



Natural Gas Supply Trends in Western Canada Gas Supply Update 2008

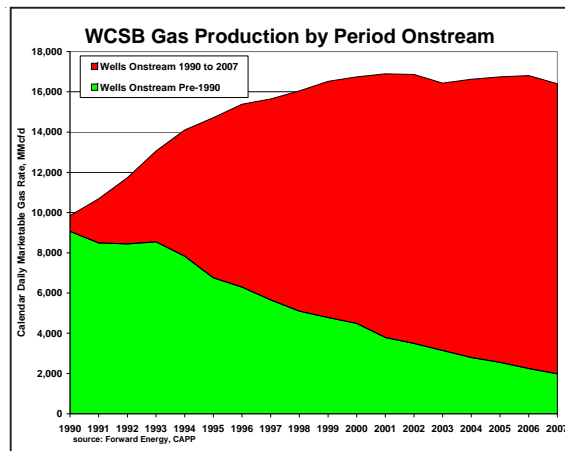
A FORWARD ENERGY GROUP MULTICLIENT STUDY

Independent, current and innovative analysis by industry experts on the trends, sources and operators of new gas supply in Western Canada.

Supply Challenge: Cost-Effective Production Growth

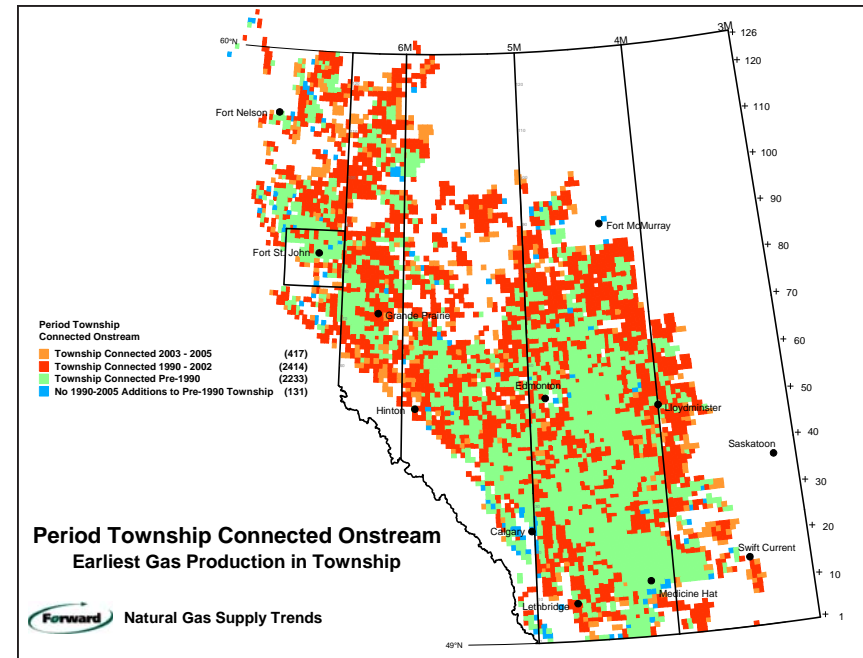
Sustaining and growing production at competitive costs is the challenge for operators in Western Canada. The initial rate per new well has been decreasing and initial decline rates have been increasing. Western Canada remains a critical supply basin for North America. In 2007 the basin produced gas at over 16.5 Bcf/d, supplying almost 25% of Canadian and US demand. However, over 3.7 Bcf/d of new productive capacity must be added each year to replace natural decline.

From 1990 to 2005, increasing natural gas prices expanded the set of profitable opportunities in the WCSB. However, recent increases in capital costs, lower natural gas prices, less favourable exchange rates and increased competition for capital from US shale gas plays now provide challenges for operators to add new gas supply in the WCSB. Over 157,000 gas wells connected between 1990 and 2007 record the industry response, both to the new opportunities and to the current challenges. *Natural Gas Supply Trends in Western Canada* provides operators the tool to review their investments in Western Canadian gas and to evaluate the strategic alternatives available in this large, diverse and active basin.



Study Overview

To examine industry's response to this supply challenge, Forward Energy Group has updated the database with wells connected to year-end 2007. *Natural Gas Supply Trends in Western Canada* provides the comprehensive and consistent information required to evaluate strategic alternatives. Understanding recent trends is invaluable for operators evaluating their current and proposed



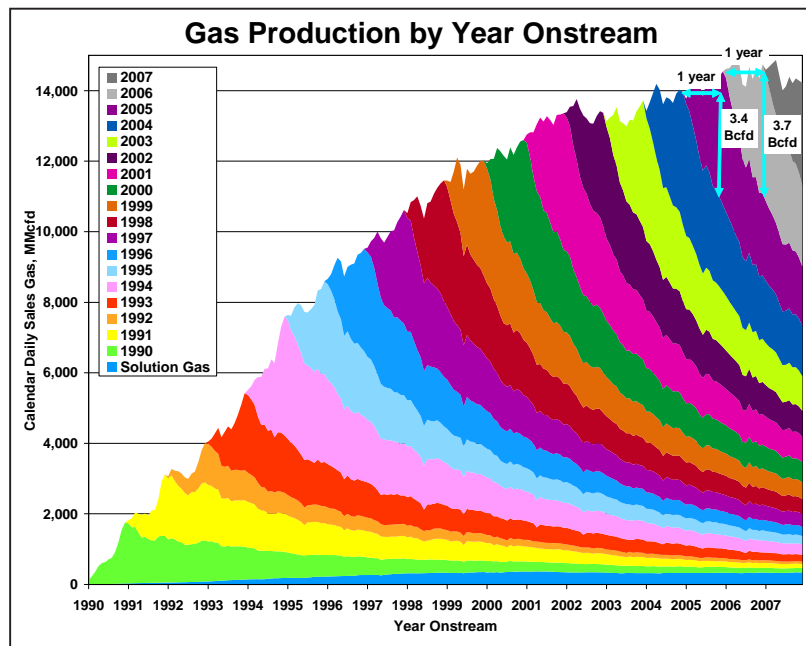
strategies, highlighting potential plays to enter and identifying operators with strategic positions. Are these firms your competitors, partners, acquisition targets or role models? For the service sector, midstream processors, gas marketers and investment analysts, this study identifies and characterizes the gas producers in your target market.

Key Issues

Natural Gas Supply Trends examines the following key issues that affect corporate strategies:

- **Discover, Develop or Accelerate?** — How much of the recent production additions came from newly-discovered pools? What “old” pools are major sources of new production? Is exploration a viable strategy for a basin this mature?
- **Plays that Deliver** — High flow rates per well make headlines but are the Foothills and deep Devonian plays the future of gas supply? What alternatives are there to high risk/high reward plays? How significant is the supply added by low-deliverability wells in resource plays?

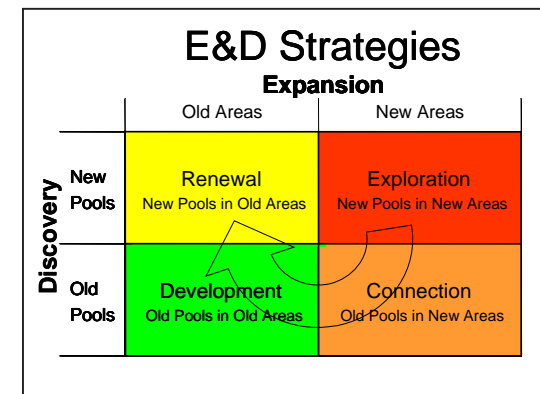
- **Decline Dilemma** — High decline rates drive many operators on the production replacement treadmill. Which plays are chronic high decliners? What zones and areas appear to have lower decline rates?
- **Unconventional Gas** — What are the impacts of recent development in coalbed methane, shale gas and tight gas?
- **Geographic Distribution** — Where are production and reserves growth occurring? What areas of the basin are newly-connected? How important are new areas to gas supply?
- **Top Operators** — Which operators are most successful at adding production from internally-generated opportunities? Which operators are accelerating production growth? What portion of currently-operated production did operators acquire? Do effective operators use common strategies in their play portfolios? Are they focused or diversified?



- **Technology** — What has been the impact of horizontal drilling on natural gas production growth and decline rates? Has fracture stimulation developed increased supply from unconventional tight gas sources?
- **Cycle Time** — How efficient is industry at connecting newly drilled gas wells? Which operators, and in which areas, are the quickest at their gas connections?
- **Multi-zone Supply** — Does stacked multi-zone potential result in higher recovery and production per well? How significant is new production from recompletions in old wellbores?

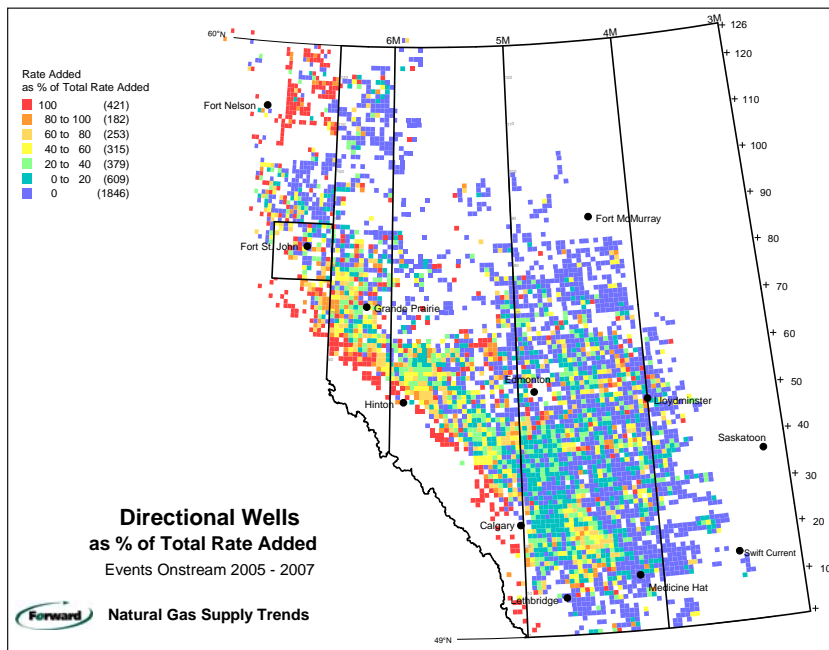
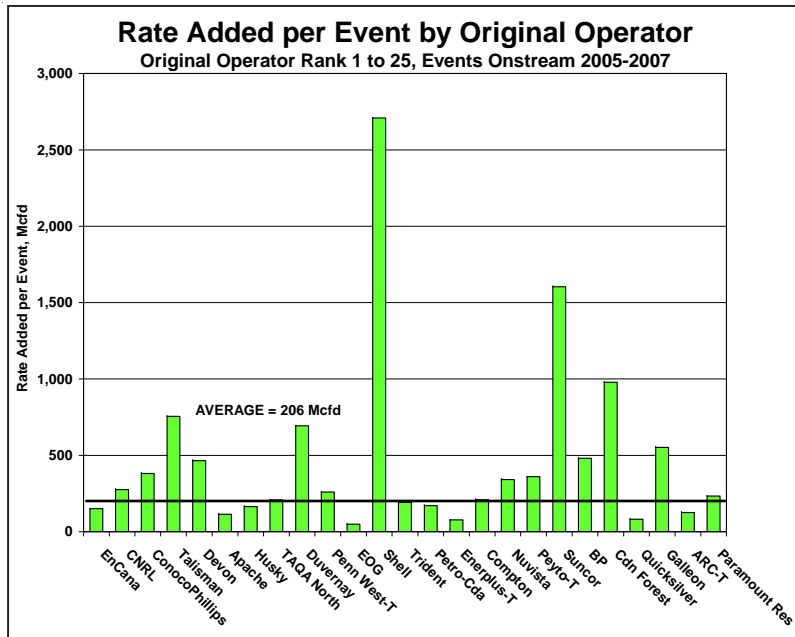
Approach

Forward Energy applies proprietary methods to select and integrate well data, historical production and pool reserves information. Important benefits from data integration include analysis by pool discovery year and average depth and conversion of volumes from raw to marketable. The production profile for each well is fitted with a decline function to characterize its supply contribution and producing characteristics.



Wells are classified into groups according to zone depth, pool discovery period, stratigraphic group and eight other dimensions. The Exploration and Development Strategy model, described in SPE paper no. 82027, is just one example of Forward Energy's innovative approach to understanding industry strategies for adding production.

The contributions of supply sources are summarized and analyzed for characteristics and trends. Colour charts illustrate the trends identified. A unique feature of this study is the extensive use of colour-coded maps to display the geographic distribution of new supply.



Operator analysis includes a review of supply characteristics, rate addition patterns, geographic distribution, portfolio analysis and A&D strategies for major and emerging operators. To analyze the impact of strategic corporate acquisition by operator, supply additions from predecessor operators are included with their corporate successors.

Methods applied at each step ensure the quality, reliability and integrity of the database and analytical results. The study database is an ongoing resource available to subscribers to answer questions with ad-hoc queries. *Natural Gas Supply Trends* features unprecedented and leading edge analysis not available elsewhere.

Study Topics

Overview and Methodology

Gas Supply Trends

Graphs, maps and text describing trends and patterns in the measure of gas supply: connection activity, rate additions, extrapolated ultimate recovery (EUR), average annual decline rate and discounted production.

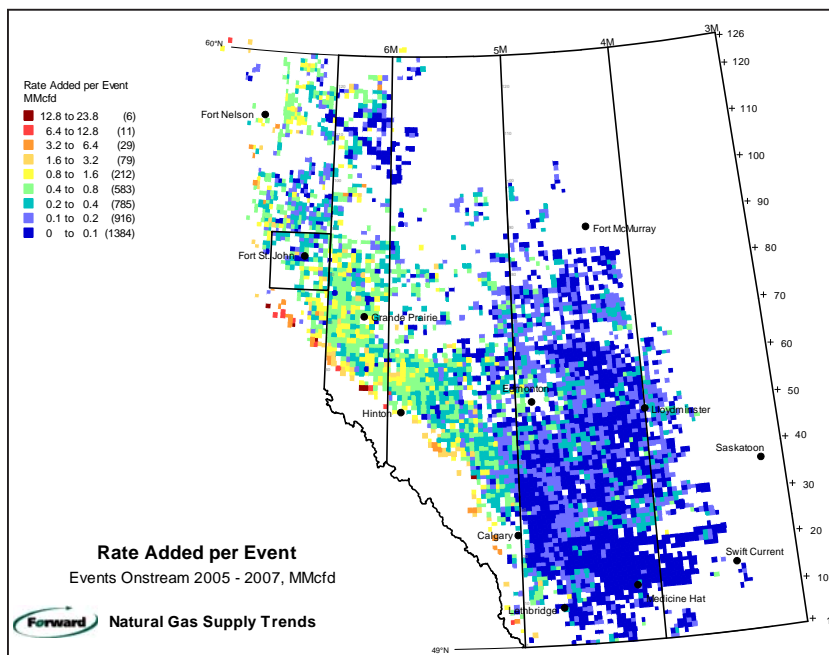
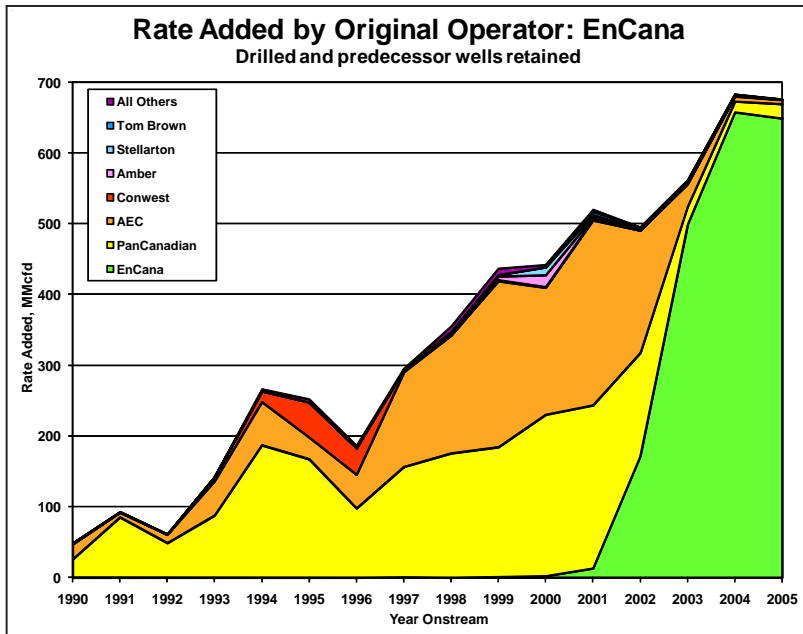
Supply Sources

Graphs, maps and text describing trends and patterns supply by:

- ✓ Exploration and Development Strategy
- ✓ Pool Discovery Period
- ✓ Geographic Region
- ✓ Stratigraphic Group
- ✓ Depth Class
- ✓ Well Deliverability Class
- ✓ Completion Type
- ✓ Cycle Time Class
- ✓ Well Orientation
- ✓ Fracture Stimulation
- ✓ Coalbed Methane

Operator Analysis

- Original Operators — combines the results of predecessor firms with their successors
- Rate addition trend plot and rate-added maps for each operator
- Operator portfolio comparisons by supply sources
- Acquisition and divestiture strategies



Applications

Make better decisions about future investments grounded on current trends and recent patterns:

- Identify, quantify and visualize emerging gas supply trends
- Define and validate corporate gas strategies in the WCSB
- Replace myths with objective analysis of operator strategies and performance
- Evaluate internal and acquisition opportunities with an independent source for due diligence
- Select and prioritize opportunities for further technical evaluation from a basin-scale overview down to the township and well level
- Communicate your strategies with our maps, charts and analysis in your corporate presentations

Deliverables

- Update Summary: presentation summarizing selected summary topics
- Workshop: to apply study to specific client needs; topics developed with client
- Access to study database for custom queries
- Historical reports and updates that include: over 100 full page colour maps with spatial trends of gas supply additions; over 250 colour figures illustrating supply trends, sources of supply and operator portfolios; text describing the methodology, providing the interpretation and highlighting the implications

Additional Services

- Customized analysis: peer comparisons, detailed regional analyses, database queries, benchmarking, etc.

Interested?

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