Dairy Farm's 'Cowlowatts' Power 250 Homes

(WRIGHTSTOWN, Wisconsin) – A state-of-the-art renewable energy plan is turning cow manure into electrical energy at a Wisconsin dairy farm. Tinedale Farms, located just south of Green Bay, has a productive herd of 2500 Holsteins. The large fifth-generation, family-owned operation was honored as Wisconsin's Dairy Farm of the Year in 1996.

Since June, the cows have been producing more than milk – they're also a source of methane that's used as a fuel for two engines that drive generators to make electricity. Instead of being spread on Tinedale's 4000 acres of cropland, their manure goes into a Temperature Phased Anaerobic Digester (the first in the US to be used by the dairy industry), a patented process that offers significant odor reduction, increased methane gas production and enhanced fertilizer value.

The result is 300,000 cubic feet of methane gas on tap as fuel for two Waukesha Engine Enginerator® units. The engine-generator packages produce a constant flow of 750 kilowatts, more than enough to satisfy the farm's needs. The 'waste' heat from the engines' exhaust is captured and used to warm water that's essential to the operation of the anaerobic digester. The process is part of co-generation, the production of heat and power, which makes the engines extremely efficient.

The gensets also generate profits because the excess electric energy is sold to Wisconsin Electric Power Company (WEPCO), the local electric utility. The utility, in turn, can charge willing customers more for this electricity because it's "green power" – energy produced from a renewable source.

For farm owner Carl Theunis, the energy plan does more than provide extra income and a reliable supply of power for his dairy operation. "It removes pathogens and pollutants from the manure, it controls odors that bothered my neighbors, but more importantly it provides a way to keep my four sons on the farm," he says. "The energy producing operation will help the farm survive price fluctuations and narrow profit margins. It's another business we're just entering into, but one that has separate responsibilities and can allow for time off and vacations, which are rare commodities on traditional dairy farms."

The energy and manure management solution was provided by Ag Environmental Solutions (AES), a local company that helped plan and construct the anaerobic digestion system. The Waukesha Engine Enginerator units

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– Carl Theunis, Owner, Tinedale Farm
These two Waukesha Engine units use methane gas for fuel and provide more electricity than the farm uses and also provide hot water for the anaerobic sludge digestion which produces the methane. The excess energy is sold to the local utility at a profit.

Above: Lloyd Bronschamp, Vice-President, Sales, (left) welcomes Wisconsin Governor Scott McCallum to the engine room where the two Waukesha Engine Engines are located. On the Governor's left are Wisconsin Secretary of Agriculture Jim Harmsen and Bob Conway of Charles Equipment Co.

Left: The Tioleldo Farm/Waukesha Engine project was awarded top honors by the Midwest Cogeneration Association at its annual conference in September. From left, Brad Wulf and Gary Upham, NCA board members, present the award to Jim Harmsen of Charles Equipment's Wisconsin office.

Waukesha
Power connection plus

The Waukesha Power connection plus is intended to enhance and promote communications to all areas of the Waukesha Engine Family.

Waukesha Power connection plus
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