Illinois DEA Case Study Work Group
Meeting #7: Apply DEA Metrics to Priority Populations, Present and Interpret DEA Results for ComEd
May 1, 2025
Meeting Notes

Attendee List

Michael Thuis, Advanced Energy Group, The Carbon League
Agnes Mrozowski, Ameren Illinois
Mark Minden, Ameren Illinois
Peter Millburg, Ameren Illinois
Celia Johnson, Celia Johnson Consulting
Camille Minns, Clean Energy Works
Abbey Rose Lee, ComEd
Bhavi Shah, ComEd
Bobbie Tolson, ComEd
Fred Thompson, ComEd
Kara Jonas, ComEd
Kim Swan, ComEd
Molly Lunn, ComEd
Nick Bafaloukos, ComEd
Cassidy Kraimer, Community Investment Corp (CIC) Chicago
Theodora Okiro Quarles, Ecohealth Strategies
Pastor Booker Vance, Elevate
Rachel Scheu, Elevate
Roopa Krithivasan, Elevate
Curt Stokes, Environmental Defense Fund
Cheryl Watson, Equitable Resilience Sustainability
Selena Worster Walde, Erthe Energy Solutions
Neil Curtis, Guidehouse
Mark Mandolini, Honeywell
Grey Staples, Mendota Group
Kit White, Midwest Energy Efficiency Alliance (MEEA)
Christopher Vaughn, Nicor Gas
Abigail Miner, Office of the Illinois Attorney General
Shelby Smith, Office of the Illinois Attorney General
Hannah Howard, Opinion Dynamics
Julia Friedman, Oracle
Nikia Perry, Solutions for Energy Efficient Logistics (SEEL)
Kevin Dick, 389NM, LLC

Meeting Recording

IL DEA Case Study - Work Group Meeting #7 - Zoom

List of Acronyms

AMI – area median income
BE – beneficial electrification
BCA – benefit cost analysis
BCR – benefit cost ratio
DEA – Distributional Equity Analysis
DR – demand response
DSM – demand side management
EE – energy efficiency
ICC – Illinois Commerce Commission
IE – income-eligible (referring to low-income priority population)
MF – multi-family
MR – market rate (referring to "all other customers," or non-IE customers)
NEI – non-energy impacts, as in societal NEIs
SF – single-family
SAG – Stakeholder Advisory Group
TRC – Total Resource Cost (referring to the cost-effectiveness test defined by the California Standard Practice Manual, as modified for use in Illinois)
WG – work group; the Illinois DEA Case Study Work Group

Welcome, Introductions, Background (Slides 1-4)

- Today's focus is ComEd's EE plan
- Stages 5, 6, and 7 of the DEA case study

ComEd Energy Efficiency Plan Background (Slides 5-10)

- Recap
    - Retrospective EE plan
    - Residential suite of programs
    - Priority populations – income eligible – only served by residential programs
    - Metrics we quantified – participation, utility investment, energy savings
    - Insufficient data for rate, bill, and shutoffs
- ComEd EE portfolio overview
    - We focus on the 2022-2025 Demand Site Management Plan
    - Spending on residential income eligible programs has doubled since previous plan cycle
- Residential EE Programs Overview
    - EE programs help customers reduce energy consumption and bills
    - Programs include specific IE offerings
    - We focus on the programs that are most of the residential budget
- Stipulations/Reporting
    - The recent Revised Stipulation Agreement requires ComEd to report on several metrics, including health and safety spending and supplier diversity metrics

Metrics Results (Slides 11-33)

- Priority population definition
    - Households that are at or below 80% of the Area Median Income
    - Zip codes or census tracts where at least 50% of the households meet the 80% threshold (for some ComEd programs)

<u>Discussion on priority populations definition</u>

WG member: Can you remind us what definition is being used for the IE population for the data represented? Lighting - 71% of participants are within the zip codes with >50% of residents considered income eligible?

> **Project Team** (chat): EE programs define low-income (income-eligible) households as those whose income is at or below 80% of the Area Median Income (AMI). Some ComEd

EE programs utilize income eligible zip codes or census tracts to determine eligibility, which are zip codes or census tracts where at least 50% of a geography's households meet this threshold (Slide 12)

WG member (chat): Thank you! Was 80% or 50% used for the analysis?

Project Team: Both thresholds apply--80% is for defining the household eligibility, then if 50% households in a zip code meet the 80% threshold, the zip code is defined as Low Income

WG member (chat): Is this a common practice? I would think this would lead to double counting or overcounting IE homes that are participating? You're capturing all homes within a zip code that has >50%, and also the IE homes outside of the zip codes where homes are >50% income eligible. Is participant data adjusted based on the actual amount of income eligible customers within the zip code? …

WG member: The # of IE participants being considered IE. Are 100% of participants who come from >50% AMI being considered low-income participants when the data is represented on the screen?

Project Team: ComEd only uses zip codes to determine eligibility for some programs, like the Retail/Online program. ComEd – please feel free to add/jump in.

WG member: It sounds like it's a limited number. If in each program you're using the >50% geography/zip code, then you're overstate the # of IE participants. Was wondering how that is managed in that data review/analysis. If it's taken into account.

Project Team: We're relying on data that ComEd presents on the # of IE customers/non IE customers. ComEd is tallying up the # of IE customers that are in the program.

ComEd representative: I wanted to add more information to answer your question. When we can, we collect household information to determine income eligibility. So for example, our income eligible single family participation information represents households that have been determined to be income eligible (having an annual household income of 80% or less AMI). We wouldn't count a market rate customer participant as income eligible, even if they live in an income eligible zip code. For offerings where it is not feasible to collect household level income data, for example, if instant discounts are provided through a partner retailer within an IE zip code, all of those incentives are considered income eligible.

Project Team: There's been discussion about the IE definition. There's the 80% area median income threshold. And the 50% households threshold. The 80% is the household, and 50% is for the geographic number of households meeting this 80% threshold.

WG member: Have you or can you analyze the Metric 1 participation by census tract in addition to zip code?

Project Team: We would've liked to analyze participation at the tract level, but data were not available at that granularity.

- Data sources for this DEA
    - Publicly available data from annual and quarterly reports, relevant testimony, and 2022-2025 revised EE and DR plan from ComEd

Participation

- Data availability
    - Data available for Retail/Online, SF upgrades, MF upgrades, Whole Home Electric
    - Other programs are tracked using different units and not comparable between programs (i.e. # of projects vs. # of single-family homes)
- SF & MF home upgrades program
    - **63%** of participating SF homes were IE
    - **71%** of supported projects were IE
- Whole Home Electric
    - Only available for IE customers
    - Converted 215 SF homes
    - Converted **402** tenant units in nine MF buildings
- Retail/Online
    - IE customers offered higher incentives than MR customers
    - **38%** of home appliance rebates for IE
    - **71%** of lighting measures for IE
- Summary
    - Except for Retail/Online programs, all benefits from residential programs are weighted more towards IE customers than all other customers.
    - Retail/Online – IE customers have lower share of participation but receive higher incentives (inconclusive distribution of benefits)

WG member: Are we doing the analysis on those who have taken advantage of those incentives and how impactful it has been? It's nice that we offer the programs, but do [IE participants] take advantage to the extent that they actually see benefits? Or are there other things that we need to do so that they take advantage of these benefits?

Project Team: Typically, those questions are addressed within process evaluations, not what we set out to do here. But there are some evaluations that will be conducted on these programs. This is actual reported participation data in these programs, meaning the actual rebates and measures and homes that are receiving these measures. We'll get into energy savings metric in a second; the actual

participation is one way to look at it and see who is benefitting from the program. Is it reaching the population that needs it the most?

WG member: There may be ways that we can talk about doing it better, and be more impactfully. It's good to be thinking through it, but are there better ways that we can get people to take advantage of this program? It's nice that it's being offered, but how can we get it to the people?

Rural/Suburban/Urban Participation for Single-family and Multifamily Upgrades Programs

- Guiding questions:
  - How does ComEd participation break down by rural, suburban, and urban areas?
  - Would rural ComEd customers be reached at the same rates as urban customers for the Single-family Upgrade and Multifamily Upgrade programs?
- Total customer counts by zip code
  - 38% of customers are in urban areas
  - 50% are in suburban areas
  - 12% are in rural areas
- SF upgrades
  - Roughly equal share of customers vs. participants between urban, suburban, and rural areas
- MF upgrades
  - Roughly equal share of customers vs. participants between urban and suburban areas
  - Rural populations participate at slightly lower rates, in comparison to their customer share
  - However, MF units are more common in urban and suburban areas
- SF Upgrades by zip code
  - Participation rates by zip code, way to normalize the data
  - Participation in the program corresponds to the # of customers in the zip codes
- MF upgrades by zip code
  - Higher density of MF housing compared to rural area

Utility Investment

- On average, portfolio spending was **$375 million/year** for 2022-2024
- Residential programs are **39%** of total EE portfolio

- Over the past 3 years, IE programs were **71%** of total residential spending (benefits weighted more towards IE customers)
- ComEd has committed to over **$100M/yr** to IE investment

Energy savings

- Portfolio
  - IE energy savings were **67%** of total residential savings between 2022-2025
- SF and MF upgrades
  - **94%** of SF upgrades energy savings from IE participation
  - **87%** of MF upgrades from energy savings from IE participation
- Whole home electric
  - **100%** energy savings from IE participation (4 and 6 GWh energy savings in 2023 and 2024)
- Retail online/product distribution
  - **50%** energy savings from IE participation
  - **99%** of product distribution energy savings were from IE participation kits
- Summary – energy savings experienced mostly by IE customers rather than all other customers

Metrics not quantified (insufficient data) (Slides 34-36)

Rates & Bills (Slides 34-35)

- Insufficient data to estimate changes in rates and bills
- This is because we didn't have gas data available when customers switch from a gas system to an electric system
- The project team laid out a 4-step method for calculating rates & bills and outlined necessary data

Discussion on rates & bills

WG member: Can't *[rate impacts]* be modeled? E.g., if a single-family home using 1000 therms per year switches to all electric, the bill impacts are easy to calculate.

> **Project Team**: In theory this could be modeled. But as indicated in the current slide, it requires information on the gas savings, gas avoided costs, and gas sales, which we did not have access to. The challenge is pulling apart electric and gas savings.

WG member: Is there any benefit to estimating bill impacts with modeling? My concern is that the lack of data will lead to under valuing IE. For example, beneficial electrification in Peoples Gas has a disproportionate benefit compared to Nicor simply because eliminating natural gas also eliminates a $50/month fixed cost versus ~$17 for Nicor.

> **Project Team**: It is ideal if you can get that sort of detailed information on bill impacts. But it starts to get tricky because different customers will have different

savings. Anyone who participates will be better off…you get limited value going further and further. When we know that the savings and participation are the most significant things.

WG member: Better off in what ways? How is that measured? Financially?

Project Team: What I meant was bill savings. There are other non-energy benefits but the main one we're talking about here are bill savings. These will vary greatly. If you're doing a whole home retrofit, they will be fairly large. If you're looking at equity issues, you want to make sure that participants are going to benefit. Different fixed charges on your bills will impact it. It's a bigger job/task to figure this out.

WG member: If there is insufficient data for bill impacts, if we don't know the bill impact savings…how can we claim that they are financially better off?

Project Team: If they participate, they have lower bills. We don't know how much.

WG member: We don't have the hard numbers. How do we know?

Project Team: In the program impact studies – they probably have this.

WG member: Thanks for clarifying.

WG member: Bill impacts can be modeled accurately. I get that rate impacts would be difficult to model, dependent on scale of programs. Bill impacts are easy to model on an individual basis.

WG member: There are upfront costs to beneficial electrification that put total electrification beyond the life of some measures. It is not clear to me that the cost-benefit analysis takes into account the building still being used beyond the current equipment. This could be used to justify more aggressive investments for electrification now. For example, while furnace life is generally 15 years, we know that average furnace replacements are 20 years, and many are pulled out at 30 years. If we look at some of the up front costs of conversion, simple payback may go to the 15 - 18 year mark in Peoples Gas, or longer in Nicor - but only if you consider one cycle. I suggest this group looks at this and potentially recommends that future ratepayers also benefit from electrification.

WG member: Right - prescriptive savings are available.

WG member: Will the recommendations of the study address some of the shortcomings (i.e., insufficient data) in future research efforts?

Project Team: Yes. Definitely. Our recommendations relate to filling in data gaps and improving future analysis efforts.

WG member: What additional information is needed to estimate rate impacts? Are the reconciliations not sufficient?

Project Team: Public data that we were relying on was not enough for us to break out the EE impacts on the gas side individually…but maybe in further collaboration with ComEd and relevant gas utilities…a future research effort could look at these impacts.

WG member: I think that data is available in the stipulation plans

Project Team: Definitely. The challenge is isolating the impacts of EE plans/programs for just the years we want to study that might be recovered over time.

Shut offs

- Proving a statistically significant correlation between EE and shut-offs is challenging due to external factors that impact energy use and household income, such as weather events and the impacts of other energy affordability metrics

Discussion on shut offs

WG member: Have you given consideration to housing stock? For example, in Chicago, communities that are disadvantaged have 100-year-old brick homes that can't easily be insulated.

Project Team: Understanding shut-offs and impacts of EE on a home would be important to assess when you're looking at these impacts. That's another external factor on how EE programs would have an impact on this metric. That would definitely be a good area for future research.

WG member: Just a note, I do different advocacy work. Housing is the key. The cost to maintain that home and be comfortable in the home is based on how it was built. Not having information on how it was built…you could be buying into something that is never going to be affordable for you in the long run. That's the cost of climate change in the long-run.

WG member: One of the things we should look at, or have a recommendation for - is if using TRC with current measure life, especially for electrification, makes sense, given what that program's purpose is. If we only look at current measure life, then it doesn't pencil out. If you're switching from gas to electric, you're going to blow out the cost of the project. You may only break even in 15 years. Next person who owns that house and doesn't have to do that electrification get all the benefits. SF homes are around for 80-100 years. Do we take that into account with what we're funding?

Project Team: we don't get into the details of the individual measure years in this analysis but good point.

WG member: *[Slide 40]* Water costs are listed as "Other". Isn't it measuring Host Customer avoided Water Costs and, therefore, is "Host Customer"?

Project Team: Yes, it could be categorized that way as well. Sometimes there are water savings on the system, such as reducing consumption from fossil fuel plants. ComEd should have information on what water savings are included.

Project Team: *[Slide 41]* MF/SF upgrades programs are not considered cost-effective on their own if we don't consider the Societal Non-Energy Impact (NEI) benefits.

> **WG member**: This gets to my point, we're not requiring them to be cost-effective. We're artificially showing them with low TRCs cause we're only showing the current iteration and lifespan.

Summary of DEA Results & TRC (Slides 38-43)

- Summary of DEA results
  - Participation – benefits weighted more towards IE customers
  - Utility investment - benefits weighted more towards IE customers
  - Energy savings - benefits weighted more towards IE customers
  - Rate impacts – insufficient data
  - Bill impacts – insufficient data
- Benefit Cost Analysis
  - Illinois uses the total resource cost test, which includes categories of costs and benefits such as electric energy, electric capacity, fossil fuel cost, program administration, environmental benefits, and societal non-energy impacts
- ComEd TRC results
  - EE plan is cost-effective (BCA ratio > 1) with or without NEIs
  - $149-$178 million annual public health benefits estimated in 2022 and 2023 from EE plan
  - Most programs are cost-effective
  - MF/SF upgrades programs – not considered cost-effective if we don't consider the BCR ratio

Discussion on BCA Results

Project Team: The framework was created in the Distributional Equity Analysis Guide we made for DOE. Here, we have a case study where the programs are all cost-effective. The question is, how can equity be improved? There might be other situations in Illinois where we are analyzing forward-looking programs. If the benefit cost ratio (BCR) <1, you're in a different quadrant. Therefore, we need to think more about the equity implications. If equity implications are positive, then you might want to still consider the program. Since we already started with a positive BCR ratio, our scope of suggestions is more limited.

> **WG member**: To that point, equity depends on location, location, location. We've been focused on low-income customers who are typically in poorly structured communities, with all sorts of things going on. What you're presenting doesn't fully integrate the locale of where you're implementing solutions. It needs to happen across the board and tie together energy, infrastructure, and climate resilience

issues…as long as that reality of who are you talking about, where are they at, what are the conditions that are being actually impacted. Is there a pathway to bring in that human pathway about the people and conditions in their homes?

Project Team: Yes, absolutely. In the case study we did for Ameren BE, in that context, the utilities were required to look at not just income eligible but EIEC communities. That's a more comprehensive way to consider equity. We didn't use that standard for the populations because ComEd isn't required to look at that per legislation.

WG member: I love that way you framed that. Not everything is a number. We need to consider things beyond the cost benefit analysis. In addition to this…a comment is about not just *where* but *when*. We plan on a 3-6 year timeline. These are mature programs, going on for 20 years. For the first 10 years, low-income people are paying into the program, but are not getting anything out of it. The current iteration is looking beyond current ratepayers. Why aren't we looking at this over the same timeline? Our BCA should take into account future ratepayers. We're looking at the current utility paradigm – TRC. We're missing the opportunity to see how these programs are looked at in a future timeline, for the people who aren't born yet.

WG member: To build a community, a city. We have all these working parts. That's the call for collaboration and planning – who lives in these cities and how will they be impacted, just from a planning effectiveness. This is the 1900s, prior to industrialization, we have to move in a wholistic way on all levels to not forget anything. This community is really aging out. I do intersectional work and see how a lot of this communication is breaking down, we have a lot of silos.

WG member: That's why we need the "how" as well. As circumstances and situations and environments change.

WG member: Reminder: Per IL statute EE Portfolio as a whole must be cost effective, not individual programs.

BCA and DEA results (Slides 45-47)

- We have developed a generic decision framework:
    - We conclude that **ComEd's residential programs are cost-effective and have the potential to distribute benefits equitably**
- Recommendations
    - Research study on participant and utility NEI impacts (public health, shutoffs focus)
    - Bill impact study for IE participants
    - Publicly accessible dashboard for reporting participation rates (and other data) on a census tract level
    - Conduct a DEA on the ComEd portfolio in 2026

- Conduct outreach and education for existing programs

Discussion on BCA/DEA Results

WG member: This is also where you can include engagement with planning department with the city, where the information can be more defined about the identification of different communities, housing stock, flooding, etc. Different things in areas. So it's beyond the customers…the planning department should be able to help provide more knowledge about the demographics in local areas.

> **Project Team**: Great point and we can call that out, it's so important to get that feedback.

WG member: On the program design heading – it's a relatively new discussion to think through. What type of fuel are we using? Are we thinking through energy in a wholistic way? Equity in terms of EV adoption. Program planning leaders that we should be thinking about in a longer term – use that cost benefit analysis in a longer term. Rolling costs and benefits into a longer term…can we think beyond the 3-6 year timeframe? I'll be around in 30-40 years wondering why we're still using NG to heat our homes when we could have done it better.

> **Project Team**: Thanks for that note, those are great points we can include in the report and in the discussion.

WG member: What's the funding source for this case-study? What's expectation for growth of this work, is this a one-off case study, or a part of IL EM&V efforts moving forward?

> **Project Team**: Funding supported entirely by the Joyce Foundation. We hope stakeholders can take this study and carry it forward.

Project Team: We see clear equity goals for the future. There is interest in applying the guidance. We want to know what data is needed to perform these types of analyses.

WG member: I would hope this directly impacts the SAG planning process.

WG member: It's a really tight and well developed approach - so well done - I hope this provides some very obvious action items for the SAG to take up in their working groups.

Closing/Project Schedule/next steps

- The presentation of the draft report will happen in June.