



Winter tree planting is an innovative technique used by the Algar Historic Restoration Project, a joint industry project conducted under COSIA's Land EPA to improve caribou habitat quality. Companies involved include ConocoPhillips Canada, Nexen Inc., Shell Canada, Statoil Canada, Suncor Energy Inc. and Total E&P Canada. COSIA photo

Canada's Oil Sands Innovation Alliance: Collaboration for the Good of the Environment

Dan Wicklum

In March 2012 the CEOs of 13 of Canada's oil sands producers sat in a room in Calgary, and did something no CEO anywhere in the world had done before. They signed an agreement to share intellectual property and collaborate with their competition for the good of the environment. That landmark agreement marked the formation of Canada's Oil Sands Innovation Alliance and began a new chapter in the history of innovation for the oil sands industry.

Science and innovation have been companions of Canada's oil sands from the very beginning. The first scientific assessment of the oil sands was conducted in 1848, more than 150 years ago. Since then, the spirit of innovation and the application of science and technology have allowed Canada to become a world leader in the responsible production of unconventional resources like the oil sands.

Canada's oil reserves are the third largest in the world. Of the 173 billion barrels of oil in Canada, 168 billion barrels are located in Canada's three oil sands deposits in Northern Alberta and Saskatchewan.

The bitumen extracted from the sand and clay provides a secure source of energy for Canada and the world. It also provides economic benefits in the form of jobs, royalties and tax revenues that pay for public services across Canada.

We as Canadians value the benefits we see from oil sands but we also place great importance on the environment. With the global demand for energy expected to continue to grow, we will need to use all sources of energy—both conventional and unconventional—to meet it. Producers accept that operating in Canada requires high standards of environmental care and responsibility. They are committed to meeting those standards and continuously improving environmental performance through the development of innovative technologies as they develop this resource to keep up with demand.

Canada's oil sands producers have always been leaders in innovation. Their success in developing the technologies necessary to extract bitumen from oil sands in ways that are economically viable is testament to that. With every new project, individual producers have found ways to increase the economic viability and environmental sustainability of their operations. Now, through Canada's Oil Sands Innovation Alliance (COSIA) they are working together.

COSIA was formed by 13 of Canada's oil sands producers, representing about 90 per cent of Canada's oil sands production. It was formed on the powerful belief in the value of continuous innovation and collaboration to accelerate the pace of environmental performance improvement.

Through the development of globally precedent setting legal agreements, COSIA's members—fierce competitors in every other area—now collaborate at new levels. They can pool their knowledge and expertise to research, develop and implement innovative

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technologies in order to improve environmental performance in Canada's oil sands faster than they ever could on their own.

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The work COSIA's member companies are undertaking is broken into four environmental priority areas (EPAs); Land, Water, Tailings and Greenhouse Gases (GHGs). In order to articulate COSIA's vision and drive innovation, each EPA has developed an Aspirational Goal. They provide direction and alignment for member companies as they identify and develop new technologies that address key environmental issues for the industry. They also provide an important foundation for establishing measurable, short term goals for each EPA.

The aspirations are:

- We will strive to be world leaders in land management, restoring the land and preserving biodiversity of plants and animals.
- We will strive to be world leaders in water management, producing Canadian energy with no adverse impact on water.
- We will strive to transform tailings from a waste into a resource that speeds land and water reclamation.
- We will strive to produce our oil with lower greenhouse gases than other sources of oil.

These aspirations have allowed member companies to break new ground in what it means to collaborate. They play a significant role in guiding the

work being done within member companies to improve environmental performance.

If two minds are better than one, then better still are 13 of the most talented groups of minds; all working to solve some of the greatest environmental challenges facing not only the oil sands industry but the world. In many cases, the solutions we find for our industry will be transferable to other sectors. For example, as populations continue to grow, so too will the need for fresh sources of water. We will need to find low carbon intensive methods of desalinating brackish and sea water. COSIA companies are currently looking to reduce GHG intensity by increasing the energy efficiency of water treatment processes for in situ bitumen production. It is our hope that the solutions we find will improve water treatment technologies worldwide.

For that reason, COSIA has sought out innovative organizations from other sectors to collaborate with on solving these challenges. Through COSIA's Associate Membership (AM) program, we can collaborate with innovators around the world to find solutions to the environmental issues facing the oil sands industry.

For example, through COSIA's AM program, GE has contributed approximately \$18 million towards projects that will enable the development of new technologies to reduce water use and GHG emissions in Canada's oil sands. They are able to collaborate directly with COSIA's member companies, allowing technical experts from GE, Suncor Energy, Devon Canada, ConocoPhillips and several other member companies to share ideas and develop a new generation of environmental technologies.

While we take great pride in our ability to collaborate with some of the biggest energy players in world, we also recognize that sometimes game changing ideas come from small organizations or individuals—some

working out of their backyards and garages. For that reason, we have created the Environmental Technology Assessment Portal, or E-TAP. E-TAP allows anyone, anywhere in the world, to submit a technology idea directly to COSIA through our website, COSIA.ca.

To date, COSIA's members have shared more than 560 existing technologies that cost over \$900 million to develop. In addition to those contributed technologies, COSIA has about 190 active projects that cost over \$500 million dollars.

In addition to the AM program and E-TAP, COSIA works closely with government and academia to share knowledge and research in order to understand and mitigate the industry's environmental footprint. COSIA's Land EPA is working directly

with Alberta Innovates, Bio Solutions, Energy and Environment Solutions, the University of Alberta and the Natural Sciences and Engineering Research Council of Canada to establish the Alberta Biodiversity Research Chairs Program. The program, which currently includes two research Chairs at the University of Alberta in Edmonton, is intended to fast-track biodiversity science by providing funding and support to implement on-the-ground research in the boreal forest of Northern Alberta.

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Among the collaborative joint industry projects our member companies have undertaken are plans to build a Water Technology Development Centre (WTDC) at Suncor's Firebag in situ facility. The WTDC will allow Suncor and its joint industry partners

—Canadian Natural Resources Limited, Devon Canada, Nexen Energy, Shell Canada and Husky Oil—to test water treatment and further develop recycling technologies in real world conditions, shortening the time frame needed to develop and commercialize technologies.

COSIA, as both an organization and a concept, is new, just over two years old. But our members are beginning to see results. We look forward to continuing to work together to develop new, innovative ways of improving the environmental performance of our industry and finding solutions to the complex environmental issues that face this planet. **P**

Dan Wicklum has been the Chief Executive of COSIA since March 2012. Prior to joining COSIA, he held various senior positions for Environment Canada and Natural Resources Canada. He is a board member of the Climate Change and Emissions Management Corporation. His first career was as a linebacker in the CFL. info@cosia.ca

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