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Case Study

Gen-sets for biogas application in a dairy

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The Opportunity

The District 45 Dairy LLP dairy factory, located on 320 acres of land in Hancock, Minnesota, USA, has approximately 5,560 cows. These cows generate approximately 5,900,000 cubic feet of manure each year.

When organic materials – like manure – decompose in a warm, airless environment, they release biogas; storing the manure in a sealed, airtight, heated digester increases biogas production.

With more than 5,000 cows, District 45 Dairy LLP produces a large amount of biogas – a valuable asset when using a cogeneration system to treat it. The dairy factory realized the

benefit of installing a combined heat and power (CHP) module to capture the biogas and used it to their advantage.

The Solution

The CHP plant installed at District 45 Dairy LLP uses three Siemens SGE-56SL (SFGLD 560) generator sets that provide 2.4 MWe of power. The gen-



Siemens SGE-56SL (SFGLD 560) generator sets.

sets warm up the condensates back-flow for the steam boilers from the dairy factory and produce process steam for internal use.

The CHP plant uses condensing heat exchange technology that produces heat and power for the factory, beneficial for dairy

farms with a year-round demand for hot water. As a result of installing this innovative and environmentally friendly technology, the factory received a green certificate.

Benefits

- Reduces methane-rich greenhouse gas emissions by implementing an anaerobic digester
- Reduces unpleasant odor
- Improves the treatment of wastewater
- Reduces dependence upon coal for power generation
- Uses biogas as a renewable energy source



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