

PERSPECTIVA CANADIENSE DE EXPLORACIÓN EN MÉXICO

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Canadian Global Exploration Forum, Calgary, AB, Canada



FEBRUARY 21-22, 2017
HYATT REGENCY, MEXICO CITY



CANADIAN GLOBAL
EXPLORATION FORUM

8:00 AM - 9:00 AM	DESAYUNO / CONTINENTAL BREAKFAST - SALA REGENCY C / REGENCY BALLROOM C PATROCINADO POR Jim Thomas, TGS	TGS
9:00 AM - 9:30 AM	CONFERENCIA MAGISTRAL DE APERTURA POR EL PRESIDENTE OPENING KEYNOTE FROM THE CHAIRMAN Gustavo Hernandez, Pemex E&P	
9:30 AM - 10:00 AM	PERSPECTIVA CANADIENSE DE EXPLORACIÓN EN MÉXICO CANADIAN PERSPECTIVE OF EXPLORING IN MEXICO Jürgen Kraus, Canadian Global Exploration Forum	



Outline

www.cgef.org

- What is the Canadian Global Exploration Forum (CGEF)?
- What Canadian oil and gas companies offer
- Canadian International Success Stories
- Mexico and Canada: Some Comparisons
- Capabilities of Canadian Service Companies
- The Canada Advantage
- Concluding Remarks

Canadian Global Exploration Forum www.cgef.org

- **CGEF** is a unique non-profit organization that promotes cooperation between Canada based, internationally operating energy companies and their international counterparts and governments.
- **CGEF** supports a vibrant, Canada based, international energy industry through networking events, conferences and workshops
- Our 20-25 members are E&P companies that share Canadian expertise, technology, and opportunities with each other and the world
- **CGEF** is the primary Canadian contact point for international energy companies, services, and governments
- **What can we do for you?** A: provide a relevant Canadian audience, establish contact with potential Canadian partners, advertise bid rounds...

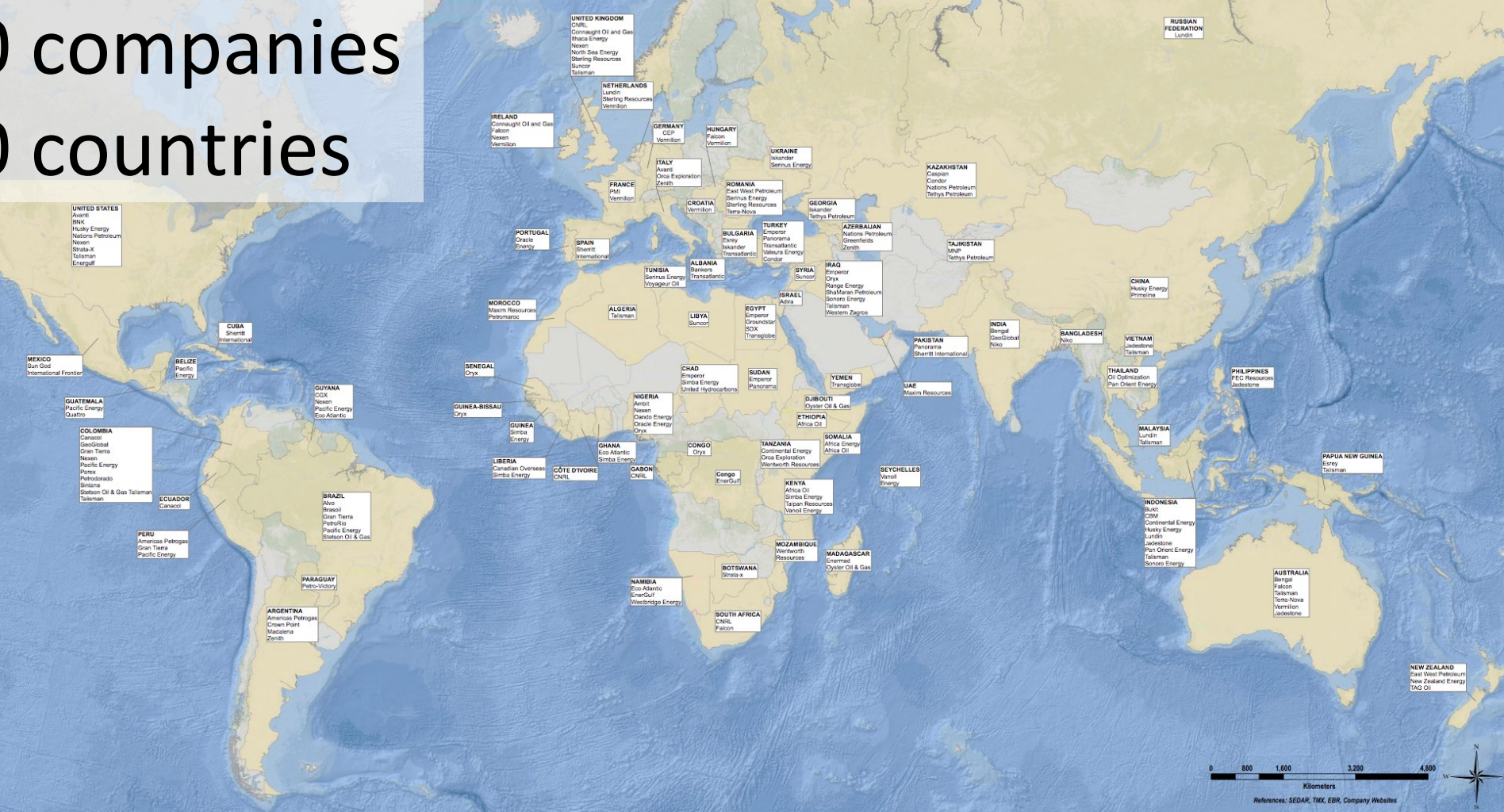
Why Would You Want to Do Business with Canadian Companies?



- The Canadian energy industry has a long track record of proven expertise in the development and application of the latest technologies for the full spectrum of oil and gas exploration, development and re-development in all types of reservoirs and reservoir fluids
- With the current Fx [**\$1 CAD = \$0.75 USD**] the highest standard of operations and services are available at very competitive prices
- Strong and efficient access to both public and private capital markets
- Canadian operators and service companies are actively searching for collaboration with local partners for entry into the Mexican oil & gas industry

Internationally Operating Canadian Public & Private Oil and Gas Companies

>100 companies
>100 countries



Feb. 2017

www.maturefieldsmexico.com



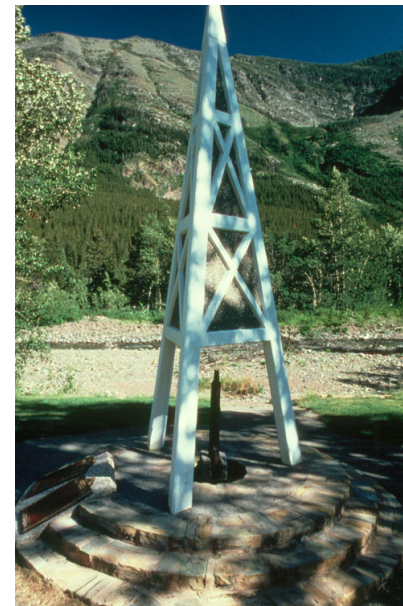
CANADIAN GLOBAL EXPLORATION FORUM



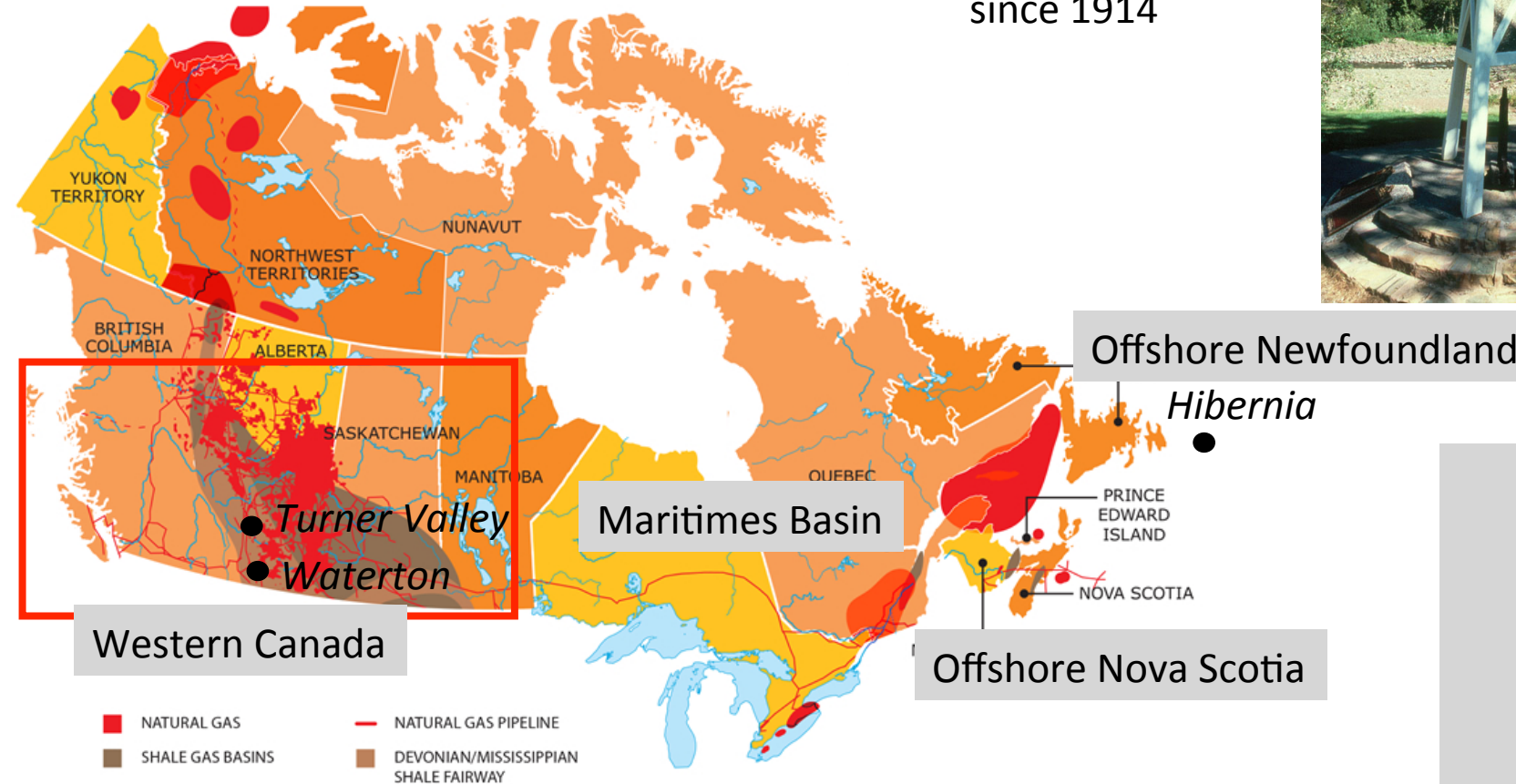
Organized by **dmg::events**

The Canadian Petroleum Industry: Overview

Waterton, AB:
oldest Alberta well
(1897)
Turner Valley field
since 1914



Hibernia platform,
East Coast

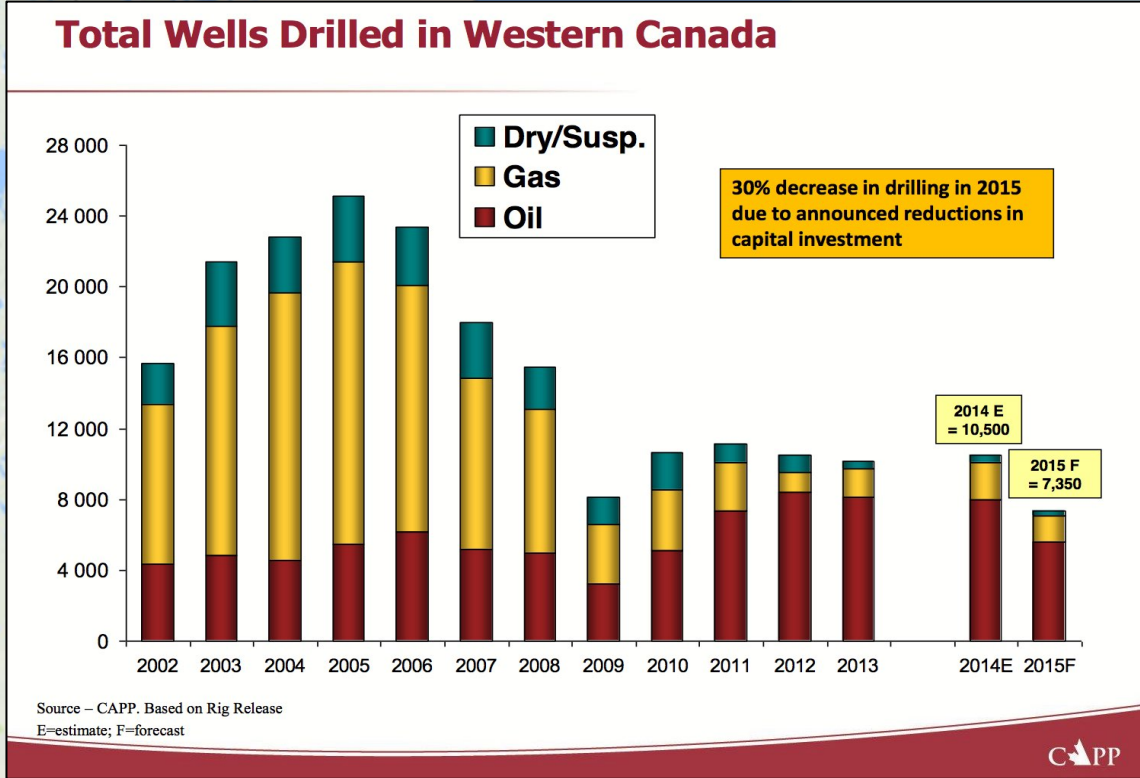
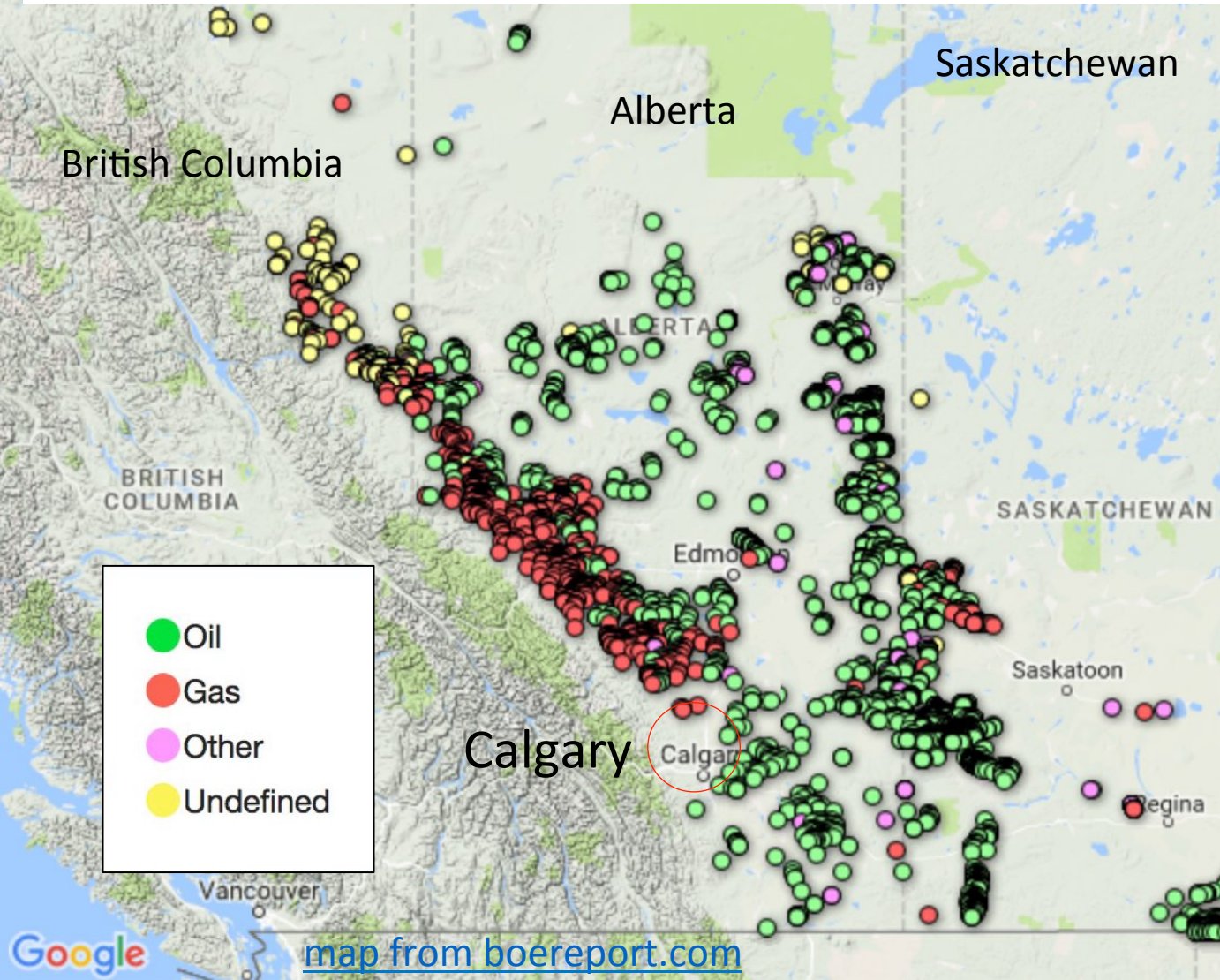


Canada

- Third largest natural gas producer
- Fifth largest energy producer
- Sixth largest crude oil producer
- Third in crude oil reserves

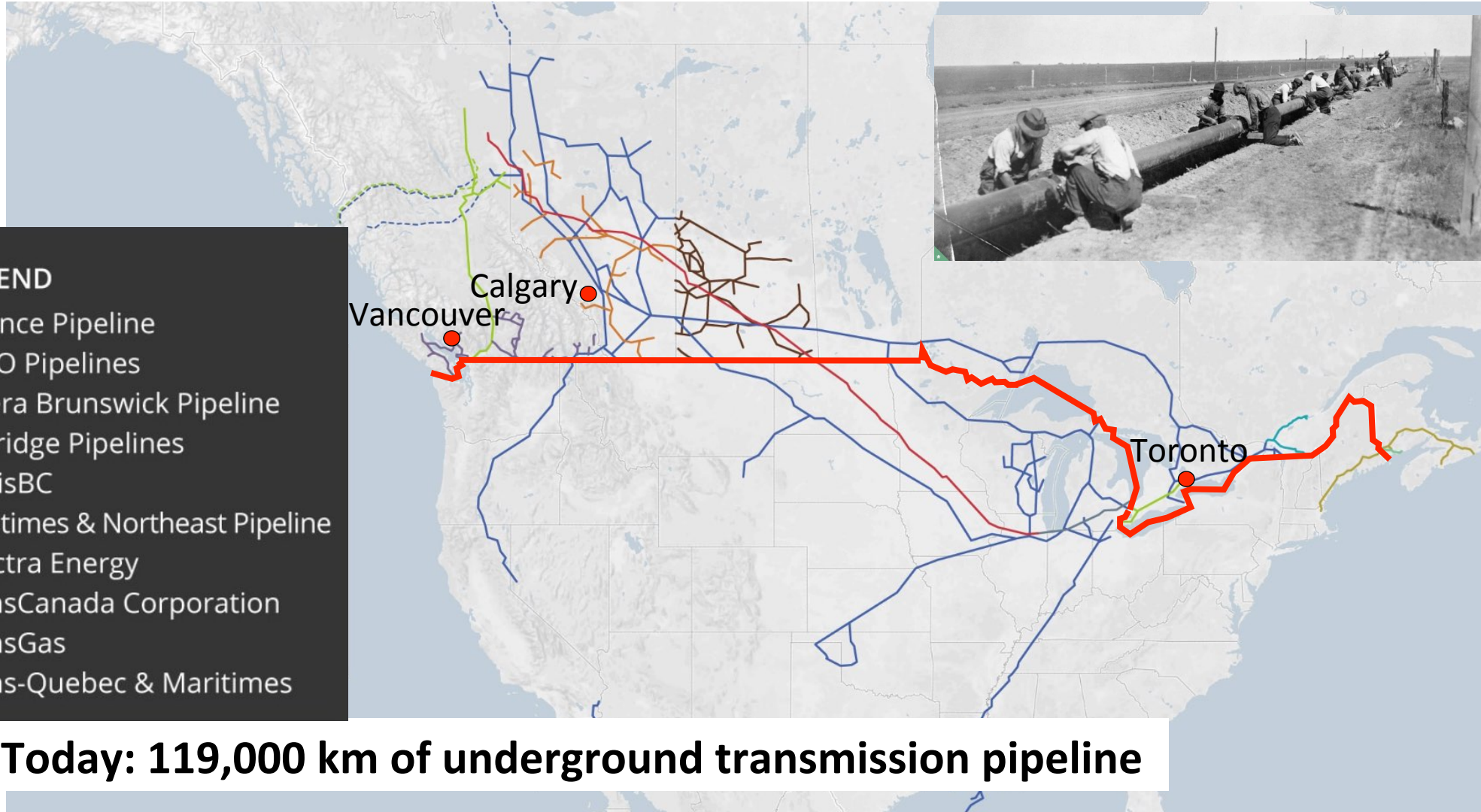
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Well Activity Western Canada (Feb. 2016 – Feb. 2017): 9010 wells found



650,000
wells drilled to date in Canada
(source: PSAC)

Liquids Pipelines: since 1853 in Canada; expanded network since the 1950s



Today: 119,000 km of underground transmission pipeline

Technical Expertise in Exploration, Development, and Production

Conventional

- 120 years of exploration and development in structurally complex settings (e.g. fold-thrust belts...already applied to South America)
- World-class offshore operational expertise in shallow/deep water and hostile environments e.g. Jeanne'D'Arc Basin (Hibernia), Flemish Pass (Statoil discoveries), Scotian Shelf (Sable Island, Panuke)
- Oil and gas developments in both carbonate and sandstone reservoirs
- Long history of well stimulation and innovative drilling, completion and production technologies
- Deep experience in H₂S-rich gas production and processing
- Wide diversity of wells from 1bbl/d to 1000's bbl/d, 50,000bbl to multi-billion bbl pool size developments



Technical Expertise in Exploration, Development, and Production

Unconventional

- Expertise in assessing and exploiting new unconventional plays quickly and efficiently
- Unconventional resource plays (shale gas: Bakken, Montney; shale oil; tight sand oil; naturally fractured reservoirs, CBM)
- Much of the new technologies to develop unconventional reservoirs were invented or enhanced in Canada
- Example: oil sands development:
 - 54,000 mi²
 - 1.7 trillion barrels bitumen in place
 - Ca. 10% recoverable: **178 billion barrels**



Technical Expertise in Exploration, Development, and Production

Production and Recovery

- Hydraulic fracturing routinely applied for decades
- Over 75% of wells drilled in Canada (2015) were horizontal
- Secondary and tertiary recovery technologies are routinely applied
 - Waterfloods, immiscible and miscible gas floods with sweet gas, CO₂ or H₂S rich miscible gas flood; alkaline-surfactant-polymer (ASP) flood, SAGD in oilsands, etc.
- Cold Heavy Oil Production with Sand (CHOPS) (Lloydminster)
- Well intervention and wellbore integrity technologies
- Bypassed pay identification through advanced petrophysics
- All forms of artificial lift in use throughout Canadian oilfields and products exported worldwide



The Petroleum Industry in Canada: Technical Expertise

Government Support: Public Access to Databases

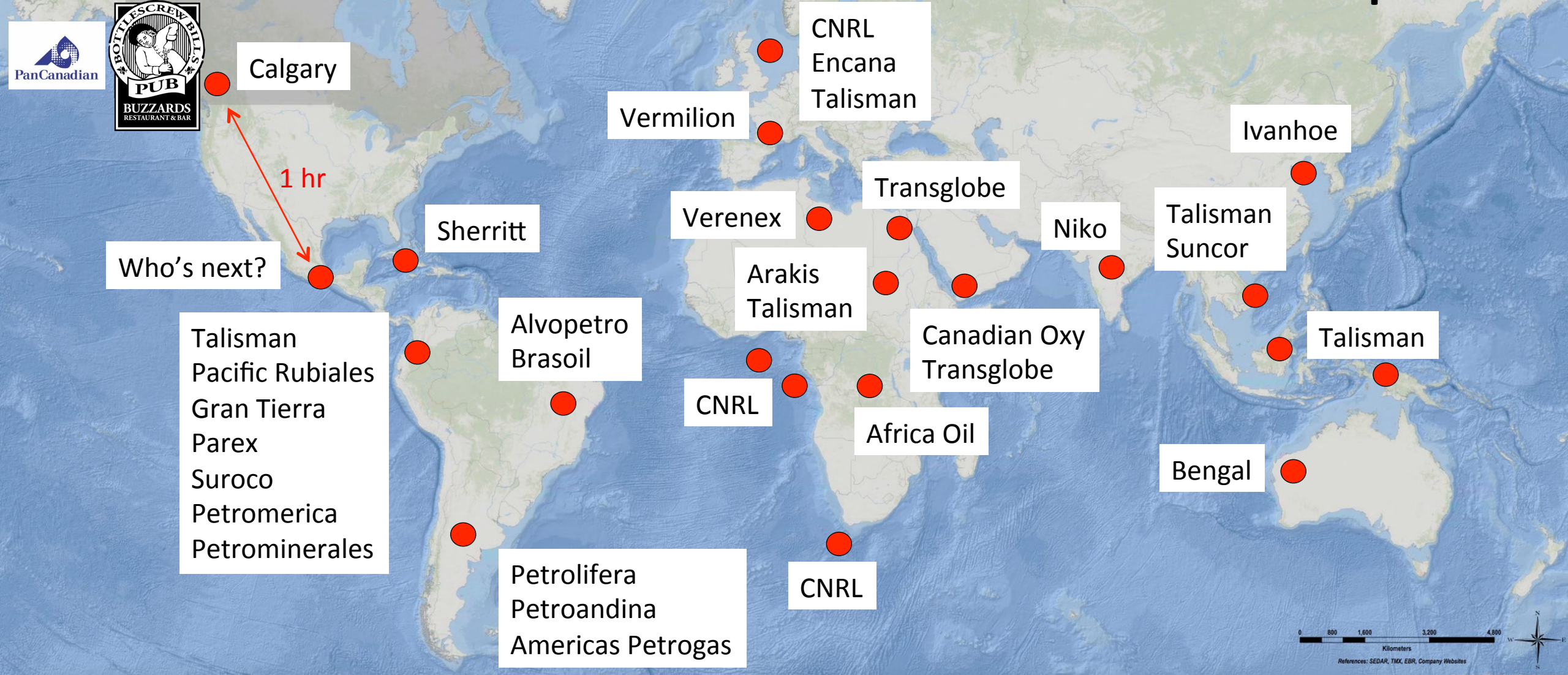
- Unrivalled public database of Western Canadian well data, production data, sample cuttings, and core data by the Government of Alberta
- The Alberta government has an advanced model for organizing data and making them available in the public domain; a similar service is provided by the other provincial energy departments
- Geological Survey of Canada and the provincial surveys provide research and data to industry [maps, cross sections, and know how]
- These technologies are available to other regulatory institutions



Innovation through Research (8 Independent Institutions in AB)

- University of Calgary & University of Alberta received \$150MM federal government funding for research in heavy oil and mature fields
- University of Calgary /UNAM conduct research into Mexican heavy oil, US\$20MM, five years; U of C School of Public policy works with foreign regulators
- Haskayne School of Business works with foreign NOC's
- CanMet division of National Research Council (NRC); Alberta Research Council (ARC)

Past & Present Canadian International Success Stories: Examples

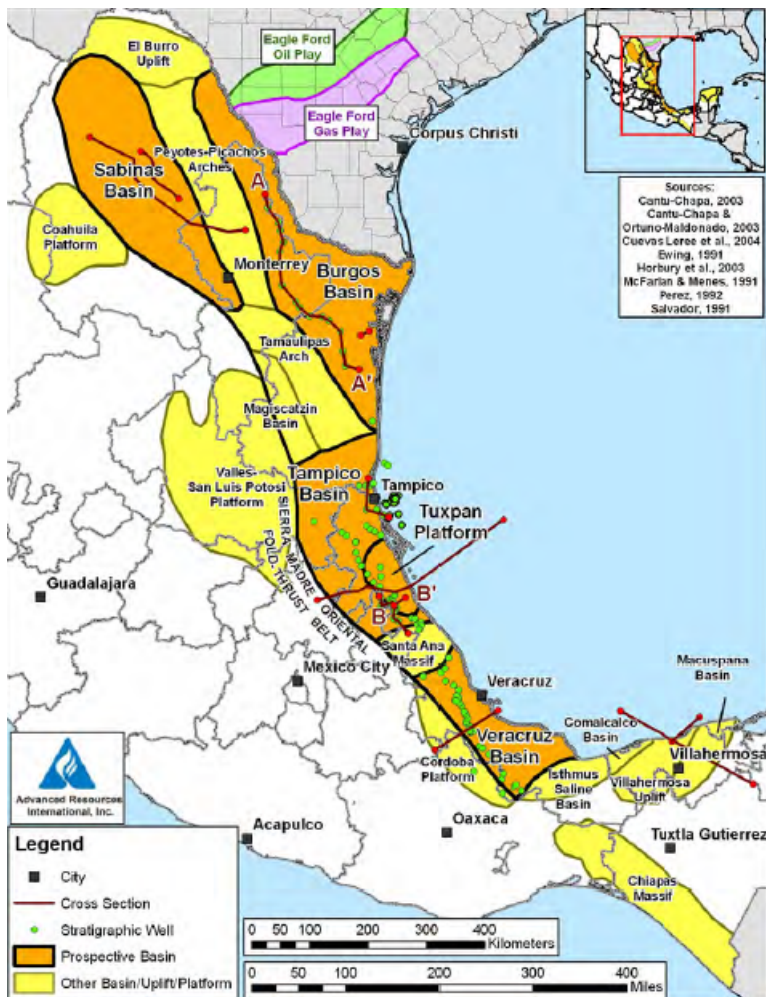


Canadian E&P Companies with Latin America Experience

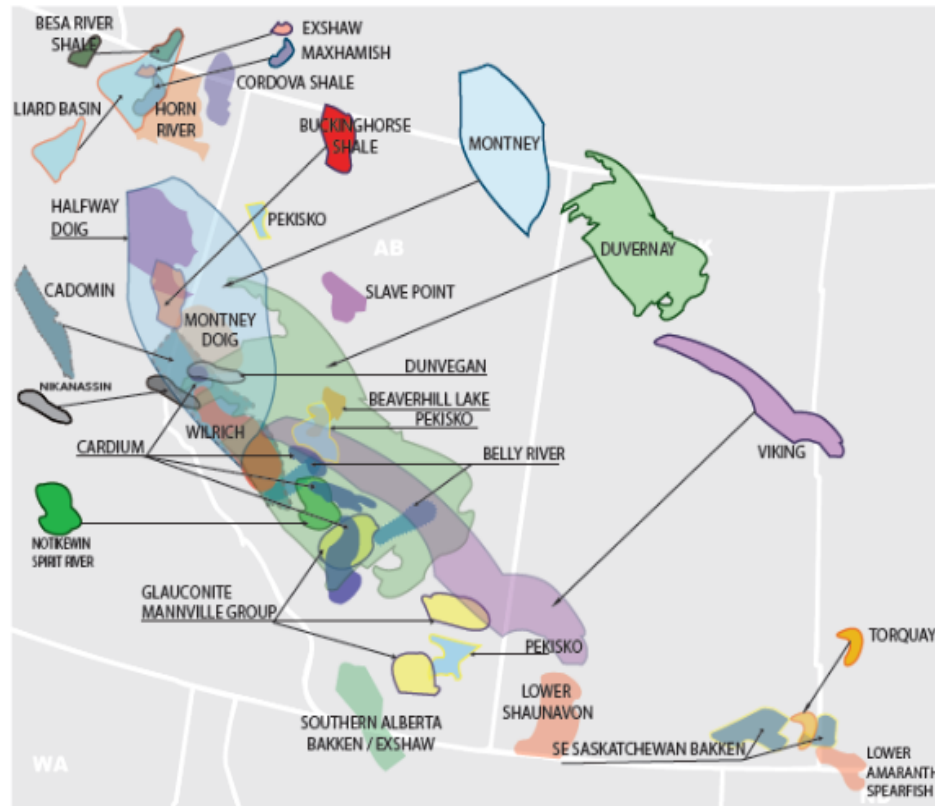
- Rio Alto – Argentina
- Azabache – Argentina
- Petro Andina – Argentina
- Petrolifera – Argentina
- Madalena – Argentina
- Antrim – Argentina
- Crown Point – Argentina
- ArPetrol – Argentina
- Canacol – Colombia, Brazil, Ecuador
- Talisman Energy – Peru, Colombia, Trinidad
- Petominerales – Colombia
- Americas Petrogaz – Argentina
- Parex – Colombia
- P1 Energy – Colombia
- Petro American Exploration – Colombia
- Gran Tierra – Colombia, Brazil, Peru
- Pacific Rubiales – Colombia
- Nexen – Colombia
- PetroDorado – Colombia
- CGX Energy – Guyana, Suriname
- PacAlta – Ecuador
- Encana – Ecuador
- Suroco Energy – Colombia
- Santa Maria Petroleum – Colombia
- Platino Energy Corp – Colombia
- C&C Energia – Colombia



Canadian Experience in Shale Plays will Have Application in Mexico



Western Canada Resource Plays

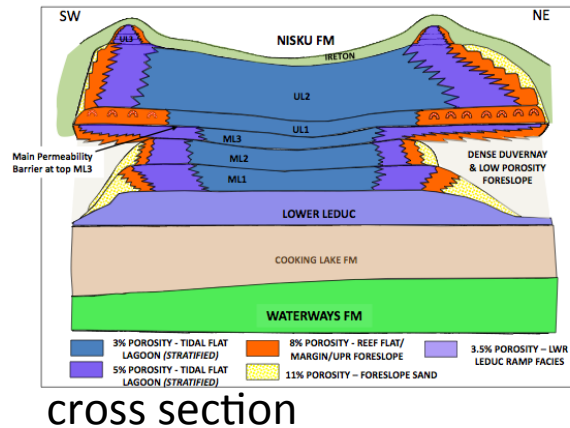
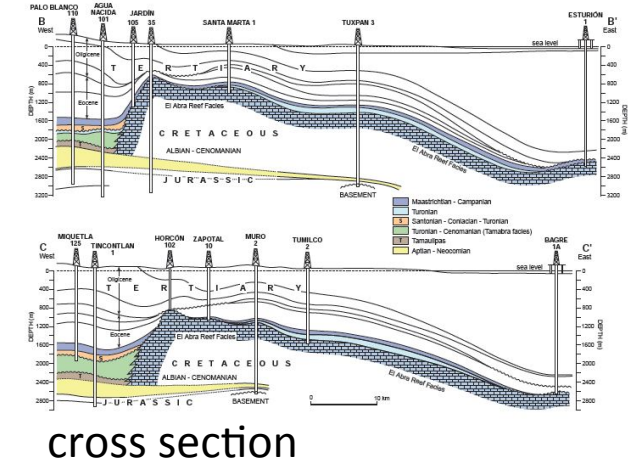
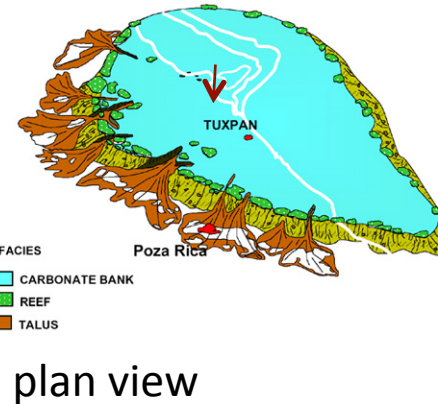


Both maps are approx. of the same scale

Mexico and Canada: Both Have Oil & Gas in Ancient Reefs

CERRO AZUL eg. – Golden Lane trend Mexico

- Rudist Cretaceous reef build-up in an atoll environment
- Discovered 1916
- Strong water drive, high porosity and permeability zones
- Karsting is a localized feature
- 1257 MMB OOIP
- **Current recovery is ~30%**



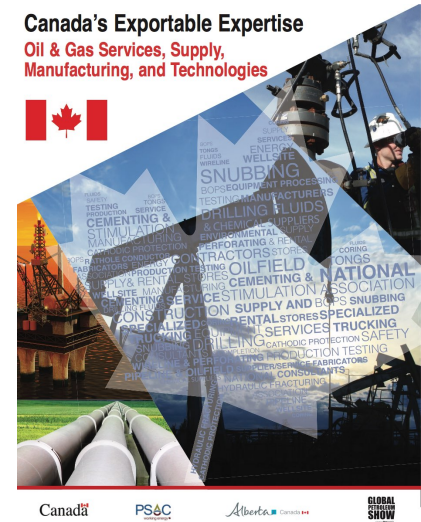
ANALOG– REDWATER (Leduc reef trend), ALBERTA

- Stomatopod Devonian reef build-up in an atoll environment
- Discovered 1948
- Strong water drive, high porosity and permeability zones
- 1300 MMB OOIP
- **Primary recovery was 60%**
- **ARC Resources currently implementing immiscible CO2 flood and anticipate 88% ultimate recovery**

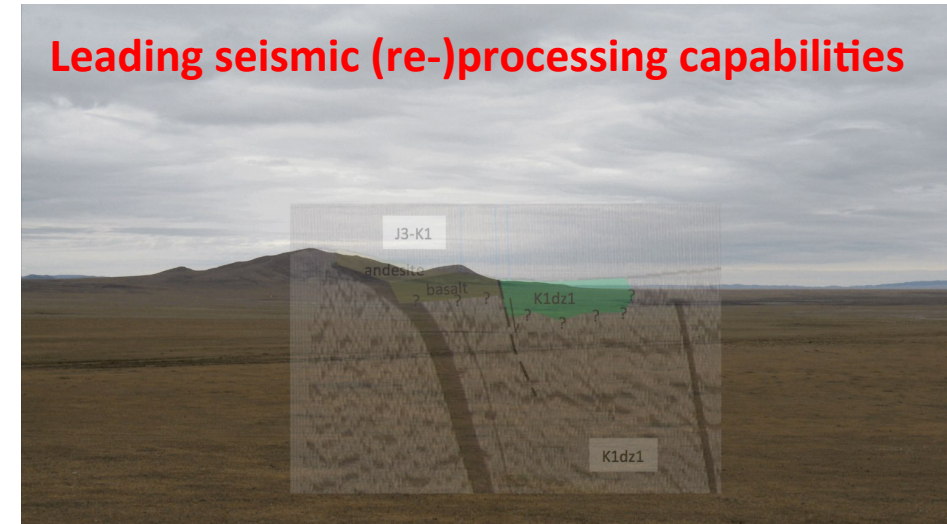
Canadian Service Companies: Offering the Full Spectrum of Services from Exploration through Re-development to Production

- Geology and Play Development Capabilities
- Exploration Geophysics
- Drilling, Well Completion & Stimulation, Pumping services
- Reservoir Engineering
- Field Development and Infrastructure
- Enhanced Oil Recovery (EOR)
- Oil and Gas Pipeline and Processing Facilities
- Environmental Management
- Health and Safety
- Training
- Offshore Development

Brochure
available here



Leading seismic (re-)processing capabilities



The Canada Advantage



- Canada is politically and economically stable; banks are regulated . This stability translates into a stable environment for Canadian companies operating abroad.
- Reduced immigration hurdles between Canada and Mexico – no US transit visa required! (direct flights from MEX to CDA via AeroMexico, Air Canada and Westjet)
- Canadian E&P companies have open access to capital markets through TSX
- Canadian dollar provides great value: **\$1 CAD = \$0.75 USD**
- Strict corporate governance laws and strong anti-corruption laws apply to companies operating abroad; clean reserves reports [NI 5101]
- Excellent overseas record of Corporate Social Responsibility (CSR)



Concluding Remarks:

That's Why You Want to Do Business with Canada!



- Canada offers a mature, highly regulated oil & gas industry that is well respected around the world
- The Canadian oil & gas industry offers the full spectrum of services at competitive prices
- Canadian operators and service companies are open for collaboration and the sharing of expertise with the Mexican oil & gas industry

