

# IL EE Stakeholder Advisory Group Non-Energy Impacts Working Group

Tuesday, May 5, 2020  
10:00 am – 12:00 pm  
Teleconference Meeting

## Attendees and Meeting Notes

### Meeting Materials

- [May 5<sup>th</sup> NEI Working Group Meeting Page](#)
- [May 5, 2020 NEI Working Group Agenda](#)
- [Joint Evaluator Presentation: Overview of Quantifying and Monetizing NEIs in Illinois \(Guidehouse and Opinion Dynamics\)](#)
- [Guidehouse Memo to ComEd: Review of States' Methodologies to include Monetized Non-Energy Impacts in Cost-Effectiveness Tests \(April 30, 2020\)](#)
- [Memo to SAG NEI Working Group from The Opinion Dynamics and Guidehouse Evaluation Teams: Future Approach for Assessment of Economic and Employment Non-Energy Impacts in Illinois \(May 5, 2020\)](#)

### Attendees (by webinar)

Celia Johnson, SAG Facilitator  
Greg Ehrendreich, Midwest Energy Efficiency Alliance (MEEA) – Meeting Support  
Matt Armstrong, Ameren Illinois  
Jean Ascoli, ComEd  
Jordan Berman-Cutler, ComEd  
David Brightwell, ICC Staff  
Ann Collier, Opinion Dynamics  
Claire Cowan, Slipstream  
Kristina Crandall, Guidehouse  
Erin Daughton, ComEd  
Leanne DeMar, Nicor Gas  
Sagar Deo, Guidehouse  
Nick Dreher, MEEA  
Gabe Duarte, CLEAResult  
Brian Eakin, Guidehouse  
Jeff Erickson, Guidehouse  
Jason Fegley, Leidos  
Scott Fotre, CMC Energy  
Omy Garcia, Peoples Gas & North Shore Gas  
Bethany Glinsmann, Guidehouse  
Laura Goldberg, NRDC  
Kevin Grabner, Guidehouse  
Randy Gunn, Guidehouse  
Vince Gutierrez, ComEd  
Grace Halbach, Guidehouse  
Dave Hernandez, ComEd  
Hannah Howard, Opinion Dynamics  
Katherine Johnson, Johnson Consulting  
Cheryl Jenkins, VEIC (IL-TRM Administrator)

Jim Jerozal, Nicor Gas  
Darnell Johnson, Urban Efficiency Group  
Lalita Kalita, ComEd  
Anna Kelly, Power Takeoff  
Monique Leonard, Ameren Illinois  
Bruce Liu, Nicor Gas  
Anna McCreery, Elevate Energy  
Abigail Miner, IL Attorney General's Office  
Jessica Minor-Baetens, Guidehouse  
Fernando Morales, Ameren Illinois  
Jennifer Morris, ICC Staff  
Phil Mosenthal, Optimal Energy, on behalf of IL Attorney General's Office  
Chris Neme, Energy Futures Group, on behalf of NRDC  
Rob Neumann, Guidehouse  
Victoria Nielsen, Applied Energy Group  
Randy Opdyke, Nicor Gas  
Patricia Plympton, Guidehouse  
Christina Pagnusat, Peoples Gas & North Shore Gas  
Oxana Petritchenko, Guidehouse  
Michael Pittman, Ameren Illinois  
Zach Ross, Opinion Dynamics  
Andrea Salazar, Michaels Energy  
Kyle Schultz, Opinion Dynamics  
Ellen Steiner, Opinion Dynamics  
Shannon Stendel, Slipstream  
Jacob Stoll, ComEd  
William Supple, Guidehouse  
Mark Szczygiel, Nicor Gas  
Colby Tucker, U.S. EPA  
Andy Vaughn, Ameren Illinois  
Ted Weaver, First Tracks Consulting, on behalf of Nicor Gas  
Shelita Wellmaker, Ameren Illinois  
Kalee Whitehouse, VEIC  
Bridget Williams, Guidehouse  
Brian Yeung, Slipstream  
Emma Zinsmeister, U.S. EPA  
Chris Vaughn, Nicor Gas  
Mary Ellen Guest, Chicago Bungalow Association  
Samarth Medakkar, MEEA

### **Meeting Notes**

Follow-up items are indicated **in red** and summarized at the end of the meeting notes.

### **Opening and Introductions**

*Celia Johnson, SAG Facilitator*

Purpose of the May 5<sup>th</sup> meeting:

1. To review and discuss preliminary NEI study results
2. To understand evaluator research on how other jurisdictions utilize NEI results in EE portfolio cost-effectiveness tests and discuss next steps
3. To discuss proposed next steps for utility economic impact analysis and reporting

## Preliminary Non-Energy Impact (NEI) Study Results

Patricia Plympton, Guidehouse and Ann Collier, Opinion Dynamics

### Overview

- Recap of research – focus on income-eligible/IQ from societal, utility, participant levels. Review of the NEI buckets (societal/public health, utility/reduced costs, participant/health, O&M).
- Motivation started with FEJA, which called for quantifiable social benefits, and utility stipulations, that called out multiple NEBs (now NEIs).
- Some are already in TRM – societal/ water; utility/carbon cost; participant/O&M.

### Societal NEI Results

Ameren Illinois NEI results

- Review of societal NEIs – society-at-large impacts, in a list of categories. Air quality and health are the top of the list.
- Logic model of how EE produces societal health NEIs. Generation > Air Quality > Health Impacts > Societal Benefits. PM<sub>2.5</sub> is a health-linked pollutant. Regional air quality, not indoor air quality.

*Clarifying question: Study is about power generation emissions, not indoor quality? Not talking about properly sealed houses and peoples' health improvements?*

*A: Not a scope for this part of the work, as we will be talking about later, we have worked collaboratively to develop a research project that would look at indoor environment health improvements, but today is on the societal scale analysis.*

- Tools: AVERT & COBRA: AVERT = air emissions; input for COBRA = health outcomes. Peer-reviewed & lots of precedent for use.
- AVERT & COBRA metrics. AVERT – PM<sub>2.5</sub>, air pollution metrics; COBRA uses PM<sub>2.5</sub> to present change in population level health incidence & economic value of same.

### Research Update

- Tools not fully run – screening level approach – screened with BPK (EPA Benefits Per kWh) estimates. Shows magnitude of benefits we could expect. Numbers may change, good value in running the full tools.
- Screening level analysis – BPK - \$9-25 million benefit from AIC 2019 kWh savings electric side. (no gas tool). Range comes from two factors – relative sensitivity of human population to air quality problems – high and low estimate. Also 3% and 7% discount rates. Low sensitivity, 3% discount seems best.

*Q: [Chris Neme]: The 328,600 kWh savings, then the benefit is that just value associated with those one year or are those lifetime savings from that?*

*A: Reviewing metrics list: For mortality and heart attacks are 20-year incidence; for many or most of others are one-year, year of analysis.*

*Q: 330k MWh is a mix of measures with different lifetime, average 10ish years. If all kWh last 10 years, those savings persist. Is the screen based on just first year savings?*

*A: Assume all savings happened this year.*

*Q: [Phil Mosenthal]: Did you input lifetime or annual savings?*

A: [Patricia Plympton]: EPA discussions, we have had a couple of conversations about this. We welcome that kind of feedback so we can incorporate that and present more options on June 1.

[Emma Zinsmeister, EPA]: The way that BPK is set up, those two values are 20-year and discounted to current year. It provides a single snapshot year. Recommend they are only used for about 5-year analysis. Best is to use single-year savings.

Q: [Chris Neme] One-year worth of programs will last on average about 10 years. So is the average measure life of first year savings something that is an input?

A: [Emma Zinsmeister]: There is a single year savings for this analysis. The reason why we don't have projections greater than 5 years – people want that and we are trying to develop something to capture lifetime benefits. This is one-year snapshot. Assume these benefits will increase over time but as grid cleans up that will change. We are working on a future year values tool. You could use these values and accumulate for about 5 years, that's the max we would recommend.

Q: [Chris Neme]: Restating this, the values on screen is health benefits from saving 328k MWh in 2019 only those savings, not persisting.

A: [Emma Zinsmeister]: Yes, you would have to do additional calculations for additional years.

A: [Chris Neme]: Hesitant to even consider this a conservative estimate, these savings last far more than one year. Maybe you are suggesting that you could run this value as saved in 2019, 2020, again as 2021, etc. and add them up for 5 years' worth? This is a gross understatement of the health benefits. Why are we using 3% and 7% discount rates when we have a statutory discount rate?

- [Phil Mosenthal]: Agree about measure life. Thought there was something about assumptions on mix of generation over years in AVERT. Is AVERT giving lifetime emissions into the COBRA model and it is capturing full lifetime?
- [Ann Collier]: The BPK has static 3% and 7% discount rates in the tool. Maybe there is a way to do other discount rates.
- [Ted Weaver]: To the annual vs. cumulative, this is complicated and we need to get it right. (Some speculating about how you could do the math, was unable to capture the extent of it)
- [Patricia Plympton]: We will take this as an action item and follow-up with EPA to see if we can use the tool that way.

Q: [Darnell Johnson] Any way to modify for therms?

Q: Could you use something other than AVERT to go into COBRA for avoided gas?

A: We can work with EPA to see if we can do some of that. These tools are focused on electric grid changes, but there would be more manual modeling process.

Q: Isn't AVERT the electric specific and COBRA is just the air quality?

A: [Patricia Plympton] I know COBRA can be used for transportation, have we looked into natural gas side?

A: [Emma Zinsmeister]: COBRA is designed to demonstrate health benefits from any sector in National Emissions Inventory. We can run a natural gas

savings analysis with COBRA. It's easy to export AVERT to COBRA but you can manually input for other sectors.

Q: [Ted Weaver]: Environmental externalities in two categories in electric and gas side – greenhouse gases and other quantifiable impacts. What we've done so far it seems like these are all health benefits, but CO2 has broader impacts on the economy. So for the greenhouse gas portion, does this provide any of that?

A: The TRC already includes carbon. We haven't turned our attention to that body of work but we haven't been asked to look at that. AVERT has CO2.

A: [Ameren Illinois] Not looking for that with this project, carbon cost is already in our TRC.

- Next Steps: Refine modeling assumptions. Total savings in AVERT assumes that 100% of facilities that reduce production are fossil fuel based, but that doesn't really match MISO. How much of savings come off of fossil fuel-based facilities and where they are located – better contextualize who benefits and where.

[Chris Neme] What is the marginal effect is the question. For this analysis, the assumption is probably correct, but over medium to long term, there is cumulative effects on the system including less new generation. Marginal unit becomes more of a mix in the future.

### ComEd Societal NEI Results

- ComEd eval report > Reduced Generation > AVERT > COBRA; will show low sensitivity and 3% discount in this presentation. Will be iterating on discount rates based on previous discussion, but that's what's in this deck.
- Used 40% reduction factor for electricity for non-emitting sources. AVERT output: decrease in SO2, NOx, CO2, PM2.5. To Ted's point, we have the ability to look at the other body of research if that is needed.
- Societal NEIs from that one take, low sensitivity, 3%. \$40-90 million range in benefits. Vast majority are from reduced mortality. Will be quantifying the participant NEI associated with some Income-eligible programs and monetize with data from hospital system and salary information.

[Chris Neme]: Sounds like a different approach – average generation mix as opposed to the short term marginal generation mix. Seems like at a minimum we should use the same approach for both ComEd and Ameren whatever one we go with. **We should have a longer conversation about how we estimate what marginal means for measures with a 10-12 lifetime average.**

**A: Evaluators will make note of this suggestion.**

- COBRA outputs from program types (Income eligible, residential, business, VO) – preliminary. Total portfolio preliminary: \$40 million in societal benefits.

Q: Is there an overlap between this societal analysis and participant analysis?

A: Yes, and no. The mechanisms that affect health in COBRA and in the participant study are significantly different – indoor and outdoor air quality. The irritant that the tools look at affect human health differently. There is a nexus – the same individual is going to be impacted by both air quality types. Trying to figure out how to separate that. The intersection isn't really double counting, we think.

[Ann Collier]: We at ODC also don't see substantial overlap, though conceptually it will keep coming up. We can take a stab at trying to look at

*the scope of the overlap. (Some brainstorming on how that could be considered).*

*[Chris Neme]: Intuitively, it doesn't seem like there is much overlap to me.*

*[Emma Zinsmeister]: This is definitely a question we had a lot of conversation about. One source of indoor air pollution is outdoor air, of course, but hard to quantify that. Not really trying to suss out which exposure source is a cause of a change outcome. Likely some minor degree of overlap, but not confident we have a robust way to quantify. But results of both analyses in their context will help understand. There is ongoing research on the link between IAQ and OAQ and it's a great question to keep asking and looking at.*

- Next Steps: Finish AVERT model; incorporate feedback; update COBRA; could go into 2022-25 plan if we get it to them.

### **Utility NEI Results**

- Pathway: Reduced bills > able to pay > monetizable benefits to utility (and some can be accrued to participants as well)
- Methodology: Single family retrofits and multifamily retrofits. Treatment and control groups, pre and post data. "Difference-in-difference" technique – diff pre-post, then diff participant-non-participant on that.
- Preliminary results: Bills: annual bill increases for everyone over time, participants was smaller; late payments decrease after participation.
- Preliminary results: Arrearages: somewhat complicated, several caveats. Looking at customers who are paying down arrearage. Still investigating some of these caveats.

*[Chris Neme]: I think this says that customers that are in arrears are average \$280 but only 6% are in arrears. So average arrears per household is \$18? Is that right?*

*A: Yes, but that's the difference in difference not the arrears total. 6.5% is the number of customers in arrearage payments.*

*[Discussion of control and test groups, explanation of how the analysis was done]*

*Baseline percent in participant group was 3% and non-participant was more like 15% so it makes it tricky to consider. Percentages go down for both groups but less for participant group because there is "less room" to go down we think.*

*[Chris Neme]: Why are pre-treatment arrearages so different between treatment and control?*

*A: Customers actively paying down arrearages might be different from total in arrearages, we didn't control for that when picking the groups. Could be our groups weren't that similar in this regard. These are customers paying down arrearages as opposed to whole group of customers.*

- Some metrics were not statistically significant. Reduced number of households with payment arrangements, disconnects and reconnects, billing and disconnect notices.
- Next steps: incorporate feedback; monetize add'l utility NEIs making sure to avoid double-counting.

### **Participant NEI Results**

- Modifying program delivery due to COVID – has some impacts on research. Sample design depending on surveying large number of participants and with the hold on delivery it has changed potential timelines. Too early to provide certainly on dates.

## Potentially Incorporating NEI Research Results in Utilities' EE Portfolio Cost-Effectiveness Tests

Patricia Plympton, Guidehouse

- Other states – about 11 using them. We looked at 6. WI, ID, WA, MD, MA, RI. Use region or state specific values.
  - Societal
    - WI: Uses AVERT to monetize emission benefits for TRC. Done since 2016.
    - ID, WA: COBRA societal NEIs
  - Utility
    - MD, MA, RI: average \$30.65 – most of these NEIs not quantified yet for ComEd
  - Participant
    - MD, MA, RI: WAP Evaluation Study calculated NEIs, that's what they are using for methodology.
  - Illustrative Examples (TRC)
    - Looked at two I-E program TRCs for 2018. All were TRC < 1.0. The societal NEIs move it up for two, utility conservative estimates don't move the needle, participant increases score for all. Total is a big impact on potential TRC.  
*[Chris Neme]: There are some wide ranges on those state examples; like \$3-\$100; did you use averages for the illustrative example?*  
A: Yes.  
*[David Hernandez]: It was mentioned that there weren't many participants for multifamily IHWP, was the sample size good enough? Is it too late to provide account numbers for future, would it be okay to get account numbers for gas?*  
A: Let's pursue that offline.  
*[Jean Ascolit]: Might be helpful to have a follow-up with you to dig into a few of those numbers.*  
*[Chris Neme]: Would love to see how we can overcome some of the data limitations*
  - Residential MF and Small business: NEIs increased TRC with societal estimate
  - Recommendations: Use the results when they are agreed upon as robust and accurate.
- Feedback request by May 22 (Friday) on Memo and May 27 on this presentation
- [Jim Jerozal]: Some of these NEIs are bringing up the TRC with more benefits. But what's the driver? If we know that IQ programs are needed from a policy perspective, are we doing this to help quantify a metric to help us do more IQ programs or provide some value beyond pure savings? Policy perspective is that it doesn't have to pass TRC, but of course we want to be prudent.*
- [Jean Ascolit]: IQ/IE programs don't have to pass the TRC, but they do contribute to the total portfolio TRC.*
- [Chris Neme]: There is significant value from NRDC's perspective – one is estimating and monetizing benefits to low income communities is beneficial to the broad policy discussion; secondly if we are going to estimate TRC for anything – including other non-IQ customers – we ought to estimate the TRC the best we can and we have confidence then we should use them.*
- A: From this data, as Grace showed, the folks that are living in a home that has been weatherized and treated by ComEd had lower bill increase – there

*is an element of resilience we can tease out of the data and that is a success story for a year with a polar vortex.*

*[Jim Jerozal]: A value in having a focus on IQ/IE programs and lots of reasons these are important but we get stuck by how we count savings and calculate TRC. Makes it hard to do expensive things in the portfolio. So if we rethink how we value these, it's a good thing. Could even apply outside of IE community.*

- **Next steps: Comments on the NEI impacts memo are due by COB on Friday, May 22. Feedback will be discussed during the Monday, June 1 NEI Working Group meeting.**

### **Next Steps for Economic Impact Reporting**

*Brian Eakin, Guidehouse and Zach Ross, Opinion Dynamics*

- Feedback on the economic impact reporting memo will be discussed at June 1, this is a tee-up.
- The memo is a result of follow-up from the March NEI Working Group meeting. Economic impact results are the same as shared previously, with increased granularity (direct, indirect, induced).
- The memo includes some discussion of what we want to do with this data:
  - Proposal: Once per cycle IMPLAN refresh; annual use of a spreadsheet or deemed value approach. This is a compromise for time and resources.
- **Next steps: Comments on the memo are due by COB on Friday, May 22. Feedback will be discussed during the Monday, June 1 NEI Working Group meeting.**

### **Summary of Next Steps**

- **NEI Research Update**
  - Document to review: [Joint Evaluator Presentation: Overview of Quantifying and Monetizing NEIs in Illinois \(Guidehouse and Opinion Dynamics\)](#)
- **Next Steps for Potentially Incorporating NEIs in Utility Portfolio Cost-Effectiveness Tests**
  - Document to review: [Guidehouse Memo to ComEd: Review of States' Methodologies to include Monetized Non-Energy Impacts in Cost-Effectiveness Tests \(April 30, 2020\)](#)
- **Next Steps for Economic Impact Reporting**
  - Document to Review: [Memo to SAG NEI Working Group from The Opinion Dynamics and Guidehouse Evaluation Teams: Future Approach for Assessment of Economic and Employment Non-Energy Impacts in Illinois \(May 5, 2020\)](#)
- **Feedback Deadline:** By COB on Friday, May 22
  - Questions and feedback will be discussed during the **Monday, June 1** NEI Working Group Meeting.