

Collaboration Initiative to Field World's First sCO₂ Enabled, Biomass Fueled, Combined Heat & Power (CHP) System

Peregrine Turbine Technologies, KMW Energy, and Our Katahdin Announce Collaboration Initiative for a Sustainable Biomass Breakthrough

WISCASSET, MAINE, UNITED STATES, May 6, 2024 /EINPresswire.com/ -- Peregrine Turbine Technologies, (PTT), the KMW Energy Group (KMW), and Our Katahdin (OK) announced today their intent to collaborate on the location, installation, and operation of PTT's highly efficient, 1 MWe super critical carbon dioxide (sCO₂) energy conversion system, integrated with KMW's proprietary reciprocating grate and modular biomass gasification & combustion system, to provide combined heat and power (CHP) to multiple buildings on Our Katahdin's Innovation Hub campus. The combined system will also produce biochar for agricultural and other high value applications.

PTT's proprietary sCO₂ turbine technology, which operates with a high pressure, high temperature, closed loop cycle, offers efficiencies 1.7x better than best-available conventional biomass fired steam turbine installations, and 2.7x better than biomass fired Organic Rankine Cycle (ORC) systems.

The systems are modular and can be configured to optimize specific application requirements.



The Our Katahdin Bio-Based Research Campus will repurpose existing buildings and encourage new development around forest biomaterials and biomass.



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Projected costs and efficiencies are expected to make sustainable biomass energy competitive with other mainstream energy sources.

In addition to producing thermal energy and 1MW of electricity, the scalable system will also be capable of producing biochar on a continuous basis. With capacity of 1,500 tons/year of biochar, the equivalent of 4,200 tons/year of CO₂ will be permanently sequestered as biochar, which will be used locally in forestry and agricultural applications.



The advanced system is expected to be particularly important to remote and mining, and energy disadvantaged areas and emerging communities with limited energy infrastructure.

PTT's advanced super critical carbon dioxide (sCO₂) conversion system has been developed in collaboration with Sandia National Laboratories' (SNL) Brayton Laboratory team. At the center of the Company's breakthrough technology is a "heat engine" that can operate on all air combustible fuels including biomass, bio-gas, refuse derived fuels (RDF), hydrogen, and high-grade heat sources including advanced nuclear and concentrated solar (CSP). No matter the energy source, PTT's sCO₂ enabled conversion system uses less of it.

ABOUT PEREGRINE TURBINE TECHNOLOGIES (PTT):

PTT is a privately held, Maine, limited liability company formed in April 2012, and focused on the development and deployment of advanced sCO₂ (supercritical carbon dioxide) turbine power generation, energy storage, and propulsion systems peregrineturbine.com.

The Company has received awards from the Air Force Research Lab (AFRL), the Office of Naval Research (ONR), and the Maine Technology Institute (MTI) in support of its leading development of Brayton cycle sCO₂ gas turbine and heat exchanger development for energy conversion.

PTT also holds a long-term Combined Research and Development Agreement (CRADA) with Sandia National Laboratories for support in the development, testing, and de-risking of its patented sCO₂ turbomachinery and heat exchanger technologies.

The Company's PTT Distributed Energy Systems (PTT DES) subsidiary is focused on fielding its sCO₂ enabled energy conversion and storage systems into the global Distributed Energy and Advanced Nuclear, Markets.

The Company's PTT Nuclear Energy Systems (PTT NES) subsidiary is focused on working with advanced nuclear reactor companies for the integration of its sCO₂ energy conversion and heat

exchanger technologies for Space and Terrestrial energy, propulsion, and storage applications.

Additional company information can be found at peregrineturbine.com.

ABOUT THE KMW ENERGY GROUP (KMW) :

KMW is a leading manufacturer of biomass gasification, combustion, and biochar systems with over 70 years' experience. Its' proprietary reciprocating grate gasification/combustion system is the industry's most proven, reliable, cost-effective solution to converting biomass and waste derived fuel into energy. KMW custom designs and fabricates complete biomass energy systems including fuel handling, gasification/combustion system, heat recovery systems, and emission control. The KMW modular design includes shop-built gasification/combustion systems and package boilers, greatly reducing the cost and complexity of biomass energy projects.

KMW has extensive experience supplying boiler systems to sawmills, hospitals, schools, pulp and paper mills, power utility plants, cogeneration facilities, district heating systems and greenhouses. The KMW gasification/combustion system operates with the greatest fuel flexibility with systems operating on wet bark up to 60% moisture, C&D, RDF, sludge, biosolids and agri-waste.

Additional company information can be found at kmwenergy.com

ABOUT OUR KATAHDIN (OK)

Our Katahdin is a 501(c)(3) nonprofit organization that owns the former Great Northern Paper mill site in Millinocket, Maine. OK has rebranded the industrial property as "One North." onenorth.net. The site is being developed to expand the potential of Maine's bioeconomy by connecting regional working forests to growing global demand for sustainable forest products.

OK is located on the doorstep of 5.6 million acres of forest land and are close to major US and Canadian markets. There are 52 million people within 500 miles of the OK/One North facilities.

As evidenced by this announcement, OK is working with multiple partners to develop a Bio-based commercialization hub on the 1,400-acre site, which will reuse facilities once home to highly skilled engineers and technicians in the pulp and paper industry.

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