



Thermal In Situ Oil Sands
Terry Jocksch, Senior Vice-President, Thermal

**Investor Open House
May 2012**

Premium Value | Defined Growth | Independent



Canadian Natural



Forward Looking Statements



Certain statements relating to Canadian Natural Resources Limited (the "Company") in this document or documents incorporated herein by reference constitute forward-looking statements or information (collectively referred to herein as "forward-looking statements") within the meaning of applicable securities legislation. Forward-looking statements can be identified by the words "believe", "anticipate", "expect", "plan", "estimate", "target", "continue", "could", "intend", "may", "potential", "predict", "should", "will", "objective", "project", "forecast", "goal", "guidance", "outlook", "effort", "seeks", "schedule" or expressions of a similar nature suggesting future outcome or statements regarding an outlook. Disclosure related to expected future commodity pricing, forecast or anticipated production volumes, royalties, operating costs, capital expenditures, income tax expenses and other guidance provided throughout this Management's Discussion and Analysis ("MD&A") including the information in the "Outlook" section and the sensitivity analysis constitute forward-looking statements. Disclosure of plans relating to and expected results of existing and future developments, including but not limited to the Horizon Oil Sands operations and future expansion, ability to recover insurance proceeds, Primrose, Pelican Lake, the Kirby Thermal Oil Sands Project, the Keystone XL Pipeline US Gulf Coast expansion, and the construction and future operations of the North West Redwater bitumen upgrader and refinery also constitute forward-looking statements. This forward-looking information is based on annual budgets and multi-year forecasts, and is reviewed and revised throughout the year as necessary in the context of targeted financial ratios, project returns, product pricing expectations and balance in project risk and time horizons. These statements are not guarantees of future performance and are subject to certain risks and the reader should not place undue reliance on these forward-looking statements as there can be no assurances that the plans, initiatives or expectations upon which they are based will occur.

In addition, statements relating to "reserves" are deemed to be forward-looking statements as they involve the implied assessment based on certain estimates and assumptions that the reserves described can be profitably produced in the future. There are numerous uncertainties inherent in estimating quantities of proved and proved plus probable crude oil and natural gas reserves, and in projecting future rates of production and the timing of development expenditures. The total amount or timing of actual future production may vary significantly from reserve and production estimates.

The forward-looking statements are based on current expectations, estimates and projections about the Company and the industry in which the Company operates, which speak only as of the date such statements were made or as of the date of the report or document in which they are contained, and are subject to known and unknown risks and uncertainties that could cause the actual results, performance or achievements of the Company to be materially different from any future results, performance or achievements implied by such forward-looking statements. Such risks and uncertainties include, among others: general economic and business conditions which will, among other things, impact demand for and market prices of the Company's products; volatility of and assumptions regarding crude oil and natural gas prices; fluctuations in currency and interest rates; assumptions on which the Company's current guidance is based; economic conditions in the countries and regions in which the Company conducts business; political uncertainty, including actions of or against terrorists, insurgent groups or other conflict including conflict between states; industry capacity; ability of the Company to implement its business strategy, including exploration and development activities; impact of competition, the Company's defense of lawsuits; availability and cost of seismic, drilling and other equipment; ability of the Company and its subsidiaries to complete capital programs; the Company's and its subsidiaries ability to secure adequate transportation for its products; unexpected disruptions or delays in the resumption of the mining, extracting or upgrading of the Company's bitumen products; potential delays or changes in plans with respect to exploration or development projects or capital expenditures; ability of the Company to attract the necessary labour required to build its thermal and oil sands mining projects; operating hazards and other difficulties inherent in the exploration for and production and sale of crude oil and natural gas and in mining, extracting or upgrading the Company's bitumen products; availability and cost of financing; the Company's and its subsidiaries' success of exploration and development activities and their ability to replace and expand crude oil and natural gas reserves; mining and success of mining the business and operations of acquired companies; production levels; imposition of reserve estimates and estimates of recoverable quantities of crude oil, natural gas and natural gas liquids ("NGLs") not currently classified as proved; actions by governmental authorities, government regulations and the expenditures required to comply with them (especially safety and environmental laws and regulations) and the impact of climate change initiatives on capital and operating costs; asset retirement obligations; the adequacy of the Company's provision for taxes; and other circumstances affecting revenues and expenses. The Company's operations have been, and in the future may be, affected by political developments and by federal, provincial and local laws and regulations such as restrictions on production, changes in taxes, royalties and other amounts payable to governments or governmental agencies, price or gathering rate controls and environmental protection regulations. Should one or more of these risks or uncertainties materialize, or should any of the Company's assumptions prove incorrect, actual results may vary in material respects from those projected in the forward-looking statements. The impact of any one factor on a particular forward-looking statement is not determinative with certainty as such factors are dependent upon other factors, and the Company's course of action would depend upon its assessment of the future considering all information then available. For additional information refer to the "Risks and Uncertainties" section of this MD&A.

Readers are cautioned that the foregoing list of factors is not exhaustive. Unpredictable or unknown factors not discussed in this report could also have material adverse effects on forward-looking statements. Although the Company believes that the expectations conveyed by the forward-looking statements are reasonable based on information available to it on the date such forward-looking statements are made, no assurances can be given as to future results, levels of activity and achievements. All subsequent forward-looking statements, whether written or oral, attributable to the Company or persons acting on its behalf are expressly qualified in their entirety by these cautionary statements. Except as required by law, the Company assumes no obligation to update forward-looking statements, whether as a result of new information, future events or other factors, or the foregoing factors affecting this information, should circumstances or Management's estimates or opinions change.

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Reporting Disclosures



Special Note Regarding Currency, Production and Reserves

In this document, all references to dollars refer to Canadian dollars unless otherwise stated. Reserves and production data are presented on a before royalties basis unless otherwise stated. In addition, reference is made to crude oil and natural gas in common units called barrel of oil equivalent ("boe"). A barrel of oil equivalent ("boe") is derived by converting six thousand cubic feet ("Mcf") of natural gas to one barrel ("bbl") of crude oil (6 Mcf:1 bbl). This conversion may be misleading, particularly if used in isolation, since the 6 Mcf:1 bbl ratio is based on an energy equivalency conversion method primarily applicable at the burner tip and does not represent a value equivalency at the wellhead. In comparing the value ratio using current crude oil prices relative to natural gas prices, the 6 Mcf:1 bbl conversion ratio may be misleading as an indication of value. In addition, for the purposes of this MD&A, crude oil is defined to include the following commodities: light & medium crude oil, primary heavy crude oil, Pelican Lake heavy crude oil, bitumen (thermal oil), and synthetic crude oil.

For the year ended December 31, 2011 the Company retained Independent Qualified Reserves Evaluators ("Evaluators"), Sproule Associates Limited and Sproule International Limited (together as "Sproule") and GLJ Petroleum Consultants Ltd. ("GLJ"), to evaluate and review all of the Company's proved and proved plus probable reserves with an effective date of December 31, 2011 and a preparation date of February 13, 2012. Sproule evaluated the North America and International crude oil, NGL and natural gas reserves, GLJ evaluated the Horizon SCO reserves. The evaluation and review was conducted in accordance with the standards contained in the Canadian Oil and Gas Evaluation Handbook ("COGE Handbook") and disclosed in accordance with National Instrument 51-101 - Standards of Disclosure for Oil and Gas Activities ("NI 51-101") requirements. The 2011 reserves disclosure is presented in accordance with Canadian reporting requirements using forecast prices and escalated costs. The recovery and reserves estimates of crude oil, NGL and natural gas reserves provided in this presentation are estimates only and there is no guarantee that the estimated reserves will be recovered. Actual crude oil, NGL and natural gas reserves may be greater than or less than the estimates provided.

Reserves estimates provided in this presentation are company gross, before royalties.

Resources Other Than Reserves

The contingent resources other than reserves ("resources") estimates provided in this presentation are internally evaluated by qualified reserves evaluators in accordance with the COGE Handbook as directed by NI 51-101. No independent third party evaluation or audit was completed. Resources provided are best estimates as of December 31, 2011. The resources are evaluated using deterministic methods which represent the expected outcome with no optimism or conservatism.

Resources, as per the COGE Handbook definition, are those quantities of petroleum estimated, as of a given date, to be potentially recoverable from known accumulations using established technology or technology under development, but are not currently considered commercially viable due to one or more contingencies. There is no certainty that it will be commercially viable to produce any portion of these resources.

Due to the inherent differences in standards and requirements employed in the evaluation of reserves and contingent resources, the total volumes of reserves or resources are not to be considered indicative of total volumes that may actually be recovered and are provided for illustrative purposes only.

Petroleum, bitumen or natural gas initially-in-place volumes provided are discovered resources which include: production, reserves, contingent resources and unrecoverable volumes.

Special Note Regarding non-GAAP Financial Measures

This MD&A includes references to financial measures commonly used in the crude oil and natural gas industry, such as adjusted net earnings from operations, cash flow from operations, cash production costs and net asset value. These financial measures are not defined by International Financial Reporting Standards ("IFRS") and therefore are referred to as non-GAAP measures. The non-GAAP measures used by the Company may not be comparable to similar measures presented by other companies. The Company uses these non-GAAP measures to evaluate its performance. The non-GAAP measures should not be considered an alternative to or more meaningful than net earnings, as determined in accordance with IFRS, as an indication of the Company's performance. The non-GAAP measures adjusted net earnings from operations and cash flow from operations are reconciled to net earnings, as determined in accordance with IFRS, in the "Financial Highlights" section of this MD&A. The derivation of cash production costs is included in the "Operating Highlights - Oil Sands Mining and Upgrading" section of this MD&A. The Company also presents certain non-GAAP financial ratios and their derivation in the "Liquidity and Capital Resources" section of this MD&A.

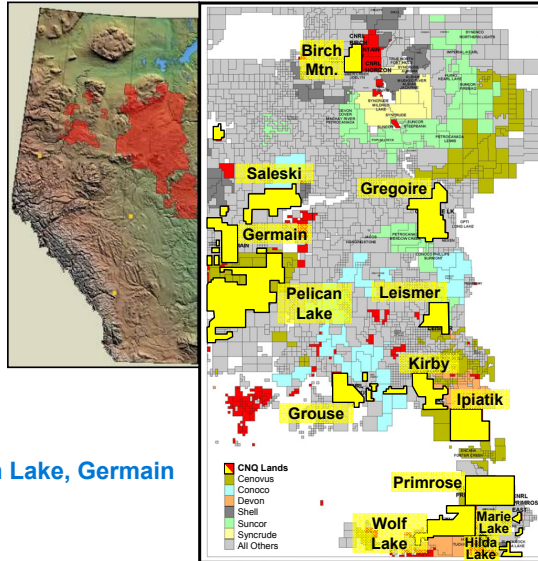
Volumes shown are Company share before royalties unless otherwise stated.

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Thermal In Situ Oil Sands Land Holdings



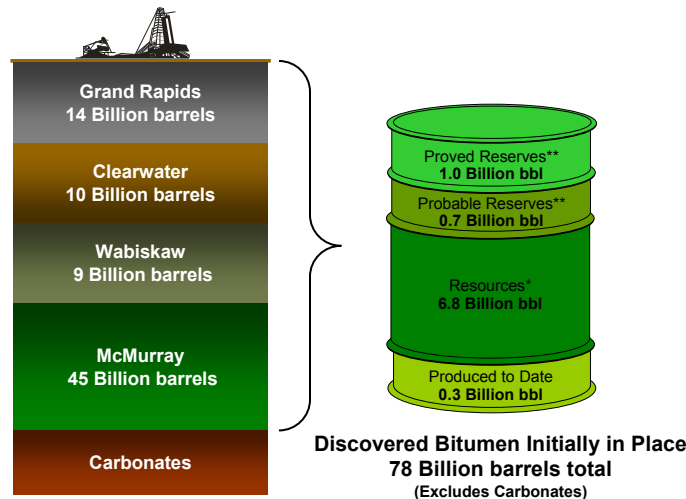
- **Clearwater**
 - Primrose, Wolf Lake
 - Hilda Lake, Marie Lake
- **McMurray**
 - Kirby
 - Grouse
 - Birch Mountain
 - Gregoire
 - Leismer
 - Ipiatik
- **Wabiskaw**
 - Kirby, Ipiatik
- **Grand Rapids**
 - Primrose, Wolf Lake, Pelican Lake, Germain
- **Carbonates**
 - Saleski



Vast Land Base and Great Assets = Choices

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Thermal In Situ Oil Sands Potential



*Best estimate contingent resources other than reserves.
**Company gross proved and probable reserves at December 31, 2011.

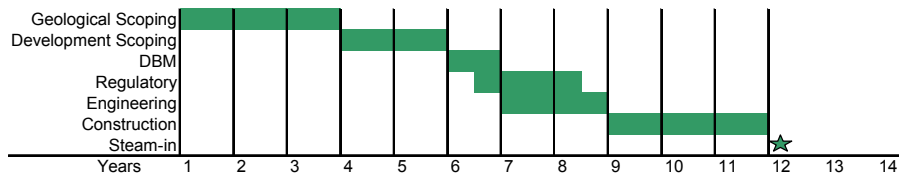
Massive Resource to Exploit

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Thermal In Situ Oil Sands Strategy



- Ensure geologic scoping is complete
 - Drilling density and core data analyzed
- Understand the current analogs
 - Benefit from best industry practice
- Develop lower risk reservoirs first
- Economies of scale
 - Maximize NPV
- Focus on project execution to control costs
 - Primrose North, Primrose East, Wolf Lake and Tangleflags



Strategic Development Maximizes Value

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Thermal In Situ Oil Sands Growth Plan



Phase	Reservoir	Oil Facility Capacity Target* (bbl/d)	Target Steam-In Timing (year)
Primrose South/North – CSS	Clearwater	80,000	On Stream
Primrose East – CSS	Clearwater	40,000	On Stream
Kirby South Phase 1 – SAGD	McMurray	40,000	2013
Kirby North Phase 1 – SAGD	McMurray	40,000	2016
Grouse – SAGD	McMurray	40,000	2017
Kirby North Phase 2 – SAGD	Wabiskaw	40,000	2019
Birch Mountain Phase 1 – SAGD	McMurray	40,000	2019
Kirby South Phase 2 – SAGD	Wabiskaw	20,000	2020
Gregoire Phase 1 – SAGD	McMurray	40,000	2021
Birch Mountain Phase 2 – SAGD	McMurray	40,000	2023
Gregoire Phase 2 – SAGD	McMurray	40,000	2025
Pelican SAGD	Grand Rapids	40,000	2027

*Template facility capacity of 40,000 bbl/d has additional flex capacity to 45,000 bbl/d.

- 500,000 bbl/d of oil facility capacity in the defined growth plan
- 40,000 bbl/d addition every 2-3 years
- 100% working interest and operatorship

Developing Highest Quality Lowest Risk First

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Thermal In Situ Oil Sands 2012 Plan



	2011	2012F	% Change
Production (Mbb/d)	98	104-110	9%
Drilling (net wells)			
Producers	141	147	
Kirby SAGD pairs	14	24	
Strats	255	364	
Service / Observations wells	62	44	
Total	486	603	24%
Capital (\$ Million)	\$1,244	\$1,535	23%

Continued Volume Growth with Long Term Focus in Spending

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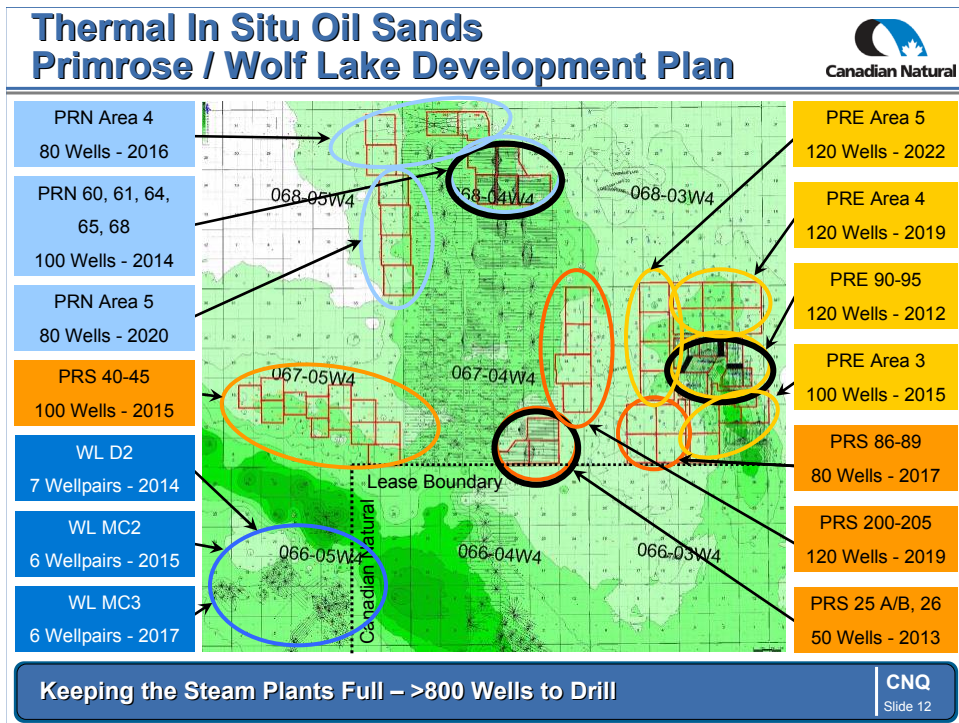
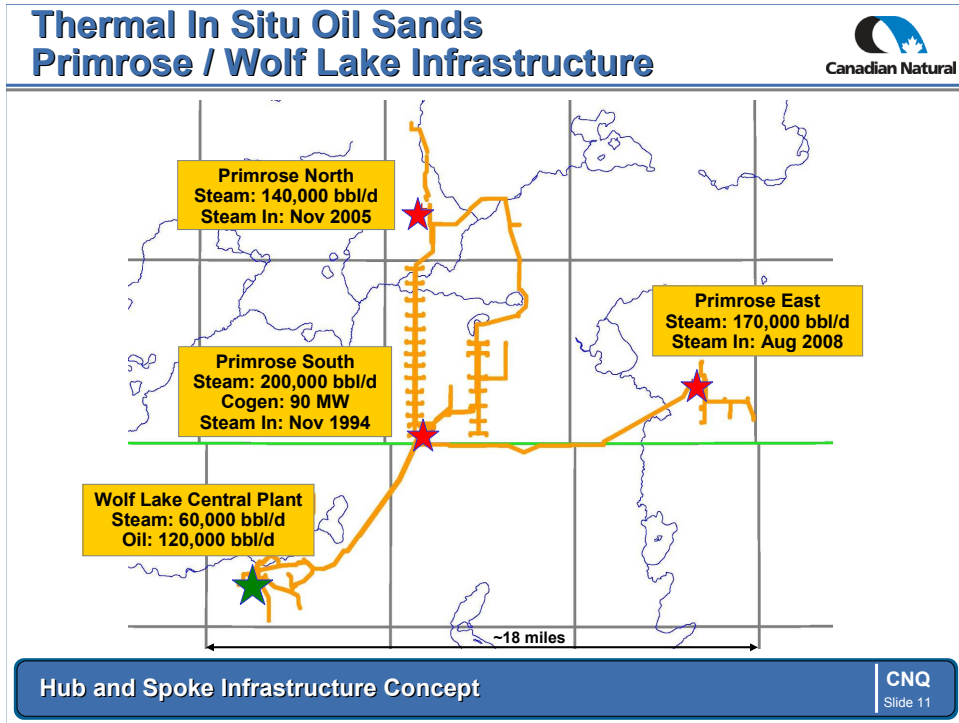
Thermal In Situ Oil Sands 2012 Plan



- **Athabasca**
 - Execute Kirby South Phase 1 development
 - Complete EDS for Kirby North Phase 1
 - Submit regulatory applications
 - Grouse and Kirby expansions
 - Advance geological scoping
 - Birch Mountain East, Gregoire, Germain, Saleski
- **Primrose**
 - Maximize steam plant utilization
 - Pad adds
 - Future facility debottleneck / expansion
 - Assess Grand Rapids expansion
 - Optimize steaming techniques
 - Improve on 15% recovery factor
 - Conducting 2 pilots in 2012

Executing as Planned

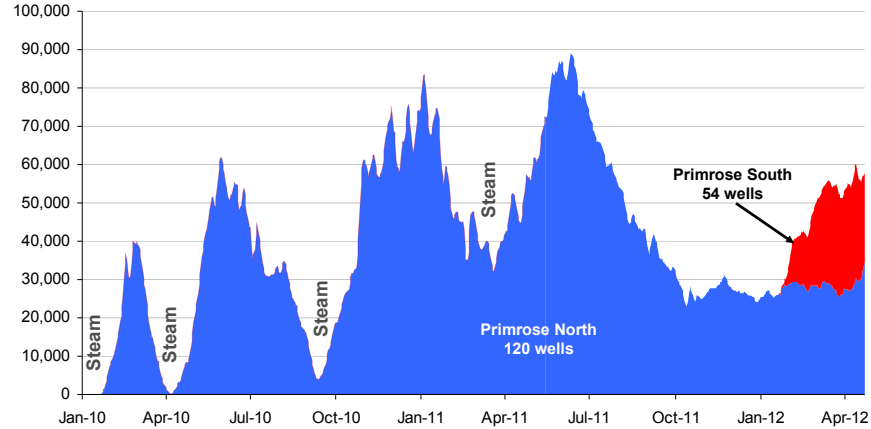
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Thermal In Situ Oil Sands Cyclical Production Profile



**Bitumen production
 (bbl/d)**



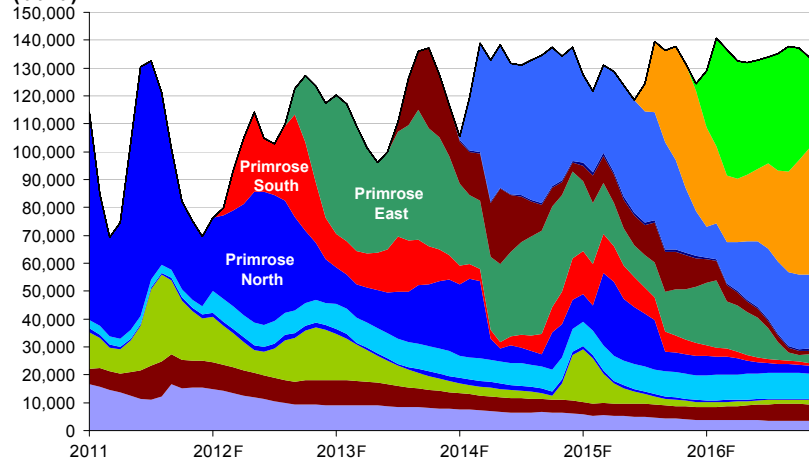
Steam and Production Cycles Vary Over Time

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Thermal In Situ Oil Sands Primrose Total Production Forecast



**Bitumen production
 (bbl/d)**



Note: Forecast as of December 2011.

Primrose – Lots of Running Room

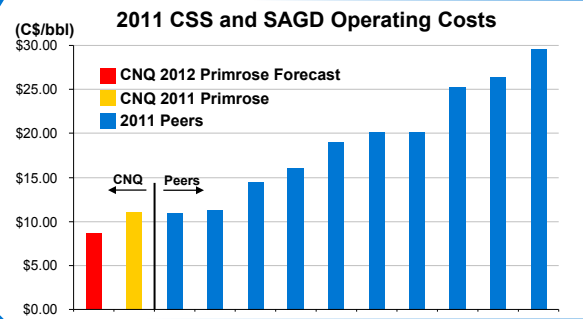
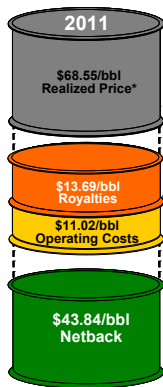
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Thermal In Situ Oil Sands Pad Add Profitability



	Wells	Production* (bbl/d)	Cost (\$/bbl/d)
Primrose South	54	17,000	\$13,000
Primrose East	120	32,000	\$12,900

*First 12 months average.



Source: FirstEnergy.
Peers include: CLL Great Divide & Algar, COP Surmont, CVE Christina Lake, CVE Foster Creek, DVN Jackfish, HSE Total Thermal, HSE Tucker, IMO Cold Lake, MEG Christina Lake, SU Firebag & Mackay.

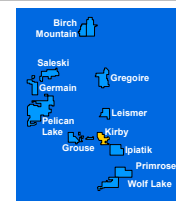
Most Profitable In Situ Production in Canada

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Thermal In Situ Oil Sands Kirby Project



- Two main plants
 - 100% working interest
 - Kirby South target facility capacities
 - Phase 1 - 40,000 bbl/d
 - Phase 2 - 20,000 bbl/d
 - Kirby North target facility capacities
 - Phase 1 - 40,000 bbl/d
 - Phase 2 - 40,000 bbl/d
 - 140,000 bbl/d potential
- Three play types
 - McMurray, SAGD
 - Wabiskaw “D”, SAGD
 - Wabiskaw “B”, CSS potential
- Strong reserve base with significant upside
 - 457 MMbbl 2P reserves*



MAP SCREEN ONLY

*Company gross proved and probable reserves at December 31, 2011.

Great Asset – Significant Production Growth – Future Potential

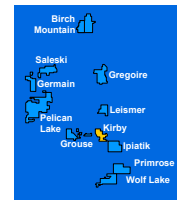
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Thermal In Situ Oil Sands Kirby South Phase 1



• Scope

- 40,000 bbl/d oil
- 118,000 bbl/d steam
- 7 well pads
- 47 SAGD well pairs
- Evaporation technology for water treating
- High efficiency steam generators
- Capital cost of \$1.25 Billion

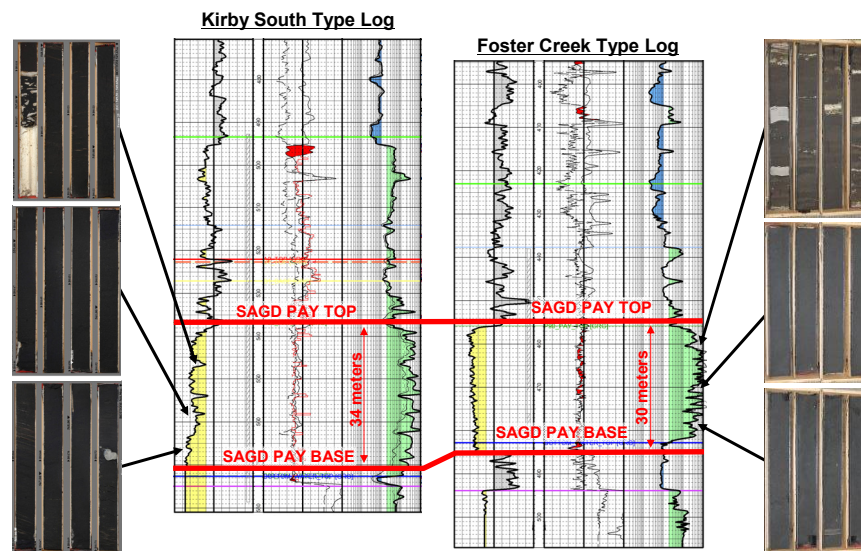


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High Quality Reservoir Exists at Kirby

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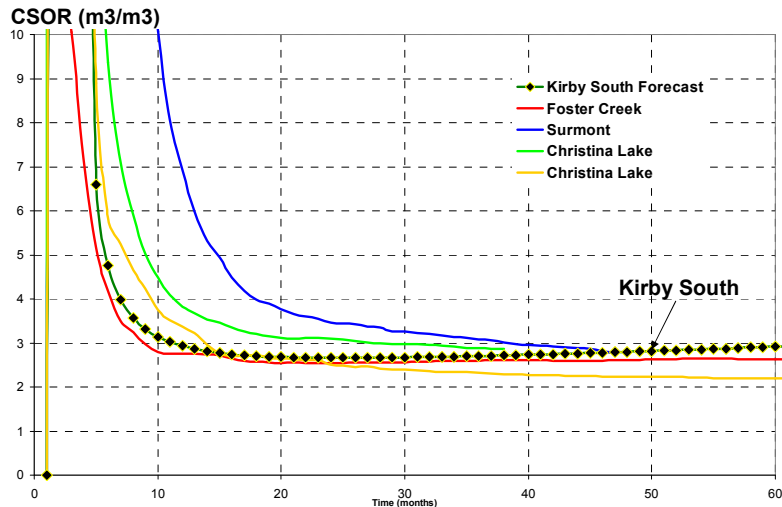
Thermal In Situ Oil Sands Kirby South Phase 1 Geology



Similar Rock Quality to Foster Creek

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Thermal In Situ Oil Sands Kirby South Phase 1 Performance Prediction



Note: Actual peer data.

Similar Reservoir Performance Predicted

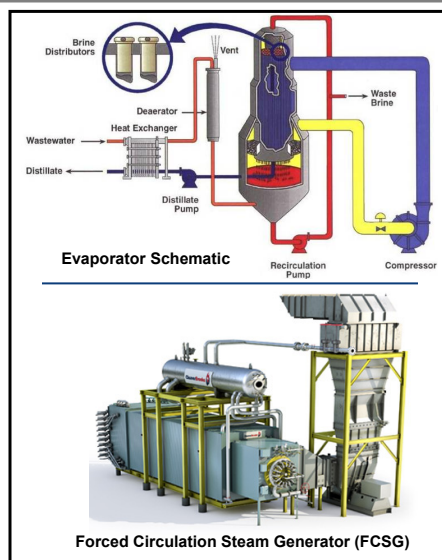
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Thermal In Situ Oil Sands Applied Technology



Water Treating and Steam Generation

- **Technology not novel**
- **Combined system is novel**
- **Benefits of system**
 - >10% reduction in capex
 - Higher operability, lower op cost
 - Less down time; expect 95% availability
 - Less maintenance required
 - Generate more steam per barrel of water
 - **More environmentally friendly**
 - Less disposal of water required
 - Less use of chemicals
 - >30% reduction in plot space



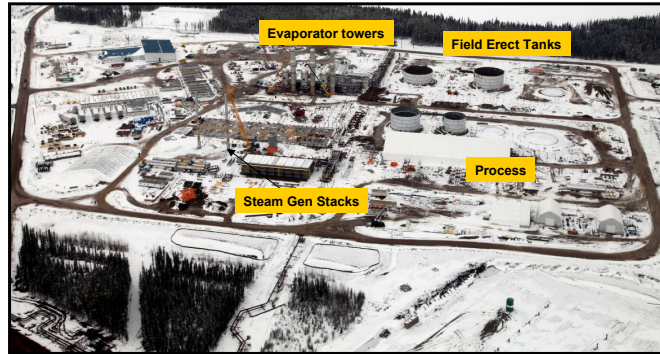
Kirby South is Leveraging Technology to Drive Costs Down

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Thermal In Situ Oil Sands Kirby South Phase 1



- **Status**
 - Overall project
 - 42% complete
 - Engineering
 - 97% complete
 - Construction
 - 32% complete
 - Drilling
 - 47% complete
 - Cost committed
 - 69% of the total



- **Schedule**
 - Drilling complete
 - Q1-13
 - Mechanical completion
 - Q3-13
 - Steam-In target
 - Q4-13

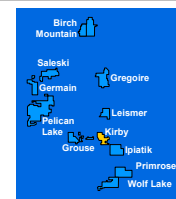
On Time – On Budget – First Oil Targeted for Q1-14

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Thermal In Situ Oil Sands Kirby North Phase 1



- **Project scope**
 - Target facility capacity 40,000 bbl/d
- **Status**
 - 201 strat wells drilled to date
 - 30 square miles of 3D seismic
 - EDS engineering
 - 47% complete
 - Plant site and access road cleared
- **Schedule**
 - Filed application Q4-11
 - Steam-in target 2016



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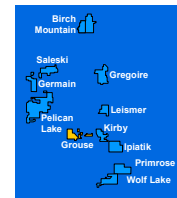
Leveraging Kirby South Design for Kirby North

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Thermal In Situ Oil Sands Grouse Project Area



- **Project scope**
 - 100% working interest and operatorship
 - Target facility capacity 40,000 bbl/d
- **Status**
 - 108 strat wells drilled to date
 - 21 square miles of 3D seismic
 - DBM engineering started
 - Proceeding with geotechnical review
- **Schedule**
 - Filed application Q1-12
 - Steam-in target 2017



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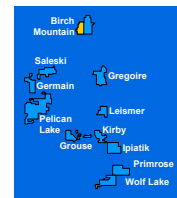
Similar McMurray Reservoir to Kirby – Predictable

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Thermal In Situ Oil Sands Birch Mountain East



- **Phase 1 project scope**
 - 100% working interest and operatorship
 - Target facility capacity 40,000 bbl/d
- **Status**
 - 633 strat wells drilled to date
 - 354 miles 2D seismic
 - 2.5 sq. miles 3D seismic
 - Preparing regulatory application
- **Schedule**
 - Steam-in target 2020



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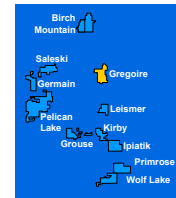
Maximizing Value with Steam

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Thermal In Situ Oil Sands Gregoire Project Area



- **Phase 1 project scope**
 - 100% working interest and operatorship
 - Target facility capacity 40,000 bbl/d
 - Complex geology
- **Status**
 - 305 strat wells drilled to date
 - 300 miles of 2D seismic
 - Analyzing analog studies
- **Schedule**
 - Steam-in target 2024



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Significant Potential – Taking the Time To Do It Right

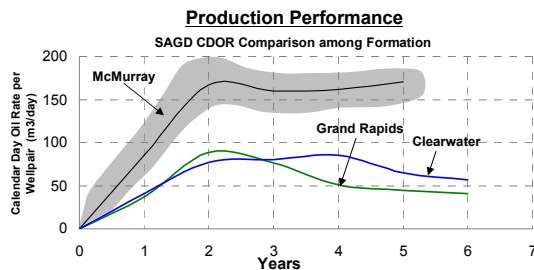
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Thermal In Situ Oil Sands Grand Rapids Geology



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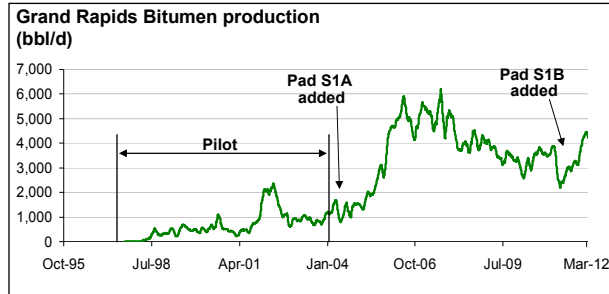
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Great Secondary Zone – Leverage Current Infrastructure

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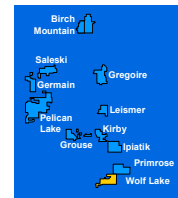
Thermal In Situ Oil Sands Wolf Lake



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- **Scope**

- 100% working interest and operatorship
- SAGD production started in 1997
- 4 pads and 26 well pairs
- Future expansion



Leveraging Primrose Infrastructure

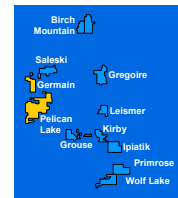
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Thermal In Situ Oil Sands Grand Rapids Potential



- **Germain and Pelican Lake**

- 100% working interest and operatorship
- Requires new infrastructure
- Lower priority in development plan
 - One pilot currently producing
 - One pilot under construction
 - One pilot submitted for regulatory approval
 - Technology advancements also provide de-risking



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Well Positioned in the Play

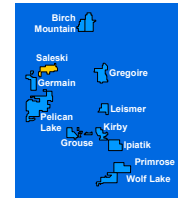
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Thermal In Situ Oil Sands Grosmont (Carbonates)



• Saleski

- 100% working interest and operatorship
- Wait, watch and learn
 - One pilot producing
 - Technology advancements also provide de-risking

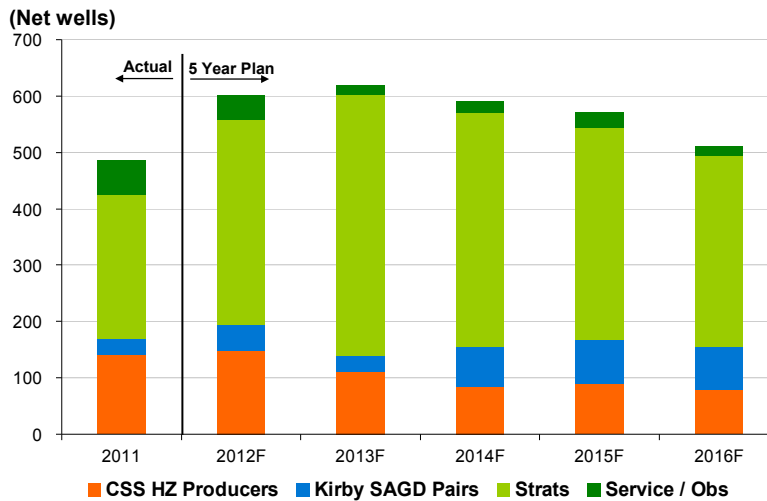


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Well Positioned in the Play

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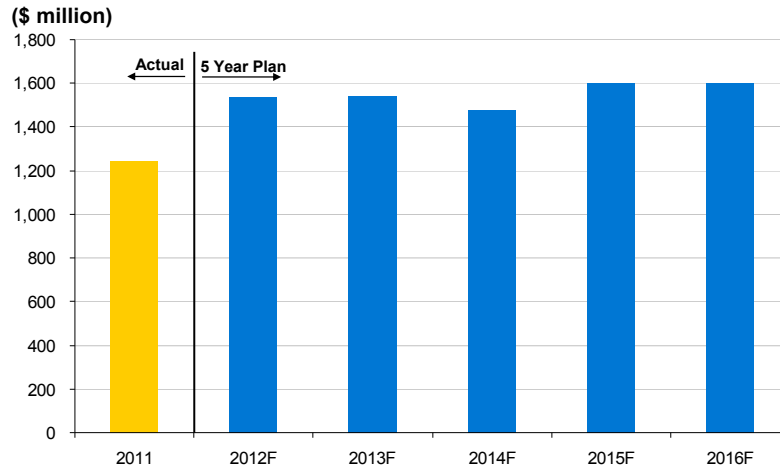
Thermal In Situ Oil Sands 5 Year Plan – Drilling



Expanded Stratigraphic Drilling

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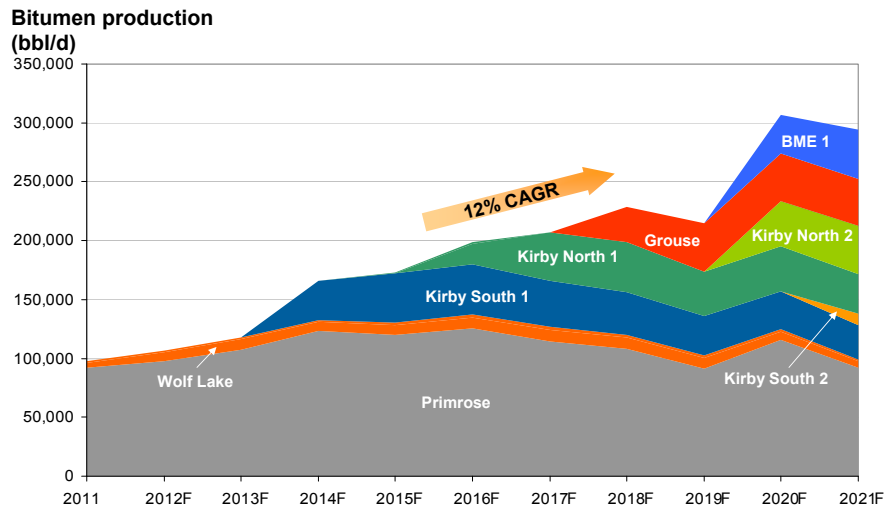
Thermal In Situ Oil Sands 5 Year Plan – Capital



Level Loaded Execution Plan

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Thermal In Situ Oil Sands 5 Year Plan – Production Forecast



Significant Growth Plan – Defined and Executable

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Thermal In Situ Oil Sands Summary



- **Vast land base**
 - Well positioned within the high quality oil sands fairway
- **Massive resource to exploit**
 - 1.7 Billion barrels of proved and probable reserves
 - 6.8 Billion barrels of contingent resource
- **Defined strategy and plan**
 - Sequential development
 - 500,000 bbl/d of capacity in current plan
- **Execute**
 - Primrose capacity on stream
 - Kirby South Phase 1 under construction
 - Future projects progressing as planned