A Canadian Energy Discussion
Context and Issues in an Era of Disruption
Presented to the Calgary Real Estate Forum
By Peter Tertzakian, November 2019
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Market Distortions Trigger Adaptation
Growth in Renewable Energy is Exponential

Source: EIA, BP Statistical Review

World Renewables Consumption
World Energy Consumption by Source
2000 to 2018

Source: BP Statistical Review
Canada is the Fifth Largest Oil & Gas Producer

A Global Context

Canada is Influential in the Geopolitics of Oil
Business Risk (Colour) and Size of Oil Production (Black Spots)

Source: Transparency International (2016), BP Statistical Review
Canada Energy Demand By Fuel
Annual; 1970 to 2100

Canada De-Carbonization Scenario
Annual; 1970 to 2100

Three Sources of Disruption in Oil and Gas

TYPE 1
Disruption within the industry

TYPE 2
Disruption that displaces the industry

TYPE 3
Disruption in Capital Markets
Forces of Change on Commodity Prices

Oil Price per Barrel

Maturity Era
NO MORE OIL!
WORLD SUPPLY WILL BE GONE IN 6 MONTHS
ECONOMY WILL COLLAPSE!
MILLIONS WILL STARVE!

CANADA DIGGING TRENCH TO SEPARATE FROM U.S.
TEENS HAVE PETS TATTOOED!
AL CAPONE'S GHOST STORMS WHITE HOUSE!
Forces of Change on Commodity Prices

Maturity Era

Peak Oil Era

Oil Price per Barrel


$20 $40 $60 $80 $100 $100
The Price of WTI Oil
Daily; January 1997 to Current

Source: Bloomberg
Canadian Upstream Revenue
2000 to 2019e

Source: CAPP (historical), ARC (forecast)
Canada’s Oil and Gas Industry is Diverse

- Large rural employment of “drillers”
- Short-life and short cycle
- More ‘boutique’, independent operations
- Lower carbon intensity

Conventional oil and gas

- Concentrated employment
- Long-life and long cycle
- Large-scale manufacturing operation
- Higher carbon intensity

Source: geoSCOUT
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Oil and Gas Responds to Climate Change

Suncor's Sustainability Goals
Our greenhouse gas (GHG) emissions goal: harness technology and innovation to reduce our emission intensity by 30% by 2030

Chief aims for Occidental Petroleum to be ‘carbon neutral’
Shale producer pins hopes on enhanced oil recovery using captured greenhouse gases

Ultimately, she wants Occidental to be “carbon neutral”: capturing greenhouse gases equivalent to all the emissions arising from its operations, its supply chain and the use of the oil and gas that it produces.

Shell Vows to Halve Carbon Footprint by 2050 to Achieve Paris Goals
“The oil and gas industry is reducing its emissions fast”

“Who cares? You will be irrelevant in 10 years”
US Light Truck Sales: Market Share

Two-Axle, Four-Tire trucks Incl Pickups, SUVs, Vans Less Than 8500 lbs

% of New Vehicle Sales

Source: US Bureau of Economic Analysis (BEA)
Is it really a binary choice?
(the goal is to reduce emissions ASAP)
Global Uses for Petroleum

- Light Duty Vehicles: ~30%
- Heavy Haulers: 15%
- Other Transportation: 15%
- Non Transportation: ~40%

Source: IEA (2014)
Three Sources of Disruption in Oil and Gas

TYPE 1
Disruption within the industry

TYPE 2
Disruption that displaces the industry

TYPE 3
Disruption in Capital Markets
“DIVEST”

Anonymous

FOSSILEFREEPENN.ORG
Canadian Oil & Gas Industry Financings
Annual; 2000 to 2018

Source: Sayer Energy Advisors, ARC
Canada Oil and Gas Equity Share Repurchases
Quarterly; 2016 to Q2 2019

Source: CanOils – Canada E&P (194 companies)
Autopilot is not just for cars.
World Energy Consumption by Source
2000 to 2018

Source: BP Statistical Review
Oil and Gas is the Largest Business in Canada, Followed by Cars

An energy transition off petroleum will impact the two largest export industries in Canada.

Source: Statistics Canada Canadian International Merchandise Trade Database, Value of Canadian International Merchandise Exports (2018)
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