American Industry in Action – Tyson Foods: Turning Waste to Energy

Blue Source was able to engage Tyson Foods, Inc. (Tyson), a Fortune 500 food company, in the carbon economy by marketing high-quality greenhouse gas reductions which prevent 295,000 metric tonnes of CO_2e from entering the atmosphere each year. Blue Source and Tyson continue to pursue opportunities for developing emission reductions involving wastewater treatment, alternative energy and waste utilization.

Why is Industrial Wastewater a source of Greenhouse Gases?

Wastewater generated from industries across North America often contains large quantities of organic solids, referred to as "biomass," which are suspended or dissolved in the wastewater stream. Wastewater is collected from different operations within the source facility and directed to a single treatment facility, where accumulation of the organic solids may lead to the generation of greenhouse gases such as methane and carbon dioxide as the biomass is broken down anaerobically. The mixed greenhouse gases produced by the anaerobic decomposition of the organic solids are collectively referred to as "biogas." Such GHG emissions are often released freely into the atmosphere, but some companies, like Tyson, have undertaken voluntary initiatives to prevent this and have created substantial environmental and social benefits. Similar opportunities exist for sources of industrial wastewater other than meat processing facilities. Pulp and paper mills, fruit and vegetable processors and alcohol breweries are among the industries that present the most promise.

GHG Emissions from Industrial Wastewater in America

In 2006, American industries generated more than eight million metric tonnes of CO_2 equivalent emissions from wastewater facilities in the pulp and paper manufacturing, meat and poultry processing, fruit and vegetable processing and starch-based ethanol industries (US EPA, GHG Inventory Report, 2006). Capturing these emissions and utilizing the biogas for energy generation requires substantial intellectual and financial resources. Market based solutions which generate revenue from emission reduction offsets are the most sustainable because these solutions incentivize the widespread implementation of existing and new technologies.

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Tyson, founded in 1935 and headquartered in Springdale, Arkansas, is the world's largest processor and marketer of chicken, beef and pork and the second largest food company in the Fortune 500. The company produces a wide variety of protein-based and prepared food products. Tyson is the recognized

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market leader in the retail and foodservice markets it serves, providing products and service to customers throughout the United States and more than 90 countries. Tyson has approximately 107,000 Team Members employed at more than 300 facilities and offices in the United States and around the world. Tyson began managing GHG emissions from wastewater treatment facilities by installing covers over anaerobic lagoons at five of its wastewater treatment facilities located in the Midwest. At the time, very few industrial wastewater treatment facilities in the meatpacking industry had covered lagoons, and existing system designs were inadequate. Tyson developed new design standards for lagoon covers that dramatically improved system performance. For several years, the captured biogas was flared at all five sites, converting the methane to less harmful CO_2.

Tyson then implemented biogas-to-boiler projects at four of the facilities in 2004. Equipment was installed to transport the biogas from the wastewater treatment plants to the boilers for use in the production of steam used in the beef processing facilities. This particular emission reduction project is made up of two stages: The first stage involves covering primary treatment lagoons and collecting and subsequently flaring the biogas generated by the process. The second stage involves transporting the collected biogas to the adjacent Tyson processing facilities and using it in the boilers, thereby displacing natural gas that would otherwise have been purchased from the distribution pipeline.

Environment, Economy and Beyond – The Benefits of Industrial Wastewater Treatment Projects

1. Since implementation, Tyson's biogas management projects at its wastewater treatment facilities have reduced greenhouse gases by an average of over 295,000 metric tonnes of CO_2 equivalent every year, equal to taking over 70,000 cars off the streets.
2. The capping of wastewater lagoons for anaerobic treatment processes also yields a noticeable positive difference in local air quality, benefiting the surrounding communities.
3. Biogas captured from anaerobic decomposition of organic solids is used to displace several fossil fuels in the generation of heat, namely natural gas, fuel oil and propane. In similar projects, it can be used to generate clean electricity in lieu of thermal energy.
4. Each wastewater treatment biogas project results in new, permanent jobs created specifically for ongoing management of the process. Additionally, local contractors can be used to install equipment, build new structures, lay pipe and in some cases construct new lagoons.
5. Each site requires significant capital investment in American-made equipment such as covers, flares, blowers, piping, burners, scrubbing systems and controls.

These offsets are registered on the VCS Registry with multiple vintages available for purchase.

Learn More

For more information on purchasing these offsets from Blue Source's wastewater treatment project, contact **Lauren Kimble** at **801.322.4750** or e-mail **lkimble@bluesource.com.**

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