Illinois EE Stakeholder Advisory Group

Large Group Meeting

Tuesday, September 17, 2019

10:30 am – 4:15 pm

Midwest Energy Efficiency Alliance (MEEA)
20 N. Wacker Drive, Suite 1301, Chicago, IL

Attendee List and Meeting Notes

Attendees (in-person)

Celia Johnson, SAG Facilitator
Nick Hromalik, Midwest Energy Efficiency Alliance (MEEA), Meeting Support
Kristol Simms, Ameren Illinois
Erica Borggren, ComEd
Denise Munoz, ComEd
Molly Lunn, ComEd
Mark Milby, ComEd
Jacob Stoll, ComEd
Jim Jerozal, Nicor Gas
Chris Vaughn, Nicor Gas
Randy Opdyke, Nicor Gas
LeAnne Demar, Nicor Gas
Mark Szygiel, Nicor Gas
Jean Gibson, Peoples Gas & North Shore Gas
Theodora Okiro, Future Energy Enterprises
Rob Neumann, Navigant
David Baker, Energy Resources Center, UIC
Mary Johnson, Resource Innovations
Cate York, Citizens Utility Board
Laura Goldberg, Natural Resources Defense Council (NRDC)
Chris Neme, Energy Futures Group, Representing NRDC
Dan York, ACEEE
Jamie Peters, Google
Will Baker, Google
Paul Glanville, Gas Technology Institute
Karen Lusson, National Consumer Law Council
Rachel Scheu, Elevate Energy
Nick Dreher, MEEA
Kevin Dick, Delta Institute
Abigail Minor, IL Attorney General's Office
Jeff Hurley, Blue Green Alliance
Briana Parker, Elevate Energy
Angie Ziech-Malek, CLEAResult
Leah Scull, CLEAResult
Scott Lenger, Intellihot
Damien Despinoy, Energy Foundry
Noelle Gilbreath, Community Investment Corp.

Attendees (by webinar)
Bryan Ahee, Intellihot
Dan Bailey, AECOM
Bob Baumgartner, Leidos
Brett Bridgeland, Slipstream
Madeline Caldwell, CLEAResult
Ben Campbell, Energy Resources Center, UIC
James Carlton, People for Community Recovery
Craig Catallo, Franklin Energy
Ian Champ, CLEAResult
Jane Colby, Cadmus Group
Andrew Cottrell, Applied Energy Group
Ryan Curry, 360 Energy Group
Tim Cycyota, CLEAResult
Kegan Daugherty, Resource Innovations
Devin Day, Smart Energy Design Assistance Center (SEDAC)
Sri Deivasigamani, Intellihot
Shaun Dentice, CLEAResult
Allen Dusault, Franklin Energy
Sarah Edwards, Cook County Dept. of Environment
Lance Escue, Ameren Illinois
Adam Farabaugh, Uplight
Jason Fegley, Leidos
Kevin Grabner, Navigant
Mary Ellen Guest, Chicago Bungalow Association
Randy Gunn, Navigant
Amir Haghighat, CLEAResult
Courtney Hanson, People for Community Recovery
Jan Harris, Navigant
Travis Hinck, GDS Associates
Hannah Howard, Opinion Dynamics
Amy Jewel, City of Chicago Mayor's Office / Institute for Market Transformation
Chester Kolodziej, Northern Illinois Energy Summits and Expos
Steven LaBarge, ComEd
Mandy LaBrier, City of Chicago Mayor's Office
John Lavallee, Leidos
Bruce Liu, Nicor Gas
Thomas Manjarres, Franklin Energy
Steven McCracken, Bidgely
Dan Mellinger, Energy Futures Group
Mark Milby, ComEd
Cheryl Miller, Ameren Illinois
Zenia Montero, ICF
Wade Morehead, Leidos
Jennifer Morris, ICC Staff
Phil Mosenthal, Optimal Energy, on behalf of IL Attorney General's Office
Rob Neumann, Navigant
Victoria Nielsen, Applied Energy Group
Antonia Ornelas, Elevate Energy
Michelle Pulce-Flynn, IL Association of Community Action Agencies (IACAA)
Zach Ross, Opinion Dynamics

Julia Sander, Leidos
Anthony Santarelli, SEDAC
Elena Savona, Elevate Energy
Leah Scull, CLEAResult
Craig Sieben, AECOM
Ramandeep Singh, ICF
Taso Tsiganos, IL Attorney General's Office
Andy Vaughn, Ameren Illinois
Ted Weaver, First Tracks Consulting, on behalf of Nicor Gas
Ken Woolcutt, Ameren Illinois
Brittany Zwicker, CLEAResult
Jenny George, Leidos
Arvind Singh, DNV-GL
Sara Wist, Cadmus Group
Jeremi Bryant, Elevate Energy
Nick Dreher, MEEA
Rich Hackner, GDS Associates
Sandra Henry, Walker-Miller Energy Services
Agnes Mrozowski, Ameren Illinois
Maria Onesto Moran, Green Home Experts
Patricia Plympton, Navigant
Katie Parkinson, Apex Analytics
Beatrice Quach, Resource Innovations
Rachel Scheu, Elevate Energy
Karen Weigert, Slipstream

Meeting Notes

- Action items are identified below in red.

Innovative Energy Efficiency Trends

Dan York, American Council for an Energy-Efficient Economy (ACEEE)

- Today I will give a broader view of things happening in EE in the world.
- Framing the challenges: where to find news savings, a challenge due to stringent codes and standards along with rapid technology/market changes. This squeezes available energy savings.
- Emerging program areas (from 50 largest utilities) the most common included:
    - Midstream programs
    - Data centers
    - Quality HVAC installation
    - High efficiency consumer electronics (residential)
    - Conservation reduction voltage (CRV)
    - Pilot programs
- Second tier utility programs:
    - Advanced space heating heat pumps
    - Commercial and industrial geo-targeting
    - Energy use feedback to consumers in real time
    - High efficiency residential clothes dryers
    - Reduction of plug and miscellaneous plug loads
- There is a rapid expansion of distributed energy resources (DERS) which creates challenges for utilities.

- Midwest has the “alligator curve” largely from wind (vs. the “duck curve” in CA from solar). Utilities need to look at technologies that connect to the grid (integrated, responsive, data-rich, real-time, diagnostic, analytical, predictive).
- Integrated EE/DR programs offer many benefits:
    - Technologies that can better connect to the grid can help with managing peak load, while also lowering over all energy use.
    - Ex: Baltimore Gas & Electric, quick home energy check-up with Peak Rewards
        - 805,000 participants (not just direct install, Molly w/ ComEd questioned the number – it may have been 8,000 participants)
        - This is a utility-branded DR program.
    - Ex: Entergy Arkansas, home energy solutions. Smart thermostats are the gateway for providing both EE and DR.
    - Despite benefits there are still few fully integrated EE/DR programs.
    - Some utilities more actively enroll customers in DR vs. suggesting it when doing the thermostat install.
    - Of 44 utility plans ACEEE reviewed, only 20 had some type of integrated approach.
    - Laura Goldberg: Do any of these target income qualified customers?
        - A: I don’t believe so, but I did not dig deeply on this issue.
    - Karen Lusson: There may be wiring issues with the installation of smart thermostats.
        - Kristol Simms: Our program has found limited wiring issues.
        - Jamie Peters, Google: The current generation of smart t-stats do not require a third wire. They can create energy savings even without wi-fi due to occupancy sensors.
    - Chris Neme: I think the integration of EE and DR is interesting. However, those numbers cited are not very big relatively speaking. Did you find that the sharing of the costs between DR and EE that might be insightful for SAG to consider?
        - A: Important question, but I don’t have much on that point at this time, it is one of the barriers to integration.
- Chris Neme: Has ComEd looked at using PJM capacity DR revenue to put toward EE?
    - Molly Lunn: We have looked at stacking; this is an internal discussion we are currently having.
    - A tariff change may be required.
- Grid-interactive efficient buildings (GEBs), smart connected buildings:
    - Efficient building that has the ability to be demand flexible.
    - No real programs yet, mostly small pilots.
    - The grid can provide signals to the building in advance so the building can start to pre-cool or store based on needs of the grid.
- DERMS (distributed energy resource management systems) platform to integrate distributed resources. This creates new market potential, such as the capacity market.
- Other EE Considerations:
    - Indoor agriculture is going to be a big deal (IL, CO, MI). It is energy intense.
        - IL is in front of the survey with reporting, lighting and HVAC requirements for legal cannabis.
    - Energy storage, but this is more about shifting then saving energy.
    - Focusing on energy as a service.
        - Energy as a service: customer contracting with a service provider to design and install the equipment.
    - Dual fuel programs.

    - Using data to target and segment customers and the market based on need.
    - Utility marketplaces: on-line markets for EE products and services, this is a trusted source that customers believe will deliver savings as promised.
    - Kristol Simms: Have you seen online websites used in a broader way beyond the measure product offerings?
        - A: No, I have not seen this.
- Cate York: Is there a way to put DR and EE in one online platform?
    - Molly Lunn: We do for our thermostats, but not for time of use pricing.
- Chris Neme: AEP Ohio has been working to create a system that is not just them selling products but also linking customers that are looking at Amazon and others so that rebates are applied to online purchases. Not sure where they are at with this, but it may be something to consider.
- Kristol Simms: We heard from a vendor that could help utilities claim credit for a behavior change like this.
- Other considerations:
    - Strategic Energy Management: thinking about process and uses in a systemic way.
    - Expanding programs to new and underserved customer segments (multifamily, small business, rural, indoor ag, low income/IQ)
    - Promising technologies:
        - Combined integrated controls for commercial lighting and HVAC (smart buildings)
        - High rise elevator motor upgrades
        - Smart manufacturing
        - Very efficient packaged AC units
        - Window attachments
- Diversity of EE resources: There is no single dominant resource in future portfolios, there is no one big chunk of savings to replace lighting. Commercial retrofits, portfolios will need to be much more diverse (look at whole buildings, DERs, GEBs, expanded choices and pricing options, behavior change programs, targeting new and underserved customer segments).
- Kevin Dick: With power factor, you lose the ability to control your voltage so you can realign the voltages, it is similar to voltage optimization.
    - Kristol Simms: Is it applied to the substation or the building?
    - A: It is at the building level, we worked to EPRI on this. I will share the report.
        - Click here to download the report: **EPRI Reactor Testing Findings (Field Museum, Chicago)**

Gas Technology Innovations: Focus on Gas-fired Heat Pumps
Paul Glanville, Gas Technology Institute

- GTI is an R&D organization located in Chicago, looking at gas infrastructure (supply, conversion, delivery, and utilization). Nonprofit research organization, we don't manufacture anything. We are located around the country.
- EE program collaboration: We partner with many dual fuel and gas only utilities (in IL – Nicor Gas, Ameren IL).
- Gas heat pumps (GHP) are an important emerging technology. Deliver best in class GHG reductions (50% or greater), integral to cost effective net/near zero energy buildings. Maintain thermal comfort esp. in cold climates, it is also ready to utilize natural refrigerants (so leaking does not negatively impact GHG emissions).
- In the Midwest, over 80% use gas in buildings for heating and service hot water.

- Gas remains relatively inexpensive making it difficult to move away from it as fuel source.
- Most homes in Chicago are heated with gas furnaces/boilers (87%).
- Heat pumps: Similar to your refrigerator but in reverse (HVAC equipment that moves heat from cold source to warm sink, moving heat "uphill"):
    - Gas fired heat pumps do exist, small scale, available overseas, have many advantages: don't require backup heating, good for peak load management, cut their energy and climate emissions in half.
    - Challenges of gas heat pumps are complicated, expensive, need to be designed for US market.
    - Phil Mosenthal: How is there a logical need for heat pumps with us trying to electrify the grid? Can you talk about the future, is it just a bridge technology?
        - A: I'm not a policy person, so I will speak to how these technologies can work in the current system.
- Examples of products:
    - Vapor compression: use gas to drive an engine to drive the compression. This is the most mature technology, and can be found in southeast IQ spaces.
    - Gas engine-driven heat pumps: main motivator is peak load demand reduction with AC (main use in Japan). Some models do consume electricity. Can be deployed as VRF.
    - Karen Lusson: Electric source heat pumps are not the best answer for cold climates, wondering if the gas driven compare? Does it have the same issue?
        - A: These products can recover the heat made, and so they are less impacted by ambient climate.
    - Low-cost gas absorption heat pumps: combining a refrigerant with gas, these products are intended to replace boilers and furnaces.
        - Retrofit is a big challenge depending on the size of the technology, but not for low-cost gas absorption. The devices can also move back and forth with modulation.
    - Jim Jerozal: Water heating is twice as efficient then what we have today, isn't that the key reason for this technology as EE?
        - A: Yes, this is doubling efficiency and is a big change for equipment that Dan York referenced.
    - Baseline water heaters (90% of gas water heaters sold).
        - Q: What are the installation costs?
        - A: It is complicated, we need to make it very easy so that when a water heater goes out it can easily be installed.
    - Residential gas heat pump combination: sits outside, using ambient air to cycle through.
        - Big project with DOE: trying to commercialize the technology and scale-up. Shifting toward larger pilots.
    - Hybridization: commercial gas heat pumps can combine with other boiler equipment to create constant capacity. Standard equipment can handle peak load. Retrofit the existing equipment and have heat waste recovery to help reduce some of the heating or cooling load.
    - Chris Neme: This is a gas heat pump? Couldn't you do the same thing with electric heat pump?
        - A: Yes
    - Developing next generation GHPs: more efficient to repurpose humidity then try to treat it.

    - Thermal compression: model that is coming out of France and rolling it out as "energy as a service". Thermolift is another technology that is coming out.
- Need for a roadmap: 15 utilities got together to create a collaborative, focus on residential and commercial equipment. Excluded custom technologies. Focus on air to X and water to X. Draft is underway.
    - Looking at the key players, catalogue the North American GHP activity, assess and compare technologies, also assess applications in residential and commercial, identify codes and standards potential barriers.
    - SAG Facilitator to follow-up with GTI on whether it would be useful for the final roadmap to be presented to SAG at a future meeting.
- GHP are a great way for homes that currently use gas and do not have the financing to make full change to electric, this technology allows for a retrofit that still has significant GHG reductions.
- Many efforts to improve cost-effectiveness of mature GHP.
- Karen Lusson: There is a huge push toward electrification; this is an issue for cost-effectiveness as well as the source (clean energy). Given all these issues does GTI face road blocks? What is the pushback that you are getting on these technologies, how do you respond?
    - A: As a researcher we are here to provide options. There are also a lot of challenges to going all electric, especially in colder climates. More specifically we are talking about these as good options to cut consumption while using existing infrastructure that we have already invested in.
- Chris Neme: What is the temperature in the air from these heat pumps?
    - A: I don't have that data, but it has a setback curve like a boiler.
- Chris Neme: In places where it has been installed, how does it compare to a traditional gas heater? In leaky homes I would think they do not work as well and get customer complaints? And if so, do we need to package this with building improvements?
    - A: Your point is well taken, if you are going to invest in these technologies you should also invest in building improvements.
- GTI has an income qualified project in Rockford. This was not in the presentation slides but happy to follow-up.
    - SAG Facilitator to follow-up with GTI for information on the Rockford income qualified project.

Energy Foundry: Background and EE Innovation Trends
Damien Despinoy, Energy Foundry

- Energy Foundry is a venture capital fund based in Chicago focused on clean tech.
    - Early stage investor (late stage is what gets the headlines), we focus on the laboratory testing stage, unique position.
    - Fund began in 2013 and has grown from funding 124 startups to 800 in 2019.
    - Investments in EE, energy generation, energy storage, service, and hardware.
    - Silicon Valley model: fail fast, growth is more important than profits to deliver investor returns.
    - Energy Foundry approach: work backward to find the innovation that will disrupt the market. We build our investment over time, rather than a single infusion of capital.
- Examples:
    - Red Wave: waste heat product as an advanced material.

    - Recurve: open meter, allows everyone to have a “single source of truth” on what the energy savings truly are. The platform can also do custom targeting and cash flow assistance (pay for performance)
    - Braclet: commercial building software, rather than targeting the building owner they use a portfolio of buildings. Identify 30% energy savings based on their modeling.
        - Karen Lusson: Is it a diagnostic software or is it demand related?
        - A: It is at the project level
    - Omnidian: solar monitoring and service.
- Emerging trends in the EE space:
    - Downsizing of CHP systems: system integration turbines and even finding smaller units that could work in a large residential building.
    - New AC and storage: store chemically your energy, efficiently integrating storage, driving energy efficiencies and lowering peak demand.
    - Alternative energy AC-heat pump: potentially energy supply away from power, using old technologies that are used to drive an engine could be used to drive AC units.
- Q: How are you finding these companies?
    - A: We collaborative with universities, events, competitions, etc. We also did marketing when the fund first started. Today it is more about reputation and being a good partner and getting recommendations.
- Chris Neme: What is your relationship with ComEd and Ameren IL?
    - A: They provided the initial funding through the grid modernization act, creating an evergreen fund, recognizing that the technology will not be developed all at once. We are independent from the utilities; the money is required to be returned to the fund.

Intellihot Technologies
Scott Lenger, Intellihot

- Intellihot employs 100 people at a manufacturing facility in Galesburg, IL.
- We have 85 patents to make water heating equipment smarter and system architecture, learning & automation, internet of things.
- Our systems help prevent legionella growth based on heating and storing the water at higher levels.
- We have a patented heat exchanger for precise temperature and built-in redundancy. No storage tanks are needed. Helps to mitigate legionella risk.
- Chris Neme: 33 to 1 ratio comes from four units? And small ones are 8 to 1?
    - A: Yes
- Unit also comes with integrated app that reports what is happening, good for use by building managers.
    - Jim Jerozal: Is this unit installed in line?
        - A: Yes and no. Basic installation is just attached to the condensation line. The unit can have interconnections too.
- Property owners with multiple locations can monitor all their locations on a single dashboard, including drilling down to the specific location with details.
- Chris Neme: if you install the same capacity is your price about the same or higher but you can right-size?
    - A: Yes, but we don’t need to install additional capacity since the redundancy is already built into the unit, is right-sized.
- Chris Neme: How much of the savings are energy savings vs. maintenance?

    - A: Energy savings is mostly the savings building owners see.
- Chris Neme: How do you get the 60% in savings?
    - A: it is relative to the baseline of what is originally there.
    - Chris Neme: When we evaluate utility EE programs we look at what a customer would have done without the program, so even a new least-efficient unit would still be better then the baseline you are using.
- Celia Johnson: Do you work with any utility EE programs?
    - A: We work with several. We are currently working with Nicor Gas to validate our savings via their Emerging Technology program. Otherwise we currently work mostly in the northeast of the country.
- Karen Lusson: What is the cost of these technologies?
    - A: Cost depends on the size, broad range from $5,000 to $130,000.

C&I Networked Lighting Controls: Technology Capabilities and Energy Savings Potential
Chris Neme and Dan Mellinger, Energy Futures Group

- Chris Neme introduction: When we look at the aggressive electric savings requirements in FEJA and the lighting standards (regardless of timeline), where do we get the next generation of savings? The fading away of residential lighting will mean we need to look for new areas. I believe that C&I lighting controls is an area that we can get a lot of the next phase of savings. Dan Mellinger is an expert on this lighting topic.
- Lighting control descriptions: stand-alone, integrated lighting, networked lighting, intelligent lighting.
    - Stand-alone controls: discrete devices that operate independently with little or no communication among devices. While the technology is not new, without new construction the adoption rates are very low (81% have none).
    - Integrated lighting controls: imbedded within a light fixture by the manufacturer, this makes the installation no different than standard light. Sensor performance is typically excellent due to granular coverage, and controls can be coordinated.
    - Seeing increased support from utilities for this type of control, great for midstream programs.
    - Networked lighting controls (NLC): sensors can be discrete devices or embedded within fixture, but must be able to communicate either wired or wireless. Tend to fall in a custom program.
- Technology trends: manufactures are increasingly embedding controls into the fixture to provide more value to the customers; it is a way to distinguish a higher value product.
    - This is enabled by sensor miniaturization.
    - This allows for more capabilities and potential with building integration.
- Challenges: lack of standardization and compatibility; a big issue for contractors to deal with. The cost is still high, but continues to lower.
- Capabilities:
    - Integrated lighting controls allow for dimming, occupancy sensing, daylight dimming, high-end trim and grouping/zoning.
    - Networked lighting controls: scheduling, personal control, energy monitoring, demand response.
    - Lighting control TRM savings assumptions: variety of savings factors in the IL TRM
    - Connected lighting: system integration.
    - Lighting as a backbone for connected building infrastructure. It enables more intelligent controls such as HVAC, plug loads, etc.

    - Connected lighting adds communication with non-lighting systems to unlock additional energy savings.
    - Some utilities are piloting connected lighting programs.
    - Intelligent lighting: many non-energy benefits that might be helpful to customers (color tuning, space utilization, people counting, wayfinding, etc.)
        - Why intelligent lighting matters: can unlock energy savings potential
        - Wayfinding: can provide traffic patterns in a grocery store for product placement (has nothing to do with energy or savings but has huge value)
        - Emergency assist: could create a dynamic path of egress (shortest is not always the quickest).
- Energy Savings Potential:
    - 2018 analysis performed to evaluate LED product types and a few lighting controls.
    - Important to remember that the EISA impact to C&I sector is far less
    - A quarter of lighting energy savings potential is from lighting controls
    - Risk of stranded savings: every time a linear replacement lamp (TLED) is installed, deeper savings potential becomes stranded. Fixtures deliver greater savings per unit. Networked lighting controls cannot typically be used with TLEDs.
    - Presented potential IL lighting savings for 3-lamp TLED, LED Troffer, and LED Troffer with NLC.
    - Phil Mosenthal: I've heard that TLEDs are becoming the standard replacement, what are you seeing in the market and how NTG values might be looking?
        - A: I have not seen analysis to date, but I don't necessarily agree that TLED should be the baseline, but I do agree that there could be significant free ridership.
    - Jim Jerozal: With controls for AC or heating, could there be a joint play for building controls with gas and electric? Have you seen that in application?
        - A: There is a pilot in Rhode Island that is starting. Note, this is not reflected in the savings presented today, so there could be greater savings with gas and electric coordination.
        - Nicor Gas and ComEd are discussing a potential partnership on HVAC and ventilation controls.
- Challenges:
    - Cybersecurity back door potential.
    - Maintaining the system, especially in with supply chain crossing.
    - TRMs treat controls and lighting separately (briefly highlighted due to time constraints).
- Program Design Strategies:
    - Education and outreach, TRM updates, revise rebates (reduce/discontinue TLED rebates) or bundle LED and control rebates, lighting as a service.
- NLC Program Spotlight:
    - Hybrid: Focus on Energy (WI) $/SF NLC rebate with TRM-based savings and provide a bonus for energy monitoring.
    - Prescriptive: Bonneville Power Authority 4/unit "kicker rebate for NLC, indoor fixtures and highbay, $40-100 adder.
    - Breadth and Depth: MassSaves and National Grid RI midstream $40-45 adder for LED troffers with integrated NLC, performance lighting plus program, significant education efforts, lighting as a service pilot program.

        - Energize CT: Tiered LED solution paired with controls you boost the rebate paid.
        - Chris Neme: It is important to understand that the market share for this product is close to zero, so even though the $40-45 rebate is large, it helps seed the market and get the vendors to stock, this then reduced prices over time. You may need to start high in the initial years but then drop the price over time.
- Kristol Simms: I have not heard presenters talk about IQ customers. I wonder if there are efforts to do dedicated training of local workforce to do the outreach and deployment.
    - A: There is a significant opportunity for workforce development, I agree.

ComEd Energy Efficiency Emerging Technologies Update
Mark Milby, ComEd

- Activity update: we have a lot going on!
- In-flight pilot projects (26), in-flight research projects (16), projects completed since Jan 1, 2018 (23), project partners and memberships (40+).
- We launched a new public website and submission portal to increase transparency: https://www.comedemergingtech.com/
- We are working on ways through CLEAResult Emerging Tech contractor to have smaller subcontractors to make sure we are hearing and piloting a variety of ideas.
- Laura Goldberg: Is this a rolling call for ideas?
    - A: Per FEJA we can use a certain portion of funds for R&D, and we make sure we spread funding out for each year. This is an open solicitation process.
- Theo Okiro: How will people hear about the website? You referenced you hope customers will submit ideas; how will the website be marketed?
    - A: Realistically we will be promoting this to the industry, possibly at conferences. I don't yet have a general marketing campaign for customers.
- Jamie Peters: What about all the programs you already have, could you do a leave behind through direct installs?
    - A: An interesting idea, we will look into it.
- Laura Goldberg: Does a certain percentage of R&D need to go to income qualified/income eligible customers? And if so, what is the outreach plan?
    - A: Per our stipulation we have $6 million for income eligible customers, and we have a new manager on the team who will be looking into this. I could see us having a solicitation for ideas specific to that customer segment.
    - Theo Okiro: I think the IQ Advisory Committee could be a great venue for such solicitation, outreach and discussion.
        - A: Yes, agreed.
- Will Baker: Where are you looking to focus your research?
    - A: We have a new potential study coming out that hopefully will give direction. High savings but no market share is an area that I think ComEd could engage in, similar to market transformation.
- Jim Jerozal: Will you publish the results of your studies?
    - A: Yes, we want to be good stewards of our R&D work and want to share it in the larger community.
- Jamie Peters: What do you see as the big challenges to this work?
    - A: Finding new savings is not as big of a concern, but will they be as cheap as lighting? Also measure life will be an issue to look into. Logistically, we need to look at the transfer of pilot results into the portfolio.

- Karen Lusson: How has the recent DOE decision about EISA changes impacted ComEd's programs going forward?
    - A: Now that the IL-TRM is close to being finalized we have more of a strategy on how to phase out those bulbs from our portfolio. We have a strategy for the next few years that we will be deploying.
- For additional information on ComEd R&D projects, **click here to view the Q2 2019 Emerging Tech Project Catalogue.**

Nicor Gas Emerging Technology Update
Randy Opdyke, Nicor Gas

- Nicor Gas has a web-based submission form for Emerging Tech ideas: www.NicorGasRebates.com / Resources / Emerging Technology.
- Products are scored and evaluated; we use a weighted scale.
- Updated on current Emerging Tech program:
    - 112 total pipeline projects; 11 active pilots; 7 rebates launched
    - 26.67% residential; 20% industrial; 53.33% commercial
- Overview of Commercial Boiler Descaling pilot; discussed benefits of the technology, which dissolves water scale, lime, mud and rust deposits.
- There can be challenges to pilot deployment and to taking a technology from "step 1" with ET to actual testing / piloting. For example, the boiler descaling technology was identified in June 2014 and pilot sites were identified in October 2017. Due to unexpected challenges both pilot sites dropped out and we are looking for new sites.

Closing and Next Steps
Celia Johnson, SAG Facilitator

- General follow-up:
    - SAG Facilitator to look for ways for SAG to be more intentional on discussing workforce development approaches and opportunities.
- Upcoming meetings:
    - The next large group SAG meeting will be held on Tues., Nov. 19.
    - A morning SAG meeting will also be held on Wed., Nov. 20 to discuss cumulative persisting savings.