



WASTE TO ENERGY FIRM PHGE TO BUILD 64 TPD DOWNDRAFT WASTE GASIFICATION PLANT IN LEBANON, TENNESSEE

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The Lebanon plant will be similar in looks to the Covington plant pictured

Nashville, Tennessee based waste to energy firm, PHG Energy and the city of Lebanon, Tennessee, have signed a contract to develop a downdraft gasification plant that will cleanly convert up to 64 tons (58 tonnes) per day of blended waste wood, scrap tyres and sewer sludge.

According to the company it will provide an environmentally sustainable method of waste disposal and produce green power in the process.

The waste to energy plant, which is expected to enter service early next year will generate up to 300 kW of electricity.

PHGE explained that the power will provide for the plant's internal power needs as well as contribute electricity to the wastewater treatment plant where it will be located.

"This is not incineration or burning," commented Lebanon Mayor, Philip Craighead. "There is no smoke or odour. The feedstock material is broken down at very high temperatures in a sealed vessel, and about 95% of what goes into the gasifier comes out as the fuel gas."

Craighead added that the remaining 5 % to 10% of material exiting the gasifier is a high-carbon biochar that can be recycled or sold for agricultural or industrial uses.

PHGE president Tom Stanzione added that the Lebanon project will deploy what he believes is the world's largest downdraft gasifier.

"This is the same basic technology we utilised in all our previous designs, and we have upgraded capacity and power density to accomplish a lot more gasification in what is not a lot more space," he said.

The Large Frame gasifier, as the company refers to it, is said to have been vetted through a rigorous testing process for more than two years at PHGE's research facility.

According to the company, its standard gasifier can convert up to 12 tons of feedstock per day, but the Lebanon model will process up to 64 tons per day without substantially increasing the footprint of the plant.

The plant is projected to keep more 8000 tons of material out of landfill each year as well as reducing carbon dioxide emissions by over 2500 tons each year.

Funding

Funding of the \$3.5 million capital cost has been obtained through a federal program that awards bond subsidies to local projects that conserve energy. The Qualified Energy Conservation Bonds are allocated through the Tennessee Department of Environment and Conservation (TDEC), and repay communities about 70% of interest expense.

The Lebanon project will be the 14th gasifier installation for PHGE. The company's first municipal installation was commissioned in Covington, Tennessee, in 2013.

The company explained that Prior deployments of the thermo chemical process were for industrial brick manufacturing clients to replace natural gas usage by cleanly converting wood waste to what is called producer gas or synthetic gas.

First stage

Craighead said that the city is viewing this installation as a first stage in a larger plan to convert the city's household and commercial garbage to energy in the future.

"We see keeping our garbage out of the landfill and using it to make energy as major goals for Lebanon in coming years," he concluded. "This is a problem that is coming straight at all of us, and we are going to make sure our city is ready with answers. One of our primary criteria is that the solutions we want will have to make good financial sense along the way."

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