

Resources Disclosure

“Investor Caution Required”

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Worldwide **Petroleum** Consultants

Outline

- Resource Plays
- Recent Resource Disclosure Examples
- Investor / ASC Concerns
- Definitions / Guidance
- Future Guidance – COGEH Volume IV
- Issues to Debate
- Issues Beyond Debate
- Caveat to Investors

Resource Plays

No single definition.

- EnCana's definition: large, known sources of oil and gas trapped beneath the earth's surface.
- One geologist's definition: "hydrocarbon systems where the source and reservoir are the same rock unit or formation".
- SPEE: accumulation of hydrocarbons known to exist over a large area

Resource Plays

No firm definition

Resource plays:

- generally requires sophisticated drilling/completion techniques or recovery processes to obtain profitable production rates
- areal extent can be very large
- oilsands, CBM, shale gas and oil, tight gas, bitumen in carbonates, gas in hydrates, etc.

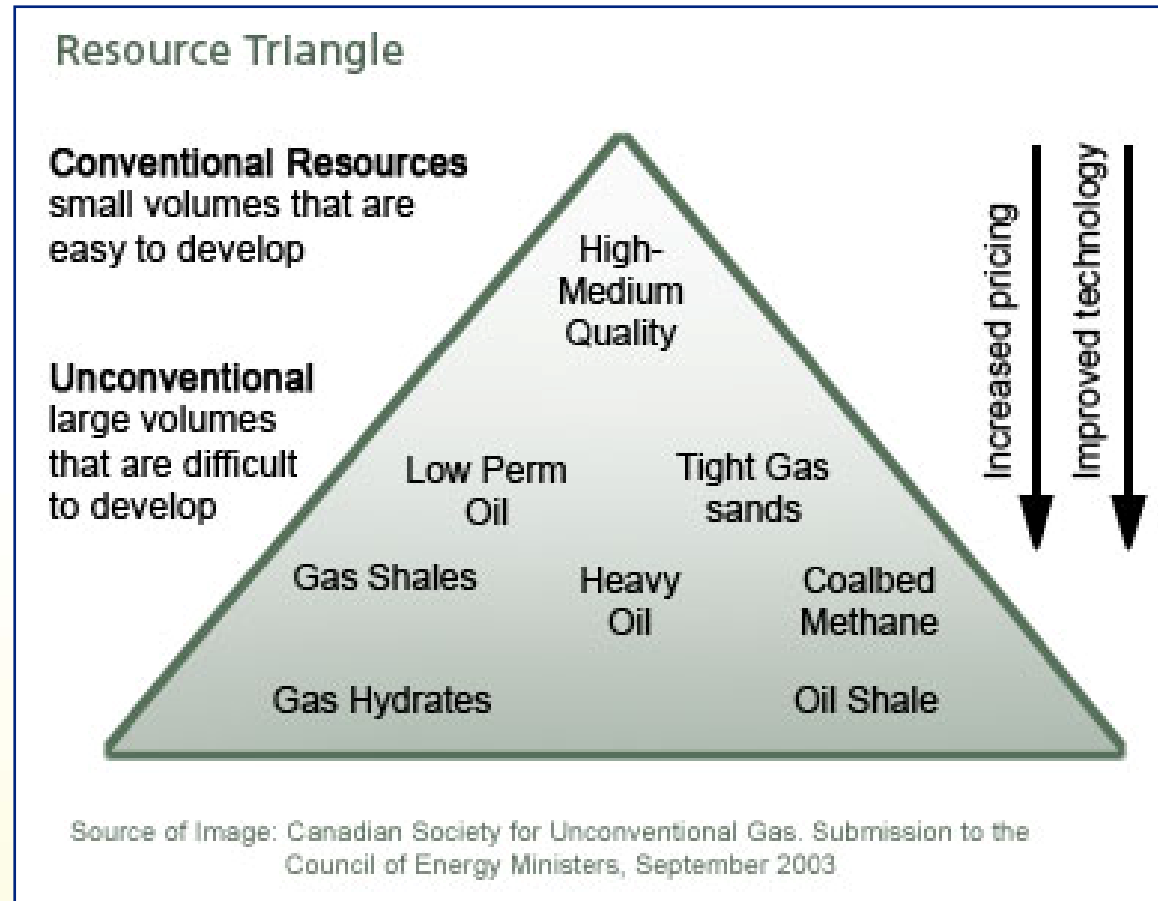
Resource plays are a moving target:

- 30 years ago Milk River was “unconventional”

Technology and product price are the drivers!

How Resource Plays Fit Together

Working our way down the resource triangle!

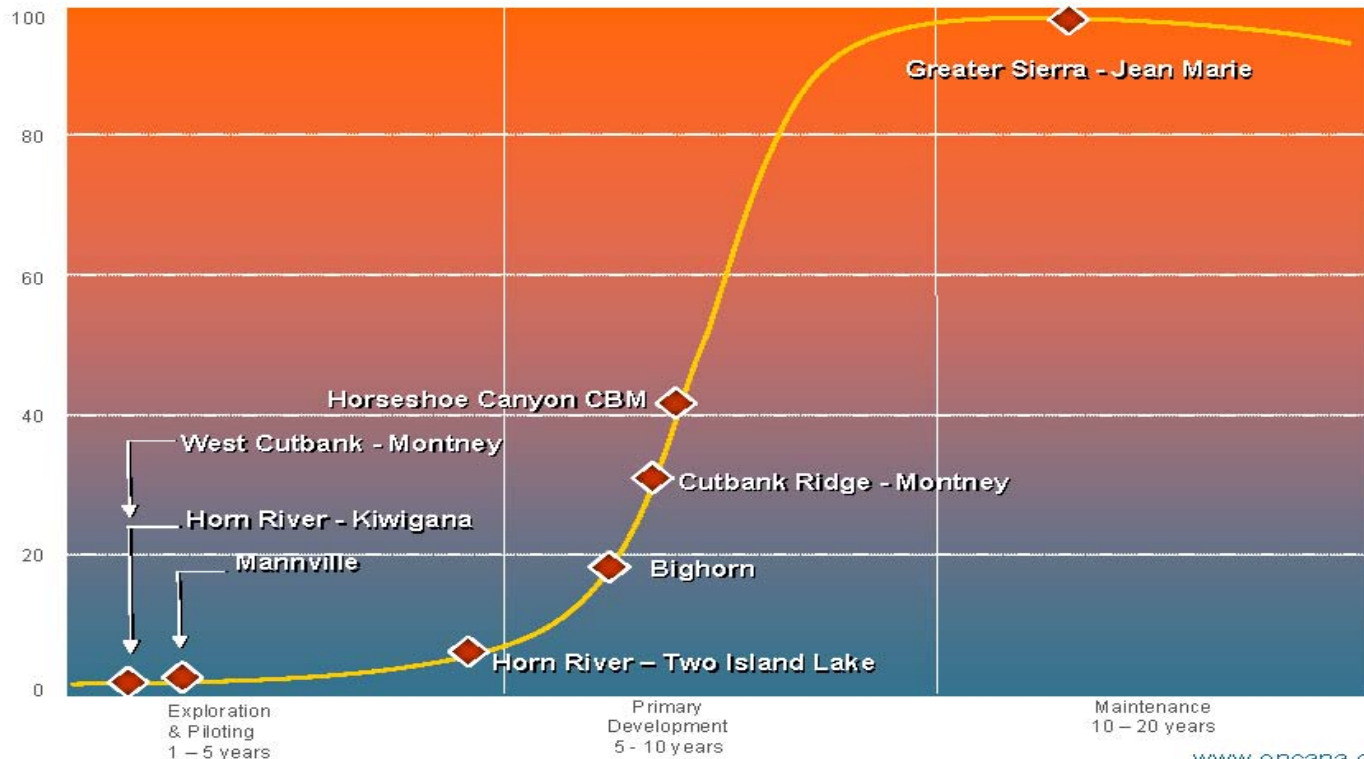


Resource Play Life Cycle

Key Resource Play Life Cycle

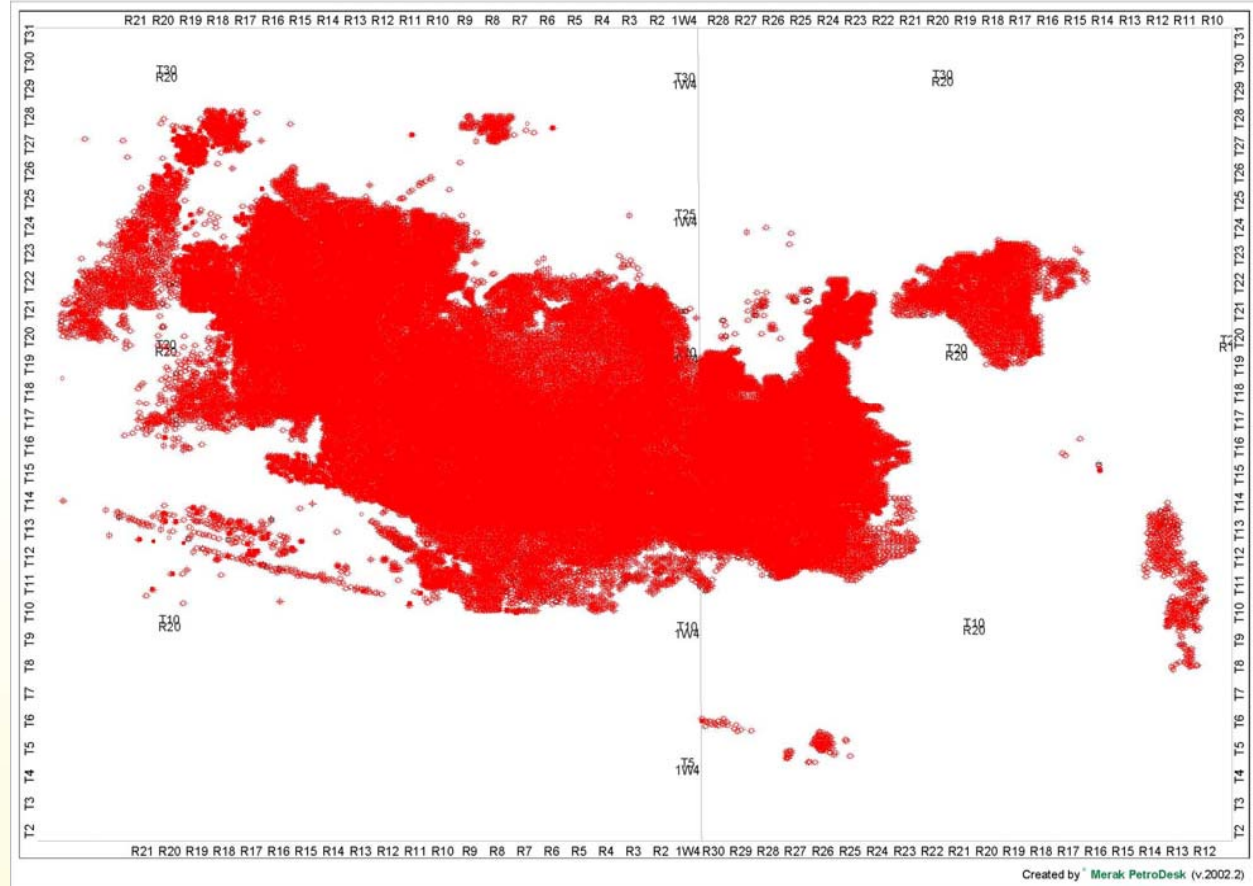
Canadian Division

Peak Rate (%)

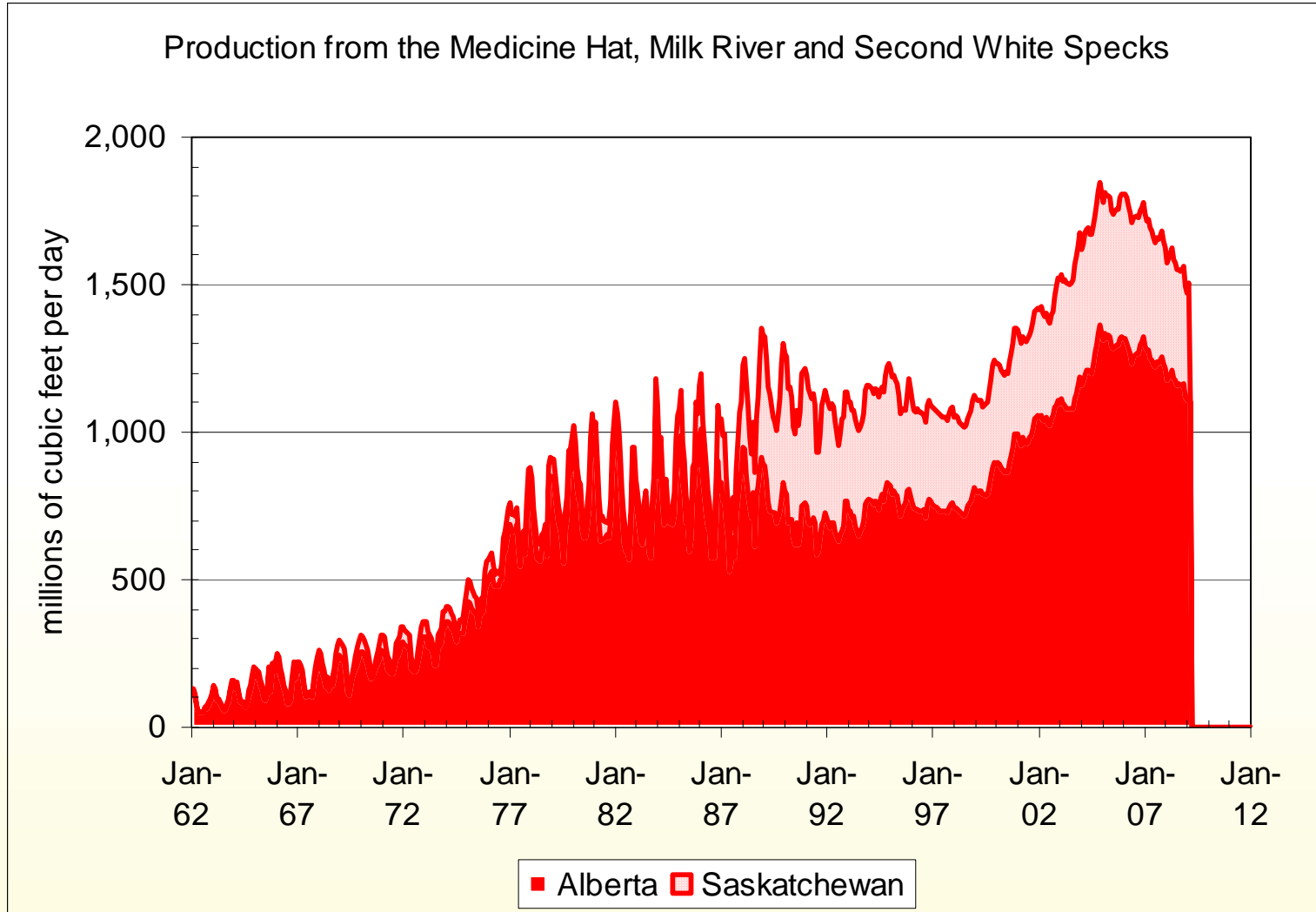


1970s Gas Resource Play

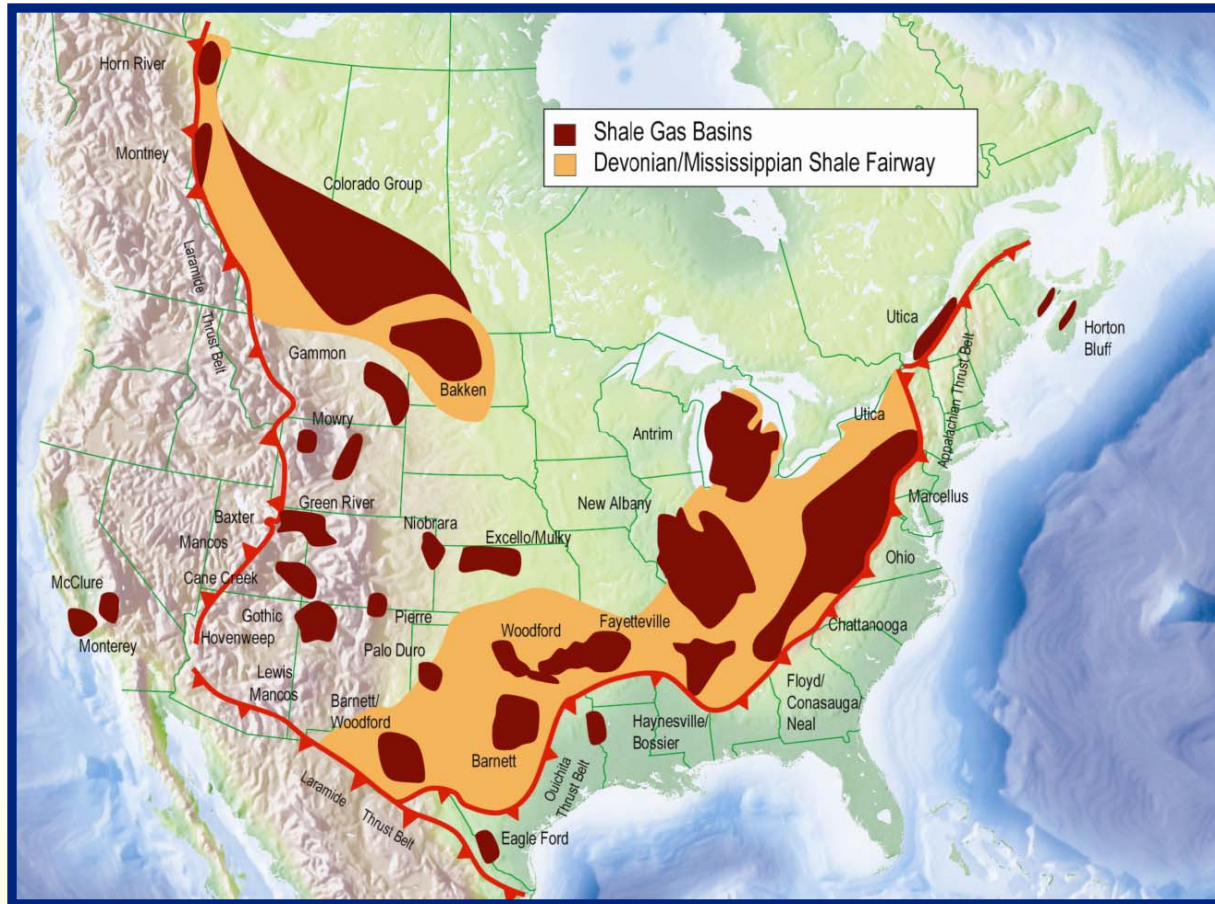
- 200 miles east to west
- 100 miles north to south
- Medicine Hat, Milk River, Second White Specks
- How would this have been disclosed ahead of play definition?



1970's Resource Play Performance

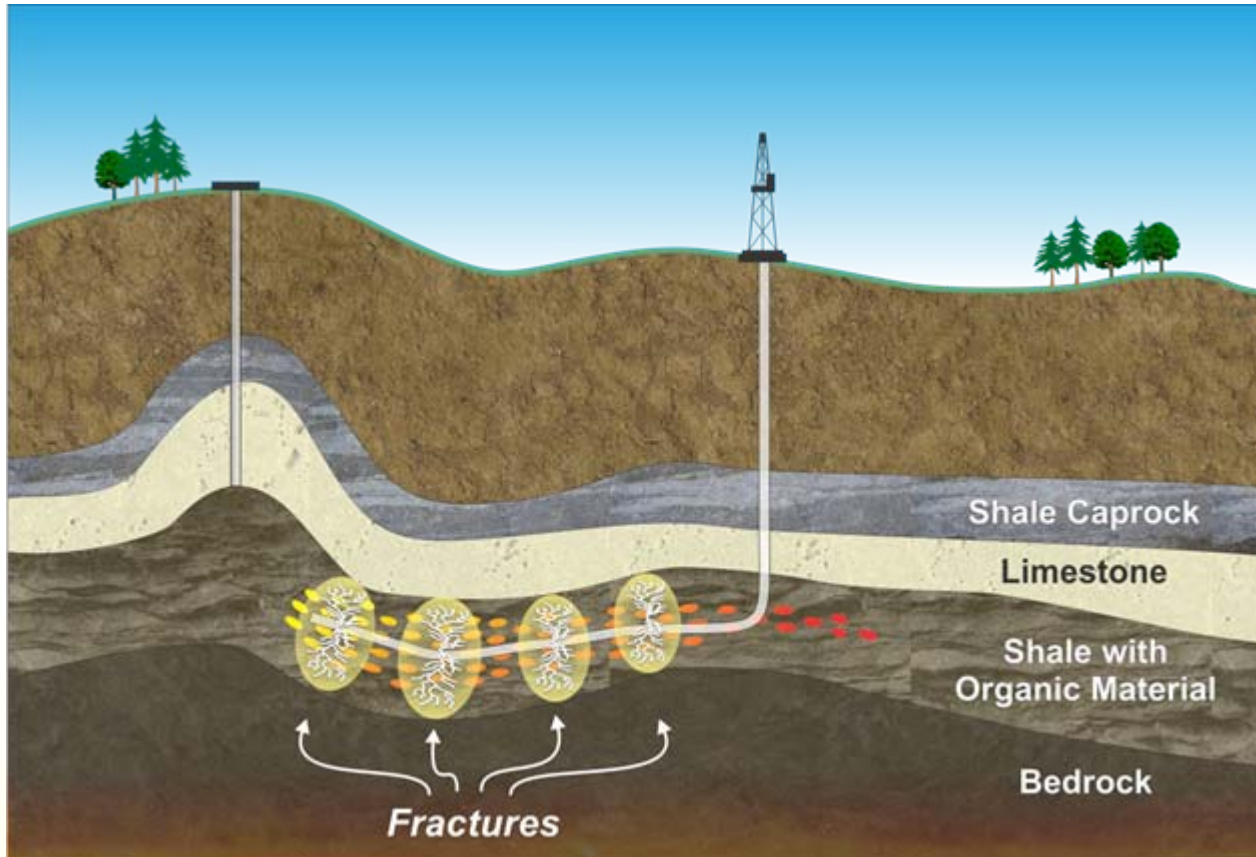


North American Shale Gas Plays



<http://www.neb.gc.ca/clf-si/rnrgynfmtn/nrgyrprt/ntrlgs/prmnrdrstndngshlgs2009/prmnrdrstndngshlgs2009nrgbrf-eng.pdf>

Shale Gas Development Process



- Horizontal well with multi-stage fracs

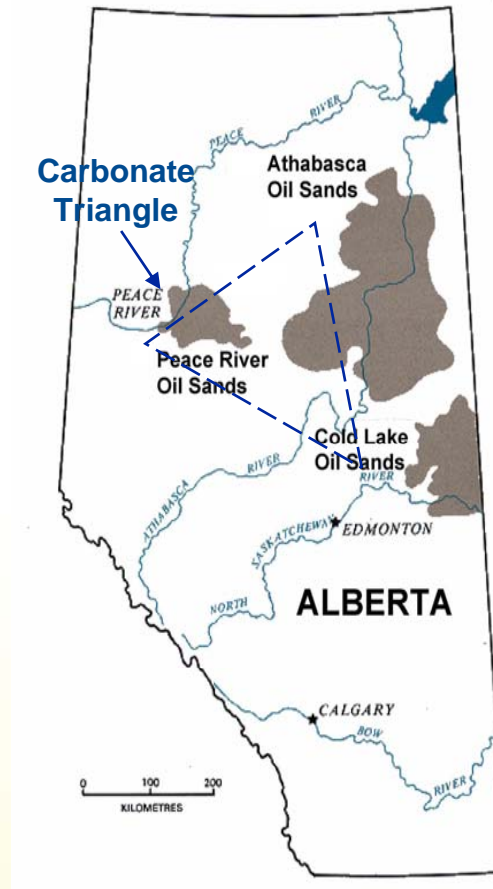
Alberta's Oil Sands Resources

as of end of 2009

Oil Sands Area

In Place
(Billion Bbl)

Athabasca	=	1,484
Cold Lake	=	184
Peace River	=	<u>136</u>
		1,804



Size

170 Billion Bbl Established Reserve
140,200 km² - Florida
- 3 X Switzerland
80 / 20 in-situ vs. Mining

Production

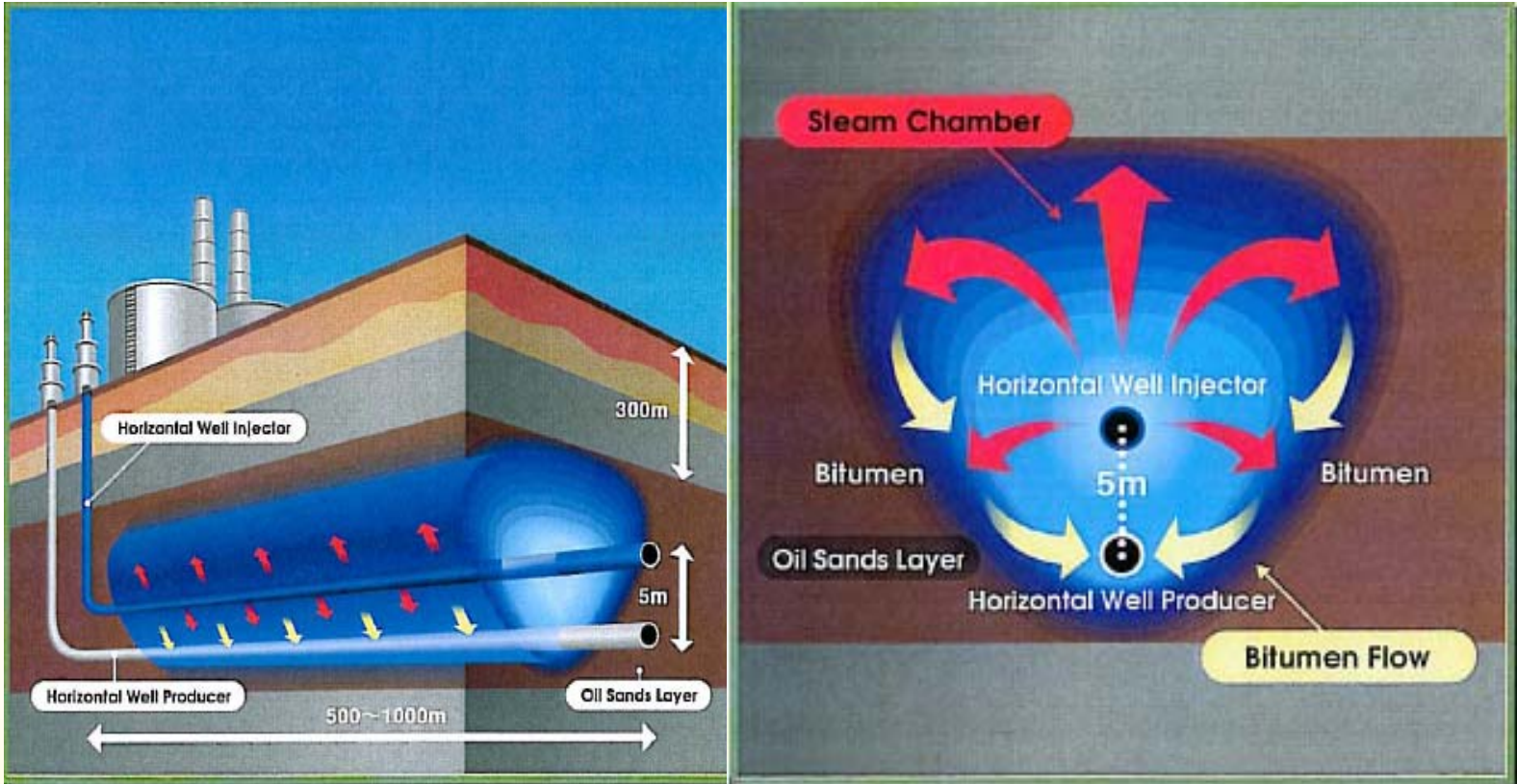
1.49 MM bbl/d in 2009
~312 year RLI

The Prize

315 Billion Barrels
"Ultimate Potential"

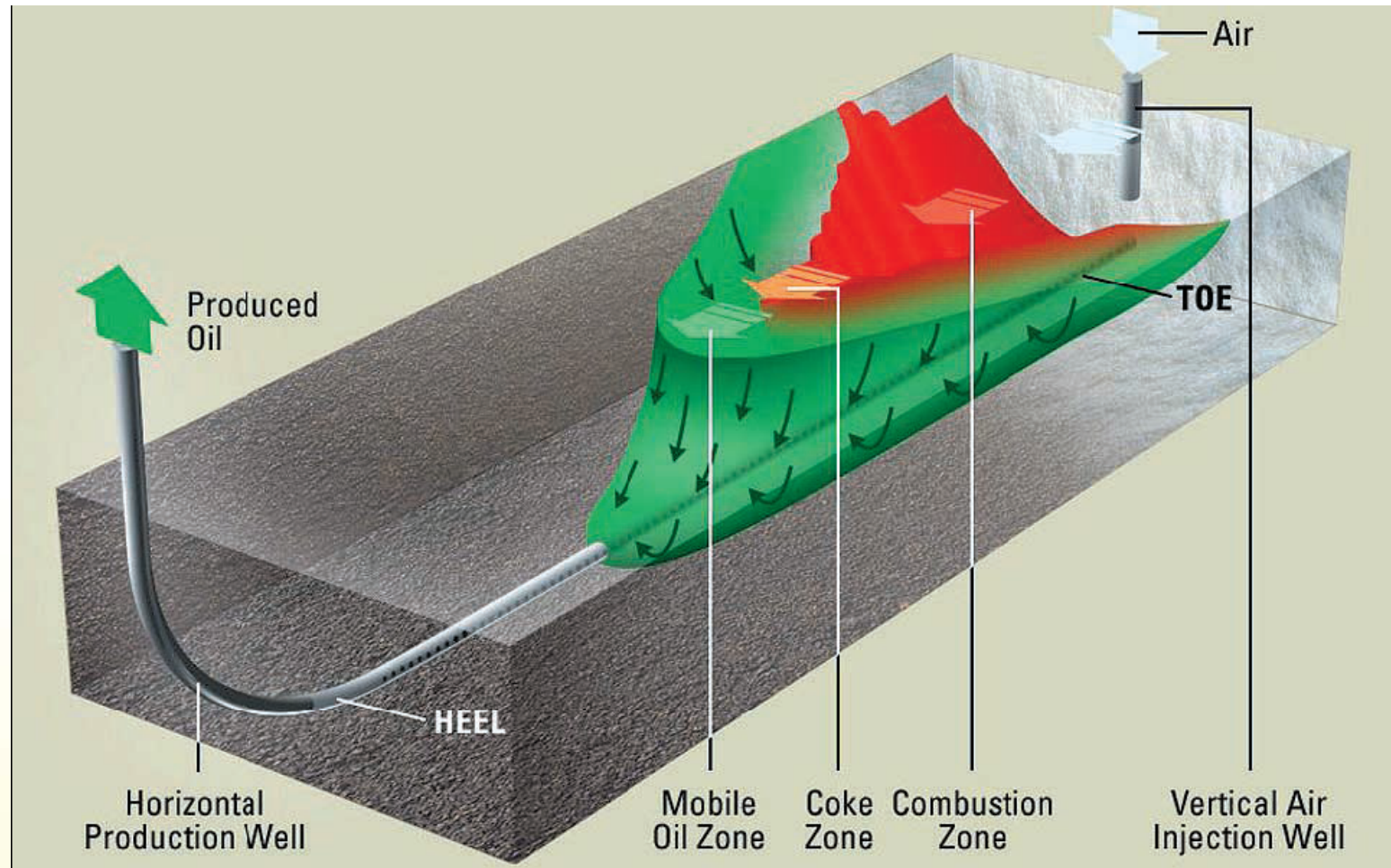
Source: ERCB ST98-2010

Steam Assisted Gravity Drainage (SAGD) Schematic



Source: <http://www.jacos.com/Documents/JACOS-Hangingstone-SAGD-Project-Public-Disclosure-Document.pdf>

THAI™ 3-D Process Diagram



Source: <http://www.petrobank.com/heavy-oil/the-thai-process>

Recent Resource Disclosure

Public Company Press Release:

- **Nexen** (Press Release on Nov. 16, 2010)
 - Oilsands
 - 1.6 billion barrels of Reserves (2P)
 - 4 billion barrels of Contingent (Best)
 - Shale Gas
 - 0 Tcf of Reserves
 - 8 Tcf of Contingent (Best)
 - 13 Tcf of Prospective (Best)

Note: Prospective values have not been risked for chance of discovery.

Recent Resource Disclosure

Private Company Press Release:

- **Laracina** (Presentation September 15, 2010)
 - Bitumen
 - 0.036 billion barrels of Reserves (2P)
 - 4.6 billion barrels of Contingent + Prospective (Best)
 - \$8.9 Billion (BIT @ 10% DCF)
 - 5.3 billion barrels of Contingent + Prospective (Best – Technology Case)
 - \$11.8 Billion (BIT @ 10% DCF)

Note: Values have not been risked for chance of development or chance of discovery.

Resource Buckets



Reserves



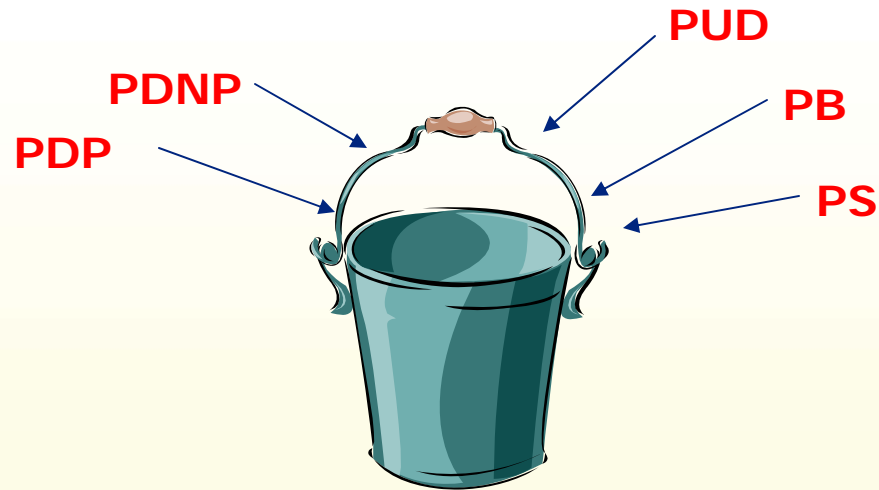
Contingent



Prospective

Reserves Bucket

- Known Accumulation – drilled and tested
- Project Defined – proven recovery process
- Timeline for Development – COGEH guidance
- Economic – forecast prices and costs
- Categorization - detailed



Contingent Resource Bucket

- Known Accumulation – drilled and tested?
- Project Defined – Sometimes / Recovery process?
- Timeline for Development – Maybe for a portion!
- Economic – No!
- Categorization – No!



Prospective Resource Bucket

- Known Accumulation – No!
- Project Defined – Sometimes?
- Timeline for Development – No!
- Economic – No!
- Categorization – No!



Investor Resource Concerns

- **Peter's and Co. Limited (June 18, 2010)**
 - Cenovus's resource is large Does not materially change potential asset value
 - timeframe to development is far in the future.
 - COGEH Handbook definitions continue to be interpreted differently by operators. making comparison of Cenovus numbers in its release to other entities irrelevant.
 - Cenovus has best cost structure, good historical execution and a significant resource base enable growth for many years

ASC Resource Concerns

- **ASC Letter to SPEE (August 9, 2010)**
 - ASC reviews of Contingent Resource disclosure found significant variance in interpretation of the guidance by evaluators
 - with the result that the risks and uncertainties were not presented in a consistent or complete manner
 - limited COGEH guidance for unconventional resource disclosure

ASC Resource Concerns

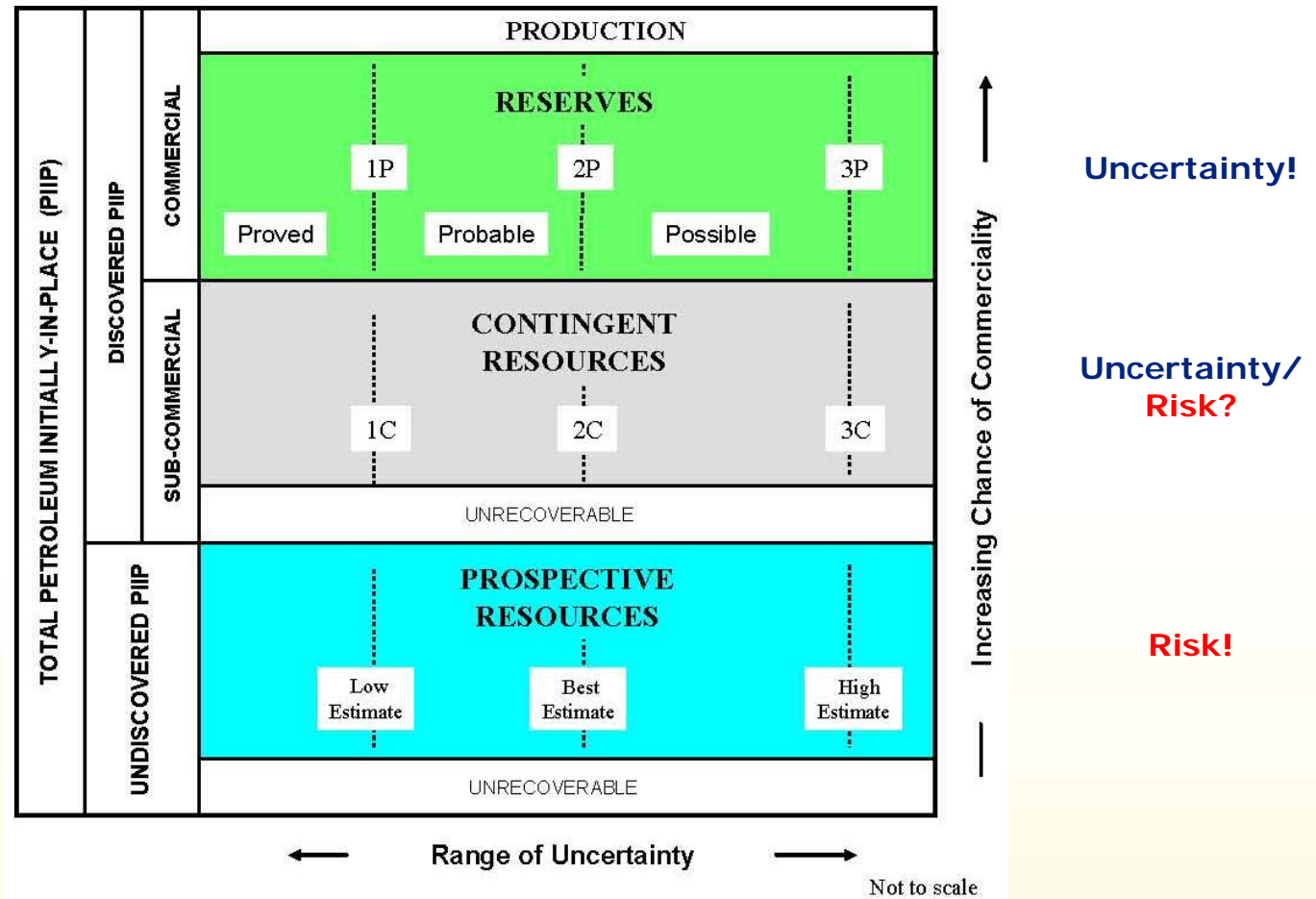
- **ASC Letter to SPEE (August 9, 2010) – con't**
 - risk of discrediting Contingent Resources which could inhibit issuers' ability to raise funds
 - ASC requested SPEE to publish best practices in COGEH (Volume IV)
 - ASC letter provided comments on technical issues for SPEE's consideration based on filings
 - ASC intends to issue an updated Staff Notice NI 51-327
 - comprehensive guidance on resource disclosure
 - objective is to prevent misleading disclosure per 92-4(1)

Contingent Resource Disclosure

Definitions and guidelines:

- **COGEH – Canadian Oil and Gas Evaluation Handbook (2007)**
 - minimal guidance in Volume I – Chapter 5
 - concepts relate to conventional reservoirs
 - intended for projects not portfolio disclosure
- **ASC – NI 51-101 disclosure rules**
 - references COGEH guidance
 - FAQ's and Staff Notice NI 51-327
- **SPE-PRMS – Petroleum Resources Management System (2007)**

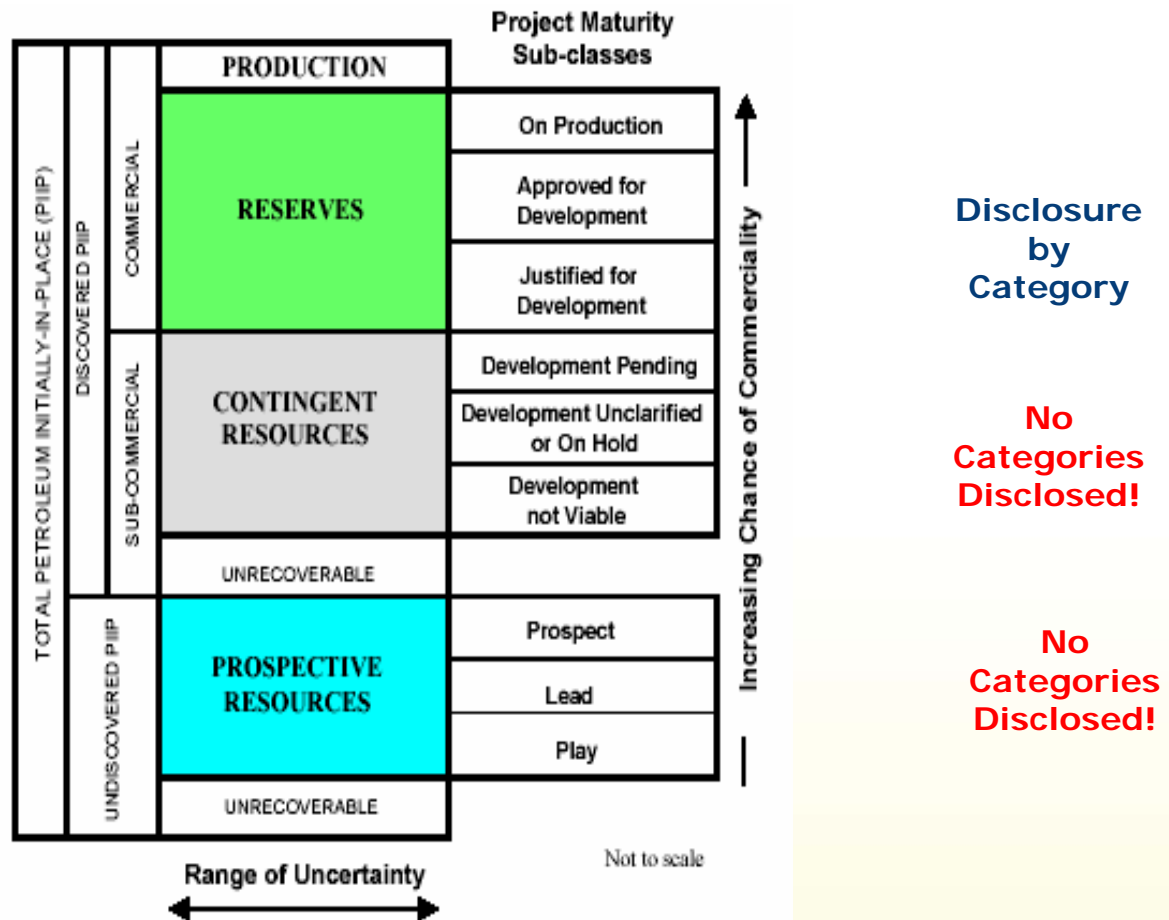
SPE/WPC/AAPG/SPEE Petroleum Resources Management System



Source: COGEH Second Edition. September 1, 2007

Reserve/Resource Classification System

Project Maturity Sub-classes



Reserve/Resource Classification Framework (March 2007 SPE/WPC Petroleum Resources Management System)

COGEH Volume I

Resource Definitions

- Contingent Resources
 - quantities of petroleum estimated, as of a given date,
 - **potentially** recoverable from **known** accumulations,
 - using established technology **or technology under development**,
 - project(s) **not considered** to be commercially recoverable,
 - due to **one or more contingencies**.

COGEH Volume I

Resource Definitions

- Contingent Resources are further categorized
 - in accordance with the **level of certainty associated with the estimates**
 - and may be **sub-classified based on**
 - **project maturity**and/or
 - **characterized by their economic status**
 - marginal
 - sub-marginal

General Contingent Resource Requirements

Defined Project

Ownership

Drilling

Testing – producible vs. analogs

Recovery process

Legal

Environmental

Political

Regulatory

Infrastructure and Market

Economics

Typical contingencies

COGEH Volume I

Resource Definitions

- Prospective Resources
 - quantities of petroleum estimated, as of a given date,
 - **potentially recoverable** from **undiscovered accumulations**,
 - by application of **future development projects**.

COGEH Volume I

Resource Definitions

- Prospective Resources are further subdivided
 - **level of certainty** associated with recoverable estimates assuming their discovery and development,
 - may be **sub-classified based on project maturity.**

Issues to Debate

- Credibility of resources - COGEH or NI 51-101
- Project Definition and Development Timeline – information required from issuer
- Known Accumulation – definition for unconventional
- Testing – minimum requirements
- Technical Interpretations – extrapolation of data
- Analogs – criteria and distance
- Technology – define “under development”
- Uncertainty vs. risk - technical/commercial
- Disclose resource categories – similar to reserves

Issues to Debate

- Conversion of Reserve/Resource Estimates – vertical link
- Resources – report economic vs. sub-economic
- Aggregation of resources – misleading
- Contingencies – technical / non-technical and steps needed to remove
- Additional categories – disclose Contingent – Prospective, Contingent – Technology Under Development or Experimental Technology

Issues Beyond Debate

- Resource Disclosure – valued by investors and required for issuer's capital funding
- Credible – important that resource disclosure be full, plain and true (consistent/understandable)
- NI 51-101 – revisions coming by yearend
- Interim ASC Staff Notice NI 51-327 – coming by yearend to ensure that resource disclosure is not misleading
 - goal is to avoid misleading disclosure, per Securities Act 92 (4.1)

Issues Beyond Debate

- Contingent Resources – currently portions should be in prospective recovery category (risk!)
- COGEH Volume IV – will be critical for resource estimation and disclosure consistency
- Cautionary Statements – required by ASC but useful for investors to uncertainty vs. risk
- Material Change Notice –ASC revisions or COGEH Volume 4 could result in material resource disclosure changes!

Caveat Investors

- **Resources**
 - may not become a reserve with time and capital!
- **Each Properties is unique!**
 - Mother nature did not create many homogeneous reservoirs!
 - Geology, reservoir quality, fluid properties, recovery process and corporate commitment are critical factors when reviewing resource estimates.

Thank you to Dave Elliott @ ASC!

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