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# North Sea Finds and Power Supply

by Dr Detlev Rohwedder, Bonn \*

**Reports of new finds of hydrocarbon deposits have attracted increasing public interest in recent years. This is particularly true of the new natural gas and mineral oil discoveries in the North Sea which are reported by the press almost every week.**

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**T**he energy factor holds a key position in the economic development of every modern industrial state, and decisions bearing on the power supplies tend to become a cardinal task of economic policy. Availability of safe and adequate sources of power at favourable prices is an indispensable prerequisite of the continuing prosperity, economic growth and general progress of a country. It follows that a certain and adequate supply of energy carriers, on the one hand, and their procurement on competitive terms, on the other, must be the global objectives of the Federal Government's energy policy.

## Growing Demand for Energy

It must be anticipated that in the coming years the upsurge of demand for power supplies will continue at a vigorous pace, in part indeed by leaps and bounds, throughout the world. In the Federal Republic the consumption of primary energy can, in line with the dynamic growth of the economy, be expected to double by the mid-eighties. The trend in other industrial countries of Western Europe will be similar, without substantially altering the dominant position of mineral oils over the next 10–15 years. The dependence on energy imports will become more marked. The Federal Republic of Germany currently imports about 60 p.c. of its total energy requirements. In the case of mineral oils imports account for over 90 p.c. of the supply, and for natural gas the import quotient is rising strongly. This dependence on imports and the rapid expansion of the demand for energy are the key factors on which the energy policy must be based. Concern for safe and continuing sources of supply for the long term has become the cardinal energy problem.

For the countries of Western Europe, clamouring for power supplies and increasingly dependent on imports,—and in particular of course those bordering on the North Sea—the discovery and exploitation of the North Sea deposits “on their doorstep” offers a wonderful chance to widen, improve and safeguard their base of supply in the long term. Although Western Europe is far from attaining self-sufficiency in mineral oil and natural gas, the advantages to Europe of an energy reservoir in such a favourable geographical location need no elaboration.

## North Sea Reserves

Over a billion tons of mineral oil and 1,350 billion cubic metres of natural gas have so far been proved to lie below the North Sea. The North Sea thus accounts for a little over 1 p.c. of the world's known oil reserves and about 3 p.c. of its natural gas, even though no more than a start has yet been made on the exploration of the interesting fields to the east and west of the Shetland Islands and licence-holders in these areas are at this juncture reluctant to publish forecasts on the strength of their exploratory drilling results. The estimates concerning the oil and natural gas reserves in the North Sea have been the subject of continual upward revision over recent years. To give an example, BP currently puts the British sector reserves at twice the 1971 projection which was five times the 1970 estimate. The assessment for the Norwegian sector of the North Sea is now about nine times higher than a mere two years ago.

On the basis of the reserves so far known to exist some experts consider an annual output of

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about 50 mn tons of oil and 60–70 bn cubic metres of natural gas attainable. That admittedly would still be only a relatively small portion of the energy needs of Western Europe and the whole western world.

In the coming years the exploration work in the North Sea will be stepped up. All major groups in the world are directly or indirectly participating in the drilling operations. How much is expected is reflected by the large number—about 400—of companies which have joined consortia for North Sea prospecting and the large financial and technical effort on which they have embarked. The costs are exceptionally high. The expenditure on exploratory wells and the opening-up of fields for production is many times greater than it is in on-shore prospecting. Besides, the removal of the hydrocarbons, whether through underwater pipelines or by a fleet of tankers, necessitates very high investments.

Their high cost and great technical difficulties notwithstanding, the North Sea operations offer considerable advantages as a source of energy for Western Europe. They cannot possibly make Europe self-sufficient in power supplies, but they will make a contribution to diversification in regard to its sources of supply and thus lessen the risk of power disruptions.

#### **Transport Cost Advantages**

Even considering that it is impossible to quantify the political risk as a cost factor and that the producing costs for North Sea oil are many times higher than for on-shore oil in the Middle East, there are substantial advantages as regards the cost of transport. Quality is also in favour of the North Sea oil. It has a relatively low sulphur content, which is an environmental asset.

The North Sea finds are of importance for all consumer markets because every ton of crude oil and cubic metre of natural gas extracted from this area reduces the excess of demand over supply in the traditional energy markets of Western Europe. Their significance under the aspects of energy and structural policy however are bound to vary between the individual countries bordering on the North Sea in proportion to the hydrocarbon finds in their particular sections of the continental shelf.

Half the oil located so far and two thirds of the natural gas reserves are in the British sector of the continental shelf. The discoveries therefore give Great Britain increased security of long-term oil and gas supplies. To judge from forecasts

made, 50 p.c. of British oil consumption will be covered from the North Sea at the end of the seventies, and in addition it will be possible to substitute natural gas for other energy carriers. How much of the oil and gas extracted from the British sector of the continental shelf will be at the disposal of other countries depends on the results of further exploration of the British waters.

Of the Norwegian North Sea oil and gas, on the other hand, it can already be said with certainty that a large portion will be marketed in other countries. Discoveries in excess of the country's own requirements—even if a petrochemicals industry is set up—have already been made in the Norwegian sector of the continental shelf. The quantities so far established in the Danish sector can be fully disposed of in Denmark.

#### **The German Continental Shelf**

The exploration work in the German sector of the continental shelf have hitherto been without positive results. The division of the continental shelf among the various countries has meanwhile been revised by interstate negotiations with significant gains for the Federal Republic, and prospecting activities are now being resumed in the German sector of the North Sea. In the light of the geographical facts and the economic situation in the Federal Republic, Norway should be interested in disposing of a large part of the oil found in its sector on the German market.

It is to be hoped—and indeed certain—that Norway's decision not to join the EEC on January 1, 1973, will have no repercussions on the possibility of marketing oil and gas discovered in the Norwegian sector of the North Sea in the Federal Republic. The catch-phrase of "EEC inland sea" applied to the North Sea never meant that anybody but the state in whose sector of the continental shelf the hydrocarbons were found had a right to decide where they were to be sold. After the Norwegian decision it is in any case no longer of any validity. To what extent others can draw on North Sea finds will always be a matter for negotiation with the North Sea country in whose continental waters the oil or gas is produced.

To go by expert estimates, it will one day be possible to meet 15–20 p.c. of Western Europe's requirements from North Sea finds, whereas Western Europe currently obtains less than 4 p.c. from indigenous sources. Great significance therefore attaches to these discoveries from the point of power supplies because of the political stability of this producing area and the consequent lessening of the risk of supply disruptions.