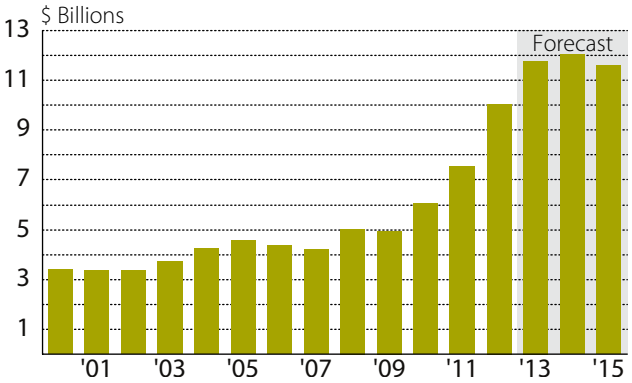
Exports are forecast to increase by 6.0% in real terms mainly as a result of a rebound in oil production and higher iron ore output. Construction activity at Vale's nickel processing facility is expected to remain at high levels and the Hebron project will ramp up significantly with GBS construction underway and the commencement of topsides fabrication. Furthermore, development of the Muskrat Falls hydro-electric project is expected to accelerate. These major projects will contribute significantly to a 17.4% increase in capital investment.

Hebron GBS Construction at Bull Arm

Employment is expected to grow by 2.8%, leading to a 1.0 percentage point decline in the unemployment rate. Employment gains and wage growth are expected to lead to a 7.3% increase in personal income. Increased employment and income will boost consumer spending—retail sales are expected to grow by 4.2%. Population growth is expected to resume in 2013 as demand for labour on major projects should result in a return to net in-migration.

Capital Investment



Source: Statistics Canada; Department of Finance

Major project timelines and natural resource production will continue to impact economic growth in the province over the forecast period. Beyond 2013, economic activity is expected to remain at high levels, however growth in many economic indicators will be much more modest than in recent years. Capital investment is expected to decline after 2014 as major projects progress past peak development and move towards the production phase. Employment and income growth will also be dampened by lower major project development activity. Changes in the timelines (and number) of major projects or in oil production, in particular, could alter this forecast significantly.

Oil and Gas

Oil and gas is the largest contributor to provincial GDP on an industry basis (see table on page 54). Currently, Newfoundland and Labrador has three active offshore oil projects, Hibernia, Terra Nova and White Rose. A fourth project (Hebron), estimated to contain the second largest reserves in the province's history behind Hibernia, is expected to go into production in 2017. Industry is also continuing with near-field/satellite developments (e.g. Hibernia South Extension, North Amethyst and West White Rose) associated with existing projects and fund exploration efforts to identify new resources.

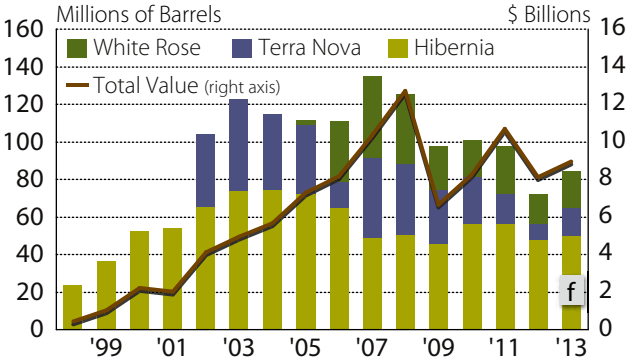
Oil Production

Oil production decreased by 25.8% to 72.2 million barrels in 2012, compared to 97.3 million in 2011 (see chart). This drop was primarily driven by extended maintenance shutdowns and, to a lesser extent, natural production

declines at all three projects. Hibernia was offline for 30 days between August and September, Terra Nova for 183 days between June and December and White Rose for 102 days between May and August.

The value of oil production is estimated to have decreased by 24.1% to $8.1 billion in 2012 as a result of the decline in production. The price of Brent crude oil, a benchmark for Newfoundland and Labrador oil, changed little in 2012, averaging US$111.63/barrel, compared to US$111.26/barrel in the previous year (see chart).

Offshore Oil Production



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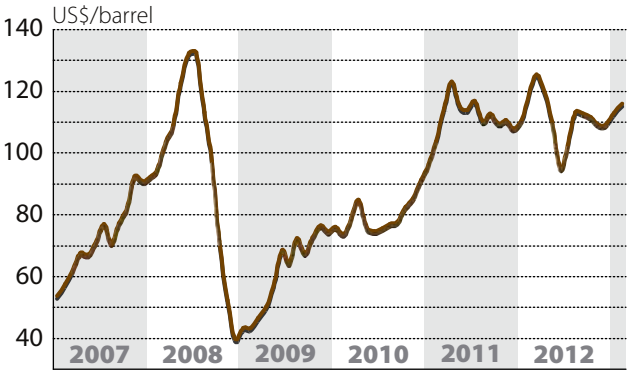
Source: Canada-Newfoundland and Labrador Offshore Petroleum Board; Department of Finance

Brent Crude Oil Monthly Spot Prices



Source: U.S. Energy Information Administration

Hibernia

The Hibernia field, consisting of the Hibernia and Ben Nevis/Avalon reservoirs, is among the largest oil fields ever found in Canada. With estimated recoverable reserves of 1.4 billion barrels (including oil already extracted), Hibernia boasts the largest reserves of Newfoundland and Labrador's three active projects. Operated by the Hibernia Management and Development Company Ltd. (HMDC) and located in the Jeanne d'Arc Basin 315 kilometres (km) southeast of St. John's, it has been producing oil since late 1997 using a gravity-based structure (GBS).

Oil production at Hibernia was 47.8 million barrels in 2012, down 15.1% from the previous year's total of 56.3 million barrels. The production decline can largely be attributed to a 30-day shutdown from mid-August to mid-September. The shutdown allowed for regular inspections, certification and maintenance associated with processing equipment and utilities.

Efforts continue to expand the productive life of the Hibernia field by tapping into oil reserves in close proximity to the main field. The Hibernia Southern Extension (HSE) includes the AA Blocks (that came online in late 2009) and the HSE Unit (that came online in June 2011). The HSE has estimated recoverable reserves of 215 million barrels (AA Blocks – 48 million barrels; HSE Unit – 167 million barrels). It is expected that the HSE could extend the life of the Hibernia project by about 10 years. The province, through Nalcor Energy, has a 10% equity stake in the HSE Unit.

As of December 31, 2012, 1,618 people were employed on Hibernia's operations, including the HSE project.

Terra Nova

The Terra Nova field was the second Newfoundland and Labrador offshore project to commence production, with first oil coming in January 2002. The field, located just southeast of the Hibernia project, is operated by Suncor Energy Inc. using a floating production, storage and offloading unit (*Terra Nova FPSO*). Terra Nova is the second largest producing field in Newfoundland and Labrador's offshore area with an estimated 419 million barrels of recoverable reserves.

The Terra Nova project produced 8.5 million barrels of oil in 2012, a decline of 7.3 million barrels (or 46.2%) over the previous year. Production was lower due to an extensive maintenance shutdown of 183 days from mid-June to early December.

The shutdown saw the *Terra Nova FPSO* sail to Marystown for repairs, which were primarily focused on replacement of the water injection swivel. During the downtime, subsea maintenance work was also carried out at the offshore site. This work included replacement of the flowlines and risers to resolve issues associated with the discovery of hydrogen sulphide (sour gas) in the producing well stream in October 2010. The sour gas issue initially led to a shut-in of six wells and deferred production of approximately 23,000 barrels per day. Field work conducted in 2011 restored production in five of the wells by the end of 2011.

As of December 31, 2012, a total of 1,198 people were working on the Terra Nova project.

White Rose (including North Amethyst)

White Rose is the most recent offshore area in the province to be brought into production. Operated by Husky Energy Inc., first oil was produced from the South Avalon Pool in November 2005 via use of the *SeaRose FPSO*. White Rose has estimated recoverable reserves of 373 million barrels, including already extracted oil, recoverable reserves in the main reservoir and satellites North Amethyst, South White Rose Extension, West White Rose, North Avalon and Hibernia Formation. The province, through Nalcor Energy, has a 5% equity stake in the White Rose satellite fields.

The White Rose project, including output from the North Amethyst field, produced 15.9 million barrels of oil in 2012, down 9.3 million barrels (or 37.0%) from the previous year. Lower production was primarily due to a 102-day maintenance shutdown from early May to mid-August. Repairs to the *SeaRose FPSO*'s stern tubes necessitated the shutdown. These repairs were carried out in drydock in Belfast, Northern Ireland.

Husky is actively pursuing satellite field development to further optimize the potential of the White Rose area. North Amethyst was the first satellite field development in the Canadian offshore and was brought into production on May 31, 2010. In May 2012, Husky filed a project description of the White Rose Extension Project (WREP). The WREP will initially focus on accessing the resources of West White Rose where a two-well pilot project has been ongoing. These wells will provide additional information on the reservoir to refine the development plan for the full West White Rose field.

Development options under consideration for the WREP are a wellhead platform (WHP) development or a subsea drill centre development. Both development options will be tied back to the existing FPSO. The WHP will consist of a concrete gravity structure (CGS) with topsides consisting of drilling facilities, wellheads and support services such as accommodations for 120 to 130 persons, utilities, a flare boom and a helideck. There will be no oil storage in the CGS. All well fluids will be transported via subsea flowlines to the FPSO for processing, storage and offloading. If pursued, the CGS would be constructed at Argentia, floated to deep waters in Placentia Bay for mating with the topsides and then towed to the White Rose project. Construction would be anticipated to begin in 2014 with first oil being produced in late 2016. A decision from Husky on the preferred development option for the West White Rose region has not been made but is expected in the near future.

Husky filed a development plan amendment application with the C-NLOPB on January 15, 2013 seeking approval to develop the South White Rose extension and the Terrace region of the South Avalon pool via subsea tiebacks to the *SeaRose FPSO*. During 2012, a subsea drill centre at the South White Rose extension was excavated in preparation for project sanction with first oil planned in 2014.

As of September 30, 2012, a total of 1,491 people were employed on the White Rose project, including North Amethyst and WREP.

Hebron

The Hebron field, discovered in 1981, will be Newfoundland and Labrador's fourth stand-alone offshore oil project. Development activities have been ongoing since 2008, when the province signed the final agreement with the Hebron consortium to develop the oil field. Capital cost for the project is estimated at $14 billion and first oil is expected around the end of 2017. The Hebron field, located just to the northwest of the Terra Nova project in the Jeanne d'Arc Basin, is estimated by the consortium to contain 707 million barrels of recoverable reserves, which would make it the second largest field after Hibernia. Like Hibernia, Hebron will be developed using a GBS, but on a smaller scale.

The province, through Nalcor Energy, purchased a 4.9% equity stake in the Hebron project. It will pay a proportional share of project costs and receive a corresponding share of production. ExxonMobil Canada Properties (36.0%), Chevron Canada Limited (26.6%), Suncor Energy Inc. (22.7%) and Statoil Canada Ltd. (9.7%) make up the remaining Hebron consortium participants.

On April 27, 2012, after a completeness review of the Hebron Development Plan and a recommendation to sanction from the public review commissioner, the C-NLOPB approved the development plan application for the project. The approval was ratified by both the provincial and federal governments by May 31, 2012. This was followed by an official sanction of the project by the Hebron consortium partners on December 31, 2012.

Site preparation at Bull Arm, where the GBS will be constructed, began last year with dry dock dewatering completed in July. October 2012 marked the official start of GBS construction with the installation of the steel skirts at Bull Arm.

Topsides construction is expected to start this year. Two of the four topsides modules will be built in the province—the accommodations module will be constructed at Bull Arm and the drilling support module will be fabricated in Marystown. A third module, the drilling equipment set, was originally slated to be constructed in Newfoundland and Labrador but will now be fabricated outside the province. The project proponents will pay the province $150 million in compensation for moving this work outside the province. The fourth module, the utilities/processing module, will also be built outside the province.

As of December 31, 2012, there were 1,474 people working on the Hebron project in Newfoundland and Labrador. Approximately 1,118 of those people were residents of the province.

Exploration

Exploration activity remained healthy in 2012 with considerable seismic work conducted; one offshore exploration well drilled; a successful land sale; and a significant announcement by Statoil.

Offshore seismic exploration activity remained substantial in 2012. Multi Klient Invest (MKI) carried out an extensive, regional 2D multi-client program off the coast of Labrador and northeast Newfoundland in which Nalcor Energy participated. The company acquired 11,572 line km of 2D seismic survey data off Labrador and 7,957 line km northeast of Newfoundland. The early results of this seismic work indicate the existence of previously undiscovered basins off Labrador. Interpretation of the data to date suggests a marine deposition indicative of an oil source. In addition, Statoil acquired 5,773 km^2 of 3D seismic survey data in the Flemish Pass.

Husky Energy spud an exploration well in the Jeanne d'Arc Basin on August 2, 2012. As of February 4, 2013 drilling operations were suspended pending a weather delay. Well results are confidential for a period of two years after rig release for all exploration wells.

In terms of new offshore areas available to industry for exploration and development, the C-NLOPB announced the winning bids for the 2012 licence auction on November 2, 2012. The areas that were up for bid comprise 1,589,238 hectares over six parcels in the Laurentian Basin, to the south of Newfoundland, and 208,899 hectares over one parcel in the Flemish Pass. Shell Canada Limited made five successful bids for $97.0 million in work commitments in the Laurentian Basin. The sixth parcel received no bids. In the Flemish Pass, a consortium of Husky (40% working interest), Suncor (35%) and Repsol E & P Canada Ltd. (25%) made a successful bid of $19.9 million in work commitments for the lone parcel.

Statoil made a significant announcement in June 2012 when it revealed that its drilling activities had uncovered 100 to 200 million barrels of recoverable oil resources in the Mizzen field. The existence of this field extends the discovery of hydrocarbons to another basin located in the Flemish Pass, northeast of the province's current offshore projects in the Jeanne d'Arc Basin. Mizzen was drilled in water depths up to 1,100 metres, which is indicative of a global trend towards deep-water exploration.

Other events in exploration during 2012 included the C-NLOPB's decision to update the Strategic Environmental Assessment (SEA) for the Western Newfoundland and Labrador Offshore Area. The objective of the update is to identify and present new information that has become available since the completion of the previous SEA for this area in 2007. The C-NLOPB undertakes SEAs as part of its Rights Issuance Process. A SEA considers

all reasonable foreseeable exploration activities and examines all environmental aspects to determine what activities, if any, might pose a risk. The draft update will be released for public review in April 2013.

Corridor Resources submitted an Environmental Assessment (EA) of a proposed drilling program on its Old Harry prospect off the coast of western Newfoundland in December 2011. However, the C-NLOPB decided to put the review of this EA on hold until the Western Newfoundland and Labrador SEA is completed since the results of the SEA update may contribute to a more informed project-specific EA.

Shoal Point Energy Ltd. also continues to be active on the west coast with interest in three exploration licences. Early in 2013, the company filed an application with the C-NLOPB to amend the EA of Shoal Point's onshore-to-offshore exploration drilling program on the Port au Port Peninsula. The amendment described and assessed near-wellbore stimulation activities and proposed extending the timelines of the original assessment. Most significantly, Shoal Point proposed to employ hydraulic fracturing (fracing) in assessing the viability of the Green Point shale formation that runs up the west coast of Newfoundland. Fracing involves injecting a mixture of water, sand and chemicals underground at high pressure in order to crack the rock. Many other areas of North America have produced oil and gas using this technology. More recently, Shoal Point announced that an oil rig was acquired for use in drilling four wells this year pending regulatory approvals. The rig is expected in Stephenville in May.

Exploration activity continued onshore during 2012 as well. Vulcan Minerals Inc. converted its 50% working interest to a 2% royalty in the approximately 100,000 hectares of onshore Bay St. George petroleum rights in western Newfoundland. The deal was struck with Investcan Energy Corporation, who have taken over the project as operator. Investcan has indicated plans for a four-well appraisal pilot project in the Flat Bay area and the first appraisal well was drilled in late 2012.

Oil and Gas Outlook 2013

- Oil production is expected to increase 16.9% to 84.4 million barrels in 2013 due to increased production at all three projects, reflecting a return to steady-state operations after extended maintenance shutdowns in 2012.
  - Hibernia (including AA Blocks and HSE Unit) is expected to produce 49.8 million barrels, 2.0 million barrels more than 2012.
  - Terra Nova is expected to produce 15.3 million barrels, 6.8 million barrels more than 2012.
  - White Rose (including North Amethyst and West White Rose) is expected to produce 19.3 million barrels, 3.4 million barrels more than 2012.
- Annual average crude oil prices are expected to decline from 2012 levels. Brent crude is expected to average US$107.22/barrel in 2013 compared to US$111.63/barrel in 2012.
- Capital expenditures are expected to be about $4.7 billion in 2013, up over 80% from 2012, due primarily to a ramp up in Hebron construction.
- Construction of the Hebron GBS will continue at Bull Arm, while construction of two of the project's topsides modules is expected to commence at Bull Arm and Marystown.
- Several companies will be pursuing exploration and development opportunities in 2013.
  - Statoil has plans to drill two wells in the Flemish Pass area and one well in the Jeanne d'Arc Basin.
  - Chevron has plans to drill a well in the Orphan Basin.
  - MKI plans to continue with seismic exploration northeast of the Island.
  - Investcan plans to continue its appraisal well program in the Bay St. George area.
  - Shoal Point plans to drill four wells on its Green Point Shale prospect in Western Newfoundland, pending regulatory approval.
- Employment related to oil production, development and exploration is expected to increase significantly, primarily due to the development of the Hebron project.