

GROUNDBREAKING TECHNOLOGY CONVERTS WASTE CO₂ INTO HIGH VALUE FUELS AND CHEMICALS

A Calgary entrepreneur is working to reverse rising carbon dioxide (CO₂) levels, with the launch of a first-of-its-kind solution that converts greenhouse gas emissions into high value fuels and chemicals before they are released into the environment.

The groundbreaking product has earned Dr. Beatriz Molero a prestigious award from Mitacs, a national, not-for-profit organization that partners companies, government and academia to promote Canadian research and training.

In recognition of the ongoing success of her clean tech startup and its work to develop a viable solution for CO₂ emitters, Molero, a former Mitacs postdoctoral fellow at the University of Calgary, and co-founder of Calgary-based SeeO₂ Energy, was presented with the Mitacs Environmental Entrepreneur Award on May 28 at a ceremony in Halifax.

Molero's product is a high temperature electrolyzer that uses CO₂ from an industrial company's waste stream and converts it into carbon monoxide, hydrogen, oxygen or syngas (hydrogen and carbon monoxide mixture), all of which can be used downstream or sold for profit. The unit requires electricity to run and is being designed to be able to use excess renewable energy from wind and solar energy sources.

For every ton of CO₂ removed and reused, three tons of CO₂ emissions are eliminated, Molero explained. "If our commercial scale units were to be used by our end users, such as green plastics or petrochemicals producers, we would significantly decrease CO₂ emissions-equivalent to removing 100 million cars off the roads or 700,000 jet planes out of the skies," she said.

"We're trying to stop the increase of greenhouse gas emissions and eventually reduce them. At the same time we're monetizing the process by giving businesses a valuable asset at the end," said Molero, noting that businesses need incentive to make environmental changes. "We need to have economically viable technologies so that



Top: The high temperature electrolyzer converts CO₂ into carbon monoxide, hydrogen, oxygen or syngas.

Right: Dr. Beatriz Molero, co-founder and CTO of Calgary-based SeeO₂ Energy.



industry will be willing to adopt them."

SeeO₂ Energy was launched in April 2018. In just one year, the company has grown to three full-time employees, 10 industry advisors and five board members. A successful benchtop prototype has been completed, and the company is now securing \$1.5 million in seed funding to develop a larger-scale field test unit, with testing scheduled to start in the first quarter of 2020. The first companies to test the technology include a U.S.-based green plastic producer and ATCO Energy, a natural gas and electricity retailer. Commercial shipments are expected to start in 2021.

"This technology has the potential to be used worldwide," said Molero, adding that companies from the EU and Asia are already expressing interest.

Molero is one of five winners of the Entrepreneur Award, presented by Mitacs (www.mitacs.ca), who are being recognized for their efforts to turn their research into an innovative business that impacts the lives of Canadians.

"Canada has exceptional talent and Mitacs is extremely proud to support young entrepreneurs in spring-boarding to market the next generation of innovations," said Alejandro Adem, Mitacs CEO and scientific director, noting that one out of every 10 Mitacs interns chooses to pursue their own business. "Their contributions are strengthening the Canadian economy, spurring productivity and creating jobs." ■

For more information, visit
www.seeo2energy.com