

Backgrounder: Bitumen and Biocarbon

A new research paper from Global Forest Watch Canada provides for the first time important information on the significant lack of reporting of greenhouse gas emissions caused by boreal forest disturbance in the Alberta tar sands.

The report, "Bitumen and Biocarbon," shows that huge amounts of CO₂ are released by the disturbance and destruction of the Boreal forest for both open-pit and in situ mining operations in the tar sands. Governments and the oil industry do not measure or report on the greenhouse gas emissions from this kind of forest disturbance. This means the climate impact of tar sands operations is not accurately captured by current reporting mechanisms.

The research shows that under full development the annual average release of carbon from the removal of natural ecosystems would be 8.7 megatonnes (mt) of CO₂, with wide fluctuations over time. This is a substantial addition to the current reported greenhouse gas emissions of about 36 mt a year from tar sands operations.

The CO₂ emissions caused by forest destruction result from the release of biological carbon (biocarbon) that is stored in living and dead plants and in soils. This biocarbon is lost through the construction of mining facilities, roads, well pads, plant facilities, mine pits and pipelines and other disruptions of stores of above and below ground vegetation, soils and peat. The stored carbon becomes greenhouse gas through disturbance.

The total area of natural ecosystems that has been or will be degraded and destroyed by mining and in situ in the tar Sands is 1,613,887 hectares (ha) of northern Alberta's Boreal ecosystems. This is an area 20 times the size of the City of Calgary.

The Boreal forest and other forest ecosystems sequester huge amounts of carbon. They store almost three times as much carbon as is in the atmosphere, with tropical and boreal forest ecosystems holding the largest stores.

The research paper provides a special focus on the climate threat caused by the loss of peatlands in the tar sands area. Peatlands store far more carbon than treed areas. Peatlands in the Boreal forest in particular contain as much as one third of the world's soil carbon. Over the past 10,000 years peatlands have removed a significant amount of CO₂ from the atmosphere.

Industrial activities in the tar sands are depleting peatlands and causing the release of stored carbon and the loss of annual sequestration potential. The report notes that only five per cent of the peatlands in the tar sands region need to be destroyed for the region to lose the carbon-sink effect of peatlands. Full development of the tar sands will remove more than five per cent of peatlands and cause emissions to exceed the ability of peatlands to sequester carbon.

The report notes that in future the volume of carbon sequestered and stored long-term will be insignificant for the peatland area that has been and will be disturbed compared to the natural peatland ecosystem. This is based on the present plans for reclaiming peatlands and on the limited progress made since tar sands mining began in 1967 to reclaim peatlands.

Reclamation efforts will sequester carbon from the atmosphere, but are unlikely to replace most of the biocarbon that will be lost through disturbance for thousands of years, especially in peatlands.

The science used by GFWC to calculate unreported CO2 emissions is the most recent found in scientific literature on the topic. The data GFWC used for its calculations were considered of the highest caliber by the reviewers who commented on the research paper before it was published.

The research paper notes the growing concern over Canada's greenhouse gas emissions and a lack of relevant and complete data available to the public on emissions at a time when rapid and major expansion of the tar sands industry continues. Concern about Canada's greenhouse gas emissions is elevated by the failure of Alberta and the federal government to curb emissions.

According to the Union of Concerned Scientists, Canada is seventh on the list of top 20 emitters, ahead of the UK, Italy, France and Spain. In 2007, Canada's total reported greenhouse gas emissions were 747 mt from all sources. Reported emissions from the tar sands are expected to increase from about 36 mt in 2007 to as much as 140 mt by 2020. This does not count the unreported emissions of the disturbance of the Boreal forest in Alberta. Canada signed the Kyoto Protocol in 2002 and committed to reduce emission to 558.4 mt by 2012.

For more information, please contact:

Jessica Wilson, Greenpeace media and public relations officer, (778) 228-5404

Christy Ferguson, Greenpeace climate and energy coordinator, (416) 451-9354

Peter Lee, lead author. Global Forest Watch Canada executive director, (780) 422 5989 or cell 780 914 6241)

Brian Blomme, Greenpeace communications coordinator, (416) 930-9055