

## TAR SANDS (Alberta Canada) - information collated from the internet (mostly in Spring 2010)

"The **Tar Sands** are a vast reserve of oil in **Alberta, Canada** [174 billion barrels] - the second largest oil reserve in the world." The Tar Sands oil is in the form of a bitumen mixture with sand/water/clay - a type of "dirty oil" as opposed to the "conventional oil" in e.g. Saudi Arabia (world's largest reserve). As other sources of oil (i.e. conventional oil) run out, major oil companies, banks and investors are pouring billions of dollars into Tar Sands oil extraction despite it being more costly in energy and money per barrel of oil extracted (- costs can even exceed market prices!). Near surface deposits are "strip-mined" - extensive open-cast mines, whereas deeper deposits are melted in situ by gas-heated steam and the melted tarry mixture piped up.

**RBS** (and thus the UK government) is investing huge amounts of taxpayer's money into the Tar Sands oil extraction industry (nearly \$2.5 billion since the "bailout"!); **BP** is poised to massively increase its tar sands development (AGM is 15Apr10). **Shell** is hugely involved. **Barclays** and **HSBC** have a big investment.

**BUT:**

**The environmental impact is huge, and there are human impacts too:**

1. **Huge scale deforestation of Alberta's pristine Boreal Forest** - and destruction of wetlands/mires - in preparation for bitumen/oil extraction. The Boreal Forest - like the tropical rainforests - is a carbon sink of global importance. So is peatland. An area in Alberta At least the size of England is affected by existing plus proposed oil extraction.

2. The process produces **three to five times the volume of carbon dioxide** per barrel as compared with conventional oil production, with Stanford University Adam Brandt's more recent peer-reviewed report commissioned by the EU showing extraction emissions being **4.9 times higher** (which translates to a 'wells to wheels/exhaust pipe' aka 'life-cycle' emissions figure 23% higher). It is thus a strong driver of climate change. Another source states: "Fully exploiting Canada's tar sands would lead to an estimated increase in atmospheric carbon dioxide of between 9 and 15 parts per million, enough to take us to the brink of runaway climate change".

3. Separating the tar from the sand etc uses **the same volume of natural gas per day as heating 3 to 4 million Canadian homes**, and that is before it is converted to oil.

4. Also requires **huge amounts of water** (and chemical thinners), as heated water is used in the extraction process (to melt the oil out of the tar sands). It takes 3 barrels of fresh water to make 1 barrel of oil from the sands; trillions of gallons of water are extracted each year from the Athabasca River, enough to service a city of 2 million people, and the summer flow of the river downstream has declined by nearly a third. (- Andrew Nikiforuk). Only 5-10% of the water is returned: the rest is too toxic, and is pumped into "tailings ponds": (Ref: WWF web-page)

5. The contaminated used water and sludge are stored in **huge toxic "tailings ponds"** [actually vast lakes in size, over 30 square miles in total, or 130sq km, one of the largest is 13 miles long! - visible from space; 2011 update from Pembina Institute: 'Tailings lakes' cover 170 km<sup>2</sup> and contain over 840 billion litres of waste"] - comprising **toxic waste** made up of water, clay, sand, residual bitumen and **heavy metals**. The toxins include e.g. Polycyclic Aromatic Hydrocarbons (carcinogenic and potent fish-killers) and naphthenic acids. Migratory birds die if they land on these. The dams leak toxins into the nearby Athabasca River. A recent report [WWF website link] makes a conservative estimate that 1 million litres of this toxic water is leaking into the Athabasca River and groundwater every day. If the dams broke there would be catastrophic large scale pollution of not only the rivers and Lake Athabasca but also the Arctic Ocean. The production of one barrel of oil generates 2 barrels of toxic waste. (-Nikiforuk) Already Suncor has faced charges of dumping untreated waste water into the Athabasca River.

6. **High rates of rare forms of cancer and respiratory disease** - are being seen in indigenous communities, on whose land Tar Sands extraction has been imposed.

George Poitras, of the indigenous Mikisew Cree First Nation says his people are increasingly afflicted with **cancers** [- at a higher rate than normal and of a disproportionately large number of different types. - ref in Ethical Consumer pdf]

7. George Poitras also claims leaks from the tailings ponds - along with legal effluent release - have a serious environmental impact: "We're about 250km downstream from tar sands activities, on Lake Athabasca," says Poitras, "Our traditional hunters and trappers have noticed that water levels have receded and **fish are diseased** and have blisters or mutations. The taste of animals is different and their flesh is discoloured."

**The Beaver Lake Cree Nation's** have a legal treaty right to hunt and fish in their homeland but the loss of these resources has made them fight a legal battle (lawyer is Jack Woodward) - assisted financially by the British **Co-operative** Group.

7. **Species population declines:** Pembina Institute, an Alberta-based energy watchdog, reported that woodland caribou populations around current in situ developments have crashed by 50 percent in the last decade, and that fur-bearing animals and boreal songbirds will decline by 80 percent in industrialized tar-sands landscapes. The paper concluded that in situ projects alone would "push many species over the brink."

8. **Groundwater issues** are also alarming. In situ thermal operations, which inject steam into underground formations of bitumen [in contrast to the open-cast mining of the near-surface bitumen], typically draw their water from fresh or salty aquifers. But these operations are growing so quickly that industry now uses three times more water than the government ever predicted. Many of the oil-bearing geological formations lie beneath shallow aquifers and wetlands. In a comprehensive 2005 study for the Alberta Energy Research Institute,

independent consultant Bruce Peachey noted that in situ projects could create such huge voids in the ground that water from shallow aquifers and surface wetlands could fill them on a "mega scale."

9. Other pollution: of air as well as water. Also, abandoned open-cast mines have toxins e.g. cyanide and arsenic. Habitat restoration is not carried out (except in small non-representative "show-case" example) as it is both technically difficult (especially where formally wetlands) and very costly - and not enforced by government.

10. Salmon under threat from proposed pipelines: "The Enbridge pipelines would transport petroleum from the Alberta oil sands to tankers on the British Columbia coast and petroleum condensate east from British Columbia to Alberta. The pipelines would cross and at times run parallel to important salmon habitats in the Upper Fraser, Skeena and Kitimat watersheds. Pipeline construction, ruptures and leaks all pose serious risks to salmon and the communities that depend on them. Experience indicates that a spill of some sort will inevitably occur." Pembina Institute website and report on impact on salmon.

### **For further info on Tar Sands:**

#### **ORGANIZATIONS:**

[www.no-tar-sands.org](http://www.no-tar-sands.org) - **UK Tar Sands Network** - network for tar sands aspects of some of the orgs listed below.

NB: Sign up to their e-mail newsletter.

[www.tarsandsaction.org/](http://www.tarsandsaction.org/) - Tar Sands Action org in America. V. active campaign vs proposed Keystone XL pipeline.

[www.campaigncc.org/](http://www.campaigncc.org/) - Campaign against Climate Change. UK-based. click Coal & Oil link on their home-page.

[www.platformlondon.org](http://www.platformlondon.org) - Download recent thorough report: "Cashing in on Tar Sands: RBS, UK banks and Canada's "blood oil" as pdf: /files/cashinginontarsandsweb.pdf

Also e.g. PLATFORM & Greenpeace UK "BP and Shell: Rising Risks in the Tar Sands Investments"

[www.peopleandplanet.org](http://www.peopleandplanet.org) - student action on world poverty and the environment. Very up to date and likeably informative.

[www.globalwitness.org](http://www.globalwitness.org) - Global Witness exposes the corrupt exploitation of natural resources etc. 2009 "Heads in the Sand" [www.globalwitness.org/media\\_library\\_detail.php/854/en/heads\\_in\\_the\\_sand\\_governments\\_ignore\\_the\\_oil\\_suppl](http://www.globalwitness.org/media_library_detail.php/854/en/heads_in_the_sand_governments_ignore_the_oil_suppl)

[www.wdm.org.uk](http://www.wdm.org.uk) - **World Development Movement** - very informative e.g. on RBS track record of investing into projects linked to environmental destruction and human rights abuses e.g. in mining industry and oil industry etc etc etc.....

(WDM is a UK-based anti-poverty organisation campaigning for a fairer world to end global inequality)

[www.pembina.org](http://www.pembina.org) **Pembina Institute** e.g. "Oil and Salmon Don't Mix" 16Oct09 as pdf downloads (Fact sheet &/or Full Report)

[www.ethicalconsumer.org/Oilsandsboycott](http://www.ethicalconsumer.org/Oilsandsboycott) "Stop the Oilsands" pdf

[www.toxicfuels.com](http://www.toxicfuels.com) (a Co-operative Group website). Co-op films (see below). You can join the Toxic Fuels campaign.

[www.wwf.org.uk](http://www.wwf.org.uk) [http://assets.wwf.org.uk/downloads/scraping\\_barrell.pdf](http://assets.wwf.org.uk/downloads/scraping_barrell.pdf) = 52pp report by WWF & Co-op Bank: "Unconventional Oil - Scraping the bottom of the barrel?"

[www.greenpeace.org.uk](http://www.greenpeace.org.uk) [www.foei.org](http://www.foei.org) - Friends of the Earth International, [www.foe.co.uk/campaigns/climate](http://www.foe.co.uk/campaigns/climate)

[www.countingthecost.org.uk](http://www.countingthecost.org.uk) = [www.fairpensions.org.uk/tarsands/action](http://www.fairpensions.org.uk/tarsands/action) - vg leaflet. Influence your pension holders -easy.

[www.tarsandswatch.org](http://www.tarsandswatch.org) e.g. "Members of European Parliament Appeal to Companies to Stop Tar Sand Business" 11/12/09

[www.dirtyoilsands.org](http://www.dirtyoilsands.org) film: "Canada's Dirty Oil - Breaking Our Addiction" [www.vimeo.com/6597349](http://www.vimeo.com/6597349) = direct access.

[www.ienearth.org](http://www.ienearth.org) e.g. /tarsands.html (**IEN** = Indigenous Environmental Network) - well worth visiting. Refers to **The Canadian Indigenous Tar Sands Campaign**, which Mr Thomas-Muller (indigenous name means Strong Thunderbird Man) represents (interviewed by BBC for web-page). Others e.g.: George Poitras, of the indigenous Mikisew Cree First Nation.

The Beaver Lake Cree Nation - assisted by the Co-op group in their legal battle to retain treaty rights to their traditional way of life.

[www.climatecamp.org.uk](http://www.climatecamp.org.uk) - For campaigners who like "direct action".

[www.risingtide.org.uk](http://www.risingtide.org.uk) - network for local action vs climate change.

#### **PRESS (& TV):**

[www.newint.org](http://www.newint.org) - **New Internationalist**: Jess Worth e.g. "Taking on Tarmageddon" (for April 2010 issue).

[www.guardian.co.uk](http://www.guardian.co.uk) - **The Guardian & The Observer**: Numerous useful articles e.g. Kevin Watkins 4/3/10: "A fund for climate chaos - RBS investment in tar sand exploitation is a highly irresponsible use of public bailout money", Terry Macalister The Observer, Sunday 28/3/10: "British firms face onslaught from tar sands campaigners Lobbyists bid to turn RBS, BP and Shell annual meetings into green referendums". Also: "Oil groups mount legal challenge to Schwarzenegger" etc.

[www.timesonline.co.uk](http://www.timesonline.co.uk) - **The Times & Sunday Times**: At least several articles: e.g.: Feb14, 2010: "BP risks investor outrage at 'dirty' oil deal" Danny Fortson. The Times Dec6, 2007: "BP upsets Greenpeace with return to tar sands" Robin Pagnamenta. Feb7, 2010: "BP faces protest over oil sands development" Robin Pagnamenta, Energy Editor.

[www.independent.co.uk](http://www.independent.co.uk) - **The Independent**: e.g. Sarah Arnott 2mar10: "RBS accused over funding for tar sands 'blood oil'", Cahal Milmo 10dec07: "The biggest environmental crime in history"

[www.demotix.com](http://www.demotix.com) - "**NEWS BY YOU**" **citizen-journalism website and photo agency** - has relevant articles with photos: e.g.: Tar Sands Oil-ympics outside Canada House 13feb10 by ALEXMILANTRAC, Canadian Tar Sands Oily-Olympics 13feb10 by Peter Marshall, Climate Emergency Bike Ride 5dec09 by Peter Marshall. Protesters hold public vote at RBS HQ in London.

[www.bbc.co.uk](http://www.bbc.co.uk) BBC NEWS UK Good info on Climate Change, but could be better on Tar Sands. Inadequate T.S. coverage on TV.

[www.onearth.org/article/canadas-highway-to-hell](http://www.onearth.org/article/canadas-highway-to-hell) - journalistic article by Andrew Nikiforuk 1/9/07 re Tar Sands industry.

**FILMS**: E.g.s: Co-op's "DIRTY OIL". "H<sub>2</sub>OIL". On web: "Canada's Dirty Oil: Breaking Our Addiction" - direct access: [www.vimeo.com/6597349](http://www.vimeo.com/6597349) or e.g. via [www.tarsandswatch.org](http://www.tarsandswatch.org), short film(s) on YOUTUBE etc eg see IEN above.

#### **COMPANIES etc involved in the tar sands oil extraction industry (incl. investors and equipment manufacturers etc)**

- **Shell, BP** - in joint venture with **Husky Energy**, and numerous other oil companies...

- UK investors include: e.g. **RBS, Barclays, HSBC** etc....

- Parts of larger companies involved e.g. providing key parts of infrastructure, include: **Superdrug, Hitachi, Nouvelle** (recycled toilet paper!) etc etc... [from Ethical Consumer]

Collater: Consultant Ecologist in Cumbria, UK [www.dragonfly1.plus.com](http://www.dragonfly1.plus.com) Spring 2010 (+ minor updates)