

Natural Gas Reserves: Keeping Track of the Changes

Reserve Levels

- The province of British Columbia's established remaining reserves of raw natural gas were $482.9 \times 10^9 \text{m}^3$ (17.1 Tcf) as of December 31, 2007. For the seventh year in a row, these figures represent the highest level of established gas reserves in the province's history. The 2007 year-end raw gas reserves figure represents a 4% increase over the 2006 year-end reserves.
- Raw natural gas production for the year as reported by the Oil and Gas Commission was $29.4 \times 10^9 \text{m}^3$ (1.04 Tcf). This is a slight increase over the preceding year's published production. Production figures reported in the 2007 *Hydrocarbon & By-Product Reserves in British Columbia* are for wells associated with gas pools for which the Commission currently carries established reserves. Due to industry activity during 2007, the provincial natural gas production and reserves are understated by approximately 10%. This is a 4% improvement over 2006.
- The raw natural gas production for the year 2007, as reported by the Ministry of Finance (Mineral, Oil and Gas Revenue Branch), was $32.5 \times 10^9 \text{m}^3$ (1.15 Tcf). This represents a slight decrease in reported production. Annual raw natural gas production numbers from the Mineral, Oil and Gas Revenue Branch are collected for the calculation of royalties and freehold production tax and will likely differ from numbers reported by the Oil and Gas Commission.

Changes Resulting From Exploration and Development

- The industry's exploration and development activities in British Columbia added $57.6 \times 10^9 \text{m}^3$ of raw gas reserves, replacing 177% of production in 2007. The slight production increase, along with a significant increase in reserves, resulted in no appreciable change in the reserves to production (R/P) ratio; this ratio dropped from 16.5 in 2006 to 16.4 in 2007.
- The largest increase in reserves occurred because of exploration in the Nikinassin formation in the Hiding Creek area. Many new wells were drilled, resulting in the amalgamation of several smaller Nikinassin pools into one. New mapping of the Hiding Creek Nikinassin H pool has added $12,492.6 \times 10^6 \text{m}^3$ of initial recoverable reserves.
- Industry has continued to develop the shallow, low pressure Notikewin play in the Drake area. Recent activity has resulted in the remapping of the Drake Notikewin A pool, adding $5,280.7 \times 10^6 \text{m}^3$ of initial recoverable reserves.
- The single well Brazion Belcourt-Taylor Flat A pool reserves were revised to reflect production performance. Decline analysis added $3,569.9 \times 10^6 \text{m}^3$ of initial recoverable reserves to this pool. The Commission anticipates exploration in this deep, high deliverability play to continue to add significant reserves.
- In 2007, drilling added a total of $21.5 \times 10^9 \text{m}^3$ of initial reserves to the overall provincial total. This total includes reserves from wells that were rig-released prior to 2007. Although discovered in 2006, the single well Murray Pardonet-Baldonnel F pool wasn't evaluated until 2007, adding $1,631.2 \times 10^6 \text{m}^3$ of initial recoverable reserves.
- Continued extensional drilling to the south of the Gunnell Creek Jean Marie trend resulted in the creation of the Elleh Jean Marie C pool. New mapping has grouped 16 horizontal wells and one vertical well into this pool, adding $1,477.0 \times 10^6 \text{m}^3$ of initial recoverable reserves. Although the number of horizontal wells drilled in the Greater Sierra Jean Marie trend was lower in 2007

than in previous years, the Commission predicts a return to historical activity levels in the area as commodity prices strengthen.

- The Parkland Montney A pool added $1093.3 \times 10^6 \text{m}^3$ of initial recoverable reserves. Exploration activity in the Montney tight gas play has increased greatly over the past few years. The Commission recognizes the Montney play as a regional, gas charged, unconventional play. Over the coming year, a comprehensive reservoir study will be undertaken amalgamating many of the smaller Montney pools into one large regional pool. The Commission will be releasing its map of the new Regional Heritage Montney A pool and will also be updating its reserves estimates. These updates are expected to yield a very large increase in provincial reserves for 2008.
- Recoverable reserve additions per new well increased 98% to $85.0 \times 10^6 \text{m}^3$ from $43.0 \times 10^6 \text{m}^3$ in 2006.