
The business turning sewage sludge into fuel

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When anaerobic digestion takes place, organic materials – think food waste – are broken down by microorganisms in an oxygen free environment, producing biogas. Described by the U.S. Department of Energy as a proven energy source both in the U.S. and around the world, biogas can in turn be processed, purified and turned into biomethane.

The DOE describes biomethane as being "pipeline-quality" and "fully interchangeable with conventional natural gas." In France, one company has been looking to turn biogas into liquefied natural gas (LNG), or bio-LNG. Cryo Pur says its system generates bio-LNG with a high-energy efficiency.

Cryo Pur's process works in three steps. The first step involves the removal of hydrogen sulphide, water and pollutants. The second sees the biogas cooled to minus 120 degrees Celsius, with the separation and liquefaction of CO2 taking place. The resulting biomethane is then compressed to 15 bar and liquefied at minus 120 degrees Celsius, with the bio-LNG then stored in "cryogenic vessels."

"The process developed by Cryo Pur is especially done to convert biogas into biomethane, and the biomethane that we produce today... has exactly the same quality as natural gas, so it's a good result," Pierre Coursan, biomethane market manager at Suez, told CNBC's Sustainable Energy. Suez is one of Cryo Pur's commercial partners.

In a facility on the outskirts of Paris, Cryo Pur has been working with industrial partners to produce a working demonstration of their technology. The system uses several different types of waste material.

"The technology developed here is able to treat every biogas that can be produced from anaerobic digestion, from agricultural feedstock, sewage sludge, organic waste," Coursan added. Using anaerobic digestion, the organic materials are turned into biogas, which is then purified – separating CO2 from methane – with the resulting biomethane liquefied to make bio-LNG.

"Every day we are able to treat more than two metric tonnes of biogas and we transform it... (into) about one metric tonne of liquid biomethane, which can be used in long haul trucks to make long distances in the range of 1,500 kilometres," Denis Clodic, CEO and founder of Cryo Pur, said.

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