

A Realistic Look at Canada's Energy Future

Dr. Jean-Sébastien Rioux
Presented to the CIPS
University of Ottawa
April 2, 2014

What is the *problématique*?

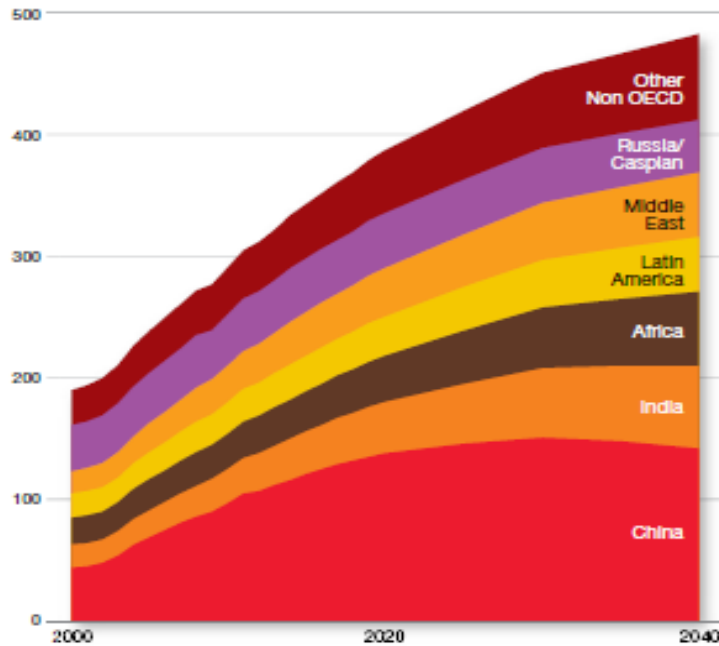
- Canada has a unique opportunity in time to leverage its abundant natural resources – particularly energy – satisfy increasing demand in places other than our usual customer base
- Natural resources account for 15% of Canadian GDP; energy accounts for 7% - and could be poised to increase significantly...

But:

- Is Canada truly an “Energy Superpower”?
- Canada is facing several challenges in growing its energy exports to the level it could
- Some significant public policy decisions have to be tackled if these are to be surmounted.

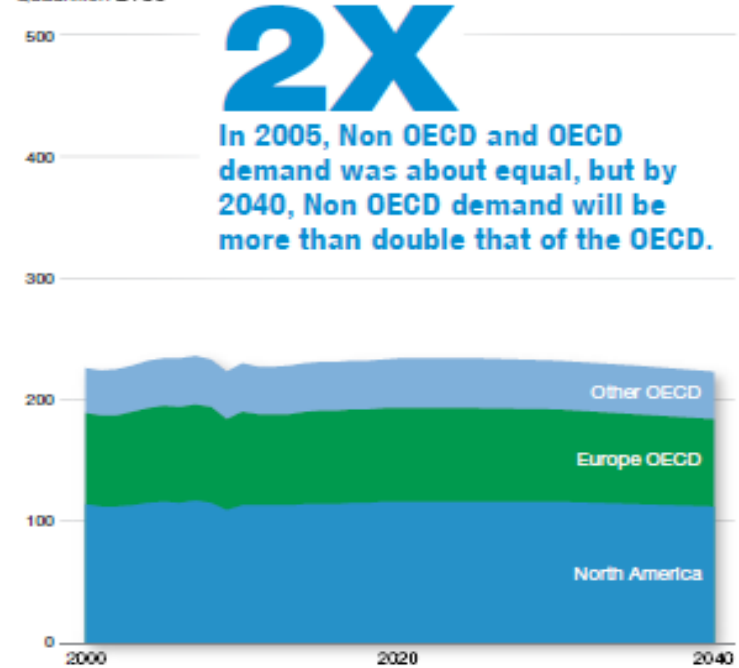
Non OECD energy demand

Quadrillion BTUs



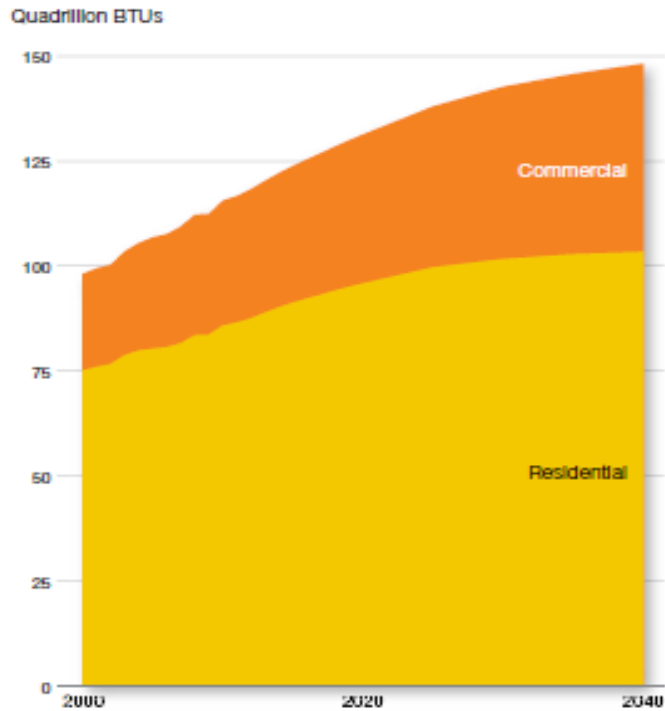
OECD energy demand

Quadrillion BTUs

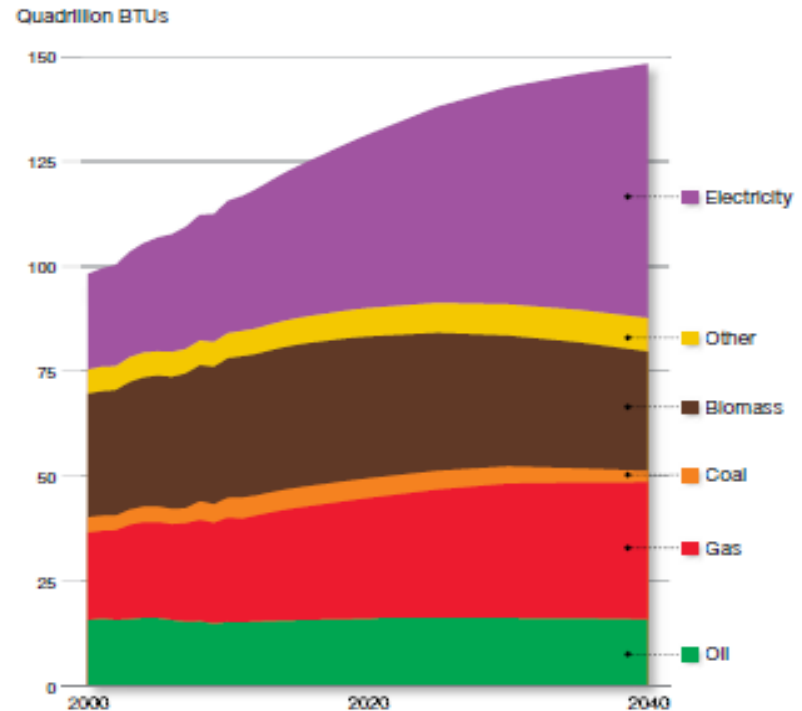


Energy demand in developing countries rises by about 65 percent from 2010 to 2040.

Residential/commercial fuel demand by sector



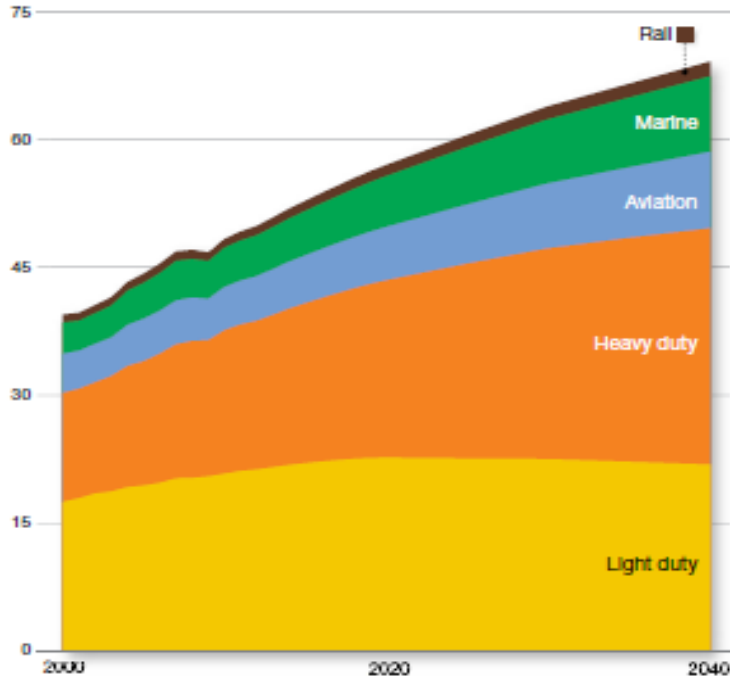
Residential/commercial demand by fuel



Residential and commercial fuel demand increases to meet electricity needs as the world's population grows and more people move to cities

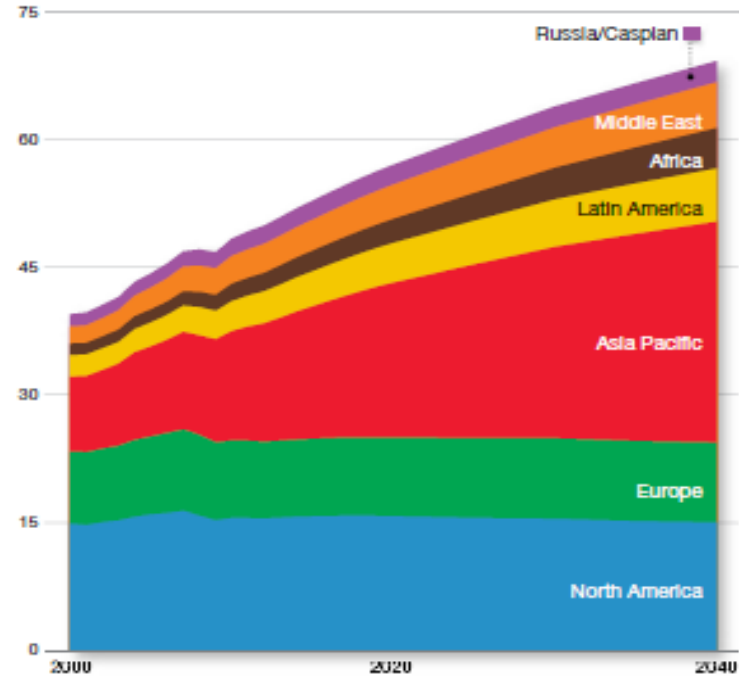
Transportation energy demand by sector

Millions of oil-equivalent barrels per day



Transportation energy demand by region

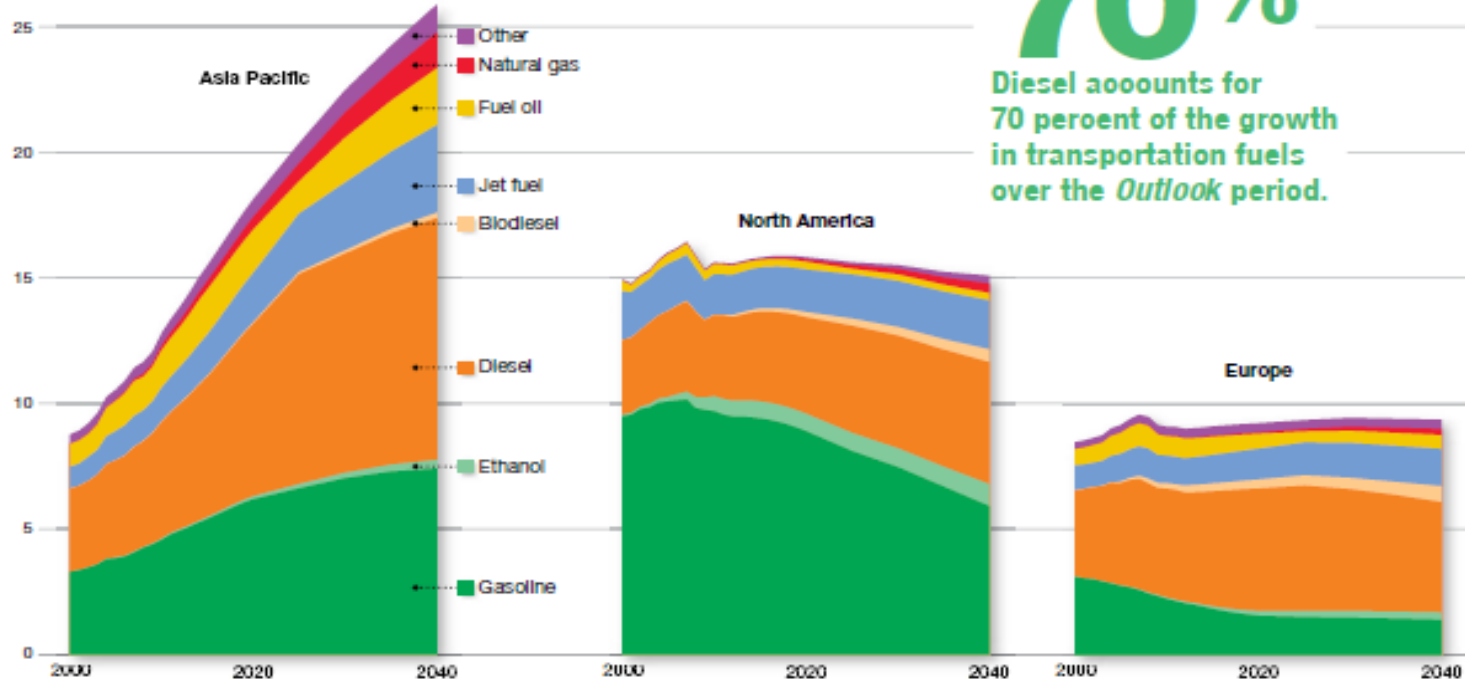
Millions of oil-equivalent barrels per day



Commercial activity drives growth in transportation demand by 40%

Transportation fuel mix

Millions of oil-equivalent barrels per day



70%
Diesel accounts for 70 percent of the growth in transportation fuels over the *Outlook* period.

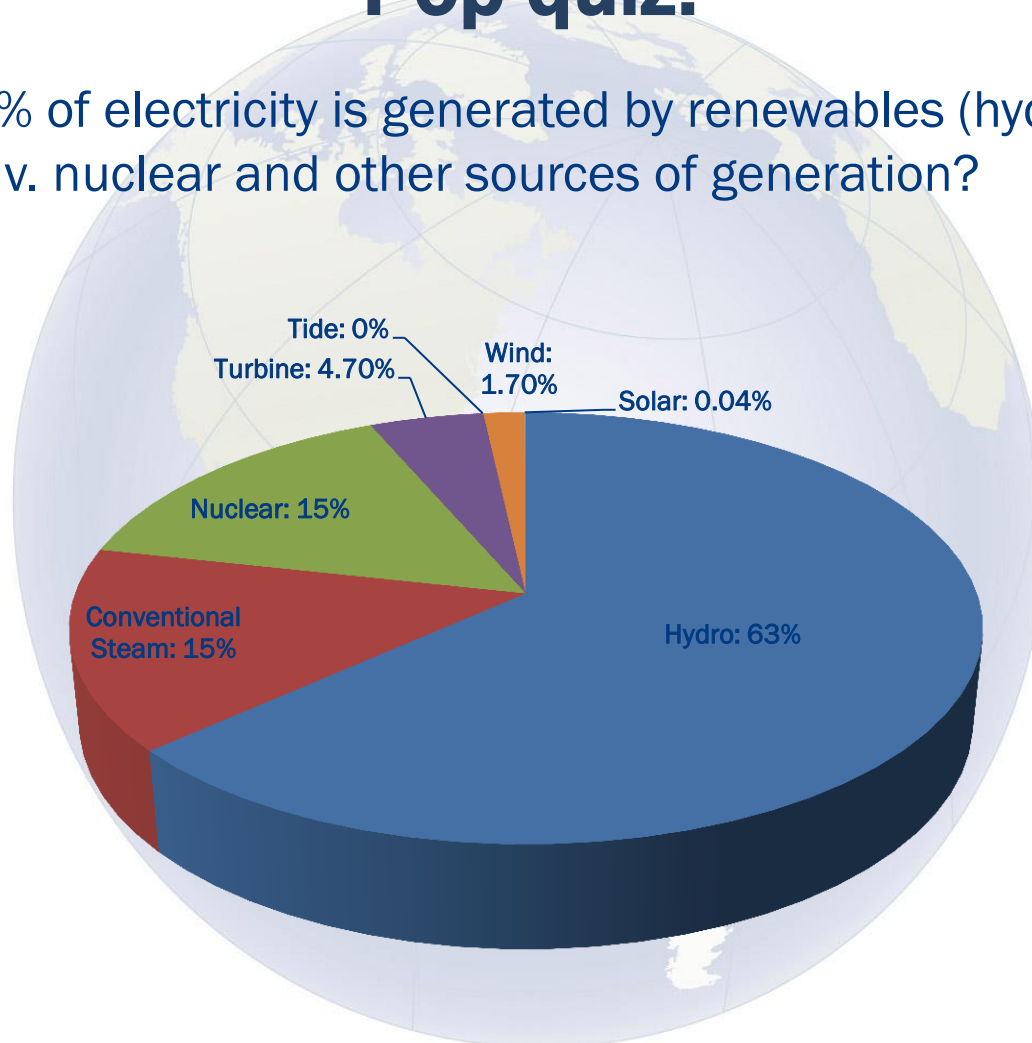
Economic growth and increased trade and commerce will increase the demand for transportation fuels in non-OECD countries

What is an “energy superpower”?

- Energy superpowers produce a lot of energy
- Energy superpowers have the power to influence world events
- Energy superpowers have investors lining up to spend their capital
- Energy superpowers have the people, infrastructure and know-how to create world-class value from their energy potential

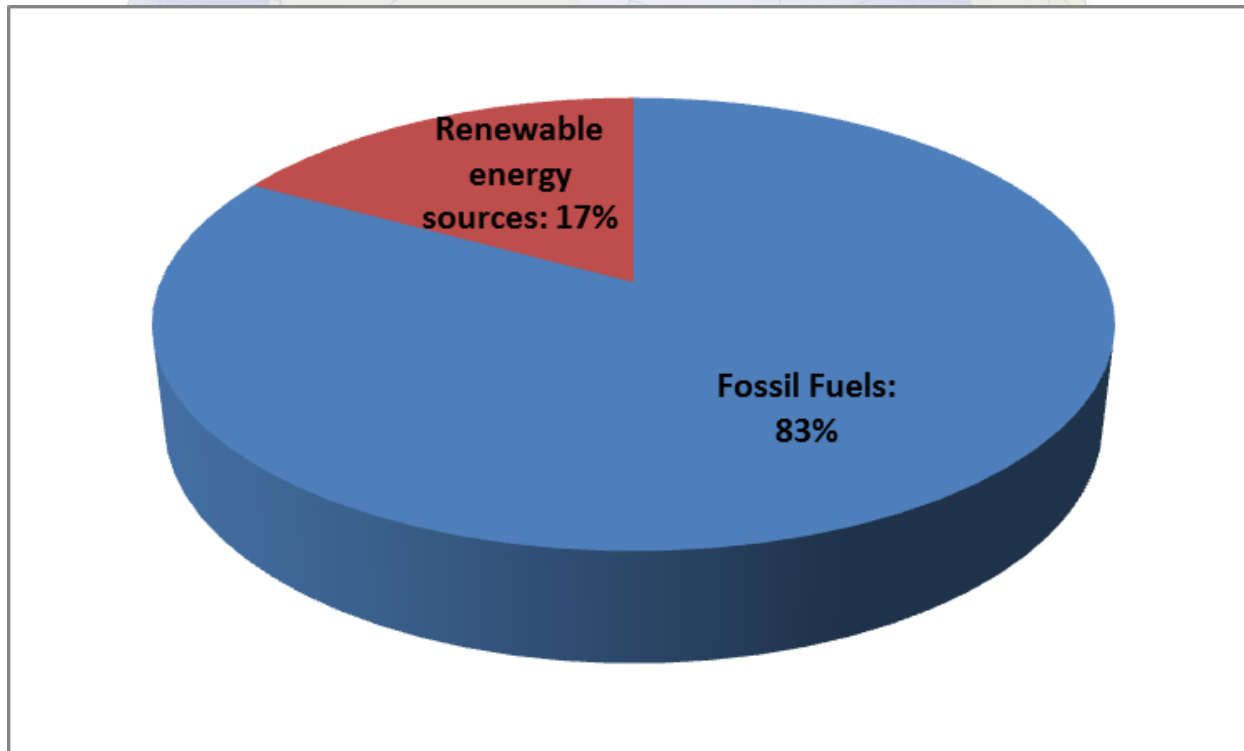
Pop quiz!

1. What % of electricity is generated by renewables (hydro, wind, solar) v. nuclear and other sources of generation?



Pop quiz, continued...

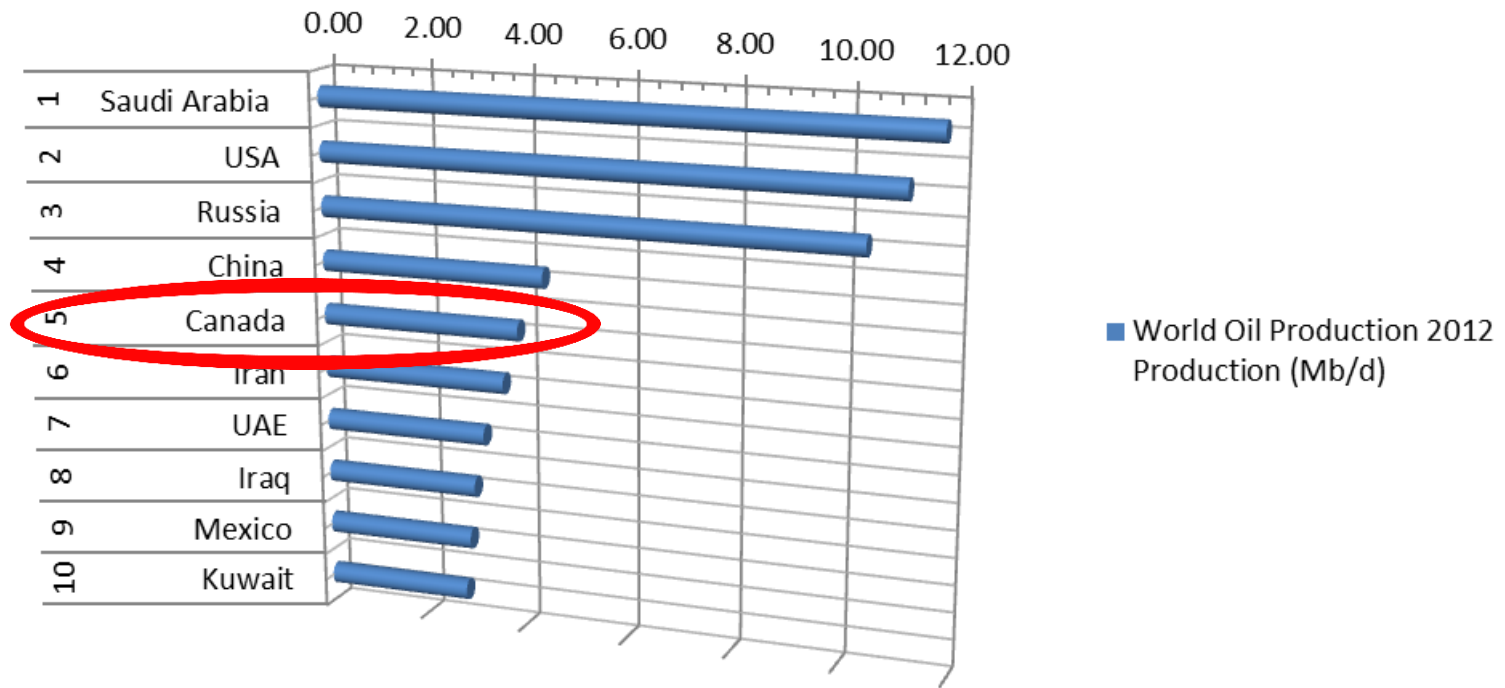
2. What is the % of Canada's energy produced by renewable sources (hydroelectricity, wind, solar, biomass) v. fossil fuels (oil, gas, coal)?



How much energy does Canada produce?

- World's third largest producer of electricity by hydropower
- World's fourth largest producer of natural gas
 - 18th largest proven natural gas reserves in the world
- World's fifth largest crude oil producer
 - 3rd largest “proven” oil reserves in the world at 174+ billion barrels
 - If we continued to produce 4 mbd, every day, and if every barrel of that oil was to come from the oil sands, we would have enough oil for the next 115 years
- Only 20% of the world's oil reserves are accessible for private sector investment; Canada accounts for over half (55%) of the privately accessible energy resources in the world...

Table 1*
World Oil Production 2012 Production (Mb/d)



*Source: US Energy Information Agency (<http://www.eia.gov/countries/index.cfm?view=production>)

2. Can Canada influence world events?

Not really:

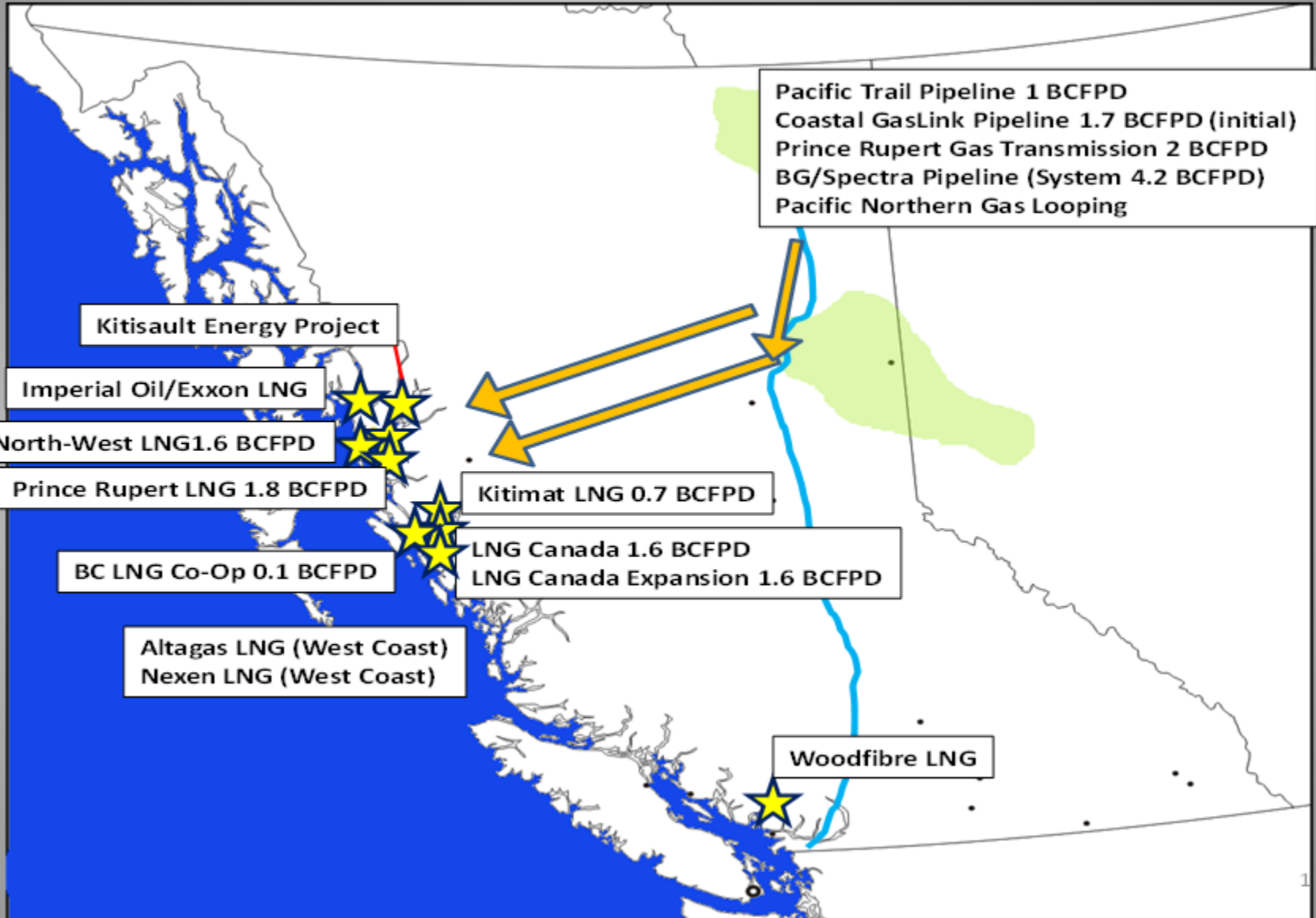
- TransCanada's Keystone XL project, to transport Canadian crude oil to refineries in the US Gulf Coast, repeatedly delayed by the Obama administration
- US States enacting "Low Carbon Fuel Standards" that specifically discriminate against Canadian oil sands crude
- US States enacting "Renewable Portfolio Standards" (RPS) to specifically keep out Canadian hydroelectricity
- LNG example detailed a bit later will demonstrate we cannot sell gas to Asian markets any time soon.

3. Are investors lining up to spend their capital?

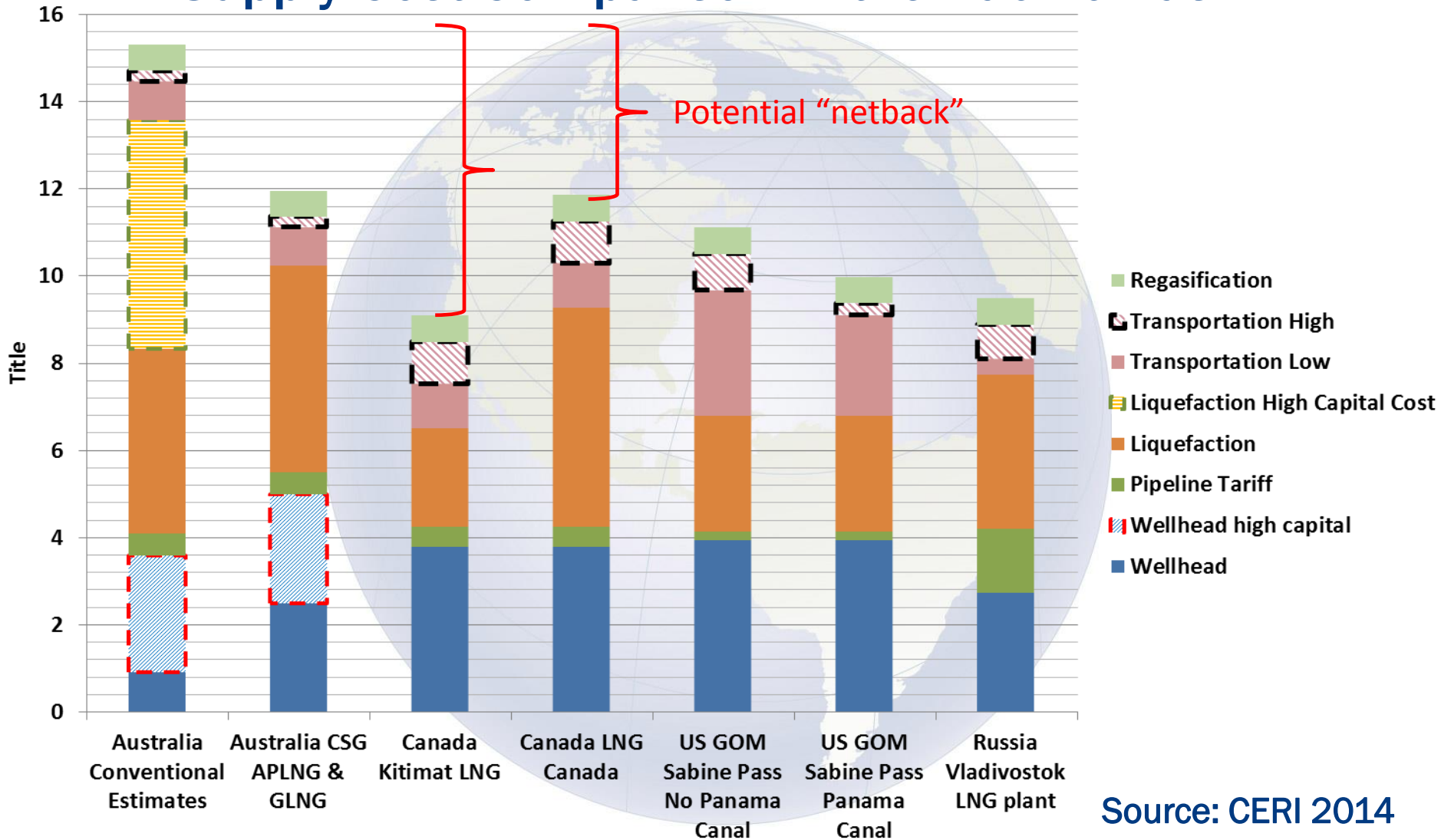
- Canada should be a great place to invest: stable Western democracy; state-of-the-art technology, labour and capital markets
- Government's new FDI policy announced in 2012 sent mixed message – Asians are puzzled by Canada and not everyone is getting the message that Canada remains open to the world
- A recent CIBC study showed that there have been 135 Canadian-related M&A transactions in 2013 accounting for \$8 billion compared to **\$66 billion** over 163 transactions during the same period in 2012; FDI in Canadian energy declined > 92% in 2013 compared to 2012
- Foreign companies and SOEs are continuing to examine Canada's recently amended Investment Canada Act

4. Do we have the people, infrastructure and know-how to create world-class value from our energy?

- Skilled trades people (construction workers, welders, pipefitters and steam and power engineers) as well as engineers and environmental scientists are in great demand
- Need to train more Canadians to take over these jobs when the baby-boomer generation retires
- Need to include and involve Indigenous Canadians more
- The infrastructure is lacking and pinch point is soon approaching on oil pipelines:
 - Keystone XL pipeline
 - Enbridge's Northern Gateway
 - Kinder-Morgan's TransMountain
 - TransCanada's Eastern Access



Supply Cost Comparison in the Pacific Basin



Source: CERI 2014

Some final thoughts on policy implications

- Some policy gaps that need to be addressed in this country include:
 1. A diversified market for our energy products;
 2. The right infrastructure in the right places to produce and transport our energy products to markets around the world;
 3. Evidence to convince our customers that Canada is a clean and environmentally sustainable energy supplier;
 4. A welcoming investment climate to attract the billions of capital needed to take advantage of Canada's bounty; and
 5. The right policies in place to ensure that all of the points above are achieved in a socially acceptable way – the most important one being with the support of Canada's Indigenous peoples.

Merci!

Jean-Sébastien Rioux, Ph.D.
Professor and Associate Director of International Policy
The School of Public Policy
University of Calgary
jsrioux@ucalgary.ca

References:

- Slides 3, 4, 5 and 6: ExxonMobil (2013) *The Outlook for Energy: A View to 2040*. Available at: www.exxonmobil.com/energyoutlook
- Slides 8 and 9 (Pop Quiz): Natural Resources Canada, www.nrcan.gc.ca
- Slide 13: CIBC, “Sustaining the Canadian Advantage” Presentation by the Hon. Jim Prentice to the Oil & Money Conference, London UK, 1 Oct. 2013.
- Slides 15 and 16: Canadian Energy Research Institute (CERI), “BC LNG: The Time is Now.” PowerPoint presentation by CEO Peter Howard, 14 March 2014, used with author’s permission.