

FACTS

THE NORWEGIAN PETROLEUM SECTOR

2005

Ministry of Petroleum and Energy

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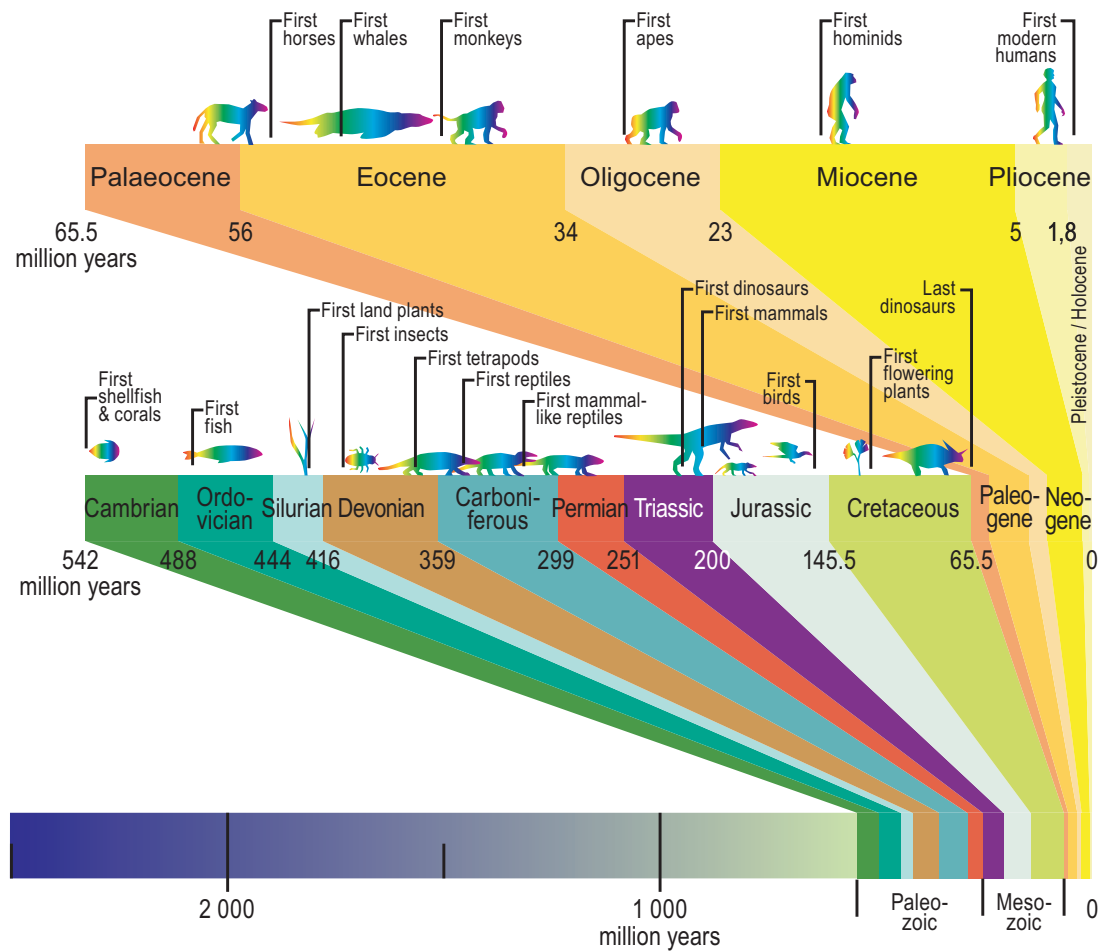
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The Geological Timescale

Foreword by the Minister of Petroleum and Energy, Thorhild Widvey

The petroleum sector is now Norway's largest industry and it has made an important contribution to economic growth and to financing the Norwegian welfare state. In more than 30 years of operations, the business has created value in excess of NOK 4,000 billion in current terms.

Norway's oil and gas resources belong to the Norwegian society and must be managed for the maximum benefit of present and future generations. The aim of the Government's oil and gas policy is therefore to assist in the best possible stewardship of the resources, in order to maximise their value to the benefit of both companies and society at large – within a framework of sustainable development.

Record production levels in 2004

In 2004, production derived from 48 fields, 42 in the North Sea and 6 in the Norwegian Sea, and this was a record year for petroleum production on the Norwegian Continental Shelf (NCS). Output amounted to 3.2 million barrels of oil (including NGL and condensate) per day and 78 billion standard cubic metres of gas. This makes Norway the world's third largest oil exporter and seventh largest oil producer.

2004 saw the world's strongest growth in oil demand for many years. To find similar growth, we would have to go back 30 years. Over the year, the price of oil varied from 29 to 52 US dollars a barrel (Brent).

In 2004, the Government submitted a white paper on oil and gas activities, in which one of the most important topics was the cost level on the NCS. Reducing costs is a robust strategy for sustaining future activity. The authorities share a responsibility for the cost level in their regulation of activities. Accordingly, I am in dialogue with my colleagues in other ministries to ensure that the governmental processes and regulations are designed cost-effectively.

Research and development (R&D)

It is important for the state, in its capacity as owner of the resources, to ensure that they are exploited optimally. Cooperation between the oil companies, the supply industry and research institutions has been important in the development of activities and will continue to be so in the future. Extensive R&D activities on the part of both the companies and the authorities, have been, and will remain, essential.

In 2004, the Government gave petroleum research a major boost and increased funding for it by more than 60 percent in the 2005 budget. Experience shows that long-term, targeted R&D measures are a necessary contributory factor in developing oil and gas activities. Notably, R&D has been crucial for the development of a competitive Norwegian supply industry.

I am also committed to seeing the Norwegian oil and gas industry succeed internationally. Considering the extensive experience that the Norwegian petroleum industry has now accumulated, there should be excellent opportunities for further expansion in other markets. The industry's vision of substantially increasing the Norwegian supply industry's turnover beyond the NCS is ambitious, but should be perfectly achievable.

Mature fields

Significant portions of the NCS are now in a mature phase, with declining output and increasing operating costs in existing fields, as well as lower expectations for the sizes of future discoveries. In spite of this, there remain considerable resources in the mature areas of the NCS and the authorities' greatest challenge in the mid to long term is to help ensure that any decline in output is minimised and that the fields' lifetimes are extended. In order to realise the residual value, I would especially like to



emphasise the importance of measures for improved oil recovery and efficient operations. Such measures will provide increased revenues and a longer life-times. We are now seeing the industry taking these opportunities seriously and activity levels are rising.

Considerable volumes of oil will remain unexploited after the planned abandonment of the major fields in the mature areas. It is thus extremely important to focus on increasing the level of recovery, in order to extract the greatest possible value from the fields. In 2004, the average recovery rate for oil from the NCS was 46 percent. With productive cooperation with the companies and a commitment to this on the part of the industry, I firmly believe that the recovery rate can be stepped up further.

As for the immature areas, we are now seeing much interest in the Barents Sea. Three promising exploration wells is planned to be drilled in the Barents Sea in the winter of 2005. The potential is huge, but there is also a considerable risk. The oil companies' access to new, prospective exploration areas and licences is essential for the future development of the continental shelf. At this time last year, much of the debate revolved around the low level of activity and what could be done to increase the number of exploration wells. For its part, the Government responded by improving access to exploration acreage, attracting more players, increasing competition and adjusting the licensing terms. I would note that the awards in predefined exploration areas in 2004 (APA 2004) were the largest in mature areas of the NCS since the authorities introduced the system of annual award rounds in 1999. 28 production licences were awarded, against 19 in the previous round, while the number of awarded companies increased.

Most of the indicators are now positive. We expect a high activity level, stable production, and many new development projects to be processed by the authorities. 2005 also seems to be a record year for investment on the NCS, while cooperation with other petroleum-producing nations is good. In other words – great potential lies ahead of us, which will be important for Norway's future as a petroleum-producing nation.



Minister of Petroleum and Energy

Foreword by Director general, Norwegian Petroleum Directorate, Gunnar Berge

The Norwegian state is the property owner of the Norwegian Continental Shelf (NCS), and in this capacity the authorities have substantial interests to manage. The paramount objective of the Norwegian Petroleum Directorate (NPD) is to contribute to creating the greatest possible value to society from the petroleum activities by means of prudent resource management, safety, contingency planning and the external environment. To perform this task, the authorities must be committed and possess competences similar to those in the petroleum companies – plus a little more. The companies are experts in the fields and the areas on the NCS where they have a particular interest. The authorities need to have expertise on the entire NCS. The NPD is the technical body of the Ministry of Petroleum and Energy (MPE), with competence in geology, geophysics, reservoir technology, finance and other specialist disciplines. This is a prerequisite for being in a position to manage the ownership interests in a way that benefits the whole society. The NPD advises and defines terms and conditions in respect of both the ministry and other decision-making authorities.

From knowledge to value

One absolute precondition for contributing to value-creation is knowledge and overview. The optimal exploitation of oil and gas resources on the NCS requires that we keep up-to-date on how substantial the resources are and where they are located. Every year, the NPD prepares a resource account, which shows what has been produced and sold, what has been discovered and what remains to be found. The NPD's experts regularly update the estimates of the total volume of resources on the NCS, based on the

best methods available at any time. In addition to its own calculations, the NPD has the authority to require the companies to supply all necessary and relevant information. Amongst other things, our data provide a basis for making forecasts of future production and investment. The NPD's unique databases are also highly valuable to other stakeholders. The Norwegian authorities have a policy of making data available to interested parties – at the lowest possible cost. Such openness is globally unique, and represents an important contribution to making the NCS more attractive.

Activity levels on the NCS are on the rise

In 2004, 17 exploration wells were drilled on the NCS: 9 wildcat and 8 appraisal wells. This is all too few. We estimate that a third of the resources on the shelf are yet to be found. The NPD believes that at least 30 exploration wells should be drilled on the NCS each year in order to maintain activity at the required level. To step up exploration activity, over recent years, the authorities have given the industry access to large new exploration areas, and we are expecting a vigorous increase in activity. The companies have reported that they will drill 30–40 exploration wells in 2005. Access to drilling facilities may now be a limiting factor, and this is a major challenge for the authorities and industry alike.

But increased activity related to discoveries and fields in production is also anticipated. At present, there are plans for developing 17 discoveries. There are 44 additional discoveries that may be developed in the longer term. There are also plans for improved oil recovery, which gives grounds for optimism. The average recovery target for oil on the NCS is 50

percent. The NPD has been charged by the MPE with assessing whether it can be justified to raise this target further. Even if not all of the 100-plus improved recovery projects reported by the companies are realised, this still indicates that the industry has a strong will to make an extra effort to increase the levels of recovery. The NPD considers this work to be so important that we are awarding a special annual prize, the IOR (Improved Oil Recovery) prize, to the licence, company or person who has made an extraordinary effort in this direction.

Unit costs must fall

Cost levels on the NCS are a major challenge. As the fields mature and production falls, costs per produced unit of oil and gas will increase. If we are unable to manage costs better, we risk leaving considerable resources will be left behind in the underground. E-operations may be a solution to help make operations on the NCS more efficient. In Report to the Storting no. 38, on petroleum activities, the NPD was assigned the task of becoming a driving force for increased use of e-operations on the NCS. E-operations involve employing real-time data to co-ordinate the work between organisations and specialist involvement to achieve better and quicker decision-making in both the exploration and operation phases. E-operations may contribute to improve recovery, reduce costs and improve safety. In the autumn of 2004, the NPD set up an e-operations forum, with representation from oil companies, suppliers, trade unions, the authorities and research institutions. The aim of the e-operations forum is to be a driving force for the sharing of knowledge and experience and to discuss the opportunities and challenges.



Director general, NPD

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