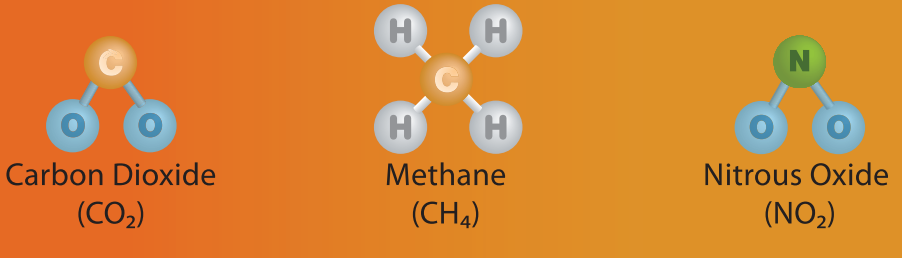


CLIMATE CHANGE

September 2011

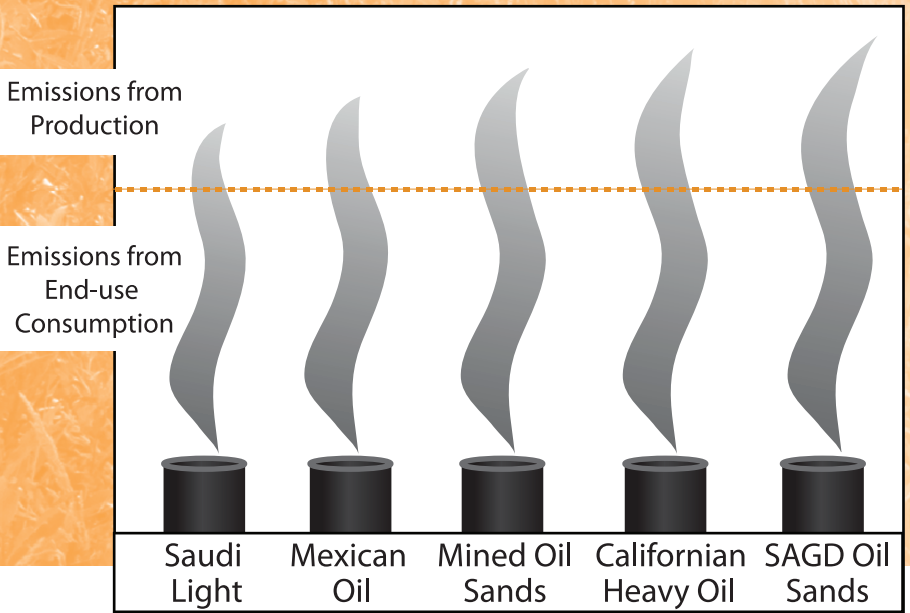
Climate change is a wide-scale change in average weather over a time period of at least 30 years. Global climate change is occurring as a result of increased amounts of greenhouse gases, which raise the Earth's temperature by trapping heat in the atmosphere, through a process known as the greenhouse effect. The main greenhouse gases are:



The Alberta government requires industrial facilities that emit more than 100,000 tonnes of greenhouse gases a year to reduce emissions intensity by 12 per cent or buy carbon off-sets, or pay a fee. Since 2007, more than 24 million tonnes of emissions that would have otherwise gone to the atmosphere were not released – the equivalent of 4.8 million cars off the road. Facilities that don't meet their targets purchase offsets or pay into a technology fund. In 2010, companies purchased 3.9 million tonnes of offset credits from Alberta projects that were able to reduce emissions.

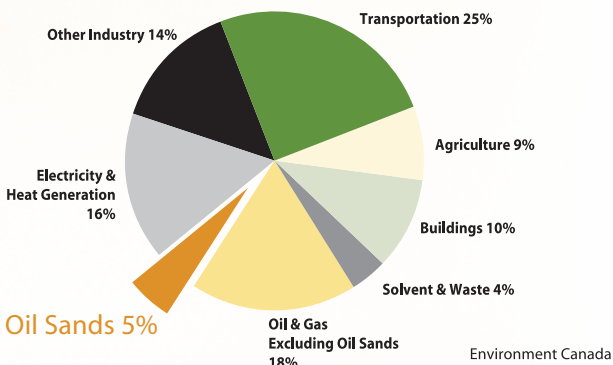
Oil sands companies have invested in research and technology resulting in reduced greenhouse gas emissions per barrel of oil by an average of 39 per cent since 1990. However, as oil sands production increases overall greenhouse gas emissions increase as well.

Production of oil from oil sands does produce more greenhouse gases than light conventional oil; however, 80 per cent of oil's greenhouse gases are emitted when oil is consumed by the end user. Using this full lifecycle, fuels produced from oil sands create between five to 15 per cent more emissions than the average crude oil processed in the United States.

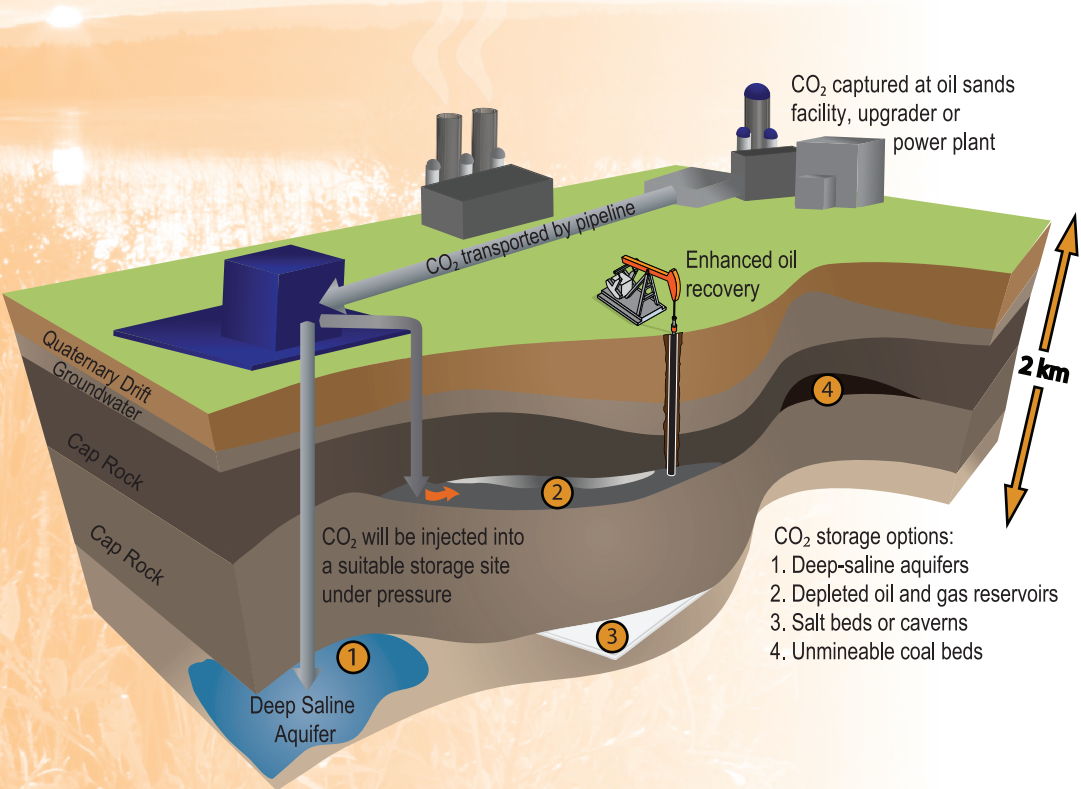


Currently, oil sands related greenhouse gas emissions account for five per cent of Canada's total greenhouse gas emissions and less than one tenth of one per cent of the world's.

Canada's Greenhouse Gas Emissions by Sector



Alberta's emissions are projected to grow to 400 million tonnes by 2050, largely due to forecasted growth in the oil sands sector. By 2050, Alberta's climate change plan will reduce projected emissions by 200 million tonnes, which is the equivalent of taking 42 million cars off the road each year. Carbon capture and storage will be responsible for 70 per cent of this reduction. In oil sands, the bulk of these reductions will occur in production and upgrading.



Carbon capture and storage takes CO₂ that would otherwise be emitted into the air and stores it deep underground. Carbon capture and storage is successfully being used in Alberta and Saskatchewan, as well as Norway, Australia and Denmark without adverse effects.

