

METHANOL+: METHANOL FROM CARBON DIOXIDE AND GREEN HYDROGEN

Quantiam Technologies Inc.

PROJECT TYPE	PROJECT VALUE	PROJECT STATUS	LOCATION	FUNDING AMOUNT
R&D	\$933,000	Completed	Edmonton, AB	\$500,000

Advancing Carbon Utilization Through Methanol+

Funded through the [Grand Challenge: Innovative Carbon Uses](#) in 2014, the Quantiam Technologies Inc. project aimed to develop and demonstrate a novel technology suite, Methanol+, that converts captured carbon dioxide (CO₂) and green hydrogen into methanol, a high-value industrial chemical and fuel. The project focused on two core innovations: a CO₂ utilization process that operates under milder conditions than conventional methods, and a solar hydrogen production system that uses sunlight to split water into hydrogen and oxygen. Together, these technologies offer a carbon-negative pathway to methanol production, with the potential to displace fossil-based methods and significantly reduce greenhouse gas emissions.

[DOWNLOAD FINAL REPORT](#)

Over the course of the two-year project, Quantiam and its partners, including the University of Alberta, successfully developed and tested advanced catalysts, reactor systems, and prototype facilities for both methanol synthesis and solar hydrogen generation. The Methanol+ process demonstrated net GHG reductions of up to 1.49 tonnes of CO₂ equivalent per tonne of methanol produced, while also offering substantial water savings compared to traditional methods. With strong technical results, a clear commercialization roadmap, and the potential to scale from pilot to industrial deployment, the project positioned Methanol+ as a transformative solution for Alberta's emissions-intensive petrochemical sector and beyond.

Reimagining Methanol Production for a Low-Carbon Future

By integrating CO₂ utilization with renewable hydrogen production, Quantiam's Methanol+ platform addresses two of the most pressing challenges in the energy transition: reducing industrial emissions and decarbonizing hydrogen supply. The

project's success in developing high-performance catalysts and modular reactor systems not only demonstrated technical feasibility but also laid the foundation for scalable, economically viable deployment. With the potential to consume nearly 1.5 tonnes of CO₂ per tonne of methanol produced, Methanol+ offers a compelling pathway for Alberta and other jurisdictions to meet emissions reduction targets while creating new value chains in clean fuels and chemicals. As global demand for low-carbon solutions accelerates, the Methanol+ technology stands out as a future-ready innovation capable of transforming captured carbon into a commercially and environmentally valuable resource.

What's next?

Since project completion in 2016, Quantiam Technologies has continued to build on the foundation laid by its Methanol+ initiative. The final report outlined a clear roadmap for scaling the technology, including pilot-scale demonstrations and eventual commercial deployment of integrated CO₂ utilization and solar hydrogen systems. While the company did not proceed through the Grand Challenge Round 2, it has remained active in advancing clean technology solutions. Notably, Quantiam was subsequently awarded funding from Natural Resources Canada (NRCan) in partnership with the University of Alberta in both 2016 and 2018. They have also had success in other applications, such as novel materials for the oil and gas industry.



Emissions Reduction Alberta is a registered tradename of the Climate Change and Emissions Management (CCEMC) Corporation.



Government
of Canada

Gouvernement
du Canada

General Inquiries

Email: info@eralberta.ca

Phone: [780-498-2068](tel:780-498-2068)

#2503, 10088 102 Avenue NW
Edmonton, Alberta, T5J 2Z1

#3050, 715 5 Avenue SW
Calgary, Alberta, T2P 2X6

Stay Updated



Subscribe To Our
YouTube Channel

[Privacy Policy](#) [Terms of Use](#)

In the spirit of reconciliation, we have the privilege of living, working, and investing on traditional territories, which include Treaty 6, Treaty 7, and Treaty 8 Nations; Metis Nations (Region 3 and 4); Inuit; and all others who live and care for these lands. We are dedicated to promoting a culture of collaboration and meaningful engagement.

© 2025 Emissions Reduction
Alberta (ERA)