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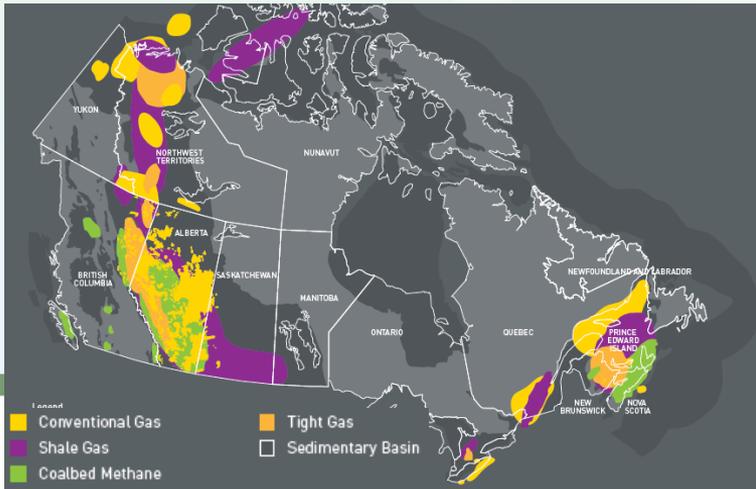
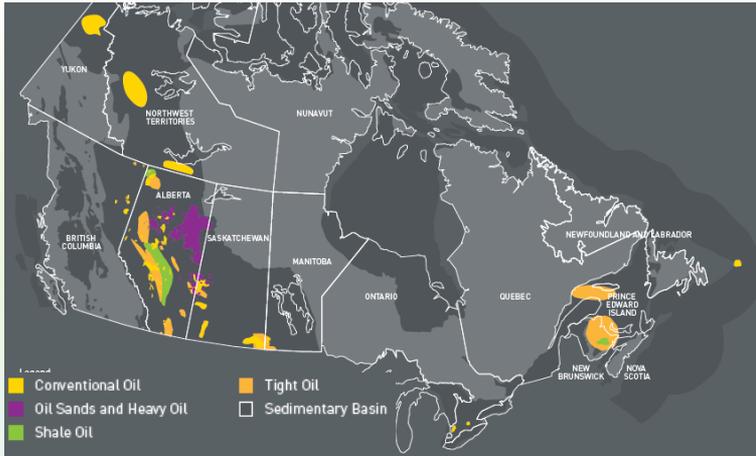
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Update on Oil and Gas Security in Canada

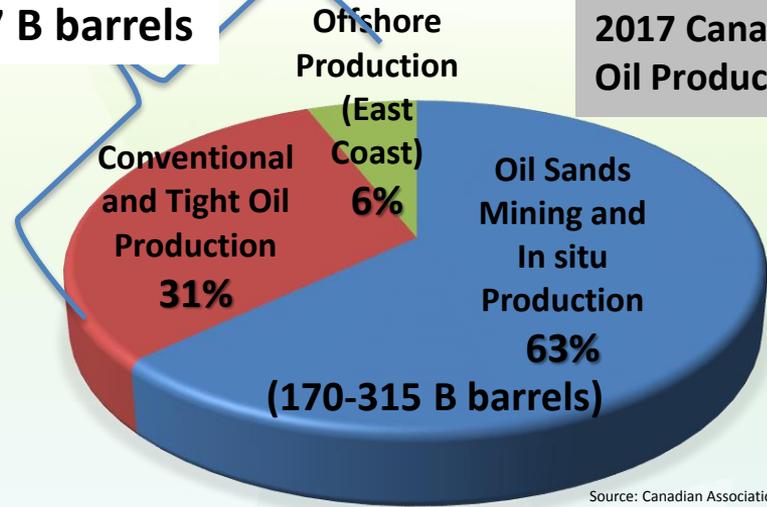
Nicole Deschenes
Deputy Director, Petroleum Resources Branch
Natural Resources Canada

Canada

Canada's Oil and Gas Resource Wealth



4.7 B barrels



Source: Canadian Association of Petroleum Producers

Natural Gas Resources

- Canada has up to 1,800 trillion cubic feet (tcf) of marketable natural gas resources, most of which is unconventional (shale/tight gas, coal-bed methane) mainly concentrated in Alberta and British Columbia

Canadian Crude Oil Production and Exports (Thousand Barrels Per Day - kbpd)

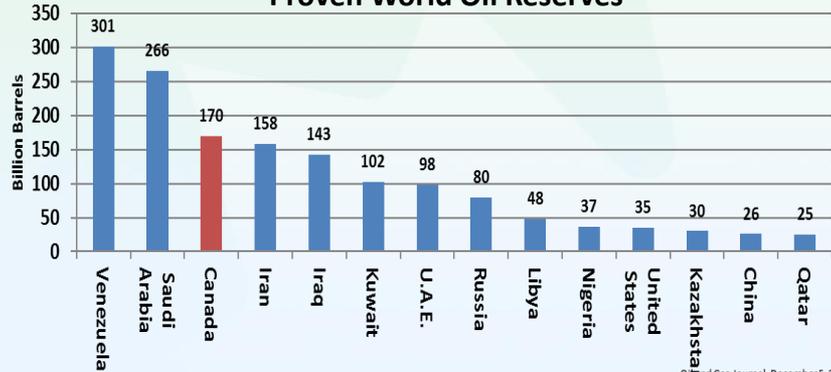
Year	Crude Oil Production	Crude Oil Exports
2014	3800	2800
2015	3900	3000
2016	3900	3100
2017	4200	3300
2018	4600	3500

**2018 Canadian
Condensate
Production
(kbpd)**

400

Source: National Energy Board

Proven World Oil Reserves



Oil and Gas Journal, December 5, 2016

Types of Crude Produced (API Gravity)

Crude Type	API Gravity	Weight Category
Western Canada Select (WCS)	20.5 - 21.5 ⁰	HEAVY
Lloyd Blend	20.0 ⁰	
Cold Lake Blend	21.2 ⁰	
Bow River	24.7 ⁰	MEDIUM
NFLD White Rose	29.8 ⁰	LIGHT
NFLD Hibernia	34.4 ⁰	
Syncrude	34.4 ⁰	
Edmonton Light	40 ⁰	



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2018 Canadian Crude Oil Imports By Source

Country	Thousands Barrels Per Day	Percent of Imports
United States	411	65.7%
Saudi Arabia	110	17.5%
Azerbaijan	33	5.2%
Norway	21	3.3%
Nigeria	14	2.2%
Algeria	10	1.5%
United Kingdom	9	1.4%
Cote D'Ivoire	7	1.1%
Columbia	6	1.0%
Russia	4	0.7%
Libya	3	0.4%
Total	628	100%

2018 Canadian Crude Oil Exports By Source

Country	Thousands Barrels Per Day	Percent of Exports
United States	3,435	96.4%
United Kingdom	31	0.9%
China	20	0.6%
Italy	15	0.4%
Spain	13	0.4%
Netherlands	12	0.3%
France	11	0.3%
Portugal	4	0.1%
Croatia	4	0.1%
Trinidad & Tobago	3	0.1%
Colombia	3	0.1%
All Others	12	0.4%
Total	3,563	100%

Source: Global Trade Atlas

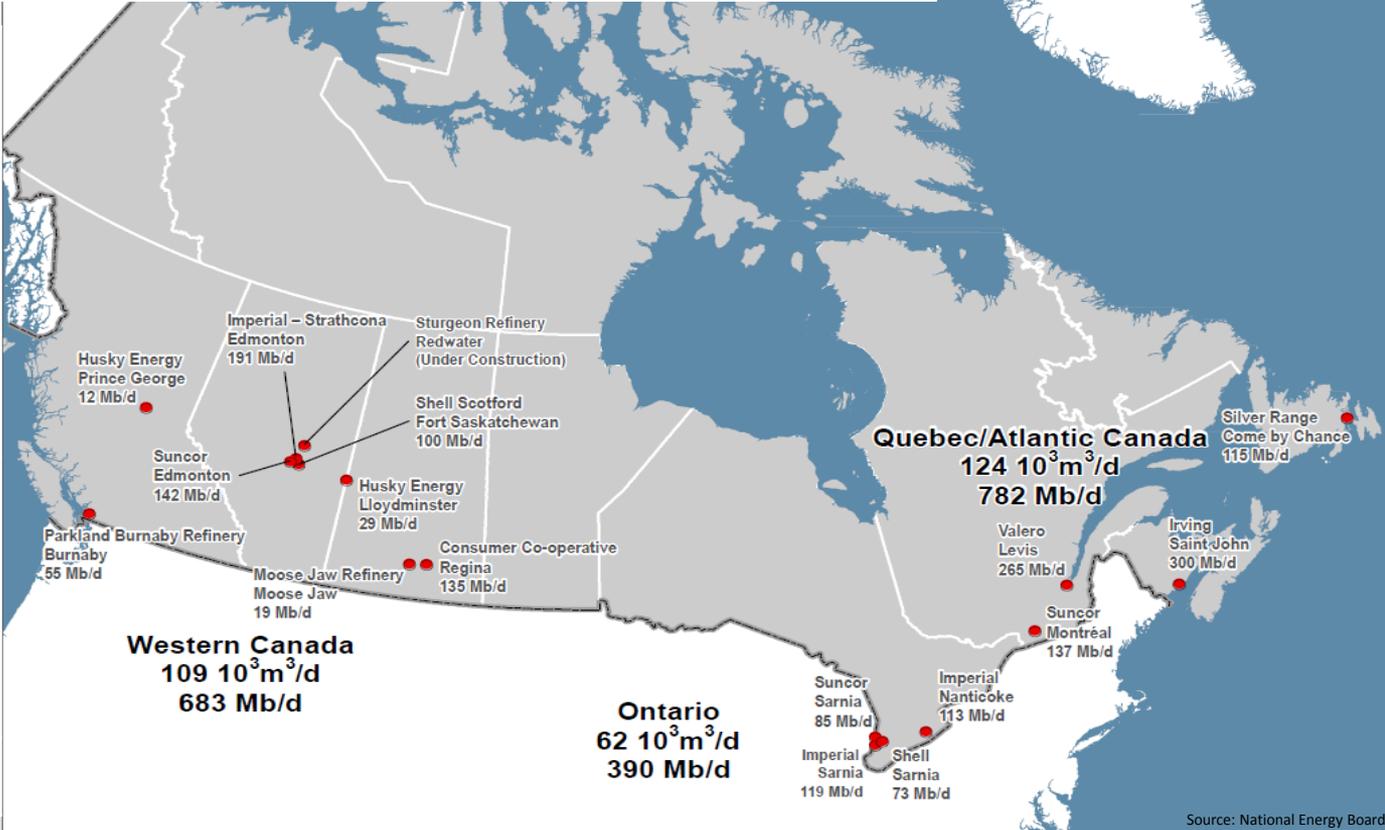


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Canadian Refineries and Capacity

Region	Capacity (kbpd)	Percentage of total
Western British Columbia Alberta Saskatchewan	744	38.13%
Ontario	390	19.99%
Québec and Atlantic Canada New Brunswick Newfoundland and Labrador	817	41.88%
Total	1,951	100%



Source: National Energy Board

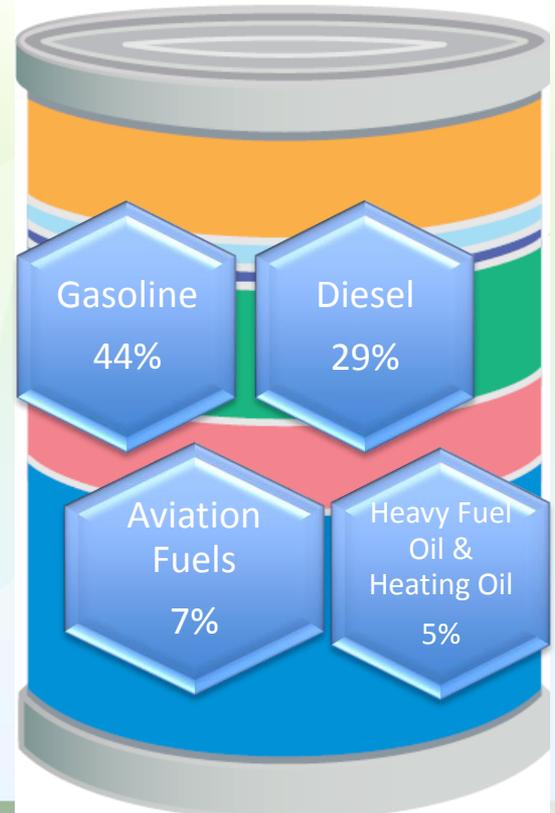


Petroleum Products Supply Security

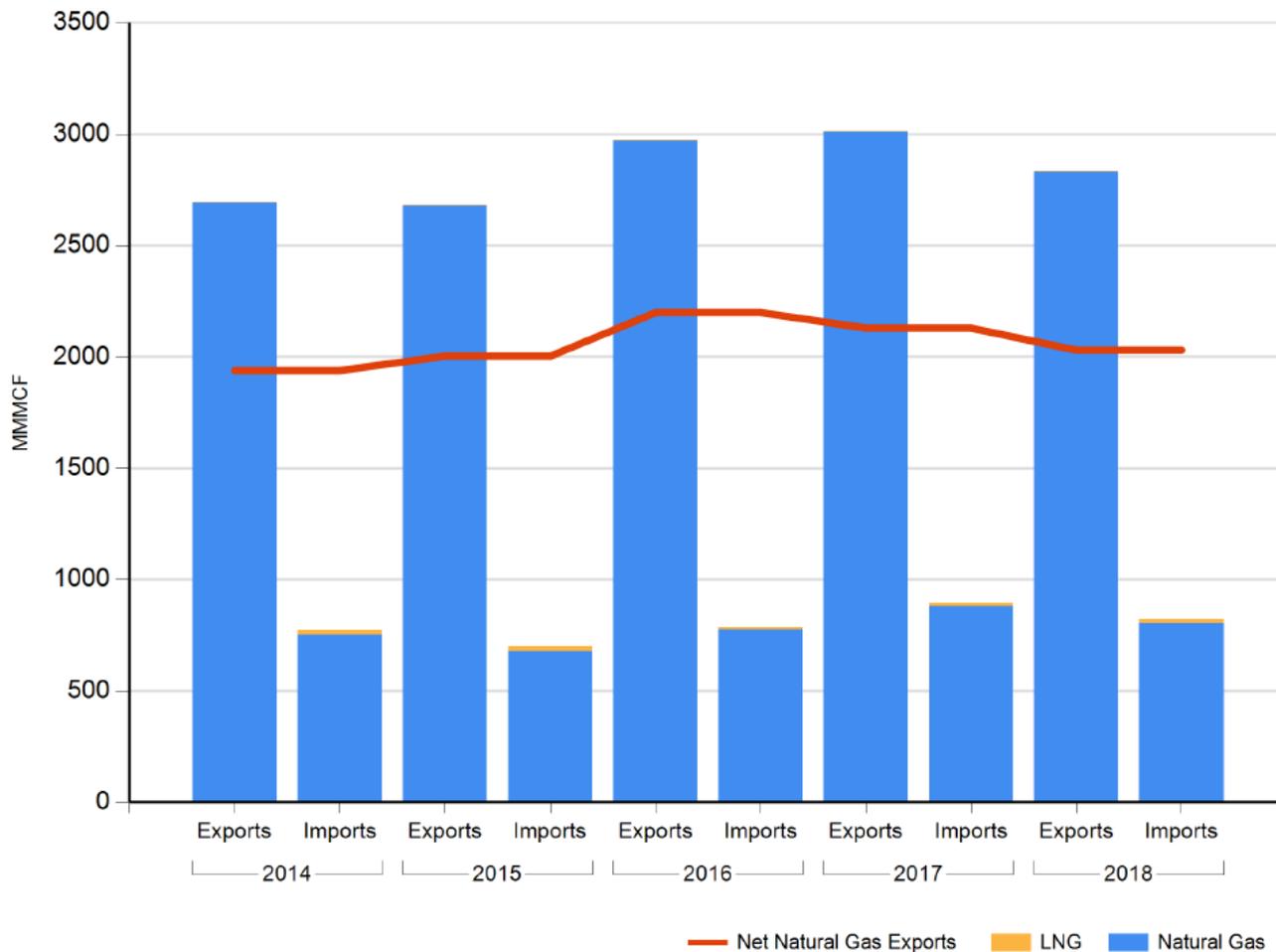
Refined Petroleum Products

Exports	Imports
500,000 bpd (29 billion litres)	300,000 bpd (16 billion litres)

Canadian refineries produce refined petroleum products (RPPs) including gasoline, diesel fuel, jet fuel, heating oil and others. Canada's RPP production is primarily for domestic consumption, with some exports mainly from the Atlantic refineries.



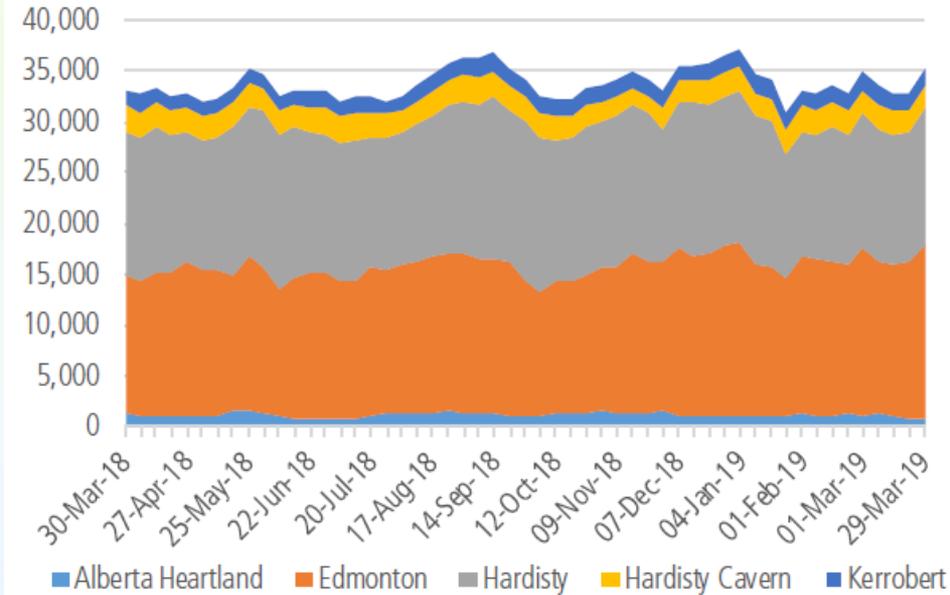
Natural Gas and LNG - Historical Summary of Export and Import Volumes (From 2014)



Oil and Gas Supply Security Policy Framework

- ✓ In the event of a national emergency, Canada has broad powers under:
 - ✓ *Energy Supplies Emergency Act* (1985)
 - ✓ *Emergencies Act* (1985)
- ✓ As a net oil exporter, Canada is not obligated to maintain government-owned or controlled stocks.
- ✓ Canada relies on commercial inventories to respond to a supply disruption
 - proven to be more than adequate

Canadian Storage (1000 bbls)



Source: Genscape



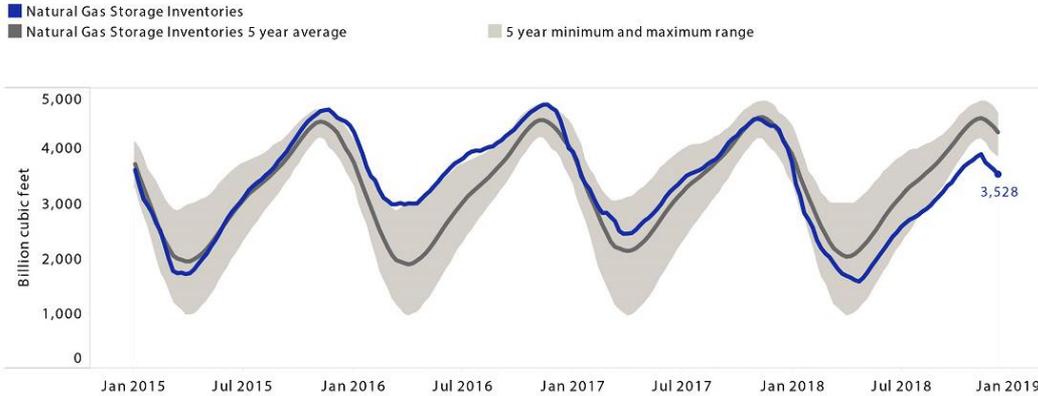
Oil Reserves in Emergency

- Canada has analyzed options to set up a Strategic Petroleum Reserve (SPR) through various means, including:
 - direct ownership of reserves
 - a stockholding arrangement with industry
- The Canadian industry is maintaining adequate stock levels to meet its operational requirements, and can cover short-term supply requirements in the event of a disruption.
- The cost of an SPR is difficult to justify given that Canada is a growing net exporter.

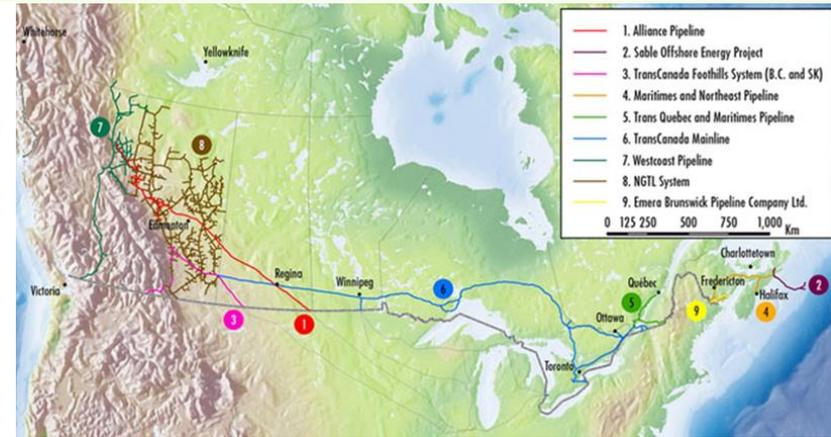


Natural Gas Supply Security

Combined Canadian and U.S. Natural Gas Storage Inventories



Source: Canadian Enerdata, U.S. Energy Information Administration's Weekly Natural Gas Storage Report, ICE NGX



Source: National Energy Board

- The balancing of natural gas supply and demand is managed regularly by the industry.
- In the event of a disruption, the industry and the regulators collaborate to address the issue.
- In a declared national emergency, the federal government has powers under the *Emergencies Act* to control the flow of natural gas.



Thank you very much.

ありがとうございました

Merci beaucoup.

