

## Fire framtidsbilder for Norskehavet og Barentshavet

Peter Arbo, January 2012

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| <b>1. Project/publication</b>       | Oljedirektoratet (2011): <i>Fire framtidsbilder for Norskehavet og Barentshavet</i> [Four images of the future for the Norwegian Sea and the Barents Sea]. Stavanger: The Norwegian Petroleum Directorate, 44 pages.<br><br><a href="http://www.npd.no/en/Publications/Resource-Reports/Resource-report-2007/">http://www.npd.no/en/Publications/Resource-Reports/Resource-report-2007/</a>  |
| <b>2. Initiator</b>                 | The Norwegian Petroleum Directorate. The scenarios were presented by the CEO on the Petro conference in Harstad 31 August 2011.  |
| <b>3. Objective</b>                 | <p>The objective of the Norwegian Petroleum Directorate is to contribute to creating the greatest possible values for society from the oil and gas activities on the Norwegian continental shelf by means of prudent resource management. A central task is to collect data and make analyses of the petroleum resources as a basis for an optimal realization of the resource potentials.</p> <p>In 2007, the Directorate developed four scenarios for the entire continental shelf (see Oljedirektoratet 2007), and this is a follow-up study. The scenarios are meant to illustrate the uncertainties associated with future oil and gas development. They show how different assumptions about the resources can be of vital importance for future decisions and production on the Norwegian continental shelf.</p> <p>The Directorate underscores that the purpose of the scenarios is to raise questions and not necessarily to provide answers. Relevant questions are: For how long will Norway be able to maintain its position as a considerable supplier of oil and gas? If and when should new areas be opened for exploration? How to utilize today's infrastructure? Are new onshore processing facilities required? Should oil and gas be landed or handled offshore? Reflections on such question might inform specific decisions today.</p> |
| <b>4. Geographical delimitation</b> | This time the scenarios only cover the Norwegian Sea and the Barents Sea. The North Sea and the areas around the island Jan Mayen are excluded.  |
| <b>5. Time horizon</b>              | 2040   |
| <b>6. Thematic focus</b>            | The main emphasis is on the situation in 2040 and the path by which this state was reached in terms of oil and gas exploration, discoveries, choices of development, modes of processing and transportation, and production profiles.  |
| <b>7. Images of the future</b>      | <p>In the study presented in 2007, four scenarios were outlined, based on an axis system with oil prices (high or low) on one axis and undiscovered resources (large and small) on the other. The scenarios were labelled: Full speed ahead; Technolab; Sorry, we're closed; Blood, sweat and tears.</p> <p>This time a similar system of coordinates is employed. However, the decisive dimensions are whether the oil and gas resources will be above or below expected level, and whether the discoveries will be small or large, spread out or concentrated. Based on this structure the scenarios are just labelled A, B, C, D:</p> <p>Scenario A: Resources above expectations; medium to small discoveries; coordinated development; a gas pipeline from the Barents Sea; new onshore processing facilities; production drops below today's level in 2036.</p> <p>Scenario B: Resources above expectation; big discoveries; coordinated gas development; independent development of oil fields; two pipelines from the Barents Sea; new onshore processing plants; production drops below today's level in 2038.</p>  |

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|   | <p>Scenario C: Resources below expectation; few, small and scattered discoveries; coordinated development; enlarged capacity at Melkøya; production is maintained but drops rapidly beneath today's level from 2021.</p> <p>Scenario D: Resources below expectation; few and big discoveries; independent development of single fields; a pipeline from the Barents Sea; production is maintained but drops rapidly beneath today's level from 2021.</p>   |
| <b>8. Key driving forces</b>                | <p>The scenarios are based on the assumption of an increasing world population and a growing demand for energy. In 2035, fossil fuels are still dominating even though renewable energy has a larger share.</p> <p>The scenarios are determined by the opening of new areas for exploration and their resource characteristics. It is assumed that in the coming decades the following areas will be opened: The Barents Sea North, the areas bordering the new Norwegian-Russian maritime boundary, Lofoten/Vesterålen; the deep sea areas of the Norwegian Sea.</p>          |
| <b>9. Uncertainties / wildcards</b>         | <p>The uncertainties are an integral part of the set of opportunities that are defined by the scenarios. The study is focusing on areas which have not yet been subject to extensive exploration activities. It is emphasized that where the opportunities are high, risks and uncertainties are also high.</p>  |
| <b>10. Accomplishment and collaboration</b> | <p>This is an expert-based study carried out by the Norwegian Petroleum Directorate. There might have been external collaborators, but these are not mentioned.</p>  |
| <b>11. Method</b>                           | <p>The study rests on resource estimates. To the proven resources, various guesstimates of the resources yet to be proven are added.</p>   |
| <b>12. Sources of information</b>           | <p>The study mainly utilizes data from the Norwegian Petroleum Directorate. The report as such is very brief and does not reveal the underlying data.</p>  |
| <b>13. Strengths</b>                        | <p>The strength of the study is the clear framework and the presentation of main assumptions and courses of development.</p>   |
| <b>14. Weaknesses</b>                       | <p>This study, too, like the one in 2007, mainly shows low/high projections. The basic concern is the life expectancy of the Norwegian oil and gas production and how it can be prolonged. Other considerations are omitted.</p>   |
| <b>15. Attention and significance</b>       | <p>The scenarios have been presented and referred to in various contexts. The central message is that in order to maintain oil and gas revenues, new and controversial areas must be made available to drilling. How the scenarios were developed by the Norwegian Petroleum Directorate, and how they have been used internally, is hard to tell. However, Gassco, the operator of gas transportation from the Norwegian continental shelf, has recently used the scenarios in a study of the costs and benefits of constructing a new gas pipeline from the Barents Sea.</p> |
| <b>16. Relevance for the Fram Centre</b>    | <p>The study demonstrates the strong interest in oil and gas development in the Barents Sea, including the area around the Spitsbergen islands. The Petroleum Directorate is an important government agency when it comes to defining the framework conditions for petroleum development in the north. Beyond that, the study is of little relevance.</p>  |