Meet An Anaerobic Digester Operator

DANE COUNTY COMMUNITY DIGESTER
Waunakee, WI

Let's Meet...
Norman Doll, *Chief Operating Officer for Clear Horizons*

Anaerobic Digester Type: Complete Mix

Operating Since: Late 2010 *(filled digesters)*

Is the digester serving its intended purpose(s)?
The project helps manage waste from three dairy farms, as well as some food wastes, restaurant waste grease, and glycerin. The digester meets two of the project's primary goals: protecting water quality, and growing crops sustainably. The Wisconsin Department of Natural Resources (DNR) and Dane County also recognized the project's potential to control and export phosphorous; they proposed paying for the digester through the sale of byproducts and energy produced by the system. So far, the digester and advanced phosphorous removal system have allowed the capture and export of about 90 metric tons of phosphorous from the watershed.

What challenges have you have had with your system?
Farms using sand bedding – As sand accumulated over time, digester vessels lost up to half of their capacity.

Unplanned liquid recirculation – Liquid digestate, saturated with phosphorous, was unexpectedly coming back from the farm and negatively affecting the process and skewing nutrient recovery numbers. The 30,000 gallons per day of digestate in the raw manure input stream led to phosphorous precipitating out in the forms of struvite and vivianite, causing problems in the pipes and vessels.

Technologies – The project added nets (nylon cord baseball netting) to the tops of digester tanks as growth media for bacteria. These nets improve growth of the bacteria that are the primary means of removing hydrogen sulfide from tank gas. We need to continue to keep up with improving technologies.

What is limiting the development of more digesters with this business model?
The business model under which these (Crave Brothers and Dane County Community Digester – Vienna) were built is no longer workable in Wisconsin. When these were built we had the encouragement of government;

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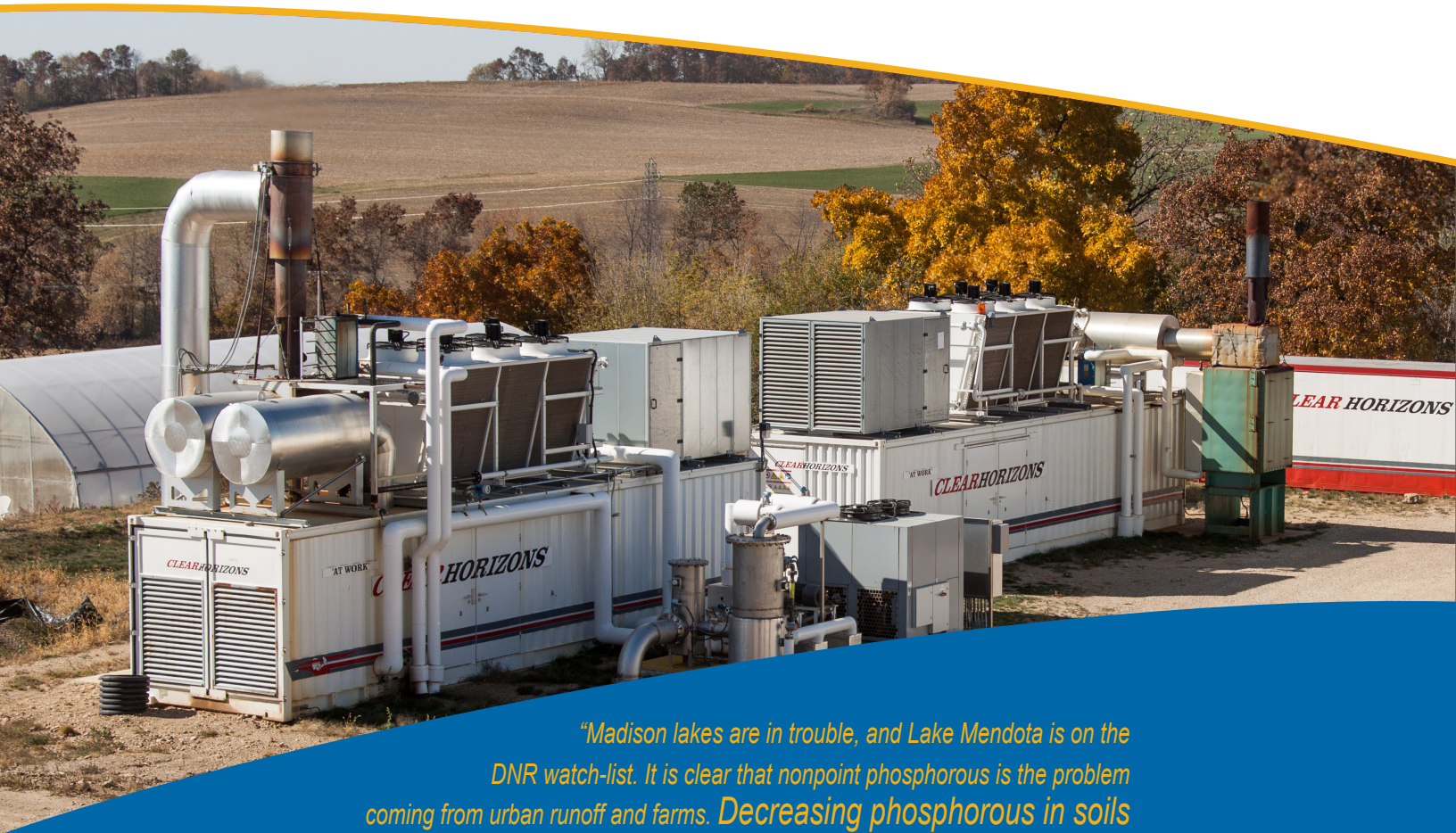
access to grants; and a utility mandate for a 15% renewable portfolio (i.e., requirement to generate 15% of energy from renewable sources). That's gone. Utilities will no longer provide favorable power purchase agreements (PPA). Going forward, developers will need to find a new model to make these systems financially viable. Even with our existing systems, when the current PPAs run out, we will need a new revenue source to keep them operating.

How would you respond if asked by the public about safety issues with AD systems?

There are a lot of safety issues with these types of systems and with livestock operations in general. But the potential for explosion-related injury is small, especially for those outside the facility (because of how the digesters are designed, an explosion would actually go up, not outward). On site, there is a lot of truck traffic that must be managed properly; we do not allow people on the site unescorted. Agricultural work around tanks and lagoons can be dangerous, but made safe with a good safety program and proper management. We have had no problems in this area.



"Madison lakes are in trouble, and Lake Mendota is on the DNR watch-list. It is clear that nonpoint phosphorous is the problem coming from urban runoff and farms. ***Decreasing phosphorous in soils is a priority*** *for Dane County and DNR and to do this they need to export it out of the watershed. The* ***manure processing systems*** *used at the Dane County Vienna digester enable them to do that, and also allow expansion of farming in the watershed without increasing problems with water quality."*

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