

## Stakeholder Meeting #1 January 10, 2022 Comments

- How are the environmental costs accounted for?
- What is included in "other abatement strategies"?
- What is the specific definition of "renewable natural gas"?
- as a companion question to the above, will you follow the Center for Resource Solutions definitions?
- Will the study consider carbon capture from RNG "cleanup" (removing the CO<sub>2</sub> from the methane)?
- Will this study consider instances of on-site use of RNG without injection into the pipeline, where it is used for heating or combusted on-site for right where it is being created? \*for electricity
- Will you please talk about the cost effectiveness tests you will use for determining feasibility and achievability. Which costs are considered? Which benefits are included in the study? Does the test include health impacts, jobs, and other non-energy costs/benefits?
- Will methane already being captured and used (e.g., landfill gas used to produce electricity today) be considered "available potential"? If so, will the net-GHG impact be calculated net of increased emissions on the grid to offset the loss of power?
- Has the study factored in the potential for methane leakage along the "waste-to-wheel" path (during storage, transfer, or transport)?
- The study should consider impact on feedstock potential of separate societal efforts to reduce some of these feedstocks (e.g., MSW, food waste, leaving more crops in situ to enrich soils, etc.)
- Will the study take into account the different CAFO operation set-ups that make them more or less suitable for RNG? Or the different manure types that make them more or less suitable for RNG? For example Pork – feeder pigs are most often raised over underfloor storages making it difficult to collect "fresh" manure for anaerobic digestion and Poultry (chickens & turkeys) – lower moisture content makes the material less desirable for digestion which typically is used for liquid or semi-solid material.
- In Michigan we already use biomass for renewable energy. Similar to question above about landfill methane already in use for energy production. How will you account for existing sources that are already being harnessed.
- Hopefully not another study on the great technical potential of Ag and forest residues, MSW, and energy crops that is simply uneconomical in the end.
- Manure-based anaerobic digester economics of scale favor industrial livestock operations. By turning manure into a cash crop, ADs might incentivize the expansion of existing CAFOs and the construction of new ones. There will likely be unintended consequences, especially if CAFOs continue to proliferate to get in on the RNG bandwagon. And rural American communities will bear the brunt of the myriad and well-documented adverse environmental and public health impacts associated with CAFOs.

- You stated earlier that you are documenting the total amount of RNG available/achievable, and that could include RNG that could be burned on-site to produce electricity or for other purposes rather than injected into the gas pipeline system. Will the study break down total potential into (A) potential likely to be available for injection into the gas pipeline system; and (B) potential more likely to be used on-site and not injected into the gas pipeline system? Also, will the study break down total potential into (1) potential already being captured; and (2) the amount of new potential?
- What \$/ton costs are being assumed for AD-manure, LFG, or WRRF in each of these groups?
- At some point in the near future, natural gas may be heavily taxed. How would that scenario affect your calculations.
- Is there an intent to capture geographic relation where farms are close enough to be combined? One farm may not be sufficient for RNG to be economical, but 2+ farms in close proximity may be feasible to pipe manure/biogas to a central RNG production/cleaning site. (to the point of filtering out a site "too small")
- It seems like you will be estimating costs of production and delivery. However, in a market in which there is significant demand for RNG, the market will create a clearing price that will be paid for all RNG (including RNG that costs much less than the clearing price - those producers will just get larger profits). Do you agree with that? If so, how will you address that in your analysis of costs relative to alternatives? Will you create a supply curve for RNG and note that the market clearing price will be a function of how up the supply curve demand for RNG goes?
- Does the cost per MMBTU include any federal tax credits. Explain if yes.
- Are there federal tax credits for synthetic gas ?
- Are most of the RNG facilities currently producing electricity and using or selling the power?
- Does the study capital costs analysis factor in federal (REAP & EQIP) grants?
- What is the experience with current RNG facilities. Are they profitable and sustainable?
- Will these GHG emissions be calculated on a lifecycle basis or only based on the end use?
- When estimating GHG impacts, is there a way to distinguish feedstock biogas that would have been flared vs. vented to the atmosphere?
- In the lifecycle approach for manure, what is included? The production emissions of the manure (grain production to CAFO operations to manure production)?
- Under the combustion approach, is RNG from dairy manure considered to have the same GHG emissions as fossil methane, because the emissions from combustion of the two different molecules of methane are the same? If not, I'm confused by what you mean by "combustion approach" (if there is no combustion of manure in the reference case).
- Does the lifecycle GHG emissions for manure include the feedcrop emissions?

- For landfill gas currently burned for electric generation, is the increase in emissions on the grid from diverting gas to a pipeline considered (i.e., increasing generation from other sources, some of which would be fossil fuels)? How does that work?
- For landfill gas currently burned for electric generation, is the increase in emissions on the grid from diverting gas to a pipeline considered (i.e., increasing generation from other sources, some of which would be fossil fuels)? How does that work?
- This question is for MPSC staff and commissioners, and may require discussion outside of this workshop to address. I think a wider issue being highlighted by multiple comments is that this methodology assumes that facilities are able to fully externalize their social and environmental impacts. Meaning, the outputs of this study could drive development of RNG that pushes those health and environmental costs onto communities. All other things being equal, that is what tends to happen. While I can appreciate the fact that no one study evaluates everything, this is a dangerous limitation for communities already impacted by the feedstocks in question. It does not seem that an environmental/social impact analysis (beyond GHG emissions) is inside ICF's wheelhouse or the scope established with the Commission. For the MPSC staff or Commissioners present - do you plan to conduct a health and environmental cost analysis of RNG development to address these methodological limitations?
- If landfill gas is being used to generate electricity today, it is displacing other sources of electric generation. If that same landfill gas is no longer used to generate electricity and instead used for home heating as RNG, it would seem that you shouldn't claim the full credit for displaced CO2 emissions (from flaring) because it has to be replaced on the grid with other sources of electric generation, some of which will be fossil fuels. In other words, in such cases, the emission reductions from landfill methane that was just being flared will be greater than the emission reductions from landfill methane currently being used to generate electricity, right?
- How do you plan to calculate lifecycle GHG emissions? Will this methodology use the GREET model? Additionally, will land use change be incorporated for bio based feedstocks?
- When comparing to electrification alternatives like heat pumps, assumptions about how clean the grid will be seem essential. What will be assumed about the growing decarbonization of the MI grid?
- Also, when comparing the costs of RNG to heat pumps, what cost will you be using for electricity? You should use the marginal cost of added load (which will be much less than electric retail rates which have lots of historic and fixed costs embedded in them). Will you use electric utility avoided costs, or do you plan to use retail prices?
- Does the calculation factor in compression and transmission costs? I would expect the candidates close to a transmission line may be more cost effective than one further from the transmission line. Would the compression use the methane as fuel or would it be electric. Are RIN credits going to be covered in the analysis.
- What are the environmental impacts of these projects? Can MI afford more degradation of our water, air, land,, disadvantaged populations, rural communities?

- Take a look at the eGrid (Power Profiler) data from EPA. Different regions of the country have substantially different fuel mixes (and therefore different carbon emissions). Michigan is RFCM. Interesting data: <https://www.epa.gov/egrid/power-profiler#/>
- I move that we the stakeholders push MPSC to fund a thorough environmental and public health impact study/assessment to complement/balance the ICF study, and suggest that the study be conducted by Johns Hopkin Bloomberg School of Public Health, a leader in such analyses.
- Is there a list of contact information of the attendees here? I think there should be some further discussion. Is that something MPSC could provide from the back-end?
- If RNG is not economical for consumers against traditional pipeline sources, how do you plan to justify the building of RNG facilities or what is the objective of your report?
- How do you plan to quantify the benefits of decarbonization?
- It seems the greatest value for CAFOs and gas pipelines are the carbon credits to allow them their claims of zero emissions. Will you be accounting for carbon credits?
- What is the experience with current RNG facilities. Are they profitable and sustainable?
- If you could briefly summarize, what are the key distinctions of this study, when compared to similar studies completed for AGF, or by ICF for other States. What do you see as uniquely Michigan in this effort?
- We talked about a lot of things related to methodology that seem to potentially benefit from are more detailed discussion of specific assumptions, sources, approach, etc. The discussion of electric grid emissions rates (for computing comparative costs per ton from electrification), marginal costs of adding load to the grid, etc. are just a few examples. For those interested in diving more deeply into some of these details, could we add a step - before the draft report review - in which some of these things can be worked out ahead of time (rather than after analysis has been done and it is harder and more expensive to redo things to address feedback)?
- Follow-up question: Will your model attempt to separate RNG energy value and the market value of the associated RECs? Or will the market value of RNG only be bundled in your model?
- how will the study ensure there isn't double counting in abatement? So if RNG is already going to CA or another state and counted towards CA's GHG abatement will there be a way in this study to show that and not "count it" towards MI's abatement potential.
- Part of this effort will undoubtedly include the potential benefits of RNG production beyond reducing GHG emissions. For example, improving organic waste management, reducing odor, producing organic products such as fertilizer, and generally serving as a first step toward better managing some of these feedstocks which otherwise have environmental issues. Other states (e.g., CA) also view RNG as a primary strategy for revolutionizing the way organic waste is managed. Does ICF or MPSC have a plan for which non-energy and non-GHG benefits will be discussed in the report?
- following up on the question about other similar studies - understanding that MI data could be different, are you aware of any regulatory or legislative recommendations/changes that occurred following studies like these?
- did the Chair explain in the beginning how the report may be used to drive policy?

- Thank you for the presentation. This was helpful relative to the outline that was posted. However, we still have a number of questions critical to this study that need to be discussed through additional public process, and this process should occur before the study has gone too far and baked in the methodologies. Minnesota is undergoing a similar study and is holding 5 meetings on GHG accounting methodology and 5 meetings on cost benefit analysis. These are complicated issues that should be discussed with stakeholders. For example, we need further explanation on the electric grid emissions rates (as Chris mentioned), the types of constraints placed on resources as they move from technical to achievable, and Michigan-specific data sources. We also have concerns that the GREET model does not appropriately model strategic electrification. This is a great start but there are a number of topics areas that need to be discussed prior to the study's development.
- As I review the Report Outline, I would have liked to see a section on how Michigan can incorporate aspects of RNG programs in other states. California, Oregon, Wash, etc have (or are planning) robust, well-constructed programs that set the 'rules of the road' for RNG. I'd especially like to see ICF provide a set of recommendations for how Michigan can support a market for RNG. An effective market mechanism is the only way that investors will commit the substantial capital needed for RNG projects.
- I would like MPSC to respond to my earlier motion: I move that we the stakeholders push MPSC to fund a thorough environmental and public health impact study/assessment to complement/balance the ICF study, and suggest that the study be conducted by Johns Hopkins Bloomberg School of Public Health, a leader in such analyses.
- Second Sam's point. I've seen some project proposals that could actually **improve** environmental and social outcomes, unlike the majority of RNG projects. As much as I'm concerned about how projects can cause harm, I also want to explore places where anaerobic digestion technology in particular can be utilized to mitigate environmental harms.
- I don't think this is a formal Commission meeting where decisions can be moved and made. But perhaps we could have a follow up meeting with the Commissioners and/or staff to discuss how that could happen? Commission Peretick, is that a possibility?
- The "identifying barriers" item looks to be included in the draft report but wasn't really touched upon in the presentation. How might that be handled?
- Any idea of the average project payback time for large RNG projects since 2014?
- Commissioner Peretick responded to Cheryl's motion. This workgroup is in response to the Legislature's request. See slide 9 of in the current presentation for the wording in PA 87. Cheryl's concern is valid, and can be incorporated in Section 6 of the report.
- I want to come back to the issue of what you will be assuming about electricity costs associated with electrification alternatives to RNG. Utility avoided costs (e.g. those used to assess cost-effectiveness of efficiency measures) are much lower than retail rates (especially off-peak, which is likely to be the case in the near to mid-term at least). Will you use such avoided costs - as estimates of the actual costs to the grid of adding load -

when calculating the cost per ton of GHG reduction for electrification measures? Or will you be using electric rates? I don't think I caught the answer. If the latter, I have grave concerns that the result will not be an appropriate apples-to-apples comparison.

- Legislative boilerplate is pretty clear that cost per abatement of alternatives needs to be included in the study. Doesn't seem like something that can be left out or not done robustly per the legislative requirements
- Do you think RNG projects should be evaluated using RSG (Responsibly Sourced Gas) criteria? This would help to address some of the social issues raised by Jackson and others.
- I don't like the "hard lines" on the Michigan's Prosperity Regions. I would like to see something with the flexibility to criss cross those boundaries. You may find that resources lie just outside the set range that would change the feasibility.
- Will you be considering non-energy benefits of RNG and the alternatives in the study? For example, criteria pollution reduction, jobs, etc. If yes, which non-energy benefits?
- Maybe I missed it, but what is the general scope of the study as to scenario timelines? The Governor's decarbonization goal is for 2050
- Do you know of any upcoming changes to EPA or California RNG regulations and credits?
- Comment for Commission- I'd like to echo the need for stakeholders to see the methodology and have further opportunities to refine it.
- Comment related to the last section... In thinking through some of the issues presented by folks as "barriers", we should consider that RNG facilities are more likely to serve as a benefit than they are to exacerbate existing environmental issues. On behalf of those who are working to make these environmental improvements a reality, we should be careful about loosely including certain disbenefits in that category—our goal being to realistically account for these various things, and to not ignore significant potential for improvements beyond GHGs.
- If stakeholders have Michigan-specific data or studies that could be useful to the study, can we submit them to ICF and the commission? If yes, how?
- Comment for commission- I have a lot of concerns about the use of data from other states around cost for alternatives. Since this is a clear part of the boilerplate I think we should do some thinking on how to "beef up" this scope for ICF so they can do this portion of the legislatively requested analysis robustly
- I am not opposed to anaerobic digestion. The technology has a role in energy production. I am concerned about on-farm digesters on CAFOs with poor environmental and regulatory track records.
- California ARB had a recent workshop on "Potential Future Changes to LCFS program". See [https://ww2.arb.ca.gov/sites/default/files/2021-12/LCFS%2012\\_7%20Workshop%20Presentation.pdf](https://ww2.arb.ca.gov/sites/default/files/2021-12/LCFS%2012_7%20Workshop%20Presentation.pdf)
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