

North Sea Industrial Challenges

*Development of oil industry
has opened new fields for small
and medium industry in Norway*

BY KJELL STAHL*

A map will show you clearly that Norway is a very long country. We used to say that, if you pivoted it around the southern cape of Lindesnes, Cape North would fall in Rome. And until now we also said that that maneuver would be too expensive. After the advent of oil, however, it seems that we could afford the costs. In fact, judging from popular and political sentiments, a lot of Norwegians seem to think it would be easier to turn the country around physically than to adjust to the influences of oil.

Over the past 15 years, oil activities on the Norwegian Continental Shelf have indeed brought severe changes to our industries and economies. We must expect, too, that slowly our society will be changing in direct as well as more subtle ways.

The impact of oil on industry is clearly in view. But it is important to bear in mind that a number of factors and impulses have activated the impact. The resources, oil and gas, are at the basis. Industry itself has been actively engaged in transforming the opportunities that oil offers into viable business projects. And government policies have been directed toward the same goal.

There is one fundamental fact about Norway and her response to the challenge of oil: We already had an established, well developed industry at the time of the first oil and gas strikes, and a strong maritime tradition of longstanding.

THE NORWEGIAN INDUSTRIAL STRUCTURE

Industrial development in the 100 years before oil had primarily been based on our natural resources—fish, timber, ores—and our abundance of hydroelectric power.

From the turn of the century till the present, industrial production has increased tremendously. Production quadrupled during the first half of the century, and from 1950 till 1970 it increased by 150%. The increase continued unabatedly until the mid-1970s. For a number of reasons, Norwegian industrial production then stagnated.

A large part of Norwegian industry consists of rather small companies. Out of a total of around 14,000 firms, between 11,000 and 12,000 employ fewer than

20 people. About 95% of all companies have fewer than 100 employees, but between them they employ about 45% of all industrial personnel in Norway. On the other hand, companies with more than 200 employees account for 40% of employment in industry.

The traditional export branches, which include production of pulp, paper, aluminum and ferroalloys are still large. But their relative importance has been declining. By the end of the 1960s it was clear that the harvesting of the traditional natural resources had come to an end. In the future—as seen from the 1960s—other industries, and primarily manufacturing industries, had to be the locomotive for economic growth.

In that perspective the oil and gas discoveries in the North Sea were of particular interest. But the possibilities had to be discovered, and industry had to educate itself for the new tasks ahead.

15 YEARS WITH OIL

The initial concessions to blocks on the Norwegian Continental Shelf were granted in 1965. In 1970 the first oil field—Ekofisk—was declared commercial, and in 1975 the most important gas and oil field in the North Sea, Statfjord, was discovered. 1979 and 1980 saw a series of new discoveries. They may have a profound impact on our economy in the 1980s and beyond.

Official figures for possible reserves in the Norwegian North Sea, are 4,000-5,000 million tons oil equivalents in oil and gas. The production from Norwegian oil and gas fields will be about 50 million tons in 1980, and is expected to reach about 65 million tons toward the end of the decade. Domestic consumption of oil products is about 8 million tons annually.

The direct impact of oil on our industry and economy will have a double cause. The first is the establishment of the oil industry proper, i.e. industry engaged in finding and producing oil and gas, and supporting activities for this industry. I will call these the *primary* oil activities.

The second cause is establishment of a market for goods and services connected with the huge investments in production facilities, and their operation and maintenance. This market can be served by existing industries and stimulate the creation of new ones. I will call these the *secondary* oil activities.

From An Exotic Presence . . .

If we look back on the 15 years with oil, we will find that in the first five years the activity was mainly an exotic presence in the North Sea, with little influence on mainland Norway. Only a handful of people in industry and government really understood the magnitude of what was happening, although a couple of bases were established and the foundations were

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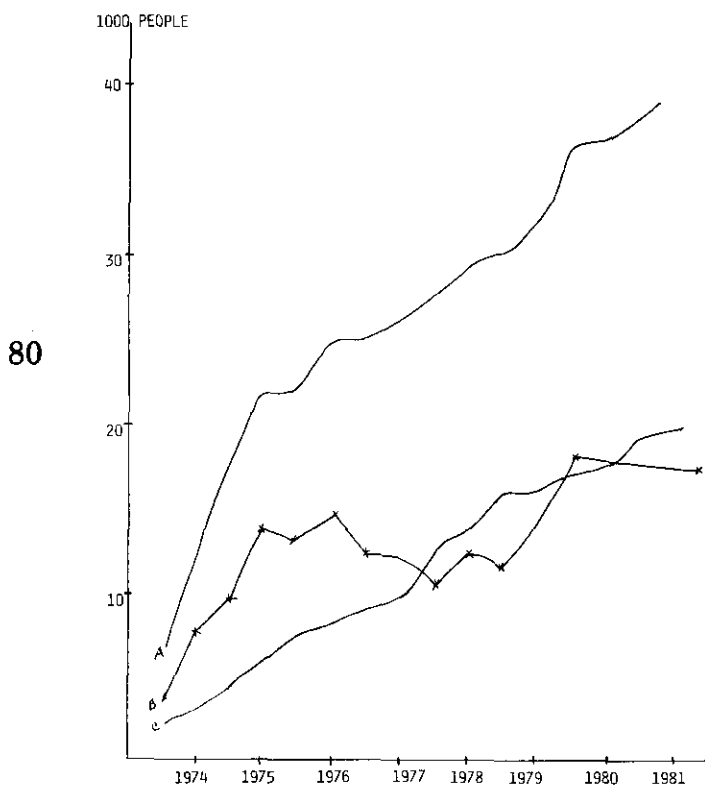
laid for the two principal, private oil companies.

The following five years, from 1970 till 1975, was the period when the oil activity became part of industry's daily life. The primary oil sector grew, but the breakthrough in secondary activities was, as we will see, not to the same extent connected to the development on the Norwegian Shelf

... To Industrial Growth

In the period 1975-1980 the activity in the primary oil sector continued to grow, and an increasing part of the North Sea markets went to Norwegian industry. It was during that period that business opportunities from Norwegian offshore oil really gave incentives to industrial growth in a broad sense.

I shall try to trace this development by following the rise of employment in the oil sector, and give some figures for the value of deliveries made by Norwegian industry in the same period.



Employment in the Oil Sector
FIGURE I

In Figure I, line A indicates how employment in the oil sector rose from about 6,000 persons in 1973 to over 38,000 today. The rate of increase was at its steepest during the first couple of years; later it became more moderate.

Line C shows the increase of employment in what I call the *primary* oil sector: Drilling, production at sea, and supportive activities in administration, basis, catering, etc onshore. This employment can be ascribed to the *new elements* in our industrial picture, which oil has created.

From a couple of thousand people in 1973, employment in primary oil activities rose to nearly 20,000 in 1980.

Line B, shows employment in what I call *secondary* oil activities: i.e. building and maintenance of platforms, supply vessels, manufacturing of equipment and so on. This graph is an expression of what we may term "the positive impact" of oil on our existing industries.

Even if there are many new companies as well as new activities involved in the industry behind these employment figures, the graph mainly shows how Norwegian companies in the many branches of industry, have reorientated themselves, and started to manufacture for the new markets that oil created.

You will see that employment in the secondary activities during the first part of the 1970s increased more rapidly than employment in the primary activities. This was not least due to the manufacturing industry being very strongly engaged in the building of drilling platforms and supply ships, but also, as you will see later, due to the export opportunities to the British sector of the North Sea.

From the mid-70s the employment in the secondary oil sector has increasingly been tied to investments in production equipment on the Norwegian Continental Shelf, and to the operation and maintenance of Norwegian installations. Primarily, it is the developing of these markets that will give employment in the secondary oil activities in future.

Double Benefit

Since 1974, there has been a general downward employment trend in Norwegian industry. In this perspective, the benefit of oil has been double: It has created about 20,000 new jobs in the primary oil sector. And it has secured jobs in manufacturing industries by providing a new market, as well as new business opportunities.

Another indication of the impulses for a change from the oil activities, is the establishing of new, oil-related companies.

The total number of companies in Norway at present involved in business solely is about 300. Including companies which are also involved in more traditional business activities, the number exceeds 500. The number of oil-related enterprises has increased by about 200 over the past six years.

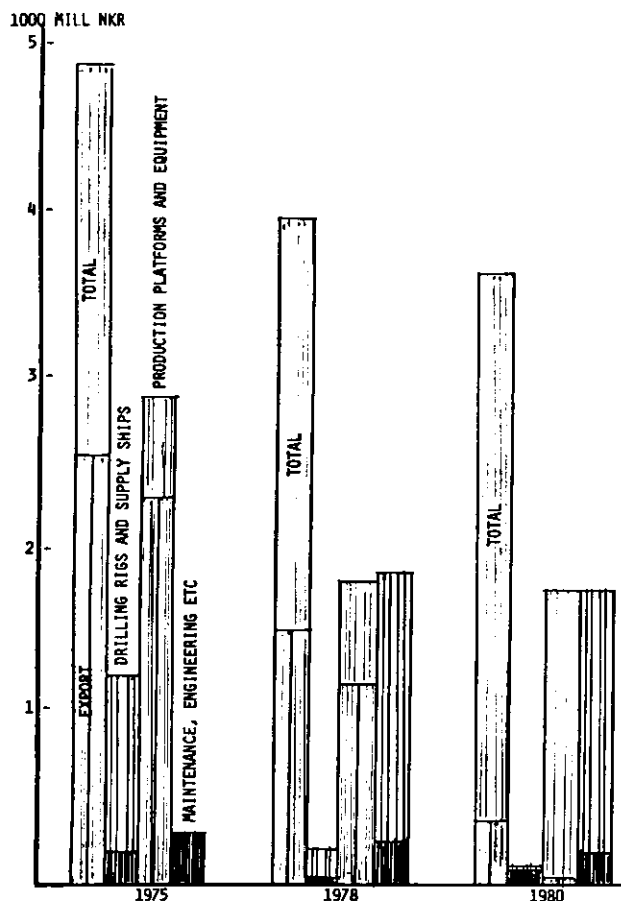
From 1973 to 1978, Norwegian industry lost about 1,000 companies. This development is expected to continue, even accelerate. Thus, whereas the general tendency has gone toward a reduction in the number of industrial companies, the oil activities have brought at least a moderate increase in new enterprises over the same period of years.

Taking this analysis one step further, it is clear that nearly all losers have been among the small and medium companies. Nearly all newcomers in the oil industry are also to be found within this category, which indicates not only the catalytic quality of oil on business enterprise, but also—and this is imperative—that not all oil-related industry need be big.

Thus, the development in the oil sector runs counter to two general trends of Norwegian industry. Employment, as well as the number of companies are rising, whereas the general industrial picture shows signs of weakening.

Competing and Adapting

The Federation of Norwegian Industries has since 1975 compiled data showing the extent of industrial engagement in connection with the oil activities.



Deliveries From Norwegian Industry
FIGURE II

Very evident in the first years was the heavy engagement of manufacturing industry—mainly shipyards—in the building of drilling platforms and supply ships. In this field we still have a largescale effort and Norwegian industry has contributed significantly.

More than anything else, it was the old business relations and the good contact between Norwegian shipowners and Norwegian shipyards that made way for Norwegian industry. It was—and still is—imperative to have a buyer who knows your products and believes in your abilities. Norwegian industry gained a foothold. But it turned out to be extremely difficult for it to be recognized as a serious competitor in connection with the offshore production development.

Therefore, it is so much more remarkable that the initial period provided two really major orders placed at Norwegian companies for production equipment. Both were for projects on the British Continental Shelf. As you can see from the Figure II, there were two points of gravity during those initial years—one was the production of drilling platforms and supply ships, the second the building of production platforms for exports.

Figures for 1977 and 1978 show that the trend gradually changed. The importance of building drilling platforms and supply ships declined, whereas deliveries of goods and services for production development on the shelf increased. At the end of the 70s there are two new points of gravity in industrial engagement—building of production platforms and equipment, and maintenance and operation of the production installations, engineering, etc.

Looking at the development of Norwegian goods and services over a period of time, the following appears:

Year	1976	1977	1978	1979	1980	1981
Share	22%	31%	40%	50%	55%	55%

With its maritime expertise and firsthand knowledge of the North Sea conditions, Norwegian industry has been able to offer oil companies equipment and know-how that meet their requirements in offshore exploration. Gradually, industry has also shown that it masters the planning, the designing and building of offshore installations. Our manufacturing industry has, in fact, carried through the required heightening of its quality level, compared to conventional production, and has adapted its organizational structure to the demands of offshore industry.

Norwegian industry's meeting with the international oil industry was not problem free. The oil companies have during their long history built up their own industry and developed their own work methods. Norwegian industry had limited international experience, many small companies with a simple organizational structure and few resources. It was obviously a problem for them to penetrate, or even begin to grasp, the organization of the multinational oil companies, their contract procedures, and their general business activities.

But the encounter between Norwegian industry and the international oil industry has been an exposure to international business climate, and we have to adapt to it. Norway has a home market of significant proportions on the Continental Shelf, but our offshore industry must also be able to compete on international markets. Norway has today managed to establish a manufacturing industry geared to the demands from the offshore markets.

OIL POLICIES AND INDUSTRIAL POLICIES

And to reach this goal, meeting the demands of the offshore markets, has been the aim of government policies. Norwegian oil policy's main theme has been a "a moderate rate" of oil and gas production, which has given government as well as industry time to learn and to adjust.

We have also had more specific policies aimed at industrial development rooted in offshore oil and gas.

In 1969 "a gentlemen's agreement" clause was included in the concessions. The gist of that was that oil companies should apply Norwegian goods and services when such were competitive.

In 1972 this clause was codified and included in the rules regulating the activities on the Norwegian Shelf. The Ministry of Industry established a reporting system—presently in the hands of Ministry of Oil and Energy—to monitor the factual extent of the use of

Norwegian goods and services.

The rules stipulate that Norwegian goods and services shall be used whenever they are competitive in regard to price, quality, and time of delivery.

There is always a possibility that rules of this kind deteriorate into plain protectionism. Obviously, it was very tempting to try to ensure a greatest possible Norwegian share of the offshore market when a recession hit, especially in the shipyards, in the middle and late 70s. But I think it is fair to say that Norwegian industry today fights hard to get its contracts in a really competitive offshore market.

Norway's industrial work force is about 375,000. In comparison, the oil sector is relatively small—about 10%. But oil is obviously very attractive, both in terms of wages and in terms of challenges for technically-trained people.

All official policies in Norway are, with the full support of industry, aimed at reaping the industrial benefits of oil, while at the same time trying to limit the oil activities.

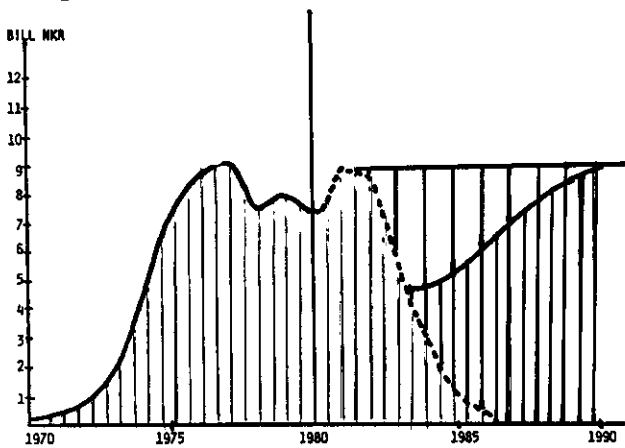
In view of this, it is important to keep the level of investments relatively even. A predictable level of activity on the Continental Shelf will benefit the industry engaged in the oil sector, and help avoid stresses caused by too strong fluctuations in the demand for personnel.

I shall attempt to show examples of different profiles for the development of the oil sector in the 1980s and 90s, to illustrate this point.

THE OIL ACTIVITY IN THE 80s and 90s

In general terms, we foresee a market on the Norwegian Shelf, in which the annual expenditures on exploration will be about 1 million Norwegian kroner, investments 6-10 billion and operating and maintenance costs, too, about 6-10 billion Nkr.

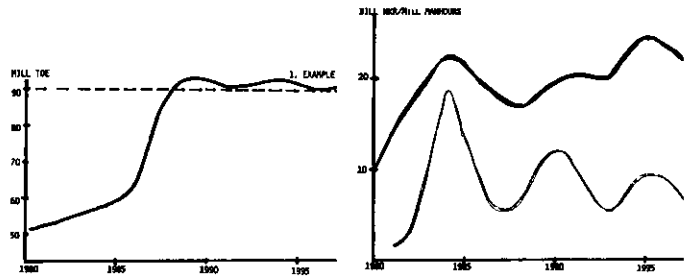
But there is a big difference between 6 and 10 billion Norwegian kroner. And there is also some uncertainty about the timing of various projects that must be developed.



Investments on the Norwegian Continental Shelf 1970-1990
FIGURE III

In Figure III, I show annual investments in fields developed, and under development, in Section A. New Projects are in Section B. The question for both is, how

soon will we get the new fields on stream and what level of production will they lead to? As I have already mentioned, we have a political "ceiling" at 90 million tons oil and gas per year.



Building Oil and Gas Production
FIGURE IV

Figure IV depicts two ways of building up oil and gas production in the next two decades. Their consequences on investments and operating costs, Line A, and demand for personnel (manhours), Line B, are indicated for oil-related industry. In terms of stability, the second alternative seems to be better than the first.

OIL INCOMES

Revenues from oil and gas to the state must be mentioned, however briefly. The oil incomes will amount to 15-25% of GNP over the next 20 years.

The problem for industry is that if revenues are used to increase domestic spending, the rise of prices and costs will force exporting industries out of business.

In Norway today we are seriously discussing whether industry may lose 20-30% of its labor force during the 80s. Should this come true, we may well ask if we can keep up an industrial oil sector at all!

CONCLUDING REMARKS

The markets created by the investments on the Norwegian Continental Shelf have given Norwegian industry new fields for business opportunities and new incentives for growth.

The markets have created niches well suited for small and medium companies.

Our advantage has been the existing industrial and technological basis of our manufacturing industry.

Our main problem will be to remain competitive in general—but specifically in view of rising costs and prices due to domestic spending of oil incomes.

Government policies have been designed to bring Norwegian industry into active commercial contacts with the new offshore markets.

Too little has, however, been done to pursue an active R&D policy in proportion with the technological challenge we face, and to expand educational capacity on all levels.