal to estimate adoption lag and account for it in evaluation, assuming a longer lag for commercial construction compared to residential (1yr vs. 6 months, respectively).
- Next Steps
    - Guidehouse has been deeply involved with the team from ComEd and Slipstream since the beginning, ensuring the evaluation plan is integrated from the outset, transitioning from an advisory role to direct involvement in evaluating survey results and refining the natural market baseline.
    - The following Stretch Codes materials will be coming in late spring 2024 for review:
        - Energy Savings Framework
        - Program Logic Model
        - Evaluation Plan
    - Building Performance Standard MT initiative documents are in progress but prioritizing them after stretch code materials.

Gas Heat Pumps MT Initiative
Randy Opdyke, Nicor Gas

- Nicor Gas Presentation: Residential HVAC Gas Heat Pumps
- Gas Heat Pump Logic Model
- Gas Heat Pump Market Progress Indicators Spreadsheet

Residential HVAC Gas Heat Pumps

- Gas heat pumps are highlighted as highly efficient technology, achieving up to 140% efficiency compared to baseline codes at 80%.
- Benefits include significant energy savings, up to 50% lower heating bills, reduced CO2 emissions, and compatibility with renewable energy sources.
- Operates using low-GWP refrigerant (ammonia), does not increase the electric load, and has fewer installation barriers compared to other technologies.
- Market transformation aims to accelerate the adoption of high-efficiency products or services.
- Approximately 4 million furnaces are purchased annually in North America, presenting significant potential for intervention. Over 70% of households in Illinois rely on natural gas for heating, presenting a substantial opportunity for bill reduction and decarbonization.
- Gas heat pumps offer diverse, affordable, and aggressive solutions for decarbonization goals, with superior performance in cold climates. They can be paired with dual fuel systems for increased efficiency in cooling.
- National awareness and support for gas heat pumps through organizations like the North American Gas Heat Pump Collaborative Consortium and Energy Solution Centers.
- Opportunity to advance codes, including stretch codes in Illinois, to enable higher efficiency gas technologies.

Residential Gas Heat Pump Logic Model

- Nicor Gas follows the Illinois TRM savings protocol and process recommendations and has conducted market research, drafted logic models, and developed a methodology for intervention strategies.

- Nicor Gas is seeking feedback on logic models and market progress indicators to finalize the initiative as well as manufacturer engagement providing insights into product readiness for residential customers.
- There has been an ongoing collaboration with Guidehouse in 2023 to develop the logic model and market progress indicators.

Logic Model: Barriers

- Energy policies, such as those promoting electrification, can act as barriers to adoption.
- Lack of awareness and questions regarding reliability are barriers to overcome as well as a limited contractor base familiar with the technology.
- Opportunities include improving infrastructure, addressing supply chain issues, and increasing awareness.

Chris Neme – There used to be an issue with loudness and this created issues, especially in densely populated areas. Is that no longer an issue?

- *Randy Opdyke – Similar to air conditioners, there are decibel levels ranges to be taken into account. Those levels are at or below what a standard air conditioner would be.*

Chris Neme – What is the status of the logic model?

- *Randy Opdyke – Open to feedback from the MT Working Group on the draft logic model.*

Logic Model: Strategic Interventions

- There has been collaboration with the North American Gas Heat Pump Collaborative to build support for product commercialization and influence codes, creating a value proposition through building awareness and increasing market demand.
- Nicor Gas is conducting pilots to understand energy savings, safety, reliability, and installation requirements as well as engaging and supporting manufacturers to ensure product availability and market penetration.
- Building awareness through initiatives like participation in industry events such as HR Expo.
- Residential gas heat pumps identified as a significant opportunity for achieving net-zero goals by 2050.

Market Progress Indicators

- The aim is to influence the adoption of federal standards for gas residential heating systems greater than 100%, facilitating a shift towards more efficient technologies.
- There is an emphasis on integration with industry-leading organizations and participation in federal standard development in both the US and Canada. The objective is to increase market share significantly for residential gas heat pumps, positioning them as a leading solution in the residential heating sector.

Next Steps

- Market progress indicators are aligned with the outcomes outlined in the logic model. Metrics include the number of qualified residential gas heat pumps, market share, product costs, and product inclusion in qualifying lists.
- Data sources for these metrics include surveys, collaboration with distributors and retailers, sales data, and engagement with industry organizations.

- The collaboration with Guidehouse continues, focusing on the natural market baseline and valuation methodology including pilots that are underway to address barriers and inform the initiative's progress.

Closing and Next Steps

- Stretch Codes materials will be provided to the MT Working Group for review in spring 2024, including:
  - Energy Savings Framework
  - Program Logic Model
  - Evaluation Plan
- Nicor Gas requests feedback on the Logic Model and Market Progress Indicators:
  - Gas Heat Pump Logic Model
  - Gas Heat Pump Market Progress Indicators Spreadsheet
  - Comments are due by Thursday, March 21**.** Send comments to Randy Opdyke, Nicor Gas (rwopdyke@southernco.com) and CC Celia@CeliaJohnsonConsulting.com.
- Next MT Working Group meeting: Wednesday, May 8