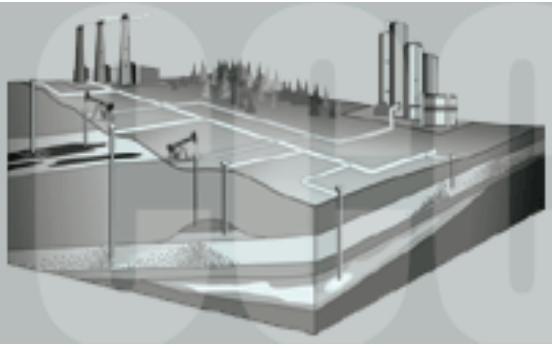

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AUGUST 2008, Newsletter

CANADIAN CO_2 CAPTURE & STORAGE TECHNOLOGY NETWORK

Sustainable Development Technology Canada Awards 5 Million in Funding to Deep Saline Aquifer CO_2 Storage Project

On July 28th, Sustainable Development Technology Canada (SDTC) announced that five million dollars in funding had been granted to the Petroleum Technology Research Centre (PTRC) in Regina to assist in a research, development and deployment (RD&D) project that would see the permanent storage of CO_2 from a set-point source in Saskatchewan deep underground into a saline aquifer. These aquifers are geological formations with storage capacities over ten times larger than depleted oil reserves and contain salty water not suitable for drinking or agricultural use. The Aquistore Project represents the first large-scale application of saline aquifer storage of CO_2 in North America, and the second largest in the world.

"Aquistore will see CO_2 captured at the Consumer's Co-operative Refinery and Upgrader in Regina from one of three reformers currently in operation there," noted the PTRC's Executive Director, Dr. Carolyn Preston. "The capturing technology, which will be installed in the expansion currently underway at the refinery, will eventually send 500 tonnes/day down a dedicated pipeline to an injection site 10 to 12 km away. "

UPCOMING EVENTS 2008

18 - 20 Aug The 4th Australia-New Zealand Climate Change Business Conference Auckland, New Zealand

18 - 19 Sep Gasification Technologies to Lower Costs and Capture Emissions Calgary, AB

29 Sep 29 - Oct 2 Twenty-Fifth Annual International Pittsburgh Coal Conference Pittsburgh, PA

Nov 16 - Meeting of CSLF Technical Group, Washington, CD

Nov 16 - 20 GHGT-9 : 9th International Conference on Greenhouse Gas Control Technologies **Washington, DC**

Dec 1 - 12 United Nations Climate Change Conference - COP 14, CMP 4 and sessions of the Subsidiary Bodies Poznań, Poland

IN THIS ISSUE

Key milestones in the project include:

- Site selection and research program design
- Comprehensive risk mitigation plan & regulatory approvals
- Capture equipment design and deployment
- Injection
- Initial Assessment of Technical & Economic Feasibility, Health, Safety & Sustainability
- Interim report for government funders
- Continued operation and monitoring

In addition to the SDTC, project partners include the Saskatchewan Ministry of the Environment, SaskEnergy, CCRL (Canadian Co-op Refinery Limited), Schlumberger and Enbridge.

SDTC's funding will assist in the development of an exhaustive technical program as well as a field demonstration. Dr. Preston is delighted with SDTC's commitment to the project and for what it may mean to carbon capture and storage (CCS), not just in Canada but internationally.

"A small handful of projects on saline storage have been conducted globally," she notes. "However, those projects have either been limited by the quantity of CO_2 injected or have not been injecting it continuously. They have also implemented very limited monitoring techniques. The Aquistore Project, with the help of SDTC, will provide the technical and economic de-risking essential to industry acceptance and will assist in widespread commercial application. The funding will also help develop best practices for CCS in Canada, and around the globe".

Sustainable Development Technology Canada (SDTC) is an arm's-length foundation which has received $1.05 billion from the Government of Canada as part of its commitment to create a healthy environment and a high quality of life for all Canadians.

SDTC operates two funds aimed at the development and demonstration of innovative technological solutions. The $550 million SD Tech Fund™ supports projects that address climate change, air quality, clean water, and clean soil. The $500 million NextGen Biofuels Fund™ supports the establishment of first-of-kind large demonstration-scale facilities for the production of next-generation renewable fuels.

SDTC operates as a not-for-profit corporation and has been working with the public and private sector including industry, academia, non-governmental organizations (NGOs), the financial community and all levels of government to achieve this mandate.

For more information on this project please contact Carolyn K. Preston, P.Eng., Executive Director at PTRC: Carolyn.Preston@ptrc.ca

Alberta Saline Aquifer Project (ASAP)

Canada-based Enbridge Inc., a leading oil and natural gas pipeline and distribution company, will lead a group of 19 energy industry participants in the Alberta Saline Aquifer Project (ASAP). ASAP is a broad-based, industry-supported CO_2 sequestration initiative that participants will roll out in three phases.

Phase 1 will involve identifying suitable locations for the long term sequestration of carbon dioxide in deep saline aquifers. It is expected to be completed by the end of 2008.

Phase 2 will involve a pilot project during which

sequestration sites will be designed to receive injected carbon dioxide.

Phase 3 and subsequent phases will involve expanding the project to a large-scale, long-term commercial sequestration operation.

ASAP is the first project of its kind in Canada, and is intended to play a major role in advancing industry and government's knowledge of carbon dioxide sequestration.

Sequestration is widely considered to be one of the most meaningful ways that Canada and Alberta can reduce overall emissions. This project is a significant stepping stone in that endeavor, and an excellent opportunity for industry members to collaborate in the effort to find climate change solutions that work.

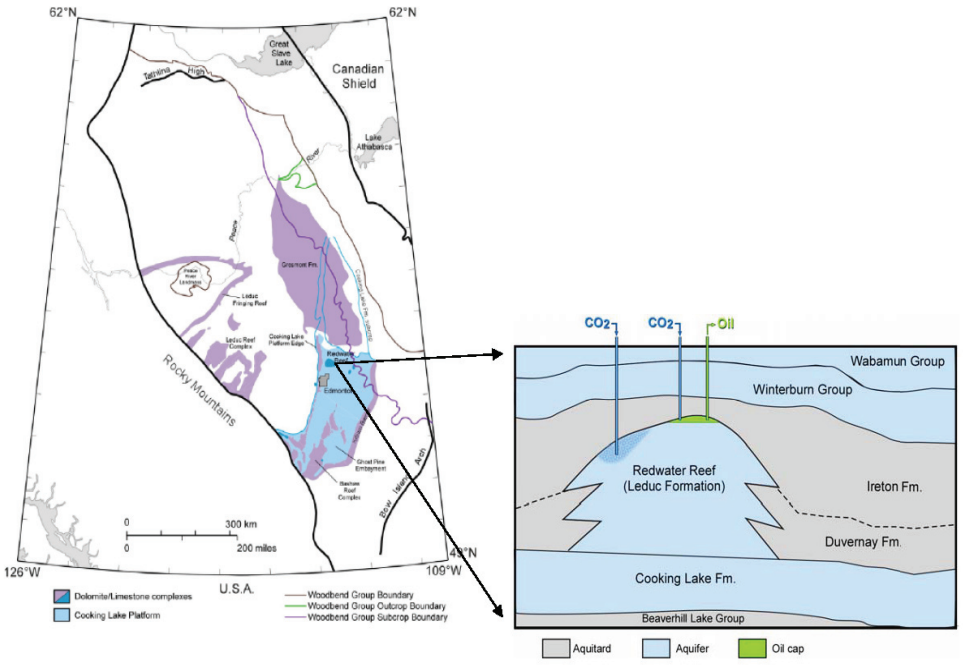
—Patrick D. Daniel, President and Chief Executive Officer, Enbridge Inc.

List of Participants:

ATCO Power Canada Ltd.
BP Canada Energy Company
Chevron Canada Resources
ConocoPhillips
Enbridge Inc.
EnCana
EPCOR
GreatPoint Energy Inc.
Hatch Energy
Laricina Energy Ltd.
Norwest Corporation
OPTI Canada Inc.
Pembina Pipeline Corporation
Penn West Energy Trust
Praxair Canada Inc.
Quadrise Canada Corporation
Schlumberger Carbon Services
TransCanada
UTS Energy Corporation

Redwater Project – Alberta Research Council & ARC Energy Trust

The Redwater Leduc reef has the potential to store the current oil sands cumulative CO_2 emissions for the next 20 years. The reef, which is located northeast of Edmonton in Alberta's Industrial Heartland, offers the opportunity of significantly advancing CO_2 Capture and Storage (CCS) from Large Final Emitters (LFE's) in the Fort Saskatchewan–Fort McMurray corridor, contributing to a reduction in greenhouse gas emissions associated with oil sands production. The Redwater CCS Pilot is focused on CO_2 storage within the deep saline aquifer portion of the Redwater reef. This pilot provides the opportunity for Alberta/Canada to show leadership by implementing a large-scale CO_2 storage project in a deep saline aquifer and deployment of essential monitoring technologies. Alberta/Canada can showcase the potential of storing vast amounts of CO_2 in deep saline aquifers to the world. This pilot also supports the sustainable development of the province's oil sands and integration of Alberta's Industrial Heartland.



Phase One Review Baseline Data	Phase Two Drill Data Well and Design Pilot	Phase Three Injection Pilot Execution
▪ *Geological characterization* ▪ *Rock characterization* ▪ *Initial geological model*	▪ *Data well drilling* ▪ *Data collection and analysis* ▪ *Development of facies model*	▪ *Drilling of pilot well (if needed) and refinement of facies model*
▪ *Basin, regional and local hydrogeological analysis*	▪ *Development of the hydrogeological model*	▪ *Hydrogeological modelling and long term containment*
▪ *Baseline mineralogy and Geochemical assessment*	▪ *Development of the geochemical model and modelling*	▪ *Geochemical monitoring and geochemical trapping assessment*
▪ *Geomechanical analysis*	▪ *Development of the geomechanical model*	▪ *Geomechanical modelling and leakage assessment*
▪ *Groundwater analysis*	▪ *Baseline environmental monitoring* ▪ *Cumulative effects assessment*	▪ *Environmental monitoring (atmospheric, soil, water wells)*
▪ *Seismic characterization*	▪ *Baseline seismic*	▪ *4D and passive seismic monitoring*
▪ *Baseline reservoir simulation*	▪ *Incorporation of facies model into simulator* ▪ *Scenario analysis for site location*	▪ *History matching* ▪ *Optimization strategies for CO_2 injection, CO_2 storage & EOR*
▪ *Geological and well integrity*	▪ *Performance and risk assessment*	▪ *Performance and risk management*
▪ *Initial stakeholder dialogue* ▪ *Baseline research on community and public awareness* ▪ *Industry engagement*	▪ *Initial local community engagement* ▪ *Ongoing stakeholder dialogue and lessons learned* ▪ *Industry outreach*	▪ *Local community consultation* ▪ *Stakeholder dialogue* ▪ *Lessons learned and public awareness report*
▪ *Assessment of CO_2 supply cost and project economics*	▪ *Life cycle economic and emission analysis*	▪ *Commercial demonstration design and economics*
▪ *Site and storage capacity assessment*	▪ *Selection of pilot site and recommend injection strategy*	▪ *Injection of CO_2* ▪ *Pilot data analysis*
▪ *Integration of project data* ▪ *Liaison with other projects*	▪ *Integration of project data* ▪ *Liaison with other projects*	▪ *Extension to other parts of reef* ▪ *Best practices*

The Redwater Leduc reef has a total areal extent of nearly 600 square kilometers. It is more than 1,000 meters deep and is up to 275 meters thick. The original oil zone was only 50 meters, confined to the Northeast edge of the reef, and is one of the largest oil reservoirs in Canada. The reef is bounded at the top and on its flanks by the Ireton shale and is hydraulically connected to the underlying Cooking Lake aquifer.

Based on the high water injectivity in the Redwater Leduc reef, the potential exists to inject sustainably in excess of 1,000 tonnes of CO_2 per day per well in the aquifer portion of the reef. While the top of the reef offers the potential for CO_2 enhanced oil recovery, the rest of the Redwater reef offers a very large capacity for CO_2 storage. Preliminary storage capacity estimates for the aquifer are in the order of one gigatonne (i.e. one billion tonnes) of CO_2 .

To verify the potential for CO_2 storage, a CCS pilot is proposed to be conducted in the saline water zone of the Redwater reef. While the research consortium has conducted an initial geological assessment based on the oil leg, the specific location of the pilot will be finalized after a comprehensive review of the geology, hydrogeology and reservoir characteristics of the entire reef has been completed. In addition, the regional geology and hydrogeology will be assessed to address issues around the containment of the CO_2 by natural barriers. A data well planned to be drilled for the geological assessment may be subsequently converted into the injector for the pilot. Storing CO_2 associated with enhanced oil recovery activities in the oil reservoir will also be assessed. The majority of oil wells were drilled in the late 1940s to early 1950s. The project will evaluate the condition of the wells and clarify the viability of long term CO_2 storage in this part of the reef.

The Pilot Team:

Alberta Research Council, ARC Resources Ltd.,

Geological Survey of Canada, Simon Fraser University, University of Alberta, University of Calgary, University of Regina, University of Saskatchewan.

To Participate:

This pilot is being supported by the Alberta Government and by the Government of Canada. The fee for industry to participate in Phase One of this pilot is $50,000. If Phase One results in a recommendation to move to Phase Two -- encompassing drilling of a data well, selection of a pilot site and design of the CO_2 aquifer storage pilot -- then a call for further industry participation will be issued. If warranted, then Phase Three would be focused on the implementation of the pilot, and analysis of the data from the pilot; followed by design and costing for a commercial demonstration.

The $1.8 million first phase is being funded by ARC Energy Trust, the Alberta Energy Research Institute (AERI) and Natural Resources Canada (NRCan). Phase one is scheduled to be completed in spring 2009.

Download *The Redwater Reef in the Heartland Area, Alberta; A Unique Opportunity for Understanding and Demonstrating Safe Geological Storage of CO2*

For Information on how to become a member in this initiative, contact:

Bill Gunter
Alberta Research Council
(780) 450-5467
gunter@arc.ab.ca
or
Todd Cole
ARC Resources Ltd.
(403) 503-8752
tcole@arcresources.com

Alberta surges ahead with climate change action plan

$2 billion invested in carbon capture and storage; $2 billion in public transit

The Alberta government is surging ahead on its climate change action plan with two new funds totaling $4 billion to reduce greenhouse gas (GHG) emissions equal to taking more than a million cars off the road each year.

The province will create a $2-billion fund to advance carbon capture and storage (CCS) projects while a second $2-billion fund will propel energy-saving public transit in Alberta.

"We're tackling both sides of the emissions challenge on behalf of Albertans and all Canadians," said Premier Ed Stelmach. "We're reducing the impact of industrial emissions with carbon capture and storage and investing in public transit to reduce the impact from our tailpipes."

Stelmach said while other jurisdictions talk, his government's Climate Change Strategy has legislated real targets and real action. "With this announcement we will continue to demonstrate leadership and encourage the federal government and Alberta industries to make real investments in carbon capture and storage."

Funds will be allocated to encourage construction of Alberta's first large-scale CCS projects. The province has issued a request for expressions of interest to begin identifying those CCS proposals with the greatest potential of being built quickly and those which provide the best opportunities to significantly reduce greenhouse gas emissions. With the potential to reduce emissions at facilities such as coal-fired electricity plants and oil sands extraction sites and upgraders, the $2-billion fund will support CCS projects that are expected to reduce emissions by up to five million tonnes annually. That is the equivalent of taking a million vehicles off the road, or one-third of all vehicles registered in Alberta.

In addition, the equivalent of thousands more Alberta vehicles will be taken off streets and highways through $2 billion in public transit investments. The Green Transit Incentives Program (Green TRIP) will promote the use of local, regional and inter-city public transit. The program will support new public transit alternatives throughout the province that will significantly reduce the number of vehicles on Alberta roads and reduce GHG emissions.

Funds for the two initiatives will come from this year's surplus, which the province expects will be significantly larger than predicted due to higher-than-forecast oil and gas prices.

Alberta's Climate Change Action Plan, which will cut projected GHG emissions in half by 2050, is based on three key areas: carbon capture and storage; energy conservation and efficiency; and greening energy production.

International Partnership Evaluates Feasibility of Major Carbon Capture and Storage Project in British Columbia, Canada

Project has potential to be among the largest in the world

From the PCOR Website: U.S. Senator Byron Dorgan (D-ND), the U.S. Department of Energy National Energy Technology Laboratory (NETL), Spectra Energy Transmission, and the Energy & Environmental Research Center (EERC) in Grand Forks, North Dakota, announced their collaboration on a large-scale integrated carbon capture and storage (CCS) project near Spectra Energy's existing Fort Nelson natural gas plant in northeastern British Columbia, Canada.

The project, in its initial feasibility phase, aims to determine whether deep underground saline reservoirs (geological features which occur commonly throughout the United States and Canada) are appropriate for CCS. Tests and analysis will help demonstrate the effectiveness of using the technology to manage greenhouse gases.

The project will be part of a technology demonstration program conducted by the EERC's Plains CO_2 Reduction (PCOR) Partnership. The PCOR Partnership is one of seven regional partnerships in the United States selected by NETL to evaluate the best methods for capturing and storing carbon dioxide (CO_2). The PCOR Partnership also includes the British Columbia (BC) provincial government, which has directly contributed a $3.4 million grant toward the project as previously announced. The EERC is working with PCOR Partnership members, including NETL, Spectra Energy, and BC, to expedite the deployment of CO_2 sequestration technologies in the region. The Fort Nelson demonstration is one of two projects the PCOR Partnership will lead in its Phase III efforts (during 2007-2017).

As part of the feasibility project, which will evaluate geological, technical, and economic feasibility, Spectra Energy will drill two test wells to determine whether the surrounding geology is suitable for the permanent storage of CO_2 and hydrogen sulfide (H_2S). These compounds are present in the raw natural gas produced in the area and removed during processing at the company's Fort Nelson gas plant. If proven feasible, the EERC will design and implement a monitoring program for the injection phase of the project to ensure the safety of the environment and provide a basis for the creation and monetization of carbon credits.

"This is an exciting project that will contribute to solving one of our country's most important energy issues - how we will continue to use our fossil fuel resources as we address the issue of climate change," Senator Dorgan said. "The EERC has proven itself as a world leader in energy research, and I'm confident that, by teaming

up with NETL and Spectra Energy, they'll help make great strides in addressing that important question."

"At Spectra Energy, we have been utilizing carbon capture and storage technology for more than a decade," said Martha Wyrsch, president and chief executive officer of Spectra Energy Transmission. "Based on that experience, we believe CCS holds real promise in providing a safe and effective means of reducing greenhouse gases."

"Deploying CCS on a scale measuring up to the challenge of climate change requires a significant commitment from both the public and private sectors," Wyrsch continued. "We are excited to be working in collaboration with the Department of Energy and the Plains CO_2 Reduction Partnership as well as the province of British Columbia to explore the feasibility of a large-scale project at our Fort Nelson plant in BC."

Spectra Energy has been recognized by the United Nation's Intergovernmental Panel on Climate Change as a world leader in CCS technology. Currently, four of Spectra Energy's gas processing facilities in British Columbia and four in Alberta are equipped with CCS technology. Together, these facilities remove about 200,000 tonnes of greenhouse gases from the atmosphere each year.

"The PCOR Partnership is a model program at the EERC that emphasizes our culture of partnerships," said EERC Director Gerald Groenewold. "The more than 85 partners involved in the program are leveraging the facilities, world-class expertise, and vision of the EERC with their own financial and technical resources to lead the way to an energy-secure future. We believe that these efforts will allow for the environmentally responsible and synergistic utilization of the region's bountiful energy resources, including those from our coal, oil, natural gas, and renewable resources."

The contract was awarded by DOE with funds appropriated by Congress. Initial injections are scheduled to begin in late 2011.

The EERC is a research, development, demonstration, and commercialization facility recognized as one of the world's leading developers of cleaner, more efficient energy technologies as well as environmental technologies to protect and clean our air, water, and soil. The EERC, a high-tech, nonprofit division of the University of North Dakota, operates like a business and pursues an entrepreneurial, market-driven approach to research and development in order to successfully demonstrate and commercialize innovative technologies. The EERC currently employs over 300 people. Since 1987, the EERC has had over 1000 clients in all 50 states and 50 countries. Visit www.undeerc.org for more information.

Spectra Energy Corp (NYSE:SE) is one of North America's premier natural gas infrastructure companies serving three key links in the natural gas value chain: gathering and processing; transmission and storage; and distribution. For close to a century, Spectra Energy and its predecessor companies have developed critically important pipelines and related energy infrastructure connecting natural gas supply sources to premium markets. Based in Houston, Texas, the company operates in the United States and Canada approximately 18,000 miles of transmission pipeline, 265 billion cubic feet of storage, natural gas gathering and processing, natural gas liquids operations and local distribution assets. Spectra Energy Corp also has a 50-percent ownership in DCP Midstream, one of the largest natural gas gatherers and processors in the United States. Visit www.spectraenergy.com for information.

ARC Distinguished Scientist Takes Home Emerald Award

The Alberta Research Council's Dr. Bill Gunter has been awarded a prestigious 2008 Alberta Emerald Award. Gunter, who is a pioneer in the area of carbon capture and storage, won the top honour in

the category of "Research and Innovation".

Dr. Bill Gunter (right) with Alberta Environment Minister Rob Renner

Gunter feels the award is symbolic of the growing importance the environment is playing in industrial development. Gunter told the crowd at the awards ceremony, held on June 3 in Edmonton, "We're in a time that I categorize as the environmental revolution. You can compare it to the industrial revolution of the 1800s in that we are putting a high value on the environment in industry. So, I'm very pleased I could work at the Alberta Research Council in this particular area and that it's now becoming recognized nationally and internationally. It looks like it will play an important role in the province of Alberta."

Alberta Environment Minister Rob Renner, who was at Tuesday's awards ceremony, recognized Gunter's leadership in a technology that shows immense promise to help reduce greenhouse gas emissions. Carbon capture and storage would redirect CO_2 emissions released by industry and, instead, store them in deep underground secure geological formations such as depleted oil and gas reservoirs. It's estimated this technology could reduce Canada's greenhouse gas emissions by 30 percent or more over the next century.

Gunter acknowledged the other finalist for the award in his acceptance speech saying, "We are fortunate in Alberta because of the number of people I am happy to say are my colleagues, including Bernhard Mayer, who are also working very actively in this area and have established a reputation internationally."

CCCSTN Website to be relocated

The CANMET Energy Technology Centre in Ottawa is in the process of amalgamating its website together with the sites from Devon, AB and Vareness, QC. This will also include incorporating the CO_2 Network Website, CCS Technology Roadmap site and the Clean Coal Technology Roadmap site into this new website. The launch is expected in September 2008. Links from these sites will be automatically redirected to the new site. We will keep you posted on our new location.

Canada's CO_2 Capture & Storage Technology Roadmap is on-line at:
www.co2trm.gc.ca

For up-to-date news on CCS please visit
The Frontpage
of our website

If you have an article, project updates, photos, etc., you would like featured in our next Newsletter please email it to:
Donna Baskin
dbaskin@nrcan.gc.ca