WWF CASE 2016

CLIMATE SOLVER 2016 HONOREE

Energy generation: Converting low temperature heat to electricity

Developed by: CLIMEON

INNOVATION

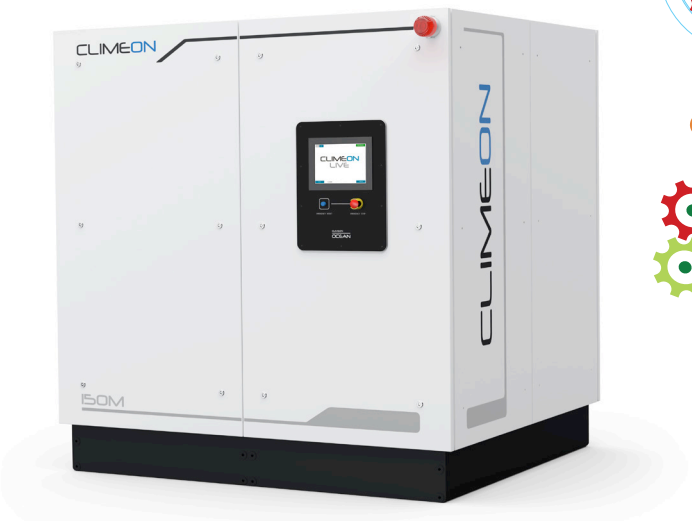
It's a fact: Fifty percent of the energy in the world is wasted as heat. But what if you could convert even some of that waste heat into clean electricity? That's the promise of Climeon: Their solution converts heat into electricity through a vacuum process, with record high efficiencies of up to 14 percent.

Climeon's innovative C3 Technology makes it possible to produce clean electricity at a cost lower than conventional sources in most regions. The heat power solution converts heat with temperatures between 70 and 120 degrees Celsius and operates at low pressure levels. This makes the solution highly efficient while the small footprint ensures a low cost.

One of the company's key sectors is marine where the Climeon Ocean™ solution converts heat from ship engines creating up to several GWh of "free" electricity each year – all from heat that would otherwise be wasted. For some ships, that translates into a savings of more than 1,000 metric tons of fuel or 3,000 metric tons of CO2 per year. The solution was designed to be modular and is compact and easy to install.

An even larger sector is steel where Swedish steel producer SSAB is already reaping the benefits from running Climeon Ocean™ at their production site in Borlänge. Production of clean electricity has been so successful that SSAB have already placed an expansion order.

"Business for a better world," is the company's tagline. This holds true for its first big customer: Viking Line, the Finnish shipping company that operates a fleet of ferries and cruise ships. The vessel Viking Grace operates the Climeon Ocean solution. During the evaluation phase, Climeon's system delivered even higher environmental and energy savings than expected. Thanks to that success, Viking Line will now include Climeon Ocean in each new vessel designed. Recently Italian company Fincantieri, one of the world's largest ship builders, also placed an order purchasing 18 Climeon Ocean modules which will be installed on its upcoming cruise ships.



Climeon's solution converts heat into electricity through a vacuum process, with record high efficiencies of up to 14 percent, and makes it possible to produce clean electricity at a cost lower than conventional sources in most regions.

BENEFITS

Climeon Ocean can be connected to any heat source ranging from power plants, geothermal, solar heat and industrial waste to large engines, thus making the addressable market virtually unlimited. And Climeon's solution produces electricity at a cost significantly lower than traditional energy sources. For Climeon Ocean the environmental payback time, the time it takes to save the same amount of CO_2 emitted when producing the machine, is only 15 days. If this innovation could penetrate markets to use 10 percent of waste heat from industries and merchant ships, it would save 21.6 million tons of CO_2 emissions annually by the year 2026.

ABOUT THE COMPANY

Founded in 2011, Climeon, www.climeon.com, develops and sells machines for converting low-temperature heat to electricity, effectively replacing fossil fuel. Headquartered in Stockholm, Sweden, the privately-held company has an ambition to become the world's leading supplier of heat power and clean energy solutions. Climeon has won many awards for its C3 Technology including European Business Awards and Swedish Cleantech Business Award, and is referred to as "revolutionary" by Frost& Sullivan.

TEAM

Thomas Öström is the co-founder, CEO and board member of Climeon. His team includes Executive Vice President David Ekberg, co-founder and CTO Joachim Karthäuser, Head of Strategy and Business Development Pernilla Wihlborg and 27 highly qualified engineers and sales people supported by a network of academic and governmental cooperation.