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Ormen Lange Subsea Compression Pilot System

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Abstract

Ormen Lange is a long tieback gas field developed with gas processing facilities onshore 120 km from the production wells. The development strategy is pressure depletion. In order to maintain the production plateau for as long as possible and recover the anticipated gas and condensate resources, offshore compression is required to maintain production.

This paper describes subsea compression as a cost effective alternative to the platform compression solution and the strategy for qualifying subsea compression system prior to offshore compression concept selection.

This paper further describes the subsea compression technical solution.

Introduction

Ormen Lange is a gas field located 120 km off the northwest coast of Norway on the Norwegian continental shelf, in water depths varying between 850 and 1,100 meters. The reservoir covers an area 40 km long, 8 to 10 km wide and 3,000 meters below the surface. Recoverable reserves are estimated to approximately 397 billion Sm³ dry gas and 28.5 million m³ condensate. Ormen Lange has been in production since October 2007.

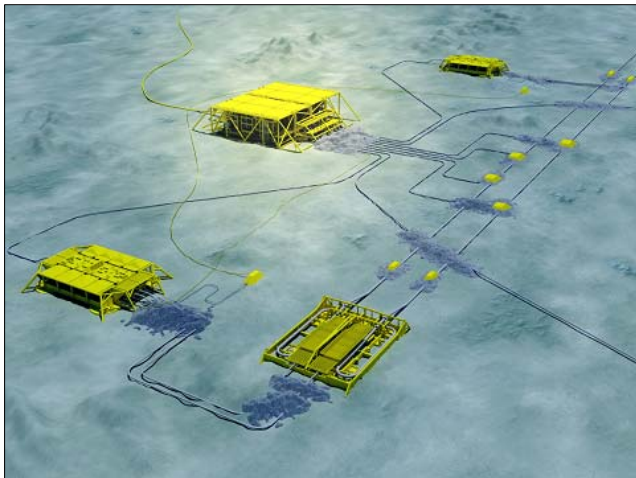


Fig. 1. Ormen Lange development with subsea compression

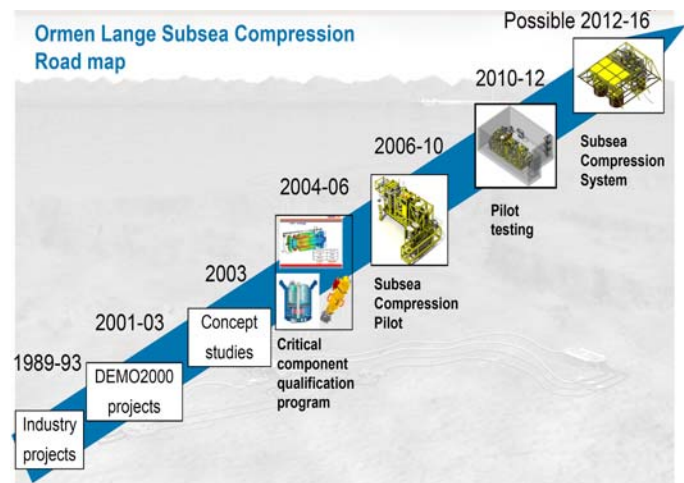


Fig. 2. Subsea compression roadmap

Summary

The main drive mechanism for the Ormen Lange reservoir is pressure depletion. The estimated recoverable reserves are based on the use of offshore compression facilities for pressure boosting upstream from the onshore plant, as the reservoir pressure declines. The Ormen Lange subsea production system is designed to accommodate the flexibility to decide the type of offshore compression concept at a later stage. The options considered are:

- Subsea compression
- Platform compression