



CASE STUDY

Siouxland Ethanol

Emissions solutions for CHP conversions

SITUATION

When Siouxland Ethanol, located in Jackson, Nebraska, USA decided to invest in a combined heat and power system (CHP), or cogeneration, it needed to make decisions regarding the plant's air abatement and compliance. The company wanted to take its current system, a heat recovery steam generator (HRSG), offline and replace it with a boiler to form a cogeneration plant. With this approach, the steam generated by the new boiler requires a regenerative thermal oxidizer (RTO) to process the dryer's emissions, which are produced when dry distiller's grain with solubles (DDGS) are dried. Siouxland's overall goal was to find a better way to create steam and destroy emissions other than the traditional HRSG/thermal oxidizer (TO) system. The company decided to invest in a CHP system, which produces efficient steam with a cogeneration system, and required an RTO to handle the dryer emissions. This solution offered more flexibility to the operation.

HIGHLIGHTS



Adds additional emissions flexibility for the plant

Offers more reliable abatement system

Includes features specific to ethanol, such as robust process fan designs and plug-resistant media

Reduces bakeouts and maintenance needs

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SOLUTION

Dürr proposed a rotary RTO, the Oxi.X RC, to handle the volume and type of emissions associated with the new CHP system.

CHOOSING A PARTNER

When deciding on an RTO technology partner, Siouxland considered price, guarantee, reliability and recommendations provided by other partners in the industry.

DESIGN

Siouxland already had a wet scrubber built into its existing system, which complimented the Oxi.X RC by providing cleaner, dryer air to it. The new RTO brought a reliable abatement system with added value features specifically for ethanol processing, including an upgraded process fan design, plug resistant media and controls.

RESULT

The equipment performs well and has met Siouxland's expectations. The first six-month inspection completed by Dürr found the Oxi.X RC to be one of the cleanest RTOs seen in this application. The team has found that less bakeouts are warranted when the wet scrubber and Oxi.X RC work together.



Oxi.X RC regenerative thermal oxidizer.



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