

**Illinois EE Stakeholder Advisory Group**  
**Large Group SAG Meeting**  
**Monday, February 10, 2020**  
10:00am to 12:00pm  
**Teleconference**

**Attendee List and Meeting Notes**

**Attendees (by webinar)**

Celia Johnson, SAG Facilitator  
Nick Hromalik, Midwest Energy Efficiency Alliance (MEEA) – Meeting Support  
Matt Armstrong, Ameren Illinois  
Rick Berry, Guidehouse  
Brian Bowen, Uplight  
David Brightwell, ICC Staff  
Madeline Caldwell, CLEARResult  
Jane Colby, Apex Analytics  
Salina Colon, CEDA  
Andrew Cottrell, Applied Energy Group  
Ryan Curry, 360 Energy Group  
Mark DeMonte, Whitt-Sturtevant  
John Dakarian, Nicor Gas  
Erin Daughton, ComEd  
Larry Dawson, IL Association of Community Action Agencies (IACAA)  
Leanne DeMar, Nicor Gas  
Sam Dent, VEIC (IL-TRM Administrator)  
Atticus Doman, Resource Innovations  
Nick Dreher, MEEA  
Gabriel Duarte, CLEARResult  
Jack Erffmeyer, IL Attorney General's Office  
Lance Escue, Ameren Illinois  
Jim Fay, ComEd  
Jake Felton, Resource Innovations  
Tianyu Feng, Willdan  
Eljona Fiorita, ComEd  
Jake Fuller, Ecometric Consulting  
Lauren Gaikowski, Franklin Energy  
LaJuana Garrett, Nicor Gas  
Molly Graham, MEEA  
Andrey Gribovich, DNV-GL  
Kelly Gunn, ComEd  
Randy Gunn, Guidehouse  
Vincent Gutierrez, ComEd  
Mark Hamann, ComEd  
B.J. Hanson, Franklin Energy  
Jan Harris, Guidehouse  
Travis Hinck, GDS Associates  
Hannah Howard, Opinion Dynamics

Cheryl Jenkins, VEIC (IL-TRM Administrator)  
Kevin Johnston, Green Homes Illinois  
Katherine Johnston, Green Homes Illinois  
Kara Jonas, MEEA  
David Kalensky, Gas Technology Institute (GTI)  
Haley Keegan, Resource Innovations  
Mike King, Nicor Gas  
Ed KrizEd, Nicor Gas  
Ryan Kroll, Michaels Energy  
Steven LaBarge, ComEd  
John Lavallee, Leidos  
Brady McNall, DNV-GL  
Rebecca McNish, ComEd  
Darren Meyers, IIEC  
Mark Milby, ComEd  
Dan Minarcik, Franklin Energy  
Abby Miner, IL Attorney General's Office  
Jennifer Moore, Ameren Illinois  
Jennifer Morris, ICC Staff  
Agnes Mrozowski, Ameren Illinois  
Kelly Mulder, Illume Advising  
Chris Neme, Energy Futures Group, on behalf of NRDC  
Rob Neumann, Guidehouse  
Victoria Nielsen, Applied Energy Group  
Randy Opdyke, Nicor Gas  
Antonia Ornelas, Elevate Energy  
Stacey Paradis, MEEA  
Deb Perry, Ameren Illinois  
Henry Pierce, ComEd  
Joe Reilly, Applied Energy Group  
Jes Rivas, Illume Advising  
Zach Ross, Opinion Dynamics  
Anthony Santarelli, Smart Energy Design Assistance Center (SEDAC)  
Elena Savona, Elevate Energy  
Leah Scull, CLEARResult  
Kristol Simms, Ameren Illinois  
Milos Stefanovic, ComEd  
Jacob Stoll, ComEd  
Mark Szczygiel, Nicor Gas  
Miguel Thomas, Franklin Energy  
Taso Tsiganos, IL Attorney General's Office  
Andy Vaughn, Ameren Illinois  
Chris Vaughn, Nicor Gas  
Taylor Weyenberg, Franklin Energy  
Ken Woolcutt, Ameren Illinois  
Angie Ziech-Malek, CLEARResult  
Wayne Leonard, Guidehouse  
Ed McGlynn, Franklin Energy  
Chris Pilek, Resource Innovations  
Arvind Singh, DNV-GL  
Rick Tonielli, ComEd

Sara Wist, Cadmus Group  
James Carlton, People for Community Recovery  
Dan Maksymiw, CEDA  
Nishant Mehta, Guidehouse  
Hanh Pham, Willdan  
Hardik Shah, GTI  
Brian Tomkins, Metropolitan Mayors Caucus

### **Opening and Introductions**

#### ***Celia Johnson, SAG Facilitator***

- The purpose of the Feb. 10 meeting is to discuss follow-up from the November 2019 SAG meetings, on Cumulative Persisting Annual Savings (CPAS) and cannabis EE considerations.
- The CPAS follow-up will focus on IL-TRM questions today. A summary of CPAS questions requiring additional discussion (from the Nov. 2019 SAG meeting) is available here: [CPAS Questions Requiring Further Discussion](#)
- Cannabis updates:
  - MEEA presentation, including a timeline update from the Massachusetts baseline study, next steps for implementation in Illinois, and cannabis program design from other jurisdictions.
  - Guidehouse (ComEd evaluator) presentation summarizing research on EE measure opportunities.
  - Ameren Illinois presentation on research to cannabis cultivation centers in Ameren Illinois' service territory.

### **Cumulative Persisting Annual Savings (CPAS) Considerations for IL-TRM**

#### ***Jim Fay, ComEd***

- Most of the IL-TRM questions raised in the SAG Facilitator document are being addressed through the IL-TRM TAC process. However, there are a few remaining items to be proposed for review.

#### **Issue 1: Addressing Mid-Life Baseline Shifts**

- A TRM TAC subcommittee was created to forecast the market share for residential and C&I lighting.
  - If new baselines are based in the market share mix of efficient and inefficient products (or categories), the post baseline energy savings should be net (NTG would be 1.0).
  - **Recommendation: The SAG/TAC should agree the NTG should be 1.0 for post-mid-life adjustment savings.**
- Chris Neme: In this scenario you would first apply a NTG to the early retirement measure, then that would apply to the total early retirement savings from the first years but also to the adjusted baseline in the remaining years?
  - A: Since you have a new decision and a new baseline, starting in the next year (year 5) the NTG would be 1.0.

#### **Issue 2: TRM Timing**

- **Recommendations: The remaining mid-life adjustment issues should be identified and resolved within the 2021 TRM update process, within the TAC group.**

#### **Issue 3: Accounting for Post-2030 Impacts**

- Rules only extend to 2030, based on current statute. Post 2030 savings are included in TRM calculations, but they have limited value to a portfolio based on this framework.
- In year 2025, the last year of Plan 6, measures with lives of 6 or more years have no expired savings. In Plan 7, 6 years will go to 0.
- As we approach 2030, the incentive to pursue deeper/more persistent savings will be less and less. As we get closer to 2030, we will need to discuss this further.
  - Chris Neme: New EE legislation could change this.
  - Kristol Simms: Ameren Illinois is considering 2030 impacts as we are building our portfolio. This is not necessarily a long-term discussion, as it is something that may impact us now.

**Next steps for CPAS discussion:**

1. SAG Facilitator to follow-up with IL-TRM Administrator on venue for discussing CPAS recommendations related to the IL-TRM.
2. SAG Facilitator to follow-up with Ameren Illinois and ComEd on next steps for remaining CPAS topics – anticipated for discussion in the April 14-15 SAG meetings.

**MEEA Update: Recreational Cannabis in IL**  
***Stacey Paradis and Molly Graham, MEEA***

- This is a follow up to our prior presentation to SAG on IL cannabis in Nov. 2019.
- Massachusetts Cannabis Baseline Study:
  - The study is expected to be finalized by the end of February. When results are available, they will be circulated to SAG.
  - The MA baseline study is important because MA and IL have the same lighting requirements in their statute. However, the HVAC statutory language is different, with IL taking the language further than MA.
  - We think the MA baseline could provide potential energy information for Illinois' cannabis industry.
  - There will be an opportunity to discuss utility lighting incentives after seeing baseline results.
  - We expect compliance to be low, but still need to see the results.
- Licensing Update:
  - Effective 1/1/20 emergency rules released by Department of Agriculture (they regulate cultivation of cannabis).
  - In the emergency rules they largely copied and pasted the language from the law into their rule for lighting and HVAC.
  - Currently there are 21 large cultivation centers operating in the state. These are the medical facilities that now can produce for recreational use.
    - These facilities do not need to comply with the energy components until March 31, 2022 when their license expires. This will be a good opportunity to target these facilities for measures in the future.
    - Likely only 9 other large facilities in the future (IL statute caps at no more than 30 large facilities).
  - Craft applications for the initial 40 facilities are open and due 3/16/20.
    - Applications are scored on a 1,000-point system, with 20 points available for their environmental plan.
    - Must submit compliance with local ordinances/approval (this means these facilities have already been selected).
    - Craft facilities will be able to sell 7/1/20.
  - Additional dates to keep in mind:

- 7/1/21 the additional large facilities could be licensed.
  - 12/21/2021 60 additional craft centers can be licensed.
  - All licenses are staggered so there is time to have an impact.
- We do not believe the Dept. of Ag is prioritizing the energy section of the law. It's not clear how enforcement will be conducted on the energy provisions. Dept. of Ag might not have HVAC expertise, so there may be opportunities for compliance assistance programs.
- Example Program, Energy Trust of Oregon:
  - Technical studies (free for customer) followed by custom projects
  - Prescriptive equipment incentives (insulation and dehumidifiers)
  - Dedicated cannabis webpage
  - Also list case studies on their website, which helps convince cultivators to take a risk and try different, more efficient equipment
- Example Program, Vermont/Burlington Electric:
  - Note: recreational not legal yet, commercial growth is only for medical, so growth is limited
  - Custom incentives for deep retrofit (requires use of Cannabis PowerScore)
  - Prescriptive equipment incentives: horticultural LEDs
- Example Program, Sacramento Municipal Utility District:
  - Custom incentives for retrofits
  - Offer design assistance
  - Prescriptive lighting assistance
  - Dedicated cannabis webpage
    - Having a dedicated webpage seems to be an important component since they have very unique needs
- The Resource Innovation Institute focuses on best practice guides for cultivators:
  - There is one for HVAC and one for lighting.
  - Emphasizes facility design, understanding equipment types, commissioning, and benchmarking for continuous improvement.
  - They created the Cannabis PowerScore that is a specific cannabis benchmarking tool. This benchmarks against cultivator peers.
  - Mostly electric, but they are starting to add gas data too.
- **Open question: Is there an opportunity to incentivize HVAC measures given the language in the IL statute?**

## Q&A

- Kristol Simms: As part of your outreach and research have you determined any tactics for overcoming communication barriers?
  - A: For the examples I highlighted they have had good participation, and might even have wait lists. But historically there have been issues with language used and a hesitation by cultivators to communicate with utilities. The key is to talk to them using their language and knowing their focus.
  - Kristol Simms: We will follow-up with MEEA to discuss further. If you have any specific data on participation rates that would be great.
- Jennifer Morris: Why is the MA baseline relevant to IL?
  - Stacey Paradis: The lighting language is very specific between the two states, so we want to highlight any relevant information out of the baseline.
  - Jennifer Morris: Do you have a sense of how many facilities MA has compared to ours? If we have less facilities I wonder if IL will be better at oversight and compliance?

- A: MEEA can provide more information; it's likely IL facilities will be much larger.
- Chris Neme: Are you saying the MA baseline might be applicable to the IL programs?
  - A: Yes, depending on the results, we think it could be used to setup a program.
  - Chris Neme: This is a bit of a Catch-22, that we shouldn't wait to develop an IL baseline study knowing how many facilities are about to come online in the very near future.
    - A: Exactly. As you think more about the transition between medical to recreational, that gives us a little more time to figure out the challenges between the craft cultivators and the large medical facilities operating now that will need to comply in 2022.
    - A: It's also worth noting the lighting load can impact the HVAC load because the different parts of the facilities and systems are interdependent.
- Kristol Simms: Are there any other points we should keep in mind for comparing these two states (MA and IL)?
  - Jennifer Morris: Since we just completed an IL codes compliance study, I wonder how this compares to other states. I have similar questions in the cannabis space.
    - A: MEEA will follow-up with this information.
  - Jennifer Morris: Has anyone spoken to the Dept. of Ag on how they are approaching compliance? Could they present to SAG about cannabis?
    - A: MEEA will share contact information with the SAG Facilitator.
- BJ Hansen: What is the thought process with using the MA baseline 1) how it correlates to IL and 2) what it is used for? My understand is the MA study is different and looks at the whole facility averaged, not just the canopy space. Do we already have a baseline due to the statutory language?
  - A: We have heard anecdotally that those in MA have not been complying with statutory requirements due to the incremental cost of compliance. Horticultural lighting is 3 to 4 times more costly. We think that designing programs can overcome this cost barrier and comply.
  - Kristol Simms: To Stacey's point, this will likely be an energy-intensive industry that likely will not be complying with statutory requirements. We need to work to drive efficiency in this area.
  - Stacey Paradis: The statutory language referencing mini-splits is also problematic, both the cost and energy consumption, due to this not being the most efficient equipment for these types of facilities.
  - Kristol Simms: Is someone advising the Dept. of Ag on what the "more efficient" equipment could be?
    - A: Yes, MEEA worked on a letter with IEC to flag some concerns and solutions for the Dept. of Ag to consider. As Molly mentioned, the emergency rule did not incorporate this feedback into the rule. To date we have not had a lot of success engaging the Dept. of Ag.
    - Chris Neme: Time is of the essence. It seems very important to make sure we do not miss the opportunity, so we should get together to determine what the appropriate baseline is and come to agreement so that the utilities can impact the construction of these facilities.
    - Kristol Simms: Agreed.
    - Chris Neme: The lack of clarity on "equivalent equipment" seems like we might need an emergency TRM TAC determination. I didn't fully

appreciate this at first, but seems like we really need to nail this down this year.

- Next steps:
  1. SAG Facilitator to follow-up with IL-TRM Administrator on next steps for discussing cannabis baseline measures.
  2. SAG Facilitator to follow-up with MEEA on engaging Dept. of Ag to further discuss cannabis opportunities at SAG.
  3. If you have questions for MEEA on their research, reach out to Molly Graham: [mgraham@mwalliance.org](mailto:mgraham@mwalliance.org)

## **Cannabis EE Measure Research**

### ***Wayne Leonard, Guidehouse***

- Our slides on the timeline of the legislation are similar to what Molly presented so I will skip and let participants look at the slides posted on the SAG website.
- There are two options on lighting:
  - Watts per square foot of active growing space canopy or
  - All installed lighting technology must meet a photosynthetic photon efficacy (PPE)
    - This is basically how efficient the light is produces photons that the plant can use.
- HVAC requirements:
  - Smaller growers must use mini-splits, while larger facilities must use variable refrigerant flow (VRF).
  - Unclear how to interpret the “or more efficient” provision.
  - Craft growers can also continue to increase their canopy space over time, and so not sure what equipment they would need to use.
- TRM v8 excludes cannabis lighting. The TRM measures can be used for other indoor agriculture, but not cannabis. The TRM needs to be revised.
- Andy Vaughn: Can you grow cannabis at home?
  - A: Only those with medical cards can grow at home, all Illinoisans wanting to consume cannabis recreationally must purchase from a licensed dispensary.

### Measure Specific Considerations:

- Lighting implications:
  - DLC requirements only applies for those pursuing maximum performance using PPE based rules.
  - 36 watts per square foot is tight. LPD approach will likely limit production density; fewer plants in given floor area than in other states.
  - Canopy area expands as plant grows; unclear exactly when and how this space is measured or delineated.
  - Improved method would monitor site level impacts based on production efficiency metrics (kWh/pound of product produced).

### HVAC Implications:

- The baseline equipment for craft growers is more efficient than code minimum for other C&I applications
- Savings, cost, and incentives are still possible, but are incremental from the minimum standard for air source heat pumps.
- Chris Neme: What do you mean they are less?

- A: If you just go with code minimum, the savings will be minimal, so to go more efficient it takes more incentive (cost) to get greater savings.
- Chris Neme: But if looking at cooling, you can be lower than a CER 13, and you can buy mini-splits below CER 13.
  - A: For a cost. Your incremental cost goes down.
  - Chris Neme: I think the bottom line is the minimum efficiency mini-split that you can install and then figure out what the maximum offerings could be.
- System integration such as dehumidification loads can be served by a single piece of equipment may offer one additional opportunity for savings, particularly if assessing overall building performance holistically.
  - Further research needed to determine exactly how this measure will play out and what opportunities for program support may exist.
- Very large facility HVAC considerations:
  - Chiller performance is dependent on part load; therefore, savings should account for expected performance during both active (lights on) and inactive (lights off) portions of the daily operations
    - Dehumidification end-use will add load to the chiller, but offsets the need for additional dehumidification; take a wholistic approach to savings analysis.
    - Baseline for this system design is chilled water system supplied by a chiller that meets the code minimum efficiency.
  - Keeping this measures custom might provide better systems integration and maximum savings.

#### Dehumidification implications:

- Difficult to forecast water removal load per year
- No requirements in the law for this type of equipment
- Growers are responsible for carefully tracking water use and recovery. Source for data to improve future savings estimates.
- Recommend monitoring and iterative, annual data review to hone savings estimates.

#### Other opportunities:

- Air filtration, computing (UPS), fans, pumps, building envelope, daylighting, heat recovery
- Growers do have risk aversion to unfamiliar products and techniques
- Steep cost for licensing, insurance, and other start-up expenses are likely to pose an added barrier to funding measures

#### Q&A

- Kristol Simms: Does this information change anything that was discussed earlier on setting a baseline?
  - A: I don't think so, but I am interested to hear thoughts from SAG participants.
- Rob Neumann: There are different lighting requirements, and that would change the baseline requirement.
- Chris Neme: Regarding dehumidification, is it your sense that there might need to be additional capacity for dehumidification? Are there different sets of concerns with dehumidification based on differences throughout the facility?

- A: I do not think the HVAC requirements specified in the law are sufficient. From an efficiency standpoint you want to design a system that can handle the latent load from the dehumidification.
- Stacey Paradis: A whole building assessment is important because you have different equipment that impacts each other.
- Jennifer Morris: If the cultivator is not following the rules their license could be revoked, I wonder if this is true in MA as well?
  - Molly Graham: MEEA will look into this question.

**Ameren Illinois Cannabis Research**  
***Matt Armstrong, Ameren Illinois***

Status of facilities:

- There are 7 medical cannabis cultivation centers in Ameren IL territory prior to 2020.
  - Each facility is expanding in 2020 or working on expansion plans.
- Expecting an additional 7 facilities to be approved in summer 2020.
- Craft grow facilities will also be coming online, with one lighting application to date.
- Indoor hemp facilities also in development.
- We have had initial discussions with all seven cultivation centers, with expansion plans of up to 10 times current size.

Initial designs:

- Different level of efficiency in the works for each facility.
- Some operators embrace LED lighting, others do not.
- Combination of HPS and LED.
- Use of natural light to supplement (at least one facility).
- Operators current HVAC systems are not up to EE standard specified in law.
- Looking at HVAC technology that is VRF yet combined with resistant heat or inefficient gas heating.

Prospective projects in order of energy savings:

- Lighting
- CHP
- HVAC
- Daylighting controls
- Building envelope
- Greenhouse curtains
- Irrigation pumps

Ameren Illinois next steps:

- Coordinating a potential cannabis workshop(s) for owner/operators for first half of 2020, with ComEd.
  - Kristol Simms: The goal of this workshop is to drive the growers toward complying with the requirements in the law.
- Chris Neme: Information on projects to-date might have real relevance to the baseline and likely compliance. I wonder if information collected about these 7 facilities could be documented and brought to the TAC?
  - Kristol Simms: That may be useful information, but those facilities not planning to participate or to comply with the law would not be captured in this data.

- Chris Neme: Agreed, it would be the 'optimistic' look.
- Andy Vaughn: All of the growers we spoke to requested a confidentiality agreement/NDA and so using the information could be difficult. We are happy to try.
- **Next steps:**
  - Several questions were submitted through the webinar that we did have time to address – SAG Facilitator to follow-up with Guidehouse for responses to these questions.
  - If you have questions for Guidehouse about their research, reach out to Wayne Leonard: [wayne.leonard@guidehouse.com](mailto:wayne.leonard@guidehouse.com)
  - Opinion Dynamics is also completing research on cannabis; SAG Facilitator to follow-up on whether a summary should be scheduled at a future meeting.

## **Summary of Next Steps**

### ***CPAS Next Steps***

1. SAG Facilitator to follow-up with IL-TRM Administrator on venue for discussing CPAS recommendations related to the IL-TRM.
2. SAG Facilitator to follow-up with Ameren Illinois and ComEd on next steps for remaining CPAS topics – anticipated for discussion in the April 14-15 SAG meetings.

### ***Cannabis Next steps***

#### **MEEA Presentation**

1. SAG Facilitator to follow-up with IL-TRM Administrator on next steps for discussing cannabis baseline measures.
2. SAG Facilitator to follow-up with MEEA on engaging Dept. of Ag to further discuss cannabis opportunities at SAG.
3. If you have questions for MEEA on their research, reach out to Molly Graham: [mgraham@mwalliance.org](mailto:mgraham@mwalliance.org)

#### **Guidehouse Presentation**

1. Several questions were submitted through the webinar that we did have time to address – SAG Facilitator to follow-up with Guidehouse for responses to these questions.
2. If you have questions for Guidehouse about their research, reach out to Wayne Leonard: [wayne.leonard@guidehouse.com](mailto:wayne.leonard@guidehouse.com)
3. Opinion Dynamics is also completing research on cannabis; SAG Facilitator to follow-up on whether a summary should be scheduled at a future meeting.