Climate change is the defining challenge of our time. Our current trajectory will triple or quadruple atmospheric CO2 concentrations and create a climate unknown to this planet. However, a new type of gasoline derived from the Canadian tar sands is making.

Tar sands are a mix of sand, clay, water, and dense petroleum known as bitumen. Deposits are found primarily under the Boreal forest and wetlands in Alberta, Canada.

Tar sands oil is extremely greenhouse gas (GHG) intensive. The production of a barrel of tar sands oil releases at least three times the GHG emissions as the production of a barrel of conventional crude oil. On a lifecycle basis, the GHG emissions of tar sands oil are 22% greater than an average barrel of crude oil.

Tar sands mining also results in the destruction of the Canadian Boreal forest, which is a vital carbon sink. This means that not only does tar sands development create vast quantities of new carbon emissions; it also destroys the Earth’s natural ability to capture carbon through the forest.

A Co-operative Bank study found that, “even if all other carbon dioxide emissions stopped, fully exploiting the tar sands would still tip the world into catastrophic climate change by raising global temperatures more than 2C above pre-industrials levels.” In order to avoid drastic climate impacts, tar sands must be stopped.

In addition to exacerbating climate change, tar sands have multiple environmental and social impacts. The Boreal forest, which covers an area the size of Florida, is one of the world’s last remaining intact ecosystems and is called the “rainforest” of North America. The extraction of tar
sands is extremely destructive. To create one barrel of oil from surface mining requires mining two tons of soil! In fact, more soil has been excavated at just one of the operating mines than from the construction of the Great Pyramid of Cheops, the Great Wall of China, the Suez Canal, and the 10 biggest dams in the world combined.

Companies claim they can “reclaim” this forest after the tar sands extraction, but after 46 years of Canadian tar sands production, only 0.15 percent of the environment disturbed by tar sands development is certified as reclaimed.

Additionally, tar sands mining is extremely energy and water intensive. Current mining operations use enough natural gas to heat three million Canadian homes. The mining process creates enormous volumes of toxic wastewater that is stored in tailing ponds. By 2010, there were 68 square miles of tailing ponds, some of which are so large they can be seen from space. In total, almost 3 million gallons of toxic wastewater seep out of the tailing pits into the Boreal forest and Athabasca River every day, which equals over 1 billion gallons a year.

The transportation of tar sands also has considerable environmental impacts. Pipelines can cause spills which are almost impossible to clean up, since unlike conventional oil, tar sands sinks to the bottom of water bodies. For example, a tar sands pipeline ruptured in Kalamazoo Michigan in 2010. The cleanup has cost almost 1 billion dollars and is not close to being finished.

Tar sands contain, on average, 11 times more sulfur, 11 times more nickel, 6 times more nitrogen, and 5 times more lead than conventional crude. These pollutants are linked to acid rain, smog, haze and a host of health problems, including asthma and bronchitis.

First nation territories in Canada are exposed to the worst of the threat from tar sands. In 2009, an Alberta Cancer Board study confirmed that the people of Fort Chipewyan have been experiencing above average rates of cancer. In addition, resident’s livelihoods are threatened by deformed fish, declining waterfowl, and strange tasting water. But those along pipeline routes and in refinery communities are also at risk of spills, volatile air pollution, and water contamination.

Meanwhile, the tar sands industry - made up of most of the largest oil companies in the world - is pursuing massive expansion plans. Oil companies are planning to expand their network of pipelines and refineries across the United States. Most of the oil from tar sands will not even be used in America, it will be exported overseas. Ken Hughes, Alberta’s energy minister, claimed, “For Alberta, the strategic imperative is that we get our products to the ocean, so that we secure global prices for our products”. America will assume all of the risks of tar sands, but none of the rewards.

It is imperative that we stop the expansion of the tar sands industry. There is no room in America’s clean energy future for tar sands.

To learn more about what the Sierra Club is doing to combat tar sands, visit our website at www.dirtyoilsands.org.