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INTERVIEW: US tech developer widens scope for waste gas to energy market

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California-based clean technology company Ener-Core Inc. is set to commercialise its waste gas conversion technology in the US and abroad over the next 18 months, the company's Chief Executive Officer Alain Castro told Clean Energy Pipeline.

Ener-Core has developed a patented technology called the Gradual Oxidiser that oxidises low-quality waste gases, enabling them to be converted into heat to power gas turbines.

"We are enabling traditional gas turbine companies to generate power from gas streams which were previously too low quality to generate from," he said. "These gases had too low an energy density or too many contaminants and impurities to process with a turbine for power production."

Waste gases from energy production and industrial processes are often flared for disposal, resulting in higher greenhouse gas emissions. Instead of combusting the gases, Ener-Core's process oxidises them, which is a similar chemical reaction that converts the gases into heat to power a gas turbine. The Ener-Core system has high tolerance for contaminants such as H2S and siloxanes.

This technology potentially opens up a vast market for waste gas re-use across a range of industrial processes, including municipal landfills, coal mines, oil and gas refineries and digesters used in cattle and poultry farms. In all cases, Ener-Core's system allows waste heat to be converted into electricity that can be sold into the grid or used on-site.

"In all these markets you will find examples of sites already generating power from waste heat gases, as there are plenty of sites that do have high quality gases to generate power from," said Castro. "There are plenty more that do not have the quality to generate."

Ener-Core's business model is to partner with gas turbine manufacturers and supply them with its power station to be integrated into a larger turbine system. The company has designed and tested power stations of 250 kW and 2 MW, and is now working with partners to deploy them in commercial situations.

"We have conservatively quantified that we are unlocking a $50 billion to $75 billion market for gas turbine companies," said Castro. "Even if our partners can only unlock 1% of that, the demand on us will be massive."

Castro said Ener-Core will initially target the US, but that it is also evaluating opportunities in Europe and Asia.
"In the US, there are states that have a challenging air quality standard [for power and industrial assets] and aggressive renewable portfolio standards," he said. "We're focusing on states with both these parameters, which is effectively California and the north-east.

"We suspect Europe will be a more important market than the US, primarily because most countries in Europe have high quality air standards and feed-in tariffs for renewable power. We enable our customers to generate baseload power at a lower cost than wind or solar. Because of our cost-competiveness, we are seeing a lot higher interest from Europe than elsewhere. We are actively looking for established distributors and operations and maintenance partners in Europe and Asia right now."

Ener-Core is already partnering with leading turbine companies but is now eager to sign deals with "marquee" customers in its target industrial markets to establish the value of its offering. The company already has significant manufacturing capacity of its own, but may look to shift to a licensing model in three to four years as demand increases.

Ener-Core began trading publicly on the Over-the-Counter Bulletin Boards in June this year. Castro explained that going public was the best way to swiftly access working capital to fund the expansion of manufacturing output. The company aims to list on one of the larger main US public markets in the short to medium term.

"We are listed on the OTC and we suspect that next year we will be up-listing to one of the big markets like NYSE or NASDAQ," said Castro, who stated that public market appetite for clean energy will not necessarily determine the success of any Ener-Core flotation.

"Our actions depend to a lesser extent on the behaviour of public markets in clean energy because we are not a traditional clean energy company," he said. "We enable brown industries to convert their dirtiest gas emissions into power, which is not your traditional renewable energy play."

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