

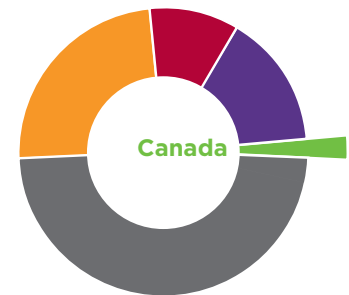
ENVIRONMENTAL INNOVATION



Photo Courtesy of: Cenovus Energy

Global demand for energy is growing and Canada is uniquely positioned to help meet this demand. As Canada's oil and natural gas industry works to help meet global energy needs, at the same time we are accelerating environmental performance. Canada has abundant energy resources and oil and natural gas producers are committed to developing solutions the world needs for a cleaner energy future.

Global Greenhouse Gas Emissions



ENVIRONMENTAL PERFORMANCE IN CANADA'S OIL SANDS

AIR



Canada, with 0.5 per cent of the world's population, produces about 2 per cent of global CO₂ equivalent emissions. **Oil sands account for 9.8 per cent of Canada's GHG emissions and about 0.16 per cent of global GHG emissions.**

Source: Environment and Climate Change Canada 2017, World Resources Institute 2013

WATER



Canada's oil sands industry recycles water and continues to look for ways to reduce fresh water use. **Oil sands producers recycle 80-95 per cent of water used.**

Source: Government of Alberta 2015

LAND



Canada's oil sands industry is committed to reducing its footprint, reclaiming all land affected by operations and maintaining biodiversity. **Alberta's oil sands lie under 142,000 km² of land. The active mining footprint is 904 km², about the size of Calgary.**

Source: Government of Alberta 2016



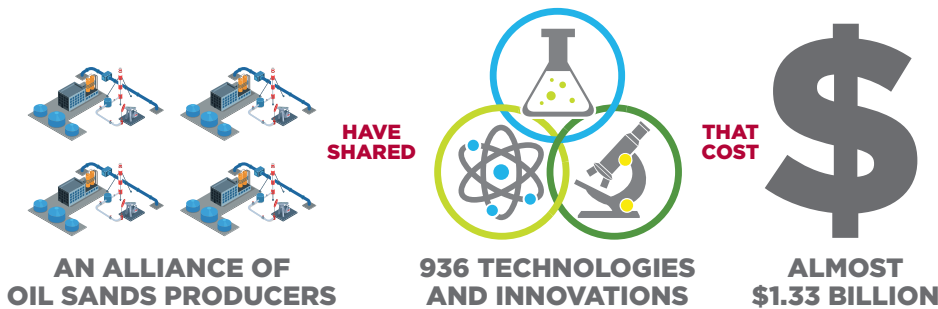
CANADA'S OIL SANDS INNOVATION ALLIANCE

Canada's Oil Sands Innovation Alliance (COSIA) is an alliance of oil sands producers focused on accelerating the pace of improvement in environmental performance in Canada's oil sands through collaborative action and innovation.

Through COSIA, member companies capture, develop and share the most innovative approaches and best thinking to improve environmental performance in the oil sands, focusing on four Environmental Priority Areas (EPAs) – tailings, water, land and greenhouse gases. COSIA's members represent almost 90 per cent of the oil sands production in Canada.

To date, COSIA member companies have shared 936 distinct technologies and innovations that cost more than \$1.33 billion to develop. These numbers are increasing as the alliance matures and expands.

CANADA'S OIL SANDS INNOVATION ALLIANCE (COSIA)



COSIA takes innovation and environmental performance in the oil sands to the next level through a continued focus on collaboration and transparent exchange of ideas and best practices.

INDUSTRY IN ACTION

GREENHOUSE GASES (GHG)

COSIA IN SPACE will use satellite technology to more accurately measure greenhouse gas emissions from tailings ponds and mine faces. COSIA will literally be going out of this world to achieve its vision of accelerating the pace of environmental performance improvement in Canada's oil sands.

LAND

FLYING DRILLING RIG - Picture a drilling rig. Now, picture a flying drilling rig. SkyStrat™ is a new rig developed to improve the drilling of stratigraphic wells in the oil sands. About two-thirds the size of a conventional rig it can be transported by helicopter allowing companies to access remote drilling locations year-round, while avoiding the need to disturb land for building roads.

WATER

RIFLE TUBE TECHNOLOGY involves using a "rifled" or "ribbed" tube instead of the smooth tubes currently used in boilers and heat exchangers that produce steam for SAGD. The internal ribbing of rifle tubes introduce centrifugal force in the tubes helping to uniformly and more efficiently turn water into steam, which means higher energy efficiency and less water use.

www.cosia.ca

ENVIRONMENT



COSIA HAS FOUR ENVIRONMENTAL PRIORITY AREAS:

- Tailings
- Water
- Land
- Greenhouse Gases

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