



Background on Cleaner Energy Production and Carbon Capture and Storage projects

Climate Change and Emissions Management (CCEMC) Corporation

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ccec.ca

Climate Change and Emissions Management Corporation announces more than \$28.1 million in funding for five new clean technology projects

The Climate Change and Emissions Management (CCEMC) Corporation announced funding for five clean technology projects totalling more than \$28.1 million on June 30. The projects include two pilot projects to produce cleaner energy from fossil fuels and three carbon capture and storage projects.

The following summary of funded projects by the CCEMC includes descriptive information from project proponents, as well as media contact information.



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Organization: E-T Energy Ltd

CCEMC Funding: \$6,862,000

Project: Poplar Creek Project, ET-DSPTM for Development of Athabasca Oil Sands

Since 2004, E-T Energy Ltd., a private Canadian company, has focused on developing environmentally friendly, energy efficient and economic production of oil sands through the use of the Electro-thermal Dynamic Stripping Process, (ET-DSPTM). With a team of eight experienced professionals, the company has been planning and operating a pilot test of the ET-DSPTM technology on its Poplar Creek property north of Fort McMurray, with the goal of demonstrating technical feasibility of ET-DSPTM.

ET-DSPTM is an electrical heating technology used extensively in the environmental industry to remediate contaminated soil and groundwater. The transfer of ET-DSPTM to oil sands production will demonstrate an alternative method with the potential to eliminate direct on-site green house gas emissions using electricity and minimal water.

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Organization: ESEIEH consortium

CCEMC Funding: \$16,474,839

Project: Enhanced Solvent Extraction Incorporating Electromagnetic Heating.

The ESEIEH consortium is a joint venture of four companies: Harris Corporation of Melbourne, Florida, Laricina Energy Ltd., Nexen Inc. and Suncor Energy Inc.

The ESEIEH consortium combines leading expertise integrating state of the art bitumen extraction and electromagnetic power transmission technologies. Each company provides an essential contribution to the execution of an ESEIEH field pilot. Participating energy companies provide an extensive resource base for ESEIEH testing and implementation.

ESEIEH presents a transformative advance for in situ bitumen extraction, in which steam is replaced by the combination of electromagnetic heating and solvent dilution. The process eliminates the need for water and the burning of fossil fuels for steam generation, carries notably lower overall energy requirements, provides an improved framework for carbon sequestration and can potentially reduce greenhouse gas emissions from steam-assisted gravity drainage processes by up to 80 per cent. The environmental footprint of ESEIEH compares favourably to conventional oil recovery.

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Organization: HTC Pureenergy Inc.

CCEMC Funding: \$315,000

Project: HTC Pureenergy CO₂ Capture FEED Study for Devon's Jackfish SAGD Facility

HTC Pureenergy Inc. was founded in 1997 and is fully dedicated to carbon management including carbon capture, CO₂ enhanced oil recovery and CO₂ geological storage. HTC has significant intellectual property related to its modular CO₂ capture technology called the Pureenergy CCS[®] System. The company is closely aligned with the University of Regina for its past and on-going research and development capabilities. Headquartered in Regina, Saskatchewan, it has commercial offices in Calgary, Vermont and Sydney, Australia. HTC is publicly traded on the TSX-V and has 30 employees.

HTC Pureenergy will provide process design and Front End Engineering and Design (FEED) for a 1,000-tonne/day Pureenergy CCS[®] System to capture CO₂ from Devon Energy's SAGD boilers at its Jackfish in-situ oil sands developments located near Conklin, Alberta. The study will show how HTC's post combustion advanced amine CO₂ capture technology can be progressively added to Devon's existing SAGD facilities and integrated into the design of new SAGD boilers. This modular phased approach could be applied across the oil sands and other industries in Alberta and worldwide.

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Organization: GE

CCEMC Funding: \$2,000,000

Project: Ceramic membrane-based technology for H₂ production with CO₂ capture and sequestration

GE (NYSE: GE) is a global infrastructure, finance and media company with more than 300,000 employees and operations in more than 100 countries. GE has operated in Canada for over 100 years, beginning with the manufacturing facility in Peterborough, Ontario founded by Thomas Edison in 1892. Today, GE Canada has numerous major manufacturing facilities, sales and services locations across the country.

GE, the University of Alberta (UA), and Alberta Innovates Technology Futures (AITF) will collaboratively develop and demonstrate a ceramic membrane-based technology for the capture of sequestration-quality CO₂ from syngas streams. The project will address the materials and manufacturability challenges associated with membrane scale-up, and culminate in a slipstream demonstration at an end-user site. With widespread adoption, CO₂ emissions reductions of 10 million metric tons per year by 2020 are possible, along with spin-off benefits in the area of water reuse.

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Organization: Suncor Energy Inc.

CCEMC Funding: \$2,500,000

Project: OTSG Oxy-fuel Demonstration Project

Suncor Energy Inc. is Canada's premier integrated energy company. Suncor's operations include oil sands development and upgrading, conventional and offshore oil and gas production, petroleum refining, and product marketing under the Petro-Canada brand. While working to responsibly and sustainably develop petroleum resources through innovative technologies and processes, Suncor is also developing a growing renewable energy portfolio.

As a member of the CO₂ Capture Project, Suncor along with Praxair, Devon, Cenovus and Statoil, is developing a reliable, lower cost solution for capturing CO₂ from once-through steam generators (OTSG) that can be deployed at a commercial scale for in-situ bitumen production. As part of this project, the partners will construct and operate a pilot plant at Cenovus' Christina Lake in-situ operations.

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