Silence is Deadly

03 June 2011

The U.S. Department of State seems likely to approve a huge pipeline to carry tar sands oil (about 830,000 barrels per day) to Texas refineries unless sufficient objections are raised.

The scientific community needs to get involved in this fray now. If this project gains approval, it will become exceedingly difficult to control the tar sands monster.

Although there are multiple objections to tar sands development and the pipeline, including destruction of the environment in Canada[1] and the likelihood of spills along the pipeline's pathway, such objections, by themselves, are very unlikely to stop the project.

An overwhelming objection is that exploitation of tar sands would make it implausible to stabilize climate and avoid disastrous global climate impacts. The tar sands are estimated (e.g., see IPCC AR4 WG3 report) to contain at least 400 GtC (equivalent to about 200 ppm CO_2).

Easily available reserves of conventional oil and gas are enough to take atmospheric CO_2 well above 400 ppm. However, if emissions from coal are phased out over the next few decades and if unconventional fossil fuels are left in the ground, it is conceivable to stabilize climate[2,3].

Phase out of emissions from coal is itself an enormous challenge. However, if the tar sands are thrown into the mix it is essentially game over. There is no practical way to capture the CO_2 emitted while burning oil, which is used principally in vehicles.

Governments are acting as if they are oblivious to the fact that there is a limit on how much fossil fuel carbon we can put into the air. Fossil fuel carbon injected into the atmosphere will stay in surface reservoirs for millennia. We can extract a fraction of the excess CO_2 via improved agricultural and forestry practices, but we cannot get back to a safe CO_2 level if all coal is used without carbon capture or if unconventional fossil fuels are exploited.

A document describing the pipeline project is available at http://www.keystonepipeline-xl.state.gov/clientsite/keystonexl.nsf?Open Comments, due by 6 June, can be submitted to http://www.keystonepipeline-xl.state.gov/clientsite/keystonexl.nsf/CommentFset?OpenFrameSet or by e-mail to *keystonexl@cardno.com* or mail to Keystone XL EIS Project, P.O. Box 96503–98500, Washington, DC 20090–6503 or fax to 206-269-0098.

I am submitting a comment that the analysis is flawed and insufficient, failing to account for important information regarding human-made climate change that is now available. I note that prior government targets for limiting human-made global warming are now known to be inadequate. Specifically, the target to limit global warming to 2°C, rather than being a safe "guardrail", is actually a recipe for global climate disasters. I will include drafts of the "Paleoclimate Information"[4], "Earth's Energy Imbalance"[5] and "The Case for Young People and Nature"[3] papers, which are so far only published in arXiv; we will submit revised versions of all of these papers for publication this summer.

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[1] Asserted impacts include: irreversible effects on biodiversity, the natural environment, reduced water quality, destruction of fragile pristine Boreal Forest and associated wetlands, aquatic and watershed mismanagement, habitat fragmentation, habitat loss, disruption to life cycles of endemic wildlife particularly bird and Caribou migration, fish deformities and negative impacts on the human health in downstream communities.

[2] Target atmospheric CO_2: Where should humanity aim? *Open Atmos. Sci. J.*, **2**, 217-231, doi:10.2174/1874282300802010217.

[3] http://www.columbia.edu/~jeh1/mailings/2011/20110505_CaseForYoungPeople.pdf

[4] Paleoclimate implications for human-made climate change, http://arxiv.org/abs/1105.0968

[5] Earth's energy imbalance and implications, http://arxiv.org/abs/1105.1140

I also will comment that the pipeline project does not serve the national interest, because it will result in large adverse impacts, on the public and wildlife, by contributing substantially to climate change. These impacts must be evaluated before the project is considered further.

It is my impression and understanding that a large number of objections could have an effect and help achieve a more careful evaluation, possibly averting a huge mistake. Brief pointed comments may be just as well as longer statements.

Jim Hansen