

# *Hebron*

## HEBRON PROJECT

Development Plan

September 2011

ExxonMobil





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The initial development phase focuses on developing crude oil resources from the Ben Nevis, Hibernia and Jeanne d'Arc H and B Reservoirs within the Hebron Field. The Hebron Proponents have also assessed the Ben Nevis Reservoir within the Ben Nevis Field to an extent necessary to present a development plan for C-NLOPB review and approval.

Therefore, this Development Plan describes the plans to implement a platform development of the Hebron Field resources as well as a potential subsea tie-back development of the Ben Nevis Field resources.

Three concept options are currently being considered for the development of the Ben Nevis Reservoir within the Ben Nevis Field namely drilling of appraisal well(s) (Option 1), implementation of a production pilot (Option 2) or a subsea development (Option 3). The merits of each option are discussed in Section 6.5. Success with either Option 1 or 2 could lead to a development similar to Option 3.

Forecasted cumulative oil recovery from these resources after 30 years of producing life ranges from 105 Mm<sup>3</sup> (660 MBO) to 168 Mm<sup>3</sup> (1055 MBO).

There are also ongoing evaluations to consider development of additional resources in the Hebron Project Area, depending on the results of further drilling, production performance of the initial drill wells, studies, possible delineation wells, additional seismic data or some combination of these. In anticipation of potential expansion development, the GBS will be designed to include 52 well slots. To maximize resource development, slots may later be reclaimed for re-use. Expansion development could also occur from subsea tie-back from drill centres. The platform will have space available for future installation of production facilities and J-tubes and / or risers to allow for such future expansion.

The formation gas produced in association with oil production will be used principally to meet the fuel requirements for the production and drilling facilities. During periods when the volume of produced formation gas exceeds operational requirements, the surplus gas will be injected into one of the Hebron area reservoirs for storage and / or pressure maintenance purposes. Later in field life, the gas production rate is expected to decrease in conjunction with a natural decline in oil production. If the level of gas production falls below the volumes required for platform operations, the gas previously stored may need to be withdrawn in order to provide fuel for platform operations. In addition, other reservoirs in the Hebron Project Area, such as the gap cap of the Ben Nevis Reservoir in the Ben Nevis Field (Pool 3), will be considered as potential gas sources. The gas management plan takes into account a number of considerations, including:

- ◆ Use of associated gas in applying artificial lift to oil producing wells
- ◆ Fuel requirements are expected to vary with time
- ◆ Down-time gas flaring (not continuous)





- ◆ Prospective subsurface location(s) for storing any temporary surplus of produced gas
- ◆ Potential need to withdraw gas that has previously been stored in order to provide fuel for platform operations
- ◆ Potential for using gas in any enhanced oil recovery method in the Hebron Project Area, should such a method be deemed technically and commercially viable
- ◆ Potential for future commercial gas production

## **1.5 Scope of the Project**

The Hebron Project includes a combination of works and activities, onshore and offshore, necessary for the construction and operation of an offshore oil production system and associated facilities to allow the exploitation of the hydrocarbon resource accumulation.

### **1.5.1 Project Components**

Over the life of the project activities will likely include:

- ◆ Construction of topside modules at a variety of fabrication locations and delivery to the Nalcor Energy - Bull Arm Fabrication facility in Bull Arm, Trinity Bay for integration
- ◆ Construction of a GBS and mating of topside modules with the GBS at the Nalcor Energy - Bull Arm Fabrication facility in Bull Arm, Trinity Bay
- ◆ Tow-out of platform to its offshore location
- ◆ Offshore site and clearance surveys, including geophysical, geological, geotechnical, and environmental (including iceberg surveys)
- ◆ Installation of the platform at its offshore location (may include site preparation activities such as clearance dredging, seafloor levelling, underbase grouting, offshore solid ballasting, and placement of rock scour protection on the seafloor)
- ◆ Platform hook-up and commissioning
- ◆ Operation, maintenance, modifications, decommissioning of the platform petroleum production facility
- ◆ Drilling operations from the platform, including well testing, well completions and workovers, wellsite / geohazard surveys
- ◆ Operation of one or more mobile offshore drilling units (MODUs) for subsea developments