

Biogas Operations

There was a great turnout for this session... I would say we had AT LEAST 30 people in the group. The various sectors were well represented. We had farms, WWTP, and landfills in attendance (not sure if there was an industrial).

There were 3 main overarching themes of discussion: (1) Gas Cleaning/Conditioning; (2) [Renewable Natural Gas \(RNG\)](#) (BioCNG representative was in this group); and (3) Nutrient Trading (P&N)

Topic One: Gas Cleaning/Conditioning

- **Media** - someone brought up media and said it is fire hazardous and that filter media can be flammable. But, there was someone who contradicted that statement so I think it needs more research.
- **Ferrous Chloride** - Rosendale treats H₂S with this.
- **Formaldehyde** - There was a brief mention of this. I assume it was due to similar issues as John Welch has raised before
- **Gypsum** - H₂S can originate from this, apparently. This was raised, but not discussed in much greater detail.
- **Landfill** operator was saying that it is easier for them to control and fine tune various issues with the biogas elements because they have to generally wait for 2 years before they can pull the gas - not 30 day retention time like many digesters.

Topic Two: Renewable Natural Gas (BioCNG)

- BioCNG representative was stating that they generally only have their stations at smaller size facilities - (approx.. equivalent to 200 [scfm \[standard cubic feet per minute\]](#) system)
- Pipeline costs high to treat and interconnect
- 2 facilities near Hilbert (I think this is where) are flaring their gas, but would love to find a way to do [Compressed Natural Gas \(CNG\)](#).
- Discussion of cost to convert fleet trucks and install infrastructure.

- Art Harrington raised the new Ozone standards (caused by [NOx \[mono-nitrogen oxides\]](#) and [VOCs \[volatile organic compounds\]](#)) – ground level ozone is caused by pollutants emitted by cars and many other sources. There are new ozone standards in Wisconsin that are going to cause many counties to become nonattainment for ozone and therefore going to need to meet stricter standards. If BioCNG emissions of NOx are less than those from gasoline this could be a good incentive for many fleets to convert to CNG. [An analysis of Anaerobic Digestion Based RNG Pathways from Argonne National Laboratory.](#)
- Discussion of Maintenance for CNG vehicles and the fire hazard problems. It would be a good idea to talk with Maria about this b/c I believe her CNG Roundtable group discussed this in great detail and a consultant was hired to look further into this. I do not know what the results of his work were, however. I think the group would likely be interested in this.
- The biggest problem, it was stated, is [the low cost of petroleum over the next 5 years.](#) Doesn't make CNG as competitive.

Topic Three: Trading

- Art H. brought up the idea of nutrient trading. It seems the group is more interested in learning more details as to how this could work and utilization of a modeling program to show, if certain technology is used to remove phosphorus (P) and nitrogen (N), how much will actually be removed, is this a sufficient way to determine trading parameters.

Take Aways/Action Items:

1. Need a Wisconsin Department of Natural Resources (DNR) program that is dedicated to digesters.
2. Need a group to meet with DNR to talk more about how biogas and removal of nutrients can help locations meet the P standards and potential upcoming N standards. Can this be done, successfully, through trading?
3. Explore CNG-RNG including Maria's report and the Rural Fuels report that Joe Kramer and Peter Taglia Completed.
4. DEVELOP an Interactive Portal/Discussion Board on State Energy Office [SEO website](#) for Biogas.