

The May 30 NEB meeting in Ottawa

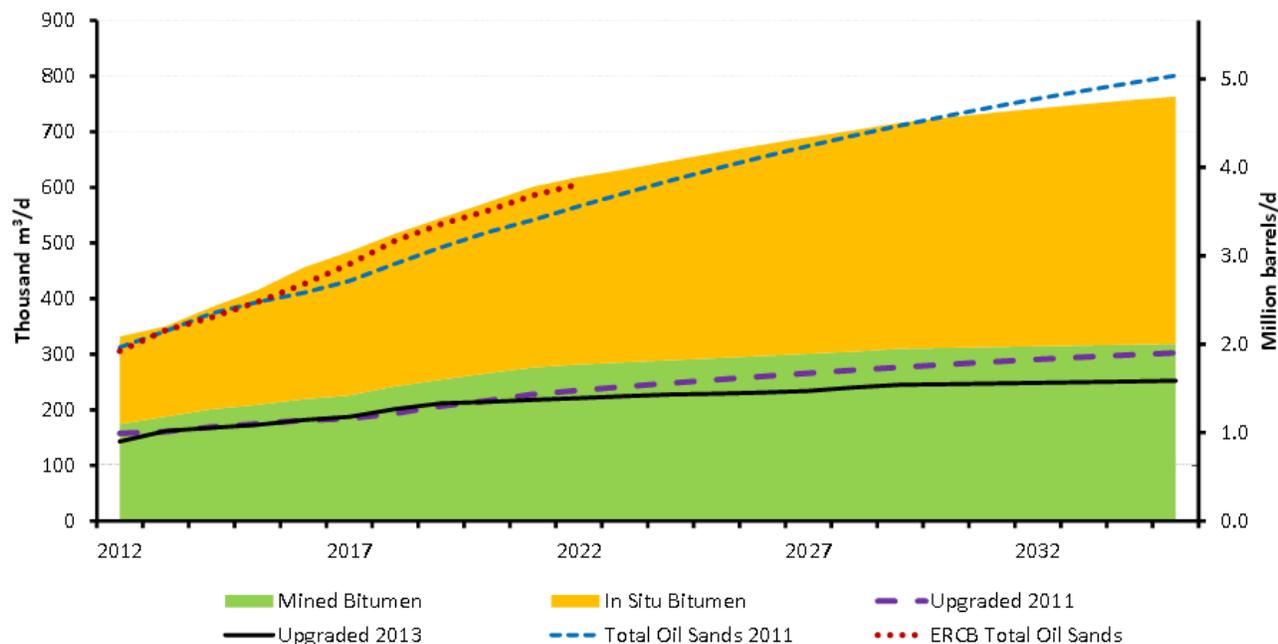
Unfortunately there were no surprises at the presentation of the NEB '2013 Energy Futures' report.

Production from the tar sands has become the predominant source of crude oil in Canada and the NEB expects its share of the energy mix to continue to rise for the foreseeable future. That crude (actually a mix of bitumen and condensates which are used to dilute the viscous material) is shipped to the US where refineries that are able to handle it will produce a range of petroleum products. Most of the condensates need to be imported from the US.

The NEB report shows a very large increase in tar sands production:

Oil Sands production still expecting robust growth, but outlook for upgraded bitumen reduced

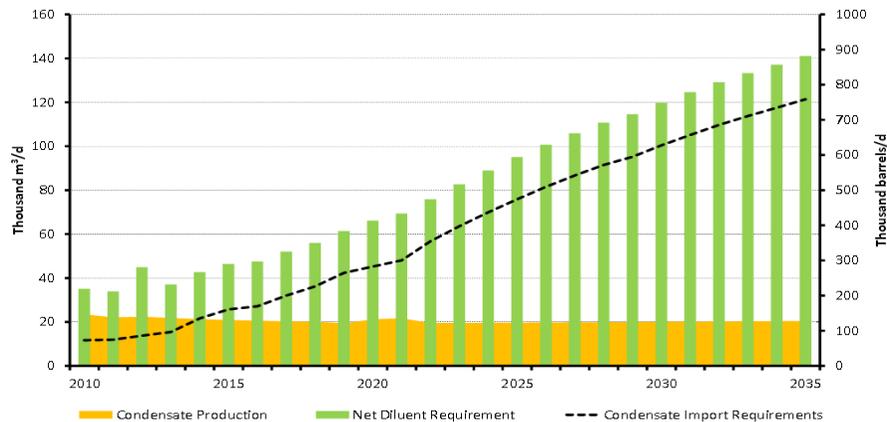
Oil sands production – Reference Case



2013 Energy Futures, NEB

The problem with this picture is that according to the current World Energy Outlook published by the International Energy Agency the US will be a net exporter of oil by 2030 so most of the market for the tar sands oil will have vanished. Presumably some will continue to be sold based on bargain basement prices but such low prices, combined with most of the real profits going to the refining operations in the US and to the foreign owners of the Canadian leases leaves dismal prospects for any benefits for Canadians.

Condensate for diluent requirements - Reference Case



2013 NEB Energy Futures

About 90% of the condensates will need to be imported, and shipped twice.

A direct and unavoidable consequence of this huge increase in production of tar sands oil combined with a rapid increase in the use of fracking in the US would be the failure to meet the urgently needed objective of reducing GHG emissions to a tolerable level. Both governments will predictably apply regulations limiting emissions in other sectors of their economies while going easy on the real offenders, so we will suffer the worst of both worlds: an environment that will be irretrievably damaged and economies that will decline. The US has a measure of justification for its actions but in Canada there is no need whatsoever for pursuing such a course. It is driven by greed, short-sighted planning, a disregard for the environment and a lack of understanding that there are better alternatives available.

The need for a review of Canadian policies

After 40 years of aggressive sales of oil and natural gas to the US Canada has now virtually run out of its once substantial conventional oil and gas resources. It has not used that period of plenty to pay off its national debt or to diversify its industry. There is a danger that our federal, Alberta and BC governments will now panic and turn to exporting 'dirty' products in a desperate effort to earn export revenues at any cost. There is an urgent need for an independent agency to both look back at the last 40 years and ahead for the coming 40 years - i.e. to do what should have been done in the NEB Energy Futures report. Clearly the NEB is unwilling to accept that renewable energy sources can, and inevitably will, replace fossil fuels. They were not even willing to run their computer model using renewable energy sources as a replacement for natural gas, an initiative that has been strongly recommended by energy planners and by the IPCC for many years. Their comments on the GHG-free alternatives are few in number, are mostly negative, and are offered with no supporting evidence.

Natural gas

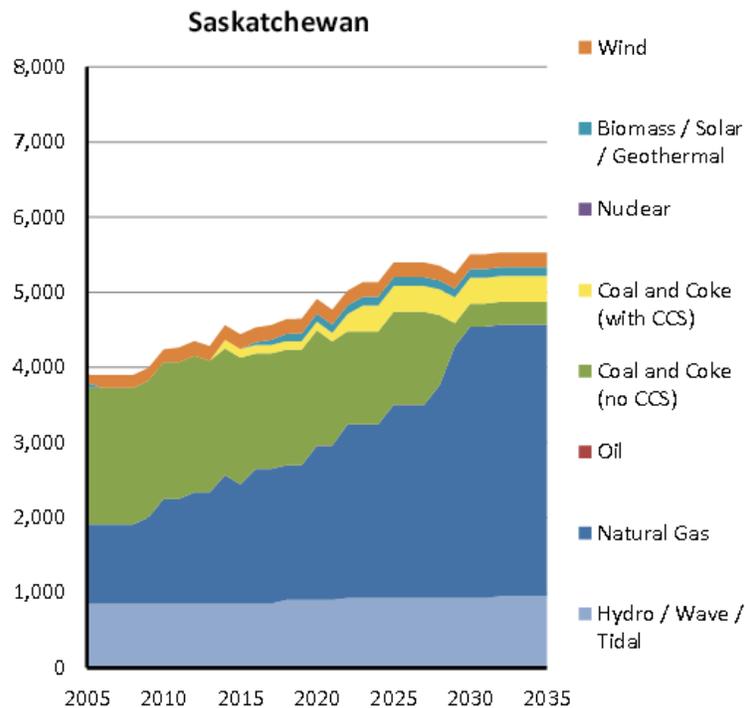
The failure of the NEB report is nowhere more obvious than in its bizarre proposal to introduce the use of shale gas (and tight gas) from BC to become the primary source of energy for domestic use and for exports to Asia. The proposal is to produce nearly 520 million cubic metres per day from a brand new source that did not even exist a few years ago. Using fracking to recover natural gas is an expensive, very dirty process. If even 1% of the gas escapes during the commissioning process, or during production, or after a well has been taken out of production, or during shipping and storage, then the

level of GHG emissions becomes unacceptable. Experience with this process is extremely limited, and there is no long term experience at all to guide us on the post production releases. NOAA has tested two such wells and found that 4 to 9 per cent of the methane escaped, well over any reasonably acceptable limit. (Methane is 105 times more effective than CO₂ as a climate change agent, calculated over a 20 year period) Operators commonly make no effort at all to capture or even to flare off the considerable releases that occur during the commissioning process. In this practice, when the rock has been shattered by the fracking process there is no means of preventing the escaped gas from eventually diffusing up to the surface. The losses will be enhanced when the production extraction stops (such wells have high flow rates during the first year, followed by a very long plateau of low level production). Fracking has not yet been in use long enough to collect reliable statistics for any of these releases. Committing Canada to use such a source as its primary domestic source of energy is highly irresponsible.

It is also totally unnecessary. The air-source systems described in previous issues of this Journal have a much higher capacity, are substantially less expensive to develop and to operate, they provide a permanent solution, and they produce no GHG at all. They would also provide employment in all parts of the country, not just jobs in remote regions but jobs right in our cities where people prefer to work and the renewable energy is readily accessible. Any competent review of Canada's energy future should have examined the air-source/storage solution and the other leading candidates. The NEB was certainly aware of these alternatives (I discussed the air-source alternative with them directly) but chose to ignore them in favour of an energy source that clearly should be at the bottom of the list.



The NEB report proposes that 18 fracking sites from all parts of BC, mostly in mountainous areas like the above, will be provided with pipeline links to the coast in order to export the natural gas. Domestic needs will apparently be met largely by importing natural gas from the US.



The NEB is proposing that a very large part of the power generation will use natural gas in spite of the excessive GHG emissions (the graph for Saskatchewan is shown). Apparently the plan is to sacrifice the 'clean' natural gas from the Mackenzie River for producing dirty bitumen-based oil exports. Air-source/storage systems could eliminate the need to use fossil fuels for generation.

Action

This report should be rejected by the government as being biased, inadequately researched and unacceptable as a general review of which technologies and energy sources will best fit Canada's future needs. Any Canadian agency that is interested in the topic should clearly and quickly say what they think about it. Unfortunately the government has closed down the only agency (NRTEE) that might have provided a suitable alternative review. The most serious problem with the report is the natural gas blunder, but fortunately that would be the easiest one to deal with since for most applications an alternative like the air-source/storage option is immediately cost effective without the need for subsidies or major government actions. The private sector could handle the switch-over but storage systems require community action so they will need moral support and some degree of systems organization on the part of governments.

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Note: This is a supplement to the review of the slides that was provided in the May issue of the Journal.