

OIL COMPANIES DECISION CRITERIAS: CONSEQUENCES FOR INCREASED OIL RECOVERY FROM EXISTING OIL FIELDS ON THE NORWEGIAN CONTINENTAL SHELF

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Abstract

Introduction

Falling oil production on the Norwegian Continental Shelf underline that it is urgently required to extend the producing life of these fields and to improve their recovery factor. The government has identified a number of projects in this area which it believes will provide a good return for both society and the oil companies, but which have nevertheless been postponed or not realised. Against that background, this article surveys oil company decision criteria for projects which could improve oil recovery. Subjects we discuss include required rates of return, capital rationing, parameters for measuring financial performance, management parameters in the companies, organisational structures, and research and development incentives.

Method.

The study draws on a number of meetings and conversations with key specialists in oil companies, contractors, oil service enterprises and government. In analysing the incentive structure in the contracts regulating the industry, we make use of contract and incentive theory – e.g. Hart (1995) and Bolton and Dewatripoint (2005). To understand how the behaviour of oil companies is affected by their perception of the way oil companies are valued by capital markets, we benefit from behavioural economics studies of the petroleum sector. See e.g. Osmundsen et al (2006, 2007).

Results

We have identified several project stoppers for IOR projects due to the oil companies decision criterias. These include 1) the priorities set by oil companies for their resources (rigs, capital and personnel), between exploration and IOR, and between the NCS and other regions, 2) the conflict between short-term KPIs for decision-makers and long-term value creation, 3) organisational challenges (sub-optimisation), 4) overdimensioning of robustness requirements in investment analyses, and 5) the excessively long lead times for IOR measures compared with the producing life of the field.

Given the critical time frame, having IOR plans ready in advance is important. Pilot projects must be launched today, so that the increase in knowledge becomes available in time. That argues in favour of a collective IOR effort involving both companies and government.

The companies should ensure that short-term performance indicators cause the fewest possible distortions – financial decisions should be reached on the basis of a long-term criterion in the form of net present value. Furthermore, the companies should be aware of the time-criticality of IOR and put the necessary contingency plans in place. Testing should also be conducted now in order to learn as much as possible about effective IOR measures. The government should help to facilitate cross-licence coordination of pilot projects. Because of knowledge overspill (externalities) between licences, these should also provide direct support for such projects. The government should also

continuously identify existing investment incentives in the companies in relation to socio-economic profitability in order to detect possible deviations.

Research in the form of pilot projects is important for exploiting this potential. But knowledge gained from such projects often accrues to more players than those who bear the investment cost. Coordination problems could consequently arise, and government intervention may be required to ensure that the work is done. A number of other challenges related to an IOR commitment are also faced at present. Oil prices are uncertain in the short term, and the industry has experienced a cost explosion. Pressure on margins could prompt a reassessment of cessation dates, and a number of IOR measures could have become more time-critical. On a more general basis, IOR projects also face challenges related to measurement problems. It is difficult to evaluate cause and effect with hindsight when asking which factors were the ones which improved recovery.

References

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