

Fill 'Er Up!



Americans are addicted to oil. George W Bush said it himself.

by Arthur Caldicott

Actually, the entire industrialized world is addicted to oil. And those countries that aren't yet fully wired on the fossil fuel junk, like China and India, are getting hooked fast.

Addicts of oil will apparently do just about anything for a fix. Few commodities — perhaps even including tobacco, alcohol and heroin — have such inelastic demand. "Gotta have it."

Canada and Iraq, in quite different ways, are in the throes of historical change which derive from a common situation — the global and particularly the US need for oil.

Both countries sit on a phenomenal amount of oil — we're number two and four respectively after Saudi Arabia. One country is under an unwelcome military assault and occupation. The other is willfully engorging on a capital assault, and a corporate occupation.

Both will contribute significantly to enriching US oil corporations and to ensuring that the US gets its fix.

The Global Context

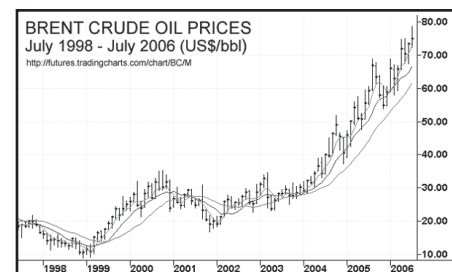
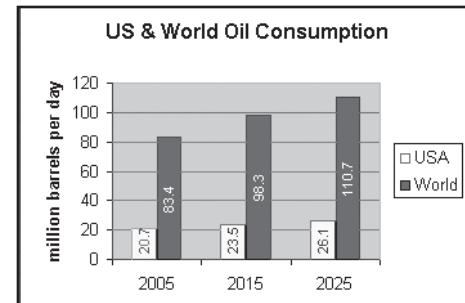
In 2005, the US used 20.7 million barrels of oil per day (MMb/d). By 2015, it is expected that the US will burn 23.5 MMb/d and by 2025, 26.1 MMb/d. That's a 26 percent increase in consumption over the twenty years.

In 2005, the entire world consumed 83.4 MMb/d. The US Energy Information Administration (EIA) estimates that the world may use 98.3 MMb/d by 2015, and 110.7 MMb/d by 2025 — a 33 percent increase over twenty years.

Supply constraints, however, are a challenge to those growth projections. The world may actually be running out of oil. It is, at least, running out of easily produced oil.

Getting what's left out of the ground, and moving it to end-users, will not be "business-as-usual." The costs and impacts — economic, environmental and social — will be profound.

The manifestations of supply constraints are everywhere we choose to look for them, but the most telling indicator is the price of crude oil. Constrain the supply of a commodity in a tight market and the price will rise. The historical price for oil remained under US\$30 a barrel since the last energy crisis twenty-five years ago. In early 2004, however, oil broke through the US\$30 level and hasn't looked back. Oil has been above \$70 for most of the first half of 2006.



ENERGY

To build on the addiction metaphor, our world has a serious fossil fuel dependency, and oil is a part of that. Modern civilization runs on a constant fix of hydrocarbons, burning 83 million barrels of oil, 275 billion cubic feet of natural gas, and 15.2 million tonnes of coal, every day. These are awesome quantities, beyond comprehension for most of us. Is this "civilization" even tenable without fossil fuels?

The US is the biggest junkie on the global street — with fewer than 5% of the world's people, it uses 25% of the world's oil.

And it has to import most of it. Sixty percent of the oil consumed in the US comes from somewhere else.

America's next hit

Control of the world's remaining oil resources is already shifting dramatically from the countries which produce the oil, to those nations best equipped with dollars and guns. Enter the number one oil junkie, the United States, and its giant petroleum corporations — increasingly on a permanent hunt to find the next hit.

Iraq's boundaries encompass the fourth largest known oil reserves in the world. It is no small target, with an estimated 115 billion barrels. (Number one is Saudi Arabia with 264 billion barrels.)

Acts of military aggression and occupation in Iraq, as well as Kuwait and Afghanistan, are viewed by many as steps by the United States and Britain to secure these oil rich territories. At least 64% of Iraq's oilfields, fully nationalized prior to 2003, are being re-allocated since the US occupation for development by multinational oil companies.

Canada contains the second largest reserve of oil in the world, at 178 billion barrels. Most of that is in Alberta's oil sands.

Canada's role as a fundamental and willing participant in America's energy strategy is easy to understand for the obvious geographic, political and economic reasons. Canada's oil industry is completely integrated with that of the US. Even those companies which are nominally Canadian — Enbridge, for example, or EnCana or Suncor — trade their shares on the New York Stock Exchange as well as the Toronto Stock Exchange, and there's not much about them that makes them "Canadian," other than a head office in Canada. They are all members of the corporate global energy plutocracy.

So it's no surprise that American capital is marching into Alberta at an unprecedented rate. Close to one million barrels a day of oil was produced from the oil sands in 2005 (compared to Canada's total oil production of 2.5 million barrels per day). Expectations are that oil sands production will be three or four times the current output by 2015 — somewhere between three and four million barrels per day.

\$100 billion is estimated to be invested in new production projects in the oil sands by 2020. Estimates are highly elastic, and this one is based on an oil price of \$32 per bbl. With oil at twice that price, the attraction for investment capital increases accordingly.

There are, however, a couple of show-stoppers to increased oil sands production. While capital floods in, in a seemingly unconstrained rush, there are other factors which will serve to throttle down otherwise unfettered growth — workers and, ironically, energy.

It takes people to make energy

One estimate claims that the oil sands will create 240,000 jobs across Canada by 2008.⁵

Think about that for a moment. Within two years, Canada needs to find or train 240,000 new workers, just for oil sands work. Can Canada "produce" so many people in such a short period of time? Where will they come from?

They'll have to be imported. As many as 20,000 foreigners are expected to be working in Alberta this year, nearly double the figure from 2005, driven higher by demand for labour in the booming oil sands.

Entire workforces from China could be arriving in Alberta within the next few years. These people, along with all the Canadian workers and families, will need to be housed and fed and provided with the amenities of a modern civilization. In the capital assault that is ramping up production from the oil sands, little thought is being given to these human and social needs.

And as the oil sands compete with other labour markets, inflationary pressures become generalized across the country. Headlines about labour shortages, and wage pressures, have become routine in Alberta, and are beginning to ripple across Canada.

It takes energy to make energy

The fossil fuel component in oil sands is bitumen. Bitumen content of the sands is about 10-12%, sand and clay is perhaps 80-85%, and the balance is water.

All the processes so far developed to separate bitumen from non-commercial components involve heat. Natural gas is overwhelmingly the energy source used for this purpose. Natural gas is also used in upgrading bitumen to synthetic crude oil.

Approximately a billion cubic feet (bcf) of gas is required every day to produce (extract and upgrade) a million barrels of oil, which is the current daily production from the oil sands and a third of what is projected by 2015. Canada produces about 17 billion cubic feet per day of natural gas, delivering all that gas into a continental market that is

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GATEWAY PETROLEUM EXPORT PIPELINE
 600,000 b/d; \$2.5 billion
 Edmonton to Kitimat
 Owner: Enbridge
 Markets: China, other Asia, US west coast
 Open Season: high interest, added capacity
 NEB: in pre-app phase

GATEWAY CONDENSATE PIPELINE
 \$1.7 billion; 150,000 b/d, up to 230,000 b/d
 Parallel to Gateway oil pipeline
 Source: Russia, Asia, Middle East
 Issues: First Nations, uncertain Chinese partners, offshore moratorium, rugged vulnerable terrain.
 Unlikely to proceed.

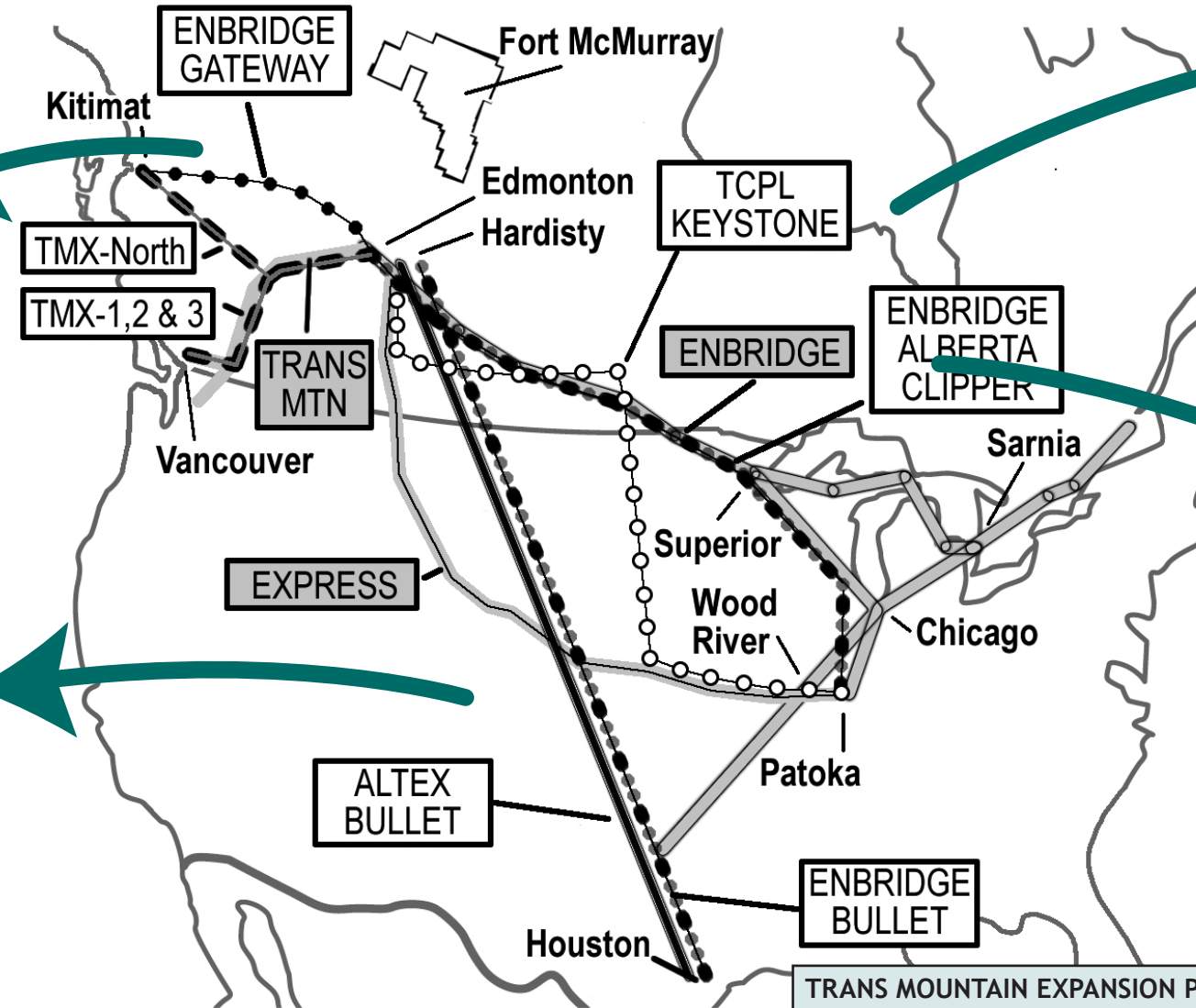
ALTEX BULLET PIPELINE
 250,000 b/d; \$3.6 billion
 Edmonton - Houston TX
 One-project Altex is unlikely to beat competing Enbridge, even with mysterious new technology that requires less diluent.

ENBRIDGE "BULLET"
 400,000 b/d; US\$3.6 billion
 Hardisty - Houston TX
 This latecomer doesn't even have a name yet, but if a bullet goes ahead, Enbridge is more likely to build it than Altex.

Three steps in the development of a pipeline

Pipelines are billion dollar undertakings, and a great deal of planning, preparation, and money is invested in a project by the time construction starts. Three preliminary phases or steps are common to all.

- 1. Introduce the idea.** When a new pipeline is conceived, the company announces it by way of press releases, conferences, etc. This generates awareness of the proposal, and gives the company an early sense of viability of the idea. Ideas floated in this stage often don't make it much further.
- 2. Open Season.** A pipeline is only viable if shippers commit to use it. Open Season is a formal process to identify the capacity on the pipeline shippers will commit to.
- 3. Regulatory approval.** Every interprovincial and international pipeline requires a Certificate of Public Convenience and Necessity (CPCN) from the National Energy Board (NEB) in Canada.



KEYSTONE PIPELINE
 435,000 b/d, expandable to 590,000 b/d
 US\$2.1 billion
 Hardisty, AB to Patoka, IL
 Owner: Trans Canada Pipeline (TCPL)
 Open Season: 80% of capacity secured
 Communications Energy and Paperworkers Union says exporting unrefined bitumen is exporting 18,000 jobs
 Almost certain to proceed. Strong industry support will overcome challenges.

ALBERTA CLIPPER
 400,000 b/d
 US\$1.8 billion
 Edmonton - Superior WI
 Owner: Enbridge
 Phase 2 adds 400,000 b/d for \$380 million
 Clipper by itself is incomplete without Enbridge's expansion projects within the US
 CEO says won't proceed if Keystone goes ahead; only the Open Season knows for sure

View reading list, sources and resources at www.watershedsentinel.ca or www.sqwalk.org

The Pipelines

Pipeline (New Capacity)	Capacity (b/d)	Cost (Can \$million)
Kinder Morgan TMX-1, 2 & 3	475,000	2,400
Kinder Morgan TMX-North	400,000	2,000
Enbridge Gateway	600,000	2,500
Enbridge Alberta Clipper (Phase 1&2)	800,000	2,600
Enbridge Bullet	400,000	4,300
TCPL Keystone	590,000	2,500
Altex Bullet	250,000	3,600
Total	3,515,000	19,900

TRANS MOUNTAIN EXPANSION PROJECTS
 Trans Mountain system serves BC & WA
 Edmonton to Burnaby & NW Washington
 Owner: Kinder Morgan
 Current capacity: 225,000 b/d

TMX-1
 Adds 75,000 b/d ; \$595 million
 Open Season received "strong support"
 NEB approval expected late 2006
 TMX-1,2,3 high likelihood of completion

TMX-2
 Adds 100,000 b/d; \$900 million

TMX-3
 Add 300,000 b/d; \$900 million

TMX-North
 New 400,000 b/d; \$2 billion
 Valemont-Kitimat. Same issues as Gateway

NAFTA - Out of Proportion

Article 605(a) of the North American Free Trade Agreement (NAFTA) states that a government of a party to the agreement (Canada, US, Mexico) cannot change the proportion of the energy it exports to another party. Consequently, Article 605 is often referred to as the "proportionality" provision in NAFTA.

In agreeing to 605, Canada signed away the country's energy autonomy, and tied the hands of any future government that might want to try to regain a measure of national control of Canada's energy industry. Mexico was smarter than that, and did not agree to Article 605.

In the last five years, Canada has exported about 65% of the oil it produces to the US. Virtually all of the expected increase in production — a near doubling of output, and all of it from the oil sands — is likely to be exported to the US. As a result, that 65% export figure will rise significantly. And it won't be reversible by government policy.

This increase in US export proportion over the next ten years could be mitigated by reducing the amount of oil Canada imports for the Atlantic provinces, Quebec and Ontario or by exporting to other countries. Enbridge's Gateway, one of the proposed pipelines, intends to do just that, selling to China and other Asian markets.

⇐ *Fill Er Up continued*

overheated, in which prices are at historical highs, and for which no relief is forecast.

Most of the gas that would be shipped in the Mackenzie Gas Pipeline, if it is built, will end up in the oil sands. Another source of gas for the oil sands could be liquefied natural gas (LNG) imports from overseas. Kitimat LNG, Canada's first west coast LNG import facility, was recently approved by the British Columbia Environmental Assessment Office.

The only alternative to natural gas appears to be nuclear energy. It's not too far fetched. Energy Alberta Corp. already has a deal with Atomic Energy of Canada Ltd., and is proposing a project using the Candu reactor to sell steam to several oil sands producers.

Takeaway transportation pipelines

There are four groups of pipelines which are being expanded, modified or proposed related to the oil sands.

1. An ever-expanding network of pipelines that connect the growing multitude of oil sands extraction projects in northern Alberta to the main upgraders and hubs at Edmonton and Hardisty, Alberta.

2. Long distance transportation pipelines that will "takeaway" or move the oil from Canada to the west coast or to the US.

3. Within the United States itself is a network of pipelines that move oil to hubs and refineries, and which distribute oil to end-users.

4. "Diluent" pipelines. This fourth group of pipelines serves an essential function for the bituminous crude produced in the oil sands. This stuff is so viscous — imagine cold molasses — that it needs to be diluted to move through a pipeline efficiently. The diluent, typically a "condensate" byproduct of natural gas processing, is added to the oil, retrieved at the delivery end of the pipeline, and either used or recycled — piped back to Alberta.

The takeaway transportation pipelines, the second group, are the multi-billion dollar energy arteries driven by the enormous economic forces at play — forces unleashed by US demand for oil.

Canada at present has oil pipeline capacity, from just three pipelines, sufficient to transport just under 2.5 million barrels per day (MMb/d) of oil from producing areas to distribution hubs and end-user markets.

In April 2006, with oil prices soaring above \$70 and no indication of any resolution to so many unsettling and violent political events around the globe, particularly in the Persian Gulf, the Canadian Association of Petroleum Producers (CAPP) stated that "pipeline capacity must be expanded to move the growth in oil production to markets

— enough to accommodate an additional 2.5 million barrels of crude oil a day by 2020."

Canada produces oil from three sources.

- Offshore production from the Atlantic coast, for which no appreciable change in production is anticipated;
- Conventional production from the Western Canadian Sedimentary Basin (WCSB), from which production

has been declining steadily since about 1999. The WCSB is the massive petroleum producing area that underlies much of Alberta, northeast BC, and parts of Saskatchewan and the Northwest Territory;

- Oil sands production. The chart shows clearly the growth in Canadian oil production from the oil sands, even as conventional production declines.

The consensus of agencies that analyze these things — particularly the National Energy Board, CAPP, and the US Energy Information Agency is that all available surplus takeaway capacity will be used up around 2007-2008. There are already frequent allocation constraints leading to apportionment. Within ten to fifteen years, pipeline capacity will need to double.

That's a lot of oil to move.

For producers, this is an emerging crisis. Their game is selling oil. Without the infrastructure necessary to move that oil to markets, they have no game.

Pipeline companies also see this crunch coming, understand the business opportunity, feel the pressure from producers, and have been introducing expansion projects and new pipelines for a couple of years.

Twenty billion in new projects have emerged, with the capacity to transport an additional 3.5 million barrels per day of oil to markets, most of them in the United States. With forecasts that 2.5 million b/d of additional capacity will be required, and a regulator inclined to grant CPCNs like it's handing out gift coupons, it could be that many of these pipelines actually will get built. Caught up in the interplay of the US addiction to oil, NAFTA, and plain old greed, northern Alberta will be torn apart and Canada will lock itself into pushing its oil as quickly as possible out of the country.

As all that oil is produced, and ultimately used, greenhouse gas production in North America will accelerate unabated.

