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HRE Announces New Emissions Control and Water Recycling System

Homeland Renewable Energy Inc (“HRE”), the world’s leading agricultural-waste-to-energy company, announced today the launch of a new emissions control and water recycling system (“the System”). The System will enable new biomass power plants built by HRE’s Fibrowatt subsidiary to achieve unprecedentedly low levels of emissions to air, in combination with a pioneering zero water consumption and zero wastewater discharge design.

HRE has developed the System with its partner, Emvertec Ltd, of Hull, UK, who has pioneered the Ceecon Condensing Economizer, which is a key part of the System. HRE and Emvertec will jointly own the new System and will license it to third parties.

The new System will enable Fibrowatt to build the world’s cleanest biomass power plants.

Rupert Fraser, Chief Executive Officer of HRE said; “With the launch of the new emissions control system, we can claim that our Fibrowatt plants will be the world’s cleanest biomass power plants. The System will enable new Fibrowatt plants to meet both current and projected air emissions requirements, reducing emissions of particulates and certain acid gases to virtually zero. We are equally delighted that we can offer this clean biomass technology to local communities without placing any burden at all upon their water resources. This new emissions control system demonstrates our commitment to the continual improvement of our green energy technology.”

Fibrowatt plants will be the world’s first zero-water-impact biomass power plants.

The predicted results of the new process include:

- Zero water consumption;
- Zero water effluent discharge;
- Zero sulfur dioxide emissions (i.e. insignificant levels);
- Zero particulates emissions (i.e. insignificant levels);
- Lower levels of NOx and CO than current and future predicted regulatory requirements;
- Improved thermal efficiency through the recycling of waste heat.

Fibrowatt and Emvertec have submitted patent applications for key elements of the System.

The System, developed by Peter Jackson, Chief Engineer of Fibrowatt and John Vernon, Managing Director of Emvertec, works by condensing the plume of gaseous emissions and recycling both the water in the plume and the heat that would otherwise be wasted. As a result, many of the trace emissions either become dissolved in the condensed water solution or are “captured” in the condenser. Importantly, the plant becomes self-sufficient in water, since the water required for boiler make-up is effectively being “harvested” from the biomass fuel being used by the plant. By recycling heat, the System significantly improves the thermal efficiency of the plant, a benefit not available to other emissions control processes, which normally have an adverse effect on energy efficiency.

The System involves a number of steps which have already been widely proven in other operating plants, but have not been put together in the combination and order used in this system. It is the unique configuration that delivers the overall improvement in emissions and water management, and is the subject of our patent applications.

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About HRE:

Homeland Renewable Energy (“HRE”) is the holding company of a group of companies producing energy from agricultural waste. HRE’s principal subsidiaries are:

- Fibrowatt LLC, developing, building and operating power plants fueled by the combustion of poultry litter and other agricultural biomass;
- Homeland Biogas Energy LLC, developing, building and operating anaerobic digestion plants fueled by animal and food processing wastes.

HRE, based in Pennsylvania, was founded in 2003. Its management team had previously built the world’s first three poultry litter fueled power plants in the UK during the 1990s. HRE’s subsidiary Fibrowatt LLC built a fourth plant, the 55MW Fibrominn Biomass Power Plant in Minnesota. This plant, which began operation in 2007, uses over 500,000 tons per year of turkey waste and other agricultural biomass to produce renewable electricity and a nutrient-rich ash-by-product fertilizer.

About Emvertec:

Emvertec Limited was founded in 1986 by John Vernon, and produces equipment to improve industrial boiler thermal efficiency, utilizing flue gas moisture condensing technology. In 2004, in co-operation with Fibrowatt, Emvertec tested the CEECON-Bi biomass condensing unit at the 12MW Fibropower plant in Suffolk, UK, the world’s first poultry litter fueled power plant. Emvertec now designs and supplies three-element condensing economizers under the trademark name CEECON, for application in industrial utilities, and biomass power and combined heat and power plants.