

Oil sands

[Countries](#), [Canada](#)



Canada has always had extensive deposits of oil sands, and has been a fascination to the explorers and settlers of earliest Canada, when Europeans saw how First Nations people used it to water proof their birch bark canoes. That being said, the majority of oil sands in Canada are contained in Alberta. Alberta's oil reserves play an important role in the Canadian and global economy, supplying stable, reliable energy to the world.

Alberta's oil sands have been described by Time Magazine as " Canada's greatest buried energy treasure. " (Alberta) Oil sand is a naturally occurring mixture of sand, clay or other minerals, water and bitumen, which is a heavy and extremely viscous oil that must be treated before it can be used by refineries to produce usable fuels such as gasoline and diesel. Bitumen is so viscous that at room temperature it acts much like cold molasses.

A variety of treatment methods are currently available to oil sands producers and new methods are put into practice as more research is completed and new technology is developed. As non-renewable resources start to diminish, it is vital to start and explore the other types of energy resources, specifically renewable resources. As the essay progresses, oil sands as an energy resource will be thoroughly examined through discussing the advantages and disadvantages in terms of cost, practicality, and environmental impact.

Oil sands have many advantages in terms of cost making it a viable energy resource. Oil is a limited resource around the globe, and with rising oil prices, processing the Alberta tar sands not only provides cheaper oil for Canada rather than importing it from foreign regions, but also generates billions of dollars in income from shipping to the U. S. The tar sands of Canada are the

second largest in the world, trailing behind Saudi Arabia's massive deposit of 264 billion estimated barrels.

Even with increased production of the Alberta oil sands to 3 million barrels a day, the oil sands will still contain enough fuel to satiate Canada's oil demand for more than 150 years and shipping to China will begin in the next few years as more and more oil becomes mineable. This natural resource provides hundreds of thousands of Canadians with jobs, including mining, research and development, and environmental assessment. This is a great stimulant to the economy. Abilities to become more environmentally efficient have been put into place such as water efficiency.

Companies that have been at the site longest can now recycle a barrel of water to reuse it up to 18 times. Statistically, the Alberta oil sands are a huge economic stimulant for Canada. From its earliest stages of commercial production from 1997-2006, it made approximately 59 billion dollars in royalties, and 80 billion dollars in new projects from 2007-2010. One disadvantage or drawback in terms of cost from using oil sands is that prices are rising in order to construct these projects. From 2001 when the price of construction was 3. billion, rates have tripled to where construction of a site costs 10 to 11 billion dollars. After being built, there are major costs in natural gas and other fuel sources, as well as maintenance. (O'Callaghan) By far, the advantages outweigh the disadvantages in terms of cost. Extrapolating into decades to come, it is highly likely that oil sands will play an important role in our production of energy. The second aspect that will be examined is the practicality of oil sands. Oil sands are one of the single largest reservoirs and producers of oil in the world.

Oil sands worldwide contain over 2 trillion barrels of oil, even if much of it is unrecoverable with today's technology, and Canada has the second largest area of oil sands in the world, behind Venezuela. To reiterate, even though much of the oil is unrecoverable, it is still practical because a lot of oil can still be obtained. Canada is also the only country to have a large scale commercial industry in thousands, making up 40% of Canada's total exported oil. Canada produces 20% of all of the U. S. 's crude oil products, and much of this is from the tar sands.

The process of making synthetic crude oil requires an enormous amount of water, especially in the separation process. Each barrel of oil requires two tons of oil sands and up to five barrels of hot water. Water is also needed along with electricity to convert it steam. The steam is pushed by steam injections making bitumen less viscous. It is quite evident that oil sands are not practical in terms of its process. Also three-quarters of the bitumen can be recovered from the sands, leaving behind 25% as waste.

With the technology in our present society, oil sands are not entirely practical in terms of efficiency; however, in the future, this may change. To reflect, there are many disadvantages associated with oil sands, especially in the way it is processed. As the issue of global warming becomes more prevalent, we must evaluate choices that are “ green” or do not impact our environment in a negative way. Thus, the impacts of oil sands as an energy resource on the environment will be discussed. The

Canadian and Global environment take the hardest hits from the tar sands. Depleting and contaminating water, air pollution, processed lands and tailing ponds are left barren with their geology disrupted, and take years to

generate new life. Wildlife patterns and populations are disturbed, and greenhouse gases are emitted at an incredible rate, to accompany the huge expense of natural gases. The oil sands do not just produce conventional oil, but crude, which creates about 3 times as many greenhouse gases as processing conventional oil do.

A massive amount of natural gases found on site and imported are used, including a planned pipeline that will bring in enough natural gas from the north, that it could singlehandedly fuel every house in Canada. Trucks, machinery, and even the most efficient technology onsite use some form of irreplaceable resource to work. Approximately 27 megatonnes of greenhouse gases are produced every year, and is expected to rise with production of oil to more than 100 megatonnes by 2015.

This will make the oil sands the single largest producer of greenhouse gases in Canada. Hence, more advanced technologies are needed until oil sands can be completely green. Until then, it will remain a source of greenhouse gas. The oil sands of Alberta are an important natural resource for Canada. Oil sands generate much profit economically, billions every year. It is, of course, also the second largest oil field in the world producing large supplies of crude oil. This generates hundreds of thousands of jobs.

In the larger scheme of events, it will improve the economy and keep oil prices relatively low. It is also practical, despite the environmental problems that it poses. However, as time progresses, newer technologies are discovered such as Carbon Capture and Storage (CCS) which helps the tar sands recovery process and the reduction of greenhouse gases. Once its

environmental problems are kept at the bare minimum, it may become one of our main sources of energy in decades to come.