ComEd Workshop Income Eligible Energy Efficiency Electrification Workshop #3 Meeting Minutes

7/25/2022

Stipulated Agreement Discussion - Kara Jonas, ComEd

- ComEd team met with stipulation parties in June and July
- June 15 meeting with parties focused on IE EE electrification program design
    - See slide for summary of updates
- Discussed leveraging joint infrastructure (like targeting previous weatherization participants that have older HVACs); e.g. home energy reports for customer intake.
- Stipulating parties receptive of preliminary plans
    - Stipulated parties interested in understanding how programs will be marketed, leveraging IHWAP (but savings to investment ratio is a barrier to consider) and targeted HVAC to weatherization clients
- July 11 meeting with parties focused on bill impacts research and case study
    - Questions around bill impacts communication, if historical bills are needed (ComEd thinks it's not necessary), alternative supply rates like PIPP
    - Parties want ComEd to install top performing heat pumps in IE households
    - Also interested in factoring in the full range of benefits in scenarios where customers previously did not have air conditioning (yes, that will add load growth, but what about health, safety and quality of life?)
- Discussion:
    - Mark: Need to consider installed efficiency - how do we give a customer an appropriate bill savings estimate?

Bill Impacts and Case Study - Mark Milby, ComEd; Isaac Smith, CEE

- Isaac Smith, CEE, and his team have helped ComEd understand gas rates and bill impacts
    - Law requires site energy savings and communicating bill impacts
    - Stipulation agreement goes further and says ComEd must achieve bill reduction for IE customers
- This study is meant to support contractors and program staff to identify the right customers
- CEE looked at all gas utility rates and propane, focused on single family exclusively
    - Gas rates vary widely on fixed costs
- Single measure bill calculators on priority measures, see slide for measures
- Shared figures demonstrating the spectrum of communication for each program

Goal: find balance for each program offering, without burdening program delivery

- Bill impacts
    - It is difficult to accurately assess and communicate
    - Communication is challenging, some programs intentionally have low to no touch from ComEd
    - Whole home weatherization and electrification are programs that require more detail and more personal communication, whereas midstream or market transformation programs will require more general/less personal communication
    - Ultimately, will likely present conservative ranges on impacts to customers
- Discussion:
    - There's tenant turnover. This will make it more complicated to get it right.
        - Mark: this is something we've thought about from the bill impact side and also the education side. How much effort do we want to put in a whole-building study if tenants can change in one unit up to three times a year?
        - Mark: We can provide a range, but that is challenging to communicate. What if it's a range of plus or minus $20? Do we just say $0?
- Whole Home Electrification Case Study:
- A fictional single house case study to extrapolate for whole population
    - See slide for technical detail
    - General: 4,087 kWh of non-HVAC load, all-electric heating installed and all measure scenarios eligible for ComEd all electric rate
    - Set assumptions for HVAC, water heating, cooking, clothes drying (see slide)
- Variables of interest
    - Baseline energy costs including volumetric rates and additional/fixed gas fees
    - Varying ASHP performance characteristics
    - Baseline or alternative air conditioning systems
    - Weatherization impacts
- Rates vary; ComEd's volumetric regular rate is 13 cents, all-electric rate is 11 cents
    - Six different gas rates in Illinois. Includes a volumetric rate, fixed fee and QIP charge.
    - Fixed charges vary from $15.51 (North Shore) to $34.12 (Peoples Space Heat)
    - QIP (Qualified Infrastructure Plant) charge varies from 0% (North Shore) to 38.24% (Peoples)
    - Volumetric rate varies from $.82 (North Shore) to $1.11 (Ameren)
- Discussion
    - Question: Consider rate structures. What about propane, alternative rates?
        - CEE will be repeating this study to understand propane rates, TOU and alternative electric rates (different supply rates). ComEd will also project electric rates into the future; rates should be more consistent and predictable in the future
        - Mark: ICC says there's up to 50,000 rate combinations, which complicates the model as it's very sensitive to rates
    - Question: Does the law/stipulation agreement just require bill savings in the first year?
        - Yes, but ComEd will also look at life-cycle bill savings
    - Question: How may QIP charge change?

        - Current understanding is QIP charge needs to be forecasted in the coming years, but beyond a decade, this is difficult to predict
- ASHP Performance
    - Identified good, better and best performance level scenarios (see slide for specs). Heat pump installations for ComEd will likely be between good and better.
    - This study used the “Good” performance level
    - Question: How is the performance of the heat pump impacted by contractor familiarity with equipment?
        - We’re trying to figure it out. It’s possible to control for some things, like air flow and evaluation of ductwork. But we don’t know everything yet and you’re not guaranteed to get better performance.
            - Mark: Consider using R&D programs to better understand variables for performance
            - Julie: It may also inform contractor training.
        - Regarding stipulating parties' interest in installing the best possible system. CEE demonstrated that achieving the “best” heat pump performance in IL is not feasible; we need to communicate this to customers and parties.
    - Are there certain brands/models that have smaller deltas between specs and actual performance?
        - Lots of groups are studying this. EPA, Cadmus, BPA, etc. are looking at it.
        - Chris Neme had a lot of questions about this, but in reality more of the stipulated parties were interested in model specs more so than actual performance
- Bill Impact of ASHP Performance
    - Ameren (highest volumetric rate) saw the biggest potential bill savings; North Shore saw the lowest potential bill savings.
        - Substantial savings when modeled for “best” performance; all utilities saw bill savings for “best” and “better,” but mixed when modeled for worst heat pump performance
- Cooling Scenarios
    - See figure on slide
        - Assumed households had window AC (red bar in figure) for this study. Demonstrated $90 savings.
        - SEER 10 and SEER 13- customers will save money shifting away from these
        - Bills will go up if customers are shifting from no AC to a heat pump
            - Need to consider behavioral; variables
- Total bill impacts
    - See figure; substantial total bill savings for customers in five of six gas utility customers, North Shore non space heating rate was only one to see annual increase.
    - Fixed fee charge savings is a large source of savings

        - Even when other end uses are electrified (water heating, stove, clothes dryer), increase in bills for these measures is more than made up by HVAC savings and fixed charges
        - Question: Does the additional electric savings bar include all appliances switched in the house?
            - Yes. Those end-uses comparatively don't use as much energy as HVAC.
            - To get bill savings, you would need to remove all gas appliances to remove the gas fixed charge, which will offset the increase in electric load costs.
        - Question: did you assume that capacity charge would increase?
            - No, we just looked at the 11 cent all electric rate vs. 13 cent rate. We acknowledge that we have to drill down more on both ASHP performance and rates
        - Question: at what point do we tip to where enough customers are electrifying to where the gas fixed charges would start to go up due to a smaller rate base paying for infrastructure?
            - It's a great point, but we are starting with IE customers for that point. I don't want to dismiss this point, but I think it's fair that we are very far from that. We should start doing research to understand how many thousands of customers would need to electrify before that starts to happen. Let's focus on customers who would benefit most from this so they are protected from rate/fixed charges increases in the future. The scale of the electrification program is small for plan 6, but this is something we'll need to understand in the future.
            - How do we deliver this message to customers so that they understand the variability
- Weatherization
    - Weatherization is a meaningful contributor toward annual savings, but likely less impactful than removal of fixed fees/QIP charges. Provides additional certainty for bill savings.
    - Question: what was the assumption for weatherization savings?
        - 20% Wx
- Percentage of bill impact
    - See slide for figure; demonstrates order of magnitude on impact of rates. Electrifying other end-uses removes the fixed fee, but doesn't result in significant savings.
- Used EIA data to develop propane rate scenarios. Propane- fixed fee is assumed at $15 per month, volumetric rate ranges from $1.51 to $2.57 per gallon. The fixed fees for propane are complex and there are many different payment structures
    - Every scenario modeled saw bill savings- total savings was around $1,000 annually in the low scenario, $2,000 in medium scenario, and $2,500 in high scenario
    - Difference in propane vs. natural gas - most financial savings come from the ASHP and other end uses. In natural gas scenarios, most financial savings come from removal of fixed charges and QIP charges
- Appendix references discussions previously held from workshops

- Discussion
    - Mark: Propane findings interesting. Hoping to refine the rate information feeding model for propane energy savings. There's some visibility challenges with propane rates as well. Once we learn more, we will revisit the scenario. Even if the fixed charges on propane end up being lower, that wasn't the primary driver of bill savings for propane customers.
        - Takeaways: (This is one sample SF home, so these results will not apply across all housing types) Target Peoples Gas customers and propane customers. Other gas territory bill impacts will need to be better understood. We also learned that Weatherization isn't the most impactful factor, but there are other reasons to do weatherization not reflected in this chart. Performance assumptions for heat pumps is a variable. For many customers, it's worth going all-electric to remove the fixed costs.
    - Isaac takeaways: Weatherization helps the size system, although raw numbers don't demonstrate weatherization is the most impactful factor.
    - Mark: Note, full cost coverage for this pilot. For market-rate customers, we might recommend other heat pumps (dual-fuel, hybrid) due to incremental costs and other measures customers use.
        - Kara: for MF we can assess a co-pay, just not for the tenant. Ultimately we need bill reduction for the tenant, not the property owner.
    - How many propane customers?
        - Mark: we're working on how to identify them in a more methodical way, though we have a rough idea on the number. There are hot spots in the city of Chicago in manufactured housing, for example. We need to think about different housing types in this sector.
    - Any concern on the difference in the EUL between the gas high efficiency boiler and an ASHP?
        - This is something we may need to model out. Numbers relative to whole portfolio, this shouldn't be a big factor, but something to consider for the customer.

Fuel switching communication research - Andrew Mielcarek, Illume Advising

- Take CEE's research and highlight communication
- Shared research questions (see slide). Primary research is the next step, going out and actually talking to customers.
- Note; These are preliminary findings (secondary research). Future research efforts will provide more specific recommendations
- Key findings
    - Message content: level of detail needed in message content varies
        - Depends on level of interest- more interested customers will want more information on electrification in general
        - Message should be simple and straightforward
    - Communication timing: ongoing communication including multiple touchpoints is necessary

        - Example: need priming messages that a customer initially receives, situation specific information like bill impacts, and operational information so a customer knows what they need to live with their new technology
    - Communication channels: the need for a consistent message to be delivered throughout the entire process
        - Any new information should confirm or build upon the messages they've already received
- Finding: a lot of bill impact communication is already happening (based on interviews with EESPs and CAAs)
    - Examples found in braided IHWAP, Retrofit, IE MF, and Market Rate programs
    - So this requirement won't be in stark contrast to current approach for contractors. While structure and standardization may vary, act of communicating bill impacts likely won't be an onerous challenge
- Julie: We typically focus communication to property owners for MF programs. The tenant communication piece of this pilot is in contrast to the typical approach to EE program delivery.
    - Absolutely, this will be a bit different in approach. How does that communication to the building owner trickle down to the tenant? What medium should this communication take? We hope to get more answers from the customer survey.
- Ilume spoke to other organizations and electrification program measures to understand their marketing efforts
    - All communicated bill savings, many touched on carbon emissions and indoor air quality
    - Consistent with other EE communication points
    - Much of ComEd EE marketing is often cobranded with gas utilities, which will likely have to be tweaked on the EEE side
- Interim recommendations
    - Find opportunities to layer communication over existing marketing collateral
    - Create consistency in messaging over existing marketing channels
- Next steps
    - Approx 200 customer surveys (findings in September or October)

IE Housing Electrification pilot - Jackie Montesdeoca, Elevate

- Shared measures for Elevate's building electrification program with a comprehensive scope
- Shared approach to program
    - Will upgrade and electrify 100 units in underserved communities in Chicago
    - Includes installation of measures, expand BIPOC workforce with Chicago-based accelerators, and reduce emissions/save tenants money/improve indoor air quality.
    - See program process workflow (relies on single point of contact)
- Research scope
    - Customer experience, NOx monitoring, cost impacts, solar feasibility and documenting learnings for program recommendations

- Progress so far
    - 14 single family properties assessed, 41 units in pipeline
    - 3 multifamily properties (104 units) assessed in ComEd territory, 24 units in pipeline
    - Doing weatherization on units if they have not yet been weatherized, ready to put heat pumps in the 14 assessed SF buildings.
- Discussion
    - Julie: Any anecdotal learnings from multifamily? Are you receiving questions from owners or tenants?
        - Communicating that we are covering the cost of retrofit is important. This makes clients more likely to accommodate and move forward. Some clients weren't interested in using electric stoves for example, and those properties didn't move forward, but they were served through other projects with different funding requirements. It's also easier to retrofit when the attic or basement isn't finished and there's a lot of storage space.
    - Brody: what were the barriers cited to where some units didn't move forward with the DOE pilot?
        - DOE pilot required 50% savings. So if some people didn't want to do attic insulation for example, they didn't participate in the DOE pilot since we couldn't do full weatherization.
    - Julie: Is this program focused on low-income (80% AMI)?
        - Yes, same eligibility as ComEd's IE program
    - Kara: Briefly discuss challenges with supply chain?
        - Multiple delays which are partially resolved. We are hearing from distributors that there are significant delays for multifamily, less so for single family. Staying closely in touch with contractors about delivery dates.
    - Julie: are these specific challenges for ASHPs?
        - Different for each end-use. Water heaters has been a big challenge.
    - Molly: For folks that you were able to convince anyone about the stove, were there any specific messages/things to focus on that worked?
        - Communicating costs, especially if this is the only measure preventing them from removing the fixed gas charge entirely. Indoor air quality has been a strong messaging point, too.
        -

Single family presentation & discussion, Kristen Pratt-Kalaman, Resource Innovations

- RI has current SF portfolio with ComEd
- Shared estimated number of customers RI plans to serve during portfolio cycle, ramp up over plan with goal of 25 homes in year 1
- Shared figure displaying decision tree (existing infrastructure) for joint utility home energy savings program services and products.
- Options for customer outreach and intake (likely a hybrid of all 3)
    - Leverage full existing HES infrastructure

        - Would need to add layers on both prescreening and in home screen- determination of fuel sources and add to decision tree
        - Contractor conversations would need to expand- is the HVAC sized property? Are gas stoves or water heaters in disrepair?
        - YTD customers who don't have natural gas (propane customers)? (Negligible number, practically none entering in the program)
            - So we need targeted outreach to propane customers if they're a good target, as there are not many past program participants to reach back to
    - Offer more comprehensive services to customers receiving home assessments
        - Customers receiving HEA as opposed to retrofit who could be served comprehensively with BE
            - Any fuel other than natural gas for heating or cooking
            - Any home with gas appliances that are non-functioning, unsafe, or old
    - Separate intake pathway from HES
        - Separate pathway; program data to identify non-gas reach-backs, use billing data to identify target zip codes, identify potential community partners, identify zip codes
        - Need gas company support to leverage joint infrastructure. Waiting for ComEd's direction on this.
- Now that we've found the customers, where do we go from there?
    - RI plans to have a dedicated customer education specialist that would do on-site customer communication and be responsible for designing customer education tools
        - Pre-work tools (before work, audit, SOW, customer authorization form)
        - Post-work tools
    - Exclusively works with customers, or a face for the network of EESPs?
        - It will depend on the hire and the partners we engage. Many responsibilities to parse out. Primary function is customer facing. We could also learn from this individual (for consistent messaging, approaches, for example)
- Shared post-intake customer journey figure (see slide)
    - In-home assessment
        - Consider: could there be a range of bill impacts shared at the first visit (following in-home assessment?) RI is not sold on this yet. Need to ask customers about what work they are comfortable with (on board with replacing stove?)
    - Pre-work (Visit #2), Installation (Visit #3)
    - How many more visits? In person, virtual, email?
        - In some capacity, will need to clarify timelines, explain equipment, finalize SOW and bill impacts, etc.
    - Discussion
        - How different are these visits from the norm?
            - Visit 2 in this example is not typical. For retrofits, free home upgrades don't require much screening.

        - Electrical panel upgrades could take a long time. Although this will vary by property type. An area that will need more communication from the contractor so the timeline can be communicated to the customer
        - Kara: Visit 2 may require involvement from both building owners and tenants.
            - We have not put in much thought about tenant engagement. Our recommendation is for the 2022 goal of 25 properties, engage only property owners instead of renters.
        - Lalita: From my personal experience, different cookware is required for induction oven & stoves. This may be a barrier
            - Stoves are a real issue. We want to make sure that we don't move forward with projects that leave gas appliances (to eliminate the gas charge). ComEd proposes a cooking pilot this fall. Identify 20-30 IE customers to switch to induction stoves and see what challenges come up.
            - Elevate included pots and pans in their leave behind package
        - Regarding lawn equipment - ComEd suggests we don't focus on these for this pilot
    - Customer communication
        - Gut reactions to all-or-nothing approach? Routing customers that don't electrify everything to retrofits?
            - Julie, Mark: supports this, at least for the first year, to have strong start.
    - Contractors
        - We will need more contractors. Weatherization contractors would serve as the general contractor.
    - Next steps
        - Customer identification
        - Customer education tools
        - Bill impacts calculator
        - H&S proposals
        - Contractor recruitment, training, and support
    - Julie: Do we have a sense of what stakeholders are expecting?
        - We need to identify what are the major values that we can make an assumptions for (deemed) and develop a calculator tool

Multifamily presentation & discussion; Brody Vance & Jim Heffron, Franklin Energy

- Program priorities
    - We need to be thoughtful on what we're going after
    - Decision points, many of which have been discussed today
        - Full vs. partial in-unit electrification
            - seems like we've settled on full
        - Full vs. partial in building electrification

        - Do we do all the hot water heaters first, or do we want to do total electrification in unit by unit?
    - In unit vs. central plant electrification
        - Priority is in-unit bill savings. May need to look for buildings with an in-unit gas appliance.
    - Customers with existing EE projects
        - Properties that have done common area EE are a good pool to pull from
    - Julie: Do you have historical data on reach-backs to identify good candidates?
        - We have enough data points over the past 10 years. Common area work that has been done works in the loading.
    - Mark: Do you have a sense of the balance of steam-heated buildings and central-gas?
        - No, we need to discuss with folks on the ground.
    - How important is it for ComEd to produce case studies?
        - Yes. Demonstrate dollar sayings for property owners.
- Outreach and Customer Screening
    - Pre-screening, initial customer screening, detailed assessment
        - Consider that property owners have their contractor networks, and they will need to use new contractors for heat pumps (pre-screening)
        - Contractor education: target small HVAC firms willing to learn heat pump technology, not large HVAC
- Building Assessment
    - Prioritized measures
    - Would replacement of electric resistance heat be an option? Would be electric to electric, not fuel switching
        - Yes, electric resistance is seen as an inferior technology and a heat pump would be an upgrade. Could be allowed with EEE $ if tenant would see bill reduction
    - Would installation of conventional electric stoves be an option instead of induction? Some building owners may be more hesitant on induction
        - Nothing preventing ComEd from incentivizing conventional electric stoves, however they are seen as an inferior product compared to induction and the Parties have asked ComEd to focus on induction where we can. But if induction is a sticking point with building owners, we don't want it to stand in the way of electrification and we can consider conventional electric
    - Assessment process
        - Energy Advisors need to collect data and be trained-up on all equipment they may come across. Take photos where uncertain. Collect as much information as possible
    - Julie: Potentially trickier. With more information, we may determine the project is appropriate in X channel. Are you thinking through those concerns?

        - Yes. Earlier on, we can use proactive reach-back. Two specialized electrification EAs to serve the dozen or so assessments that will be conducted.
        - Educated contractors is one viable option - we don't rely on a centralized intake system for HVAC because contractors identify projects.
    - Electric Panel Review
        - Kristin: can't you use health and safety dollars to fund panel upgrades?
            - Yes, but it can be a lot of money in multifamily buildings. This is where owner contribution/co-pay may be needed. Project cost would go up. Anywhere from $1000 per unit to $250,000 for a whole MF building
        - Question: Can we look at using H&S dollars to cover the cost for electrical panel upgrades?
            - Yes, in some cases.
    - Contractor Strategy
        - Do you foresee barriers to identifying top tier contractors i.e. geographical limitations
            - Depends on who those contractors are but we can find 2 – 4 top tier contractors that can serve the ComEd territory

Action items, next steps, and wrap up

- Mark: Introduce research that's ongoing. Once we wrap up this research, we would include this whole group on report-out. We will keep this group updated.
- This workshop will be last session, but possible this group will reconvene at some point
- Kristen: We should reconvene in six months and see how much progress we've made. In the interim, we could do a monthly call or something to stay connected on issues/solutions in real time
- Mark: and Elevate's doing this work as we speak. We should take advantage of what they're learning in the field.
- Mark: Please let Kara and me know what research gaps you find. We've talked about induction cooking, propane, etc. so we and CEE can work together to try to answer some of these questions.