

Illinois EE Stakeholder Advisory Group Fuel Conversion Working Group

Monday, June 21, 2021 (Meeting #5)

9:00 am – 12:00 pm

Teleconference

Attendees and Meeting Notes

Meeting Materials

- Posted on the [June 21 meeting page](#):
 - [June 21, 2021 Fuel Conversion Working Group Agenda](#)
 - [Combined Heat and Power Scenario Spreadsheet \(Guidehouse\)](#)
 - [Combined Heat and Power Scenario Spreadsheet – updated with gas scenario \(NRDC\)](#)
 - [Fuel Conversion Open Items \(prepared by SAG Facilitator\)](#)
 - [Fuel Conversion Memo: IL Attorney General's Office \(June 17, 2021\)](#)

Attendees (by webinar)

Celia Johnson, SAG Facilitator
Samarth Medakkar, Midwest Energy Efficiency Alliance (MEEA) – Meeting Support
Brian A'Hearn, CLEAResult
Matt Armstrong, Ameren Illinois
Rick Berry, Guidehouse
Joseph Birschbach, Leidos
Patrick Burns, Brightline Group
Sam Dent, VEIC (IL-TRM Administrator)
Ram Dharmarajan, GTI
Nick Dreher, MEEA
Michael Drennan, CLEAResult
Gabriel Duarte, CLEAResult
Allen Dusault, Franklin Energy
Jim Fay, ComEd
Jean Gibson, Peoples Gas & North Shore Gas
Pace Goodman, ILLUME Advising
Amir Haghghat, CLEAResult
Travis Hinck, GDS Associates
Mark Johnson, Steptoe & Johnson, on behalf of ComEd
Tarun Kapoor, Energy Solutions
Thomas Manjarres, Peoples Gas & North Shore Gas
Mark Milby, ComEd
Abigail Miner, IL Attorney General's Office
Jennifer Morris, ICC Staff
Phi Mosenthal, Optimal Energy, on behalf of National Consumer Law Center
Chris Neme, Energy Futures Group, on behalf of NRDC
Victoria Nielsen, Applied Energy Group
Eric O'Neill, Michaels Energy
Randy Opdyke, Nicor Gas
Joe Reilly, Applied Energy Group

Emma Salustro, ComEd
Tyler Sellner, Opinion Dynamics
Hardik Shah, GTI
Grant Snyder, IL Attorney General's Office
Jacob Stoll, ComEd
Mark Szczygiel, Nicor Gas
Taso Tsiganos, IL Attorney General's Office
Andy Vaughn, Leidos
Ted Weaver, First Tracks Consulting, on behalf of Nicor Gas
Ken Woolcutt, Ameren Illinois
Marilla Yaggie, ILLUME Advising
Brittany Zwicker, CLEAResult

Meeting Notes

Action items are indicated in **red font**.

Opening and Introductions

Celia Johnson, SAG Facilitator

The purpose of the June 21st meeting:

1. To provide an update on the IL-TRM TAC Fuel Conversion discussions and determine Working Group next steps.
2. To discuss follow-up items from prior Working Group meetings.
3. To continue discussing Combined Heat and Power (CHP) project examples, using three scenarios (following the current IL-TRM; using a source conversion; and using a site conversion).

Working Group Next Steps

SAG Facilitator Background on Fuel Conversion Working Group

- Shared background and overview of four previous fuel conversion working group meetings in 2021.

Sam Dent, VEIC (IL-TRM Administrator): Update on TAC Discussions

- Ideally, the SAG policy discussion on fuel conversion methodology would precede TAC discussions. TAC kicked off with the expectation that source calculation would be needed for determining eligibility of measures regardless of any new methodology determined by SAG.
- TAC is also looking to fix grid heat rate assumption issues. Guidehouse has a well-established reference case model which looks at current and future energy generation mix based on known and current legislation. Model was presented to TAC and potential to use this model for a forward-looking heat rate. Also discussed Guidehouse supporting TAC to consider future legislation that may impact grid fuel mix. In addition, discussed other sources options: EPA tool used for NEIs. NREL and ANL heat rate estimates. TAC is still deciding the best methodology for updating heat rate.

Question for Discussion: Since there is a pending energy bill in IL with language that may impact fuel conversion discussions, how should the Working Groups proceed?

- [Ted Weaver] The gas utilities are concerned it is not a good use of resources to continue fuel conversion discussions due to pending energy bill. Legislative change

likely to address screening and savings methodology. We propose sticking with last year's methodology.

- [Chris Neme] Agreed. In addition, it seems like there is a low number of heat pump projects so this has a small impact.
 - [Ted Weaver] A few hundred heat pumps in the North (not designated as fuel-switching) and individual CHP projects in the pipeline, but small number relative to this effort.
- [Jim Fay] The way we ended the discussion last year is agreement that methodology needed to be fixed. VEIC should develop a section of the TRM that addresses those issues.
 - [Sam Dent] Can you be specific on what we agreed was wrong, was it heat rate?
 - [Jim Fay] That was the biggest issue. Qualifying measures that look at the heat rate for the actual measure going forward rather than out of date heat rate.
 - [Chris Neme] Most important part of "pencils down" is the policy questions. I think it's a good idea to update the heat rate input for the current TRM formulas without having to revisit policy questions and formulas before legislation is passed or not passed.
 - [Jennifer Morris] Are gas line losses (an issue previously raised) included in the formulas?
 - [Chris Neme] We haven't made much headway on the policy questions that affect the formulas, and that's what I think we should pause.
 - [Taso Tsiganos] Good points have been made. Will discuss internally on pausing policy discussions.
 - [Matt Armstrong] Ameren will discuss internally.
- [Chris Neme] Jennifer raised two issues- 1) Heat rate not capturing marginal heat rate forward looking. But this doesn't affect the formulas, it's just an input; and 2) Line loss rate. Is there a line loss adjustment factor for electric and gas utilities? Related to heat rate.
 - [Thomas Manjarres] I think that the way we have been discussing future heat rate is a policy question, so I would like to have consensus on this. On a previous call, there were strong opinions on policy of forward-looking heat rate.
 - [Sam Dent] I agree there would be difficult to reach consensus on Guidehouse reference case for heat rate input. It sounds like estimate of future based on everything we know is plausible, but the other aspect, consideration of policies that do not yet exist but can be forecasted would be difficult to reach consensus on.
 - **PG-NSG (Thomas Manjarres) will share written policy questions related to current vs. forward-looking heat rate.**
- [Jennifer Morris] Proposes having multiple options on the table. Maybe VEIC can develop that aligns with the current legislation, a proposed resolution for ComEd's concerns, as well as options for moving forward based on different scenarios of potential new legislation.
 - [Chris Neme] It depends on the bill that could pass. I don't think we should have something from VEIC on scenarios if a bill does or does not pass. If we do something, it should be a potential update to the heat rate assumption in addition to electric and gas line losses. Also, there are still policy questions on whether we are looking at the average heat rate over the life of a measure or heat rate in the year a measure is installed.
- [Sam Dent] From my perspective, other than heat rate, there are other formula-related issues that need to be addressed. Using the Guidehouse reference case would be more

difficult to contest than other models. More than happy to have limited discussion on updating heat rate for TRM V10, acknowledging that if legislation passes and codifies source, we revisit and adjust.

- [Jennifer Morris] If legislation passes, would this impact CHP methodology within the TRM? If not, maybe the heat rate discussion is still relevant in the context of CHP.
- [Chris Neme] I don't believe section (b-27) (proposed legislation) addresses gasification, in other words opposite of electrification. The issue of CHP savings would not be affected by the pending legislation; it may be worth discussing.
- [Ted Weaver] There are a number of issues with the CHP calculations. One being the carbon calculation, the second being the undervalued gas savings. Current method discounts gas savings. We should revisit algorithm. Nicor Gas will discuss internally, regarding pausing policy discussion + continuing portion of TAC discussion.
- [Sam Dent] Regarding the issue of the heat rate, my position is we shift from e-grid to Guidehouse reference case in the interim until we've established site or source. I'm fine with keeping the heat rate or improving the heat rate in the interim. I don't see why we shouldn't address the heat rate and technical items.
- [Thomas Manjarres] One policy question I have for this group before we agree on the heat rate methodology. My understanding is the purpose of updating heat rate is to calculate lifetime energy savings of fuel switch measures. Now we've introduced a source energy screening criterion. If we choose source energy, are we talking about first year or lifetime source energy savings? Or demonstrate source energy savings during the lifecycle that it's implemented? These are initial questions. We need buy-in from the SAG on source energy screening and first year vs. lifetime savings.
 - [Jim Fay] Is this a new policy question?
 - [Thomas Manjarres] Yes, as a result of the forecasting discussion in the TAC.
 - [Jim Fay] Why would this be different than last summer, when we determined that a measure's avoided emissions should be done over the lifetime of the measure?
 - [Thomas Manjarres] That is one option. Because this is the first time that this has come up in context of fuel conversion, the policy group should consider before the TAC does the calculation.
- [Chris Neme] I agree on the need to address these policy questions. I don't think that's the only reason for having Guidehouse do the forecast. Two other reasons – 1) Better than looking backwards at 2018; 2) Addresses e-grid concern of marginal generation heat rate
- [Phil Mosenthal] Key policy question – are we going to use source savings? If so for what?
- [Thomas Manjarres] The memo from the AG's Office makes it clear that the gas utility's directive is to save total BTUs. Right now, a CHP measure saves BTUs in the form of natural gas and electricity, however, the algorithm as written, the gas utility only gets to claim the gas savings. With the understanding that the ideal CHP measure reduces total BTUs, gas utilities should claim savings for total BTUs.
 - [Chris Neme] Thomas' question of whether gas utilities can claim gas equivalency savings of electricity- this is a policy question.
 - [Ted Weaver] I think we can have both technical and policy discussions about this.
 - [Rick Berry] This could have broader implications beyond fuel switching. There are measures that save both fuels that aren't fuel switching.

- [Rick Berry] If we're going back to square one for policy questions, it seems like it doesn't have to be a source or site conversion. We can use the program-level value of a kWh or therm. It might be helpful to discuss what is the value of a kWh and therm?
- [Phil Mosenthal] Agreed, or what measures are even eligible and if they are eligible, how to proceed.
- [Thomas Manjarres] There are measures in the TRM that gas utilities are implementing that have gas and electric savings. These fuel savings are factored in cost-effectiveness testing (TRC). The question is, why aren't we allowing gas utilities to claim total BTU savings when it's factored in C/E testing?
- [Chris Neme] I think that's a policy question, although I agree that total BTU savings are factored in the TRC as they should be. I think it's a fundamental policy question of whether gas utilities can claim kWh equivalent savings.
- [Ted Weaver] We can allocate savings multiple ways. We can limit it to just fuel switching and draw the boundary. That way it is just a cell in the various fuel switching algorithms. This is one approach that would not open pandora's box. This would be a simpler path.
- [Chris Neme] I think Ted makes a good point, to place boundaries, but these are also policy questions. We can and should have conversations on them.
- [Jennifer Morris] For site vs. Source question, we should include consideration of carbon equivalency.
- [Phil Mosenthal] Clearly one question on eligibility is site vs. source. I think there are also questions around what kind of measures should be eligible regardless of that, for electric and gas.

Follow-up:

1. Next steps due to pending energy bill:
 - Proposal for SAG to pause Fuel Conversion Working Group policy discussion, related to site vs. source and IL AG legal analysis
 - VEIC recommendation for TAC Working Group to continue discussing a few technical questions, including determination of heat rate and treatment of gas savings for CHP
 - IL AG; ICC Staff; Ameren IL; ComEd; Nicor Gas, PG/NSG will discuss proposed next steps internally and follow-up (prior to July 1st TAC Fuel Conversion meeting)
2. Additional policy questions to discuss July 15th:
 1. PG-NSG (Thomas Manjarres) to share written policy questions raised related to current vs. forward-looking heat rate
 2. Should eligibility be calculated at site or source? Should discussion of this issue be paused due to pending energy bill? *Note: "Pausing" means keeping as a source calculation (current IL-TRM).*
 3. Are savings constrained by the 10% limit in (b)25? Should discussion of this issue be paused due to pending energy bill?
 4. Should eligibility be constrained to measures that provide customers monetary savings (either bill savings or total lifecycle cost savings)?
 5. Can the gas utilities claim kWh equivalent savings?
 - Evaluation consideration: If SAG decides that gas conversion is allowed for fuel switching measures, can the same be allowed for other measures that have both fuel components?
 6. If proposed legislation is adopted, should CHP also be calculated at site? (Question raised by ICC Staff after meeting)

3. Process for responding to additional policy questions:
 - Questions will be circulated to SAG Working Group with request for responses from interested parties
 - SAG Facilitator will create comparison table
 - Discuss responses during July 15th SAG Working Group meeting
4. Additional questions that may need to be addressed in the future:
 - Carbon vs. BTU savings framework for CHP
 - Evaluation consideration: If the gas utilities convert electric savings, there are savings accounting issues that should be considered, including avoiding double-counting.

Fuel Conversion Follow-Up Items

- **Follow-up on IL AG legal analysis memo:**
 - Proposal to pause discussion on this due to pending energy bill.
- **Follow-up on ComEd legal position on 10% cap:**
 - [Jim Fay] We don't have anything to add to our initial comments. We observed that in (b-25), it would make sense to apply all provisions and not others. If the group of three paragraphs in b-25 provides direction for this, then the 10% cap applies. If we are looking elsewhere in the legislation for guidance, then we think it's a question of whether the 10% cap applies.
 - [Jennifer Morris] It seemed that, at least ComEd, does think (b-25) applies, then the cap applies.
 - [Jim Fay] Some of the stakeholders have argued that for consistency with the (b-25) section, we should be looking at site savings. We think that if that's the rationale then the 10% cap should apply. If that provision doesn't apply and we are looking elsewhere to inform site vs source calculation, then the 10% cap should not apply.
 - [Jennifer Morris] It sounds like ComEd doesn't have a strong position on whether the 10% cap applies.
 - [Jim Fay] If we're going to go with site while not specifying fuel conversions, but **in order to be consistent, the 10% cap should apply.**
- **Follow-up on participation and customer savings issue:**
 - This was identified as a policy issue that interested parties will respond to for discussion in July meeting.
- **Follow-up on proposed definition of fuel switching (drafted by NRDC and NCLC):**
 - [Sam Dent] Would this definition be incorporated in the TRM? To what audience is that definition relevant?
 - [Phil Mosenthal] I think the definition will matter for the TRM, relevant to calculating savings for a fuel switch or whether the TRM has to document it.
 - [Chris Neme] Depends on what it's being used for, unsure at this point.
 - [Sam Dent] Are there any objections to the proposed definition?
 - [Ted Weaver] We definitely object. The definition places constraints on the evaluator, you say it only applies to existing, not new construction, and we don't have this constraint on any other measure. It assumes that all measures are not fuel switching when really most are not fuel switching Policy should not assume this.
 - [Phil Mosenthal] Is there another issue besides new construction?
 - [Ted Weaver] Yes, the definition has assumptions that are best left out of policy.

- [Phil Mosenthal] I don't disagree that one could argue that an evaluator trying to understand whether a fuel switch occurred might not be accurate, but from a program administrator perspective, I'd want clarity on if a measure is going to count as FS.
- [Ted Weaver] We should allow the evaluator to allocate their own resources.
- [Sam Dent] The TRM does specifically say that for new construction baseline, you provide all the algorithms in the TRM to allow you to determine savings from any baseline.
- [Phil Mosenthal] I'm not opposed to modifying. But I want to point out there are lots of items in the TRM that have been decided this way, ex NTG will always be 1. Early retirement instead of evaluator probing. Willing to consider where new construction makes sense. The principal that Chris and I were trying to focus on is that we've always paid rebates for heat pumps. If you're just doing an upstream program, we don't think we should be counting savings for a fuel switch. Even if a customer had a furnace before. If there's better ways to define that, we're open to them. But we wanted to touch on the logic of program influencing the fuel switch.
- [Chris Neme] Phil's point also applies to propane end-use.
- [Thomas Manjarres] It may be counterproductive to spend time on this definition before we discuss the memo from the AG's office because the legislation is being interpreted as not allowing for electric utilities.
- [Celia Johnson] The proposal was not to discuss the AGs memo because it would be impacted by potential new legislation. We can discuss at the next meeting. Are stakeholders comfortable with this?
- [Chris Neme] Yes. I worry we started with parking policy questions and instead we added policy questions. I think that the suggestion we park the IL AG's memo and site vs source is the way to go to hone in on a smaller subset of things that need to be addressed. Most recent draft of legislation would change IL AG's analysis.
- [Thomas Manjarres] I believe that's true for the electric utilities but not the gas utilities. The latest draft of new legislation has left gas untouched. I think it's still valuable to discuss the implications for gas impacts of AGs memo.
- [Phil Mosenthal] A fuel switching definition will be needed if we address the policy question on whether gas utilities can claim electric converted savings from fuel switching.
- [Taso Tsiganos] Will discuss internally and follow-up. The memo speaks mostly to (b-25) on the electric side and less-so on gas.
- Next steps: [Celia Johnson] Discussion on definition of "fuel switching" paused for now. Potential discussion of IL AG legal analysis for gas at July meeting.

Fuel Conversion Scenarios – CHP

Rick Berry, Guidehouse

Chris Neme, Energy Futures Group, on behalf of NRDC

Guidehouse CHP Scenarios:

- Ran three scenarios based on site vs source. Given those combinations, qualifying and claiming based on site would rarely result in a qualifying project. Using source for eligibility and site for claiming would be the status quo and does incorporate the

externalities in the eligibility but claimed savings consistent with other EE measures. And eligibility on site basis and savings on source basis would be the worst of all worlds, rarely qualifies a measure. Our analysis showed status quo as best approach.

[Jennifer Morris] I think it would be helpful to finish NRDC's example. This example doesn't use carbon equivalency.

[Ted Weaver] Can you describe the spreadsheet again?

[Rick Berry] Looking at columns b, c, d, rows 3 and 4. Column b is the current approach. When you qualify at the source, you're going to qualify more projects. Column c is the second scenario.

[Ted Weaver] Back to column b. In this scenario, the unit replaces 583k kWh.

[Rick Berry] No that's the claimed savings. Not generating. However, the TRM algorithm was working. Net allocation.

[Ted Weaver] That one does include carbon equivalency if it uses this algorithm.

[Chris Neme] If that 583 is a CO2 equivalency number, I don't see how it triples when you go to source. CO2 is in between site and source.

[Ted Weaver] What is happening at column c?

[Rick Berry] My understanding is the TRM is claiming savings at the site level.

[Chris Neme] Not at site.

[Phil Mosenthal] If it were, you would be claiming negative savings.

[Rick Berry] I believe I used an h-grid of the conversion factor.

NRDC CHP Scenarios:

- Spreadsheet was updated following May 24th meeting to add a gas-only scenario.
- The assumptions in column c, cells 9-25 are one of the five example CHP systems that Stefano and I used when we first developed the CHP TRM method, with some small tweaks, which show up in operating hours. 850 kW system. You can see the other input assumptions. In rows 29 and 30, if there's an increase or reduction in fuel and impact. If you save 5 mil kWh, multiplied by 34, you get approx. 17 million BTU site reduction. But you had to burn a certain amount of gas. You saved displaced gas otherwise needed for space heating. Heat rate is not a proposed number, it's illustrative. Those calculations get reflected in the five scenarios below.

[Phil Mosenthal] The difference between scenarios 4 and 5 is a different conversion factor?

[Chris Neme] Yes.

[Phil Mosenthal] Is the distinction that scenario 5 is using whatever CO2 equivalent value from several years ago. If we updated the approach in the TRM we would end up with your scenario 4?

[Chris Neme] No, depends on the assumptions you're using. Second difference is that when we came up with the TRM years ago, we looked at 5 different sizes of CHP. We did the analysis for each across four or 5 efficiency levels. We tried to come up with a simplified formula that would produce a reasonable avg across that population. Some efficiencies over and underestimates. You could require custom calculation instead. If that was done instead, the only difference would be marginal heat rate and heat rate assumption.

[Jennifer Morris] I thought the current TRM allows custom calculation?

[Chris Neme] No, the formula in the TRM is quasi-custom.

[Phil Mosenthal] Would it be safe to say that scenario 5 would get closer to scenario 4 if we were to update CO2 equivalency.

[Chris Neme] Yes.

[Q] Is there a penalty for increased gas use in the formula?

[Chris Neme] Yes.

[Question] Isn't the penalty a custom input?

[Chris Neme] I believe the current TRM would take us to 5 bil kWh of electricity generated, multiplied by .65 plus thermal efficiency gains. So the only custom input is the total CHP efficiency and kWh output.

[Ted Weaver] But that efficiency value includes the f-value Rick was talking about

[Chris Neme] Yes. Efficiency is a function of the thermal output of the system divided by total energy input in gas BTUs. 50 billion from c24. It's the heating output.

[Ted Weaver] C24 is a custom input, correct?

[Chris Neme] Yes. In this case, it's a product of operating hours and capacity and generating efficiency. You need to know what all those numbers are in order to estimate CHP efficiency. You need to calculate all these things in custom inputs to get kWh output and efficiency level to input in simplified formula.

[Taso Tsiganos] How many CHP units are we talking about?

[Ted Weaver] There's a handful. Between 0 and 2 a year.

[Taso Tsiganos] So if I'm understanding this right, if a new CHP system is installed next year, with a more efficient unit, we would be underestimating savings for the unit?

[Chris Neme] Whether we're over or underestimating, the current TRM formula would be a function of the size and efficiency of the system installed. Which of these scenarios do you think is the right one.

[Q] The simplified formula is preventing you from having to do the calculation in e29 – why?

[Chris Neme] Yes. Maybe it should all be customized based on rows 9-25. Looking at these numbers, I was surprised that the numbers deviated as much as they did. I think there's a case to do carbon equivalency the way row 39 does it as opposed to TRM.

[Q] Particularly if the grid CO2 number needs to be updated, which would impact how you did scenario 5.

[Sam Dent] Question regarding Ted's comment earlier on gas-only discounted savings. Which scenario?

[Chris Neme] I think Ted is arguing for scenario 3 or row 38 or scenario 4 row 39. If you did it either in source BTU or CO2 equivalency. Row 38. Using source efficiency, you would claim a lot more gas savings. You would claim a lot more gas savings and gas therm equivalent. The CO2 equivalency number is similarly large. If you allow a kWh savings to be converted to gas therm equivalent, you would get a lot more gas savings.

[Q] The difference between 4 and 5 includes another issue – electric savings not being captured in row 5

[Chris Neme] That's correct.

[Ted Weaver] Are you saying that in all these scenarios, you're not including reduction on electric side?

[Chris Neme] No. The current TRM (scenario 5) only accounts for increased efficiency. Row 1 also does the same.

[Ted Weaver] I think that's what Sam was trying to get at – in the current TRM there's an extra constraint on gas.

[Chris Neme] So earlier, Ted you were saying we should be closer to 4?

[Ted Weaver] Yes or 3. Something like 3 or 4. That's how we do it on the heat pump side. In CHP there's an extra constraint on the gas side.

Closing & Next Steps

- Feedback on proposal to pause policy discussion on site vs. source due by Wednesday, June 30.
- Responses to additional policy questions due by Friday, July 9.
- Working Group meeting #5 scheduled on Thursday, July 15.