

Carbon capture breaks new ground

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The plumes of steam rising from Nova Chemical Corp.'s petrochemical plant at Joffre could soon lose much of their carbon punch.

Climate Change and Emissions Management Corp. announced on Thursday that it's providing more than \$3 million in funding for the development of a carbon dioxide capture and storage system at Nova's complex. The project, which is valued at \$6.1 million, is being spearheaded by Inventys Thermal Technologies Inc. of Burnaby, B.C.

Inventys plans to connect a small carbon capture plant to one of Nova's natural gas-fired boilers. It's expected to remove approximately 90 per cent of the CO₂ from the boiler's flue gas stream, with that greenhouse gas to be used for enhanced oil recovery in the area.

Brett Henkel, who co-founded Inventys in 2007, said the project represents relatively new territory when it comes to carbon capture.

"Dilute streams from natural gas burning is the most challenging flue gas streams to capture because there's only about four per cent CO₂ in those streams," he said. "The rest is nitrogen.

"Most carbon capture projects are going after coal flue gas, which is about 15 per cent. There's virtually no one going after natural gas burning."

However, increasing volumes of natural gas are being used in industrial processes, including power generation. So even though natural gas burns cleaner than other hydrocarbons, it still generates huge amounts of CO₂, said Henkel.

Inventys' system, which is called VeloxoTherm, should be capital- and energy-efficient enough to make the process viable, he said.

"It's proven at the bench scale; it's not proven in the field. This project will demonstrate the technology in the field."

Henkel said the system will be built on a skid off-site, and then brought to the Joffre plant. Installation is expected to be completed by the end of next year or early in 2014.

If all goes well, the VeloxoTherm system might be used to capture CO₂ from Nova's other operations at Joffre. Climate Change and Emissions Management said in a release that an estimated one megatonne (one million tonnes) of CO₂ could be collected from the plant over the next 10 years.

If the technology spreads beyond Joffre, added Henkel, the numbers would be much higher.

"If there's a carbon capture technology that could go after natural gas turbines or coal-fired coal plants, the numbers could be very large."

Inventys is working on other pilot plants, said Henkel, including one in the United Kingdom. But the Nova project is the only one currently proceeding in Canada, he said.

The Joffre plant was chosen in large part because of its longstanding supply of CO₂ to Penn West Petroleum Ltd. for enhanced oil recovery in the area. Henkel explained that necessary infrastructure like compressors and pipelines already exist.

The Inventys project was one of six that Climate Change and Emissions Management announced funding for on Thursday. It pledged a total of \$46 million for all of the initiatives, which promote carbon capture and storage, and other clean energy initiatives.

The other recipients are Cenovus Energy Inc., Husky Energy, Imperial Oil, MEG Energy Corp. and N-Solv Corp.

Climate Change and Emissions Management is an independent, not-for-profit organization that administers monies collected from heavy greenhouse gas emitters under Alberta's emission reduction regulations. That fund is used to promote innovative clean technologies in the province.

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