

Development of Marginal Fields for Offshore Nova Scotia



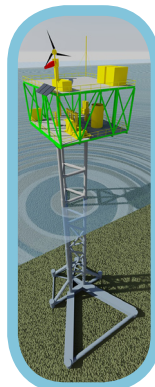
When deciding whether or not to undertake a new offshore development, companies must consider the economic viability, which is largely related to the cost of the offshore facility that will extract and distribute the gas. In offshore Nova Scotia, many of the known offshore fields fall into the category of "Marginal Fields", meaning that their economic viability is questionable, and they do not have as significant an amount of recoverable reserves as the Sable Offshore Energy Project or Deep Panuke.

To encourage development of these marginal fields, the Nova Scotia Department of Energy provided funding to the OETR in the amount of \$180,000 for use in funding research to reduce development risk and increase resource profitability. This includes the development of tools to help potential developers understand the local resources and economics of offshore development in Nova Scotia.

Phase 1



Above:
Single Caisson Structure
Below:
Minimal Satellite Structure
(Courtesy of Martec Limited)



Martec Limited, a local engineering firm based in Halifax, was awarded a contract in April 2008 to complete Phase 1 of a study on Development of Marginal Fields in offshore Nova Scotia. This phase worked to identify existing types of "minimal platforms", those that are more cost effective for marginal fields development, and examine their suitability and durability in offshore Nova Scotia's challenging environment.

Phase 1 also summarized the various Significant Discovery Areas (SDAs) and their general characteristics. Martec created conceptual field development scenarios, and fabrication and installation scenarios for the various minimal platform types. Through Phase 1, Martec has demonstrated that several types of minimal platforms may be suitable for local conditions.

Phase 2

OETR has funded \$180,000 for Phase 2 of the Marginal Fields work. In order to build on the experience and findings of Phase 1, the OETR awarded this contract to Martec Limited.

Phase 2 will use the various minimal platforms identified in Phase 1, along with production

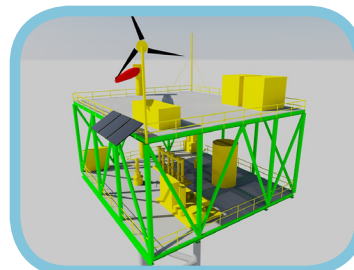
studies, operational and fabrication requirements, and existing and potential new infrastructure to determine the cost impact of developing marginal fields in offshore Nova Scotia. This will be achieved through the development of a cost estimation tool, the Sable Offshore Minimum Infrastructure Tool (SOMIT), which will provide the cost of infrastructure required for development of marginal fields offshore Nova Scotia. The purpose of SOMIT will be to provide basic, yet specific, infrastructure data and information that could be used by companies to outline the physical facilities needed for a specific field development.

To complete the costing tool, Martec will complete a number of tasks, including:

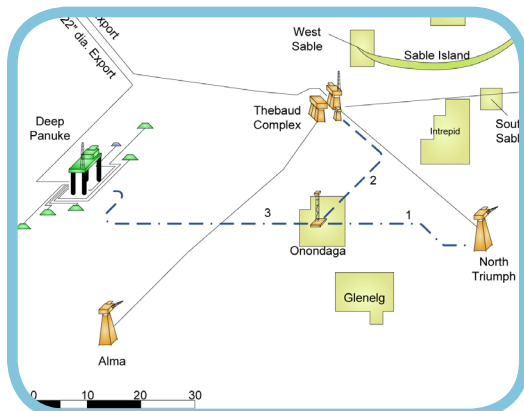
- Trend analyses of the proposed minimal structures;
- Evaluation and development of subsea tieback development concepts;
- Evaluation of a larger range of production process scenarios;
- Evaluation of various field development requirements for offshore infrastructure;
- Development of the tool interface and output requirements;
- Develop schedule of rates for use in the tool to derive overall infrastructure costs; and

SOMIT will take into account a variety of different options for development, including: production rate, export type, tie-back host facility, type of gas composition, platform type, manned or unmanned operations, platform access type, amount of offshore processing, and many more.

The anticipated date of completion for this project is March 2010.



Barge Jacket
(Courtesy of Martec Limited)



The above figure shows an example of the Onondaga field. This field potentially has 150Bcf of recoverable gas (CNSOPB 2000) and is currently owned by Shell Canada. The figure highlights some of the export options when considering the development of the Onondaga SDA, such as: 1. Export 25km to SOEP satellite North Triumph, 2. Export 15km to SOEP Thebaud Complex, 3. Export 40km to Deep Panuke PFC, and 4. Export by Compressed Natural Gas (storage and transport).
(Map courtesy of Martec Limited)