

Hinkley Project TAG Meeting Minutes

Evaluating and Optimizing the Value of Anaerobic Digestion of Food Waste

September 20, 2023

11 am – 12 pm

Zoom: <https://ufl.zoom.us/j/92435299257?pwd=UTduVE9HMDBFZk1URzEvU0FqYWZQT09>

In attendance: Ana Martin-Ryals, Nikolay Bliznyuk, Jithran Ekanayake, Tim Townsend, Steve Laux, Mike Heimbach, Eri Neihaus, Patrick Irby, Soren Jorgensen, Justin Stankiewicz, Del Bottcher,

Agenda and Notes:

- **Introduction of project team and TAG members**

Everyone in attendance introduced themselves and their connection to the project. The video recording was started late after Ana Martin-Ryals (PI), Jithran Ekanayake (PhD student), and Mike Heimbach (City of Gainesville, Sustainability Manager) had already introduced themselves.

- **Overview of project motivation, goals, and current status**

Ana gave a brief presentation describing the project goals and current status. Project began on Sept. 1, 2023, with student recruitment and start of literature review. One challenge has been finding literature with comprehensive substrate characterization data. This issue and suggestions were discussed with the TAG. Project team has set pace of reviewing 8 papers per week with target of 100 papers reviewed by mid-December (end of Fall semester). Machine-learning model development will begin this fall, concurrent with literature review.

- **Discussion and feedback from TAG members**

Question: (Eric) Table 1 on slide 8. Is the methane yield time dependent? Does experimental work represent realist timeline, or extended timelines that would allow substrate to fully biodegrade? And as a result, will the sensitivity analysis/ML model that you are trying to develop apply to 80-90% substrate conversion rate, or real-world degradation rates and retention times, closer to 20-30 days.

Answer: (Ana) Yes, substrate degradation/methane production is time-dependent and there is a definite trade-off between leaving the substrate in the digester long enough to fully degrade (retention time) and digester volume/capital cost. Literature experimental data is reported over time, and typically reflects realist retention times of 20-30 days, but may report performance beyond that as well, sometimes up to 60 or 90 days. There is work in the area of extending solids retention time while minimizing reactor volume by incorporating AD with membrane filtration (anaerobic membrane bioreactor, AnMBR) can achieve high yields with shorter RT and smaller volume.

Suggestion: (Patrick) Waste-composition studies may help with data search.

Question: (Ana) Does Soren have access to datasets for real world full-scale digesters?

Answer: (Soren) Yes, as well some of the uncaptured knowledge on tricks of trade for operating on a digester for practitioners. Soren will ask around on the operation side, particularly a Danish IT company called Grainit who might have datasets.

Comment: (Ana) Ana met a contact at WWTP in St. Pete where they are co-digesting FOG (fats, oils, and grease) with wastewater biosolids. Contact said they would be willing to share performance data.

Question: (Tim) What can TAG do best to help with the project?

Answer: (Ana) Access to real world data on full-scale digesters would be most helpful. When it comes to the economic analysis, Justin, Amir, and Soren's input on the nuances of economic incentives and marketing etc. will be helpful.

Question: Should anybody else be on the TAG?

Comment: (Eric) The economic analysis that NREL did for GRU is about to be updated, so there might be some money in the IIJA (Infrastructure Investment and Jobs Act). Without RINs credits there is no way this could make money, but if there is anyone on the team who is knowledgeable about the IIJA legislation and eRINs credits that would be helpful. Those credits get any project over the hurdle and without that it is hard to find financial justification.

Answer: (Justin): The IRA (Inflation reduction Act) is tremendously helpful. Offers a 30% tax credit for RNG projects, and a 10% bump if it is domestically produced. The IIJA doesn't really apply to RNG, it applies to CNG and alternative fuel credits. Could help with construction and conversion of RNG/CNG vehicles. The EPA released its new legislation, eRINS were excluded...

For full discussion refer to meeting recording.

- **Presentation of [website](#) for feedback**

After the meeting, Amir noted via email that he needs to be added to TAG member list, and provided GreenTech logo to add to website.

- **Other business**

None

- **Adjourn**