



March 26, 2019 – 3 PM

Rep Stein and Rep O'Brien, thank you for the opportunity to come before the Ohio House Energy and Natural Resources Subcommittee on Energy Generation this afternoon.

quasar energy group, is an Ohio based company solely focused on designing and constructing anaerobic digestion facilities in North America across three distinct market segments; municipal digesters at sewer plants, agricultural digesters at dairy and swine farms, and merchant digesters which are located at food manufacturing plants or at industrial parks managing regional waste pipelines. Our continuous mix digesters are both a renewable energy production facility and an alternative to traditional waste management technologies.

Several years ago, the Water Environment Federation coined the phrase "Water Resource Recovery Facility"; it was a promotion directed at Waste Water Treatment Plants in the U.S. to think beyond their mission of returning clean water to our rivers and lakes. It speaks to utilizing the resources that are delivered in the waste water to 1) provide an energy resource to run the plant and 2) to provide an alternative to farmers vs. commercial fertilizer.

Water Resource Recovery Facilities (Sewer plants) are transforming themselves into managers of valuable resources and partners in local economic development. It is reported that extracting the embedded energy in biosolids extracted from WRRF's could result in meeting up to 12% of our nation's electrical demand<sup>1</sup>. Via anaerobic digestion, a WRRF can generate biogas which can be converted to electricity, and / or gaseous motor fuel with parasitic loads that are a fraction of the overall output of energy; no other biosolids stabilization technology can make the same claim. The savings from electricity, and biogas produced biologically from biomass delivered to WRRF via gravity can provide revenue streams sufficient to can pay for improvements without increasing rates. Unlike other projects we read about that result in double digit rate increases, digester projects generate enough revenue and result in enough cost reduction to pay for the project.

When a WRRF is producing their own electricity, not only do they save on energy expenses, they become a micro-grid, providing the resilience that is needed for maintaining utilities during natural disasters, acts of terrorism, or other utility crisis. As a small electrical distributed resource, they also support the reduction in distribution congestion which our utilities face especially in the high demand summer months. Providing smart grid technology or a hard wire from WRRF's to safety and first responders' facilities further supports the micro-grid initiative.

The biogas can also be used as a replacement for natural gas after it is properly conditioned. So, if cities have CNG vehicles or are thinking about moving to CNG vehicles, these WRRF's can become the fueling resource for these vehicles.

What challenges do our WRRF's face in implementing these opportunities?

**Interconnecting with the utilities** – Publicly owned electric utilities are required under current rules to allow for Net Metering agreements in Ohio. The process is technically difficult which is foreign to any

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<sup>1</sup> WEF Utility of the Future, page 14.

WRRF contemplating an interconnection. We would ask for the subcommittee's support in changing the paradigm so that utilities (not just the investor owned, but also the muni's and the co-ops) become more supportive of the interconnection process. An additional benefit would be to introduce Virtual Net Metering to Ohio so that load and generation do not require being behind the same meter.

Natural gas transmission companies in Ohio are just beginning to see requests for interconnection; we would ask the subcommittee to support a process of streamlining the process as well as supporting ways to reduce the cost of these interconnections which can be hundreds of thousands of dollars. While a gas well owner has a clear path forward for interconnections; government, commercial entities (competitors and collaborators alike) do not.

A solution would be for PUCO to compel public utilities to provide limits for approvals and denials for interconnects. In short preference should be replaced with pathway certainty to confirm a common sense initiative for approvals.

**Permitting through the Ohio EPA** – All digester projects in Ohio require a Permit to Install from the Ohio EPA before construction can commence. Recently, there has been a strong interest in designing plants with “further pathogen destruction” resulting in Class “A”/EQ biosolids. The permitting process is an important step towards insuring that the mission of the EPA for our air, water, and soil is met. Because the Class “A”/EQ technology is somewhat new; we would ask the subcommittee to support efforts within the agency to make the process more streamlined and uniform among the five districts in Ohio. The improvements can start at the first meeting between the district office and the WRRF where expectations are set for the application, and the agency can commit to a timeline for review and approval. There is a lack of consistency and degree of “preference” in the review process which can drag out an approval timeline from weeks to months.

Ohio agriculture benefits from the natural fertilizer inherent in the solids generated at WRRF's. We would ask the subcommittee to support efforts by OEPA and the Department of Natural Resources in educating our citizens of the benefits derived by using them rather than chemical fertilizers. Biosolids need to be kept out of landfills; these nutrients must be returned sustainably to our fields.

**Alternative Project Delivery** – Designing and building energy dense anaerobic digesters is a unique niche technology, we would ask the subcommittee to support further improvements in the changes first made in 2011 with the Ohio Construction Reform legislation for alternative project delivery by supporting improvements in the “design-build” pathway. Design-build provides for a more collaborative relationship between a digester contractor and the WRRF, delivers a project sooner, sees less change orders, and delivers a project at a lower cost while preserving all the elements of competition and transparency for the stakeholders in the project.

By way of example, quasar is currently making improvements and modifications to the Lucas County Water Resource Recovery Facility in Waterville, Ohio. When it is completed and comes on line, the project will be managing enough biomass to generate an average of 1.4 MW of electricity which will meet the needs of its plant (equal to the demands of about 830 homes) with a net annual energy savings of approximately \$700,000. They will earn an additional \$128,000 by monetizing the Renewable Energy Credits from the energy produced. Additional tons of regional biomass will come into the plant and will generate approximately \$1,200,000 annually through tipping fees. By converting the biogas to electricity, the CO2 emissions equal to 6.7 million gallons of gasoline will be eliminated from being cast into the atmosphere.

In summary, anaerobic digesters at water resource recovery facilities in Ohio provide improved electrical grid resilience and are distributed generation resources. The continuous generation of biogas from the digester provides for a stable generation profile which makes it easy for the utility to depend on this resource on their grid. Nutrients from digesters reduce our farmers dependence on chemical fertilizers. The anaerobic digester biosolids stabilization technology is the only stabilization technology which is energy positive. These projects can be paid for from the savings in operational costs and revenue from tipping fees. Finally, while everything that I have focused on today has been with Water Resource Recovery Facilities in Ohio; our CAFO's in Ohio, both Dairy and Swine; along with our food manufacturing plants and distribution facilities are or can benefit in the same ways.