



KEEP TAR SANDS OUT OF EUROPE

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FUEL QUALITY DIRECTIVE - ARTICLE 7a: Implementing provisions

MEP briefing on Tar Sands and the role of the European Parliament

16th March 2011

Using European Parliament's power of scrutiny:

We call on Parliament to confirm its message to the Commission that

- i) the immediate inclusion of a default value for tar sands and shale oil in Fuel Quality Directive implementing measures is expected, and**
- ii) failure to address tar sands emissions means Parliament will move to reject the proposals when presented.**

Current state of play:

- Commission decision imminent on implementing measures of Article 7a of the Fuel Quality Directive.
- Commission's scientific report published in February confirming science-based value for tar sands of 107 g CO₂/MJ (23% worse than conventional oil).
- Environment Committee to table Oral PQ on tar sands and Fuel Quality Directive at April plenary
- EU Citizen's petition to 'Keep tar sands out of Europe' with >20,000 signatures presented to Parliament on 16th March.

In late 2010, Members of the Parliament's Environment Committee (ENVI) pressed the Commission to set a specific value for fuel produced from tar sands feedstock. The Commission cited a lack of data to be able to assign a value and responded that it would do this by end 2011. Since then, the implementing provisions for the Fuel Quality Directive have been delayed and the Commission's specially commissioned study on the issue has been published. There now remains no barrier to the immediate inclusion of a tar sands default value in the Commission's proposed implementing provisions for Article 7a of the EU Fuel Quality Directive.

Independent peer reviewed scientific studies, including those recently undertaken for the Commission, indicate these levels would be appropriate; recognizing the higher carbon intensity of tar sands and shale oil extraction and refining.

RECOMMENDATION: Reintroduce specific default value of around 107 gCO₂eq/MJ for tar sands and a value of 139 g CO₂eq/MJ for shale oil to complete the list of unconventional fuels.

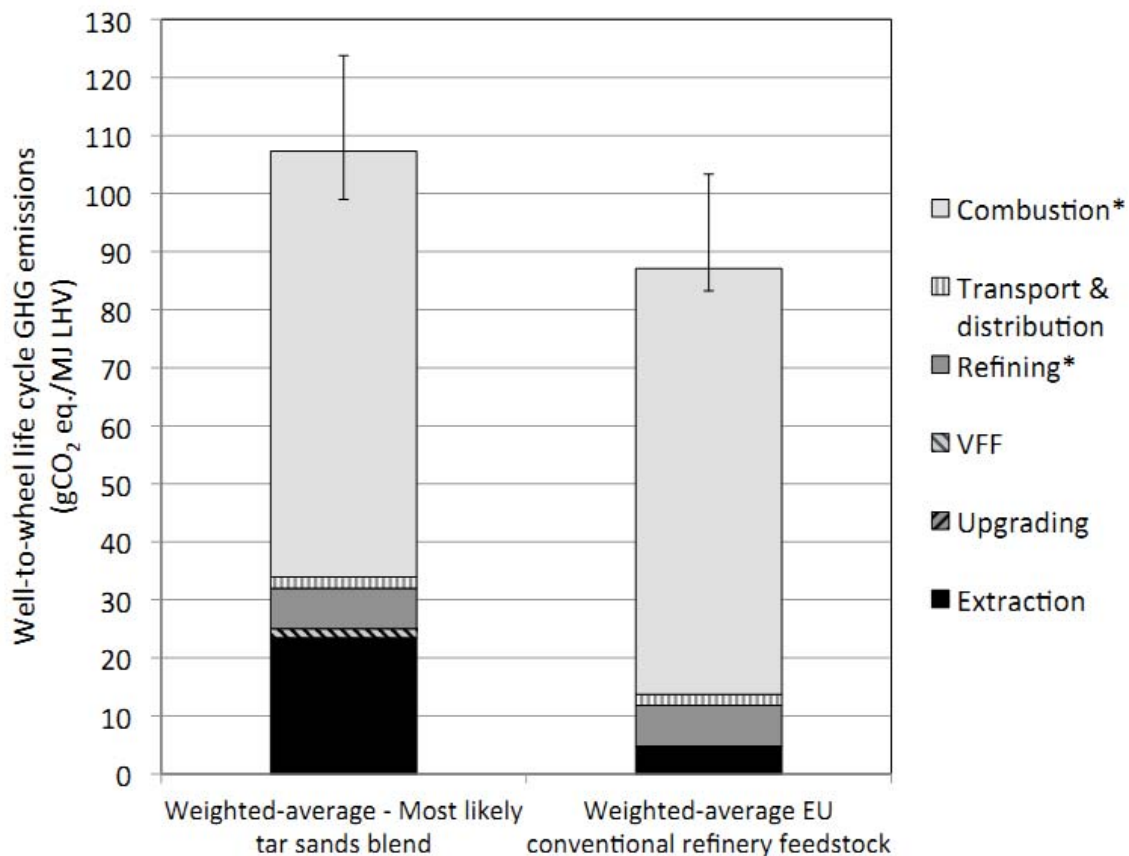
Independent peer reviewed scientific studies, including those recently undertaken for the Commission, indicate this level would be appropriate. Recognising higher carbon intensity of tar sands and shale oil extraction and refining.

If there is no specific default value set for tar sands fuels they will be treated the same as petrol or diesel with their much lower general default values. These significantly higher GHG emissions from tar sands production would therefore not be captured and there would be nothing to restrict imports into the EU of these highly GHG intensive fuels. If, as expected, fuels derived from tar sands were to increase EU market share, it would also lead to uncertainty over the actual GHG savings resulting from Article 7a and the Fuel Quality Directive.



Photo taken from the Tarnished Earth exhibition © Jiri Rezac

A study commissioned by the European Commission entitled “Upstream greenhouse gas (GHG) emissions from Canadian oil sands as a feedstock for European refineries” found that the most likely estimate of average life cycle emissions from tar sands is 107.3 g CO₂/MJ. This is 23% worse than conventional oil currently used in the EU, as the graph below shows.



According to the study, “GHG emissions from oil sands production is significantly different enough from conventional oil emissions that regulatory frameworks should address this discrepancy with pathway-specific emissions factors that distinguish between oil sands and conventional oil processes.”

EU Citizen’s Petition:

We call upon the European Parliament to ensure the Fuel Quality Directive achieves its goals of “encouraging the use of lower GHG intensity fuels” and “reducing GHG emissions from fossil fuel pathways” by ensuring the implementing provisions of Article 7a classify fuels derived from tar sands feedstock as having at least 23% greater GHG emissions than those from conventional crude oil, and that they are allocated a ‘default value’ of at least 107 gCO₂eq/MJ as soon as possible.

20,000 signatures from citizens across Europe

Environment Committee's Oral Question on tar sands to Commission:

(to be approved)

Linda McAvan

on behalf of the Committee on the Environment, Public Health and Food Safety

Subject: Oral question to the European Commission on the implementation of the Fuel Quality Directive, including an EU default value for tar sands and oil shale

The Fuel Quality Directive (Directive 2009/30/EC amending Directive 98/70/EC), which aims to fulfil a 6% emission reductions target for transport fuels by 2020, sets a deadline of 1 January 2011 for implementing provisions to set the baseline value for greenhouse gas emissions from transport fuels, and for the methodology on the Member States' annual reporting procedures under Article 7a. Will the Commission explain why this deadline has not been met and why Parliament was not sent the proposed implementing provisions for scrutiny three months in advance of this deadline?

In view of this delay and the ongoing research by the JRC into an EU default value for tar sands and oil shale, which the Commission announced had started last September, is the Commission now in a position to include a default value for tar sands and oil shale in these delayed implementing provisions in order to ensure a level playing field for these unconventional fuels with the other unconventional fuels covered by the provisions?

Technical amendment pending, to change "ongoing research" to "recently completed research"



Photo taken from the Tarnished Earth exhibition © Jiri Rezac

ANNEX I: EU POLICY BACKGROUND:

Article 7a of the Fuel Quality Directive, the EU's Low Carbon Fuel Standard, sets a mandatory 6% reduction target for transport fuel suppliers to reduce their lifecycle greenhouse gas (GHG) emissions per unit of energy by 2020. The implementing methodology for Article 7a is currently being finalised by the Commission. The Co-operative, Transport & Environment, Greenpeace, Friends of the Earth Europe and WWF, all have serious concerns regarding the omission of measures to take account of higher GHG emissions of fuels derived from some feedstocks, notably tar sands and shale oil, in the Commission's existing draft proposals.

Tar sands are the most commercially exploited unconventional fossil fuel, with large-scale developments in Canada and Venezuela. There are future plans for exploitation in Madagascar, the Republic of the Congo and Russia amongst others.¹ Other unconventional fossil fuels such as oil shale are primarily at the research and development stage.²

Tar sands contain bitumen, a low quality tarry fossil fuel that requires large inputs of energy and fresh water to extract and process. Canada has proven tar sand reserves of 174 billion barrels, second only to Saudi Arabia's conventional oil reserves.³

A recently published study by the European Commission found that tar sands fuels emit on average 23% more lifecycle GHG emissions than the EU average for conventional oil, and said that the most likely emissions from tar sands on life cycle basis is 107.3 gCO₂eq/MJ. NGOs are asking for this value to be assigned to tar sands fuels as part of the implementing rules for the EU Fuel Quality Directive.⁴

Tar sands production is currently around 1.5 million barrels per day (bpd); oil companies have announced plans to increase production to over 7 million bpd.⁵ The Canadian Energy Research Institute has estimated that \$379bn of investment is required by 2025 to bring production to around 4 million bpd.⁶ This is a global business, financed and operated by companies from around the world, involving European companies Shell, Total and BP, and European investors.

EU imports of fuels from Canadian tar sands feedstock are currently low but are likely to increase in coming years as production increases, especially if the proposed Keystone XL pipeline from Alberta, Canada to the Gulf of Mexico goes ahead.⁷

CLIMATE CHANGE IMPACT OF TAR SANDS:

Independent studies have found that the GHG emissions from extraction to refinery of synthetic crude oil derived from tar sands feedstock is on average three times higher than those of the US average for conventional crude.⁸ From a full lifecycle perspective (from extraction to combustion), fuels derived from tar sands feedstock have an increased GHG intensity range of between 18% and 49% compared to the current EC draft methodology default value for petrol of 85.8 gCO₂eq/MJ.⁹ The Commission's own recently released study found the average to be 23% higher amounting to 107.3 gCO₂eq/MJ. This is the value that should be assigned to tar sands fuels as part of the Fuel Quality Directive.¹⁰

Based on the most recent research from the US Dept of Energy/NETL, synthetic crude from Canadian tar sands feedstock is the most GHG intensive crude being used in the US today. The only other sources notable for significantly above average GHG emissions are Venezuelan Bitumen (i.e. tar sands) and Nigerian crude (as a result of illegal gas flaring).¹¹

Currently the majority of tar sands extraction is done via open cast mining. As tar sands production increases and deeper deposits are exploited this is set to become in-situ extraction.¹² The average in-situ operation emits 2.5 times more GHGs per barrel than mining operations¹³ and will raise the average emissions.

The significant expansion of tar sands exploitation is not compatible with the International Energy Agency '450ppm stabilisation scenario' for the future development of global energy markets. A tripling of tar sands production over the next 20 years would only fit with its business as usual 'reference scenario', which would lead to 1000ppm of atmospheric CO₂ and 6 degrees of warming, the effects of which to quote the IEA would "almost certainly lead to massive climatic change and irreparable damage to the planet".¹⁴

Industry claims:

The Governments of Alberta and Canada and some oil companies claim that tar sands derived fuels are only 7% more GHG intensive than conventional oil. However, the CERA studies they cite¹⁵, besides actually stating 5-15% or 7% if blended with other fuels, are subject to challenge on the grounds that they are not independent or peer reviewed, used only theoretical project data rather than publicly available operator data and used dirtier conventional oils for comparison than other studies such as those from the US Dept of Energy. Independent peer reviewed studies, US Government, and European Commission studies show that the relative emissions of tar sands are much higher than claimed. Indeed the Commission's own study does not recommend using CERA's study due to the lack of transparency over its methodology.

Carbon Capture and Storage (CCS) has been widely cited by supporters of the tar sands as justification for ongoing expansion activities. However, even the most optimistic estimates from industry experts claim emission reductions from tar sands production will only be 10-30% by 2020 (and only for the more favourable sites) and 30-50% by 2050. Reductions of 66-85% are required to make tar sands production emissions comparable with the average for conventional oil. Under a constrained growth forecast (5.7 million bpd) and assuming a highly aggressive deployment of CCS, the emissions from tar sands production alone would still exceed Canada's entire carbon budget for 2050, were it to meet a GHG reduction target of 80% compared to 1990 levels by 2050 (as recommended by IPCC 2007).¹⁶

Significant barriers exist to CCS achieving its maximum potential in connection with the tar sands. Not least its expense, with estimates from \$60 to \$290 per tonne of CO₂ captured (\$200 to \$290 for in situ production); which compares poorly with emissions capture from larger, highly concentrated sources, such as coal fired power stations (\$60 to \$150).¹⁷ CCS offers too little, too late and is too expensive to be judged a viable solution to the high carbon intensity of tar sands production.

FUEL QUALITY DIRECTIVE & TAR SANDS:

The Fuel Quality Directive sets a mandatory 6% GHG reduction target for transport fuel to be reached by fuel suppliers by 2020. This target relates to GHG emissions associated with both production and use of fuels – known as 'well-to wheel' or lifecycle emissions. As the emissions resulting from fuel combustion are fairly consistent and beyond the control of fuel suppliers, the incentive for fuel suppliers is therefore to reduce the carbon intensity of fuel production. The European Parliament is currently awaiting an implementing provision for this Directive that will set specific GHG intensity values for different fuels.

Transport fuels produced from unconventional fossil fuel feedstocks, such as tar sands, oil shale and coal, have particularly high GHG emission levels. The Commission's proposals currently set higher default values for some unconventional feedstocks – 'coal to liquids' (172 gCO₂eq/MJ) and 'gas to liquids' (97 gCO₂eq/MJ) – but not for either tar sands or oil shale. Both of these unconventional fuels should be treated similarly, with specific default values set to account for their higher GHG emissions. With an increased lifecycle GHG intensity range of 18% to 49%¹⁸, it would be inappropriate to treat tar sands the same as conventional petrol/diesel.

The use of specific default values for all fuel feedstocks, including all unconventional fossil fuels, would be consistent with the methodology already put in place for biofuels. A specific default value for tar sands of 107 gCO₂eq/MJ was included in the 2009 public consultation document but has been dropped from recent EC documents.¹⁹ This is also the value established in the recently published Commission study 'Upstream greenhouse gas (GHG) emissions from Canadian oil sands as a feedstock for European refineries', which concluded: "GHG emissions from oil sands production is significantly different enough from conventional oil emissions that regulatory frameworks should address this discrepancy with pathway-specific emissions factors that distinguish between oil sands and conventional oil processes."²⁰

There is currently great uncertainty whether the Commission's proposal will contain a specific value for fuels derived from tar sands feedstock, although the Commission has stated it agrees this is necessary. The Co-operative, Transport & Environment, Greenpeace, Friends of the Earth Europe and WWF have serious concerns that, in the absence of a specific value to take account of higher GHG emissions from tar sands fuels, these fuels will be treated in the same way as conventional petrol and diesel, even though they emit 18% to 49% more GHGs than the EU average for petrol. If, as expected, fuels derived from tar sands were to increase EU market share, this would work against the goal of a 6% reduction in GHG emissions in the EU Fuel Quality Directive as the GHG emissions from EU fuels would increase without being accounted for.

WIDER RECOMMENDATIONS FOR THE FUEL QUALITY DIRECTIVE:

NGOs and civil society groups urge that the Commission's implementing provisions for Article 7a of the Fuel Quality Directive should include three specific measures to ensure that GHG reduction in supply of transport fuels are achieved by 2020.

i) **Immediately reintroduce a specific default value for tar sands and set a specific value for oil shale as established in recently published Commission studies.** Both tar sands and oil shale are unconventional fossil fuel feedstocks. Fuels derived from these feedstocks are more GHG intensive than those derived from conventional crude oil. They too need specific values to reflect their higher emissions – just like the other unconventional feedstocks, coal to liquids and gas to liquids, for which default values will be included from the start.

ii) **Establish the principle of a 'hybrid' approach,** which would allow fuel suppliers to report actual values, if they can prove that these are better than the default value. This would give a real incentive for companies to improve GHG emissions of their fuels over time, something the Commission's favoured 'simple' approach would fail to achieve. The principle of a 'hybrid' approach should be adopted immediately for all feedstocks. A methodology has to be developed for the reporting of actual values. It can be tested until 2012.

iii) **By end of 2012, include disaggregated default values for extraction and refining methods** for all fossil fuels. Introduce robust reporting requirements immediately to provide the data to calculate these future default values, to take account of the wide differences in GHG emissions across different extraction and refining methods, for example enhanced oil recovery and offshore drilling. This will give companies an incentive to maximise their GHG emission savings across the supply chain.

ACTIONS:

With the adoption of Article 7a of the Fuel Quality Directive, the European Union has sent a clear signal that transport fuels must be decarbonised. We urge MEPs and Member States to opt for an effective implementation system that helps to achieve this objective.

Such a system would include specific measures to take account of the following – specific values for all unconventional fuel feedstock including tar sands; commitment to a ‘hybrid’ approach; and disaggregated default values for extraction and refining methods.

We therefore urge MEPs to raise these issues in any contacts with the Commission over the coming weeks and to send a clear message that specific default values are EXPECTED for all fossil fuel feedstock, most notably tar sands, and that failure to address tar sands emissions means they will move to REJECT the proposals when presented.



Photo taken from the Tarnished Earth exhibition © Jiri Rezac

ANNEX II: WIDER ENVIRONMENTAL IMPACTS OF TAR SANDS DEVELOPMENT:

In addition to being a highly carbon intensive fuel, exploitation of the Canadian tar sands causes significant deforestation, produces huge quantities of toxic waste and pollutes air and water, all with profound consequences for local wildlife and First Nation communities.

1. Land use change

Approximately 80,000 km² of Alberta's boreal forest (an area the size of Scotland) has been leased for tar sands development. Of the 600 km² of land disturbed by tar sands mining, only 0.02% (1.04 km²) is certified by the Government of Alberta as 'reclaimed'. According to mine operators, an additional 54 km² has been reclaimed but not yet certified. Little publicly available data supports this claim. Also this 'reclamation' does not restore the land to the same condition or even habitat as companies found it, instead boreal land will have much lower levels of carbon density and biodiversity than previously existed. The area certified as 'reclaimed' by the Government for instance was formerly wetland not upland forest.

In-situ extraction has been presented by some in the industry as a more environmentally friendly way of exploiting the tar sands. Although it is visibly less striking than open cast mining it can have a larger environmental footprint as a result of deforestation and forest fragmentation by thousands of well pads and thousands of kilometres of connecting gas, steam and bitumen pipelines, access roads and seismic testing exploration lines.²¹ This has a profound effect on the flora and fauna of a huge area of formerly pristine boreal forest. Woodland caribou, once common in the boreal forest of northern Alberta and a culturally significant animal to indigenous communities, are now threatened with extinction in the region by 2025 as a direct result of expanding tar sands developments.²²

2. Toxic tailing lakes and pollution

Between two and four barrels of water are consumed for each barrel of synthetic crude oil produced from mining operations, in-situ extraction uses about half of this amount. Almost none of this water is returned to the natural cycle due to its resulting toxicity, instead it is stored in vast tailings lakes of toxic waste, which now cover over 170 km².²³ The toxicity is due to naphthenic acids, compounds such as benzene, polycyclic aromatic hydrocarbons (PAHs), and trace metals such as mercury, lead and arsenic.²⁴

As these lakes resemble natural water sources, they attract birds and wildlife. In one documented incident 1,600 migrating ducks died instantly upon landing on one these tailings lakes.²⁵ Held back by earthen dams, the tailings lakes are estimated to be leaking into the surrounding environment at a rate of approximately 11 million litres each day.²⁶

There is also significant pollution to the air, especially of PAHs, which has been described by scientists as the equivalent of a major oil spill into the local environment every year.²⁷

Downstream from tar sands operations at Fort Chipewyan high rates of unusual cancers have been recorded amongst the community. Three people have been diagnosed with cancer of the bile duct in a community of 1,200. This cancer is usually found at a rate of 1 in every 100,000 people.²⁸

3. Destruction of livelihood of indigenous communities

The Beaver Lake Cree Nation and other indigenous communities live in the boreal forest of northeast Alberta. In 1876, their ancestors signed a treaty with the government ceding vast tracts of land in return for guaranteed rights to hunt, fish and gather plants and medicines on these lands, as they had always done. The Beaver Lake Cree's traditional territories cover an area roughly the size of Switzerland; around 30% of current tar sands production is within these territories and is set to more than triple over coming years. The Beaver Lake Cree cite 17,000 infringements of their treaty rights and say that in order for these rights to have meaning, the habitats of the wildlife upon which they depend must be protected. They have therefore

commenced legal action to protect the ecological integrity of their traditional territories and enforce recognition of their constitutionally protected treaty rights.²⁹

ANNEX III: FINANCIAL RISKS OF TAR SANDS EXPANSION:

Companies that make big investments in tar sands risk significant future losses by focusing on a business area that is only profitable if emitting carbon is cheap, oil prices are stable at a high level, and there is a large market for the oil produced. All of these conditions are subject to serious doubts, and are key economic factors that make tar sands expansion financially as well as environmentally risky. It has been conservatively estimated that £35.5bn of UK pension assets alone are invested in shares in UK oil and gas companies.

Shareholder concern about the risks involved with expanding tar sands operations culminated in shareholder resolutions at the 2010 AGMs of Shell, BP, Exxon Mobil and Total. The Shell and BP resolutions sought disclosure on the assumptions made by the companies in deciding to proceed with tar sands projects regarding future carbon prices, oil price volatility, demand for oil, anticipated regulation of GHG emissions and legal and reputational risks arising from local environmental damage and impairment of traditional livelihoods. Over 140 investors co-filed the resolutions making them the largest independent resolutions ever tabled in the UK; they attracted significant support with respectively 9% and 14% opposing management, including some of the world's largest pension funds.³⁰

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Tarnished Earth street gallery, Tower Bridge, London. Now in the Esplanade outside the European Parliament until April 1 2011

Endnotes:

- ¹ Friends of the Earth Europe, 'Tar sands – fuelling the climate crisis, undermining EU energy security and damaging development objectives', May 2010
- ² The Co-operative Financial Services / WWF-UK, 'Unconventional Oil: Scraping the bottom of the barrel', July 2008
- ³ *ibid*
- ⁴ https://circabc.europa.eu/d/d/workspace/SpacesStore/db806977-6418-44db-a464-20267139b34d/Brandt_Oil_Sands_GHG_Final.pdf
- ⁵ Strategy West Inc, 'Oil sands projects', September 2010
- ⁶ The Co-operative Financial Services / WWF-UK, 'Toxic Fuels: Toxic Investments', July 2010
- ⁷ Greenpeace UK, 'Tar sands in your tank - exposing Europe's role in Canada's Dirty Oil', May 2010
- ⁸ GHGenius found surface mining to be 3 times as carbon intensive as conventional oil and in-situ to be 3.5 times as intensive. GREET found surface mining and in-situ to respectively be twice and 3 times as carbon intensive as conventional oil. These figures are supported by a 2005 Pembina Institute study, which found well to refinery emissions from tar sands to be on average 3 times more carbon intensive than the average for conventional oil. A 2008 RAND Corporation report found them to be between 2.4 to 4.1 times more carbon intensive depending upon the method of extraction. The Co-operative Financial Services / WWF-UK, 'CCS in the Alberta tar sands – a dangerous myth', October 2009
- ⁹ Calculated using Natural Resources Defence Council, 'GHG Emission Factors for High Carbon Intensity Crude Oils', April 2010.
- ¹⁰ https://circabc.europa.eu/d/d/workspace/SpacesStore/db806977-6418-44db-a464-20267139b34d/Brandt_Oil_Sands_GHG_Final.pdf
- ¹¹ US Dept of Energy / National Energy Technology Laboratory, 'An evaluation of the extraction, transport and refining of imported crude oils and the impact on lifecycle greenhouse gas emissions', March 2009
- ¹² Strategy West Inc, 'Oil sands projects', September 2010
- ¹³ Pembina Institute, 'Drilling Deeper – the in-situ oil sands report card', March 2010
- ¹⁴ International Energy Agency, 'World Energy Outlook 2009'
- ¹⁵ CERA, 'Growth in Oil Sands: Finding the New Balance', May 2009 and 'Oil sands, greenhouse gases, and US oil supply: Getting the numbers right', September 2010
- ¹⁶ The Co-operative Financial Services / WWF-UK, 'CCS in the Alberta tar sands – a dangerous myth', October 2009
- ¹⁷ *ibid*
- ¹⁸ Calculated using Natural Resources Defence Council, 'GHG Emission Factors for High Carbon Intensity Crude Oils', April 2010.
- ¹⁹ Included in Appendix 1 of the EC 'Consultation paper on the measures necessary for the implementation of Article 7a(5)' 2009 (ec.europa.eu/environment/air/transport/pdf/art7a.pdf), and removed from Appendix 1 of the EC 'Conceptual non-paper on the measures necessary for the implementation of Article 7a(5) of Directive 2009/30/EC amending Directive 98/70/EC on fuel quality', 2010
- ²⁰ https://circabc.europa.eu/d/d/workspace/SpacesStore/db806977-6418-44db-a464-20267139b34d/Brandt_Oil_Sands_GHG_Final.pdf
- ²¹ Pembina Institute, 'Drilling Deeper – the in-situ oil sands report card', March 2010
- ²² The Co-operative, 'Save the caribou – stop the tar sands', July 2010.
- ²³ ERCB estimate October 2010
- ²⁴ The Co-operative Financial Services / WWF-UK, 'CCS in the Alberta tar sands – a dangerous myth', October 2009
- ²⁵ <http://www.reuters.com/article/idUSN2219038320101022>
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- ²⁷ Professor David Schindler, Proceedings of National Academy of Science, December 2009. http://calgary.ctv.ca/servlet/an/plocal/CTVNews/20091207/CGY_oilsands_pollution_091207/20091207/
- ²⁸ news.bbc.co.uk/2/hi/americas/7776775.stm
- ²⁹ <http://www.co-operative.coop/beaverlakecree>
- ³⁰ The Co-operative Financial Services / WWF-UK, 'Toxic Fuels: Toxic Investments', July 2010