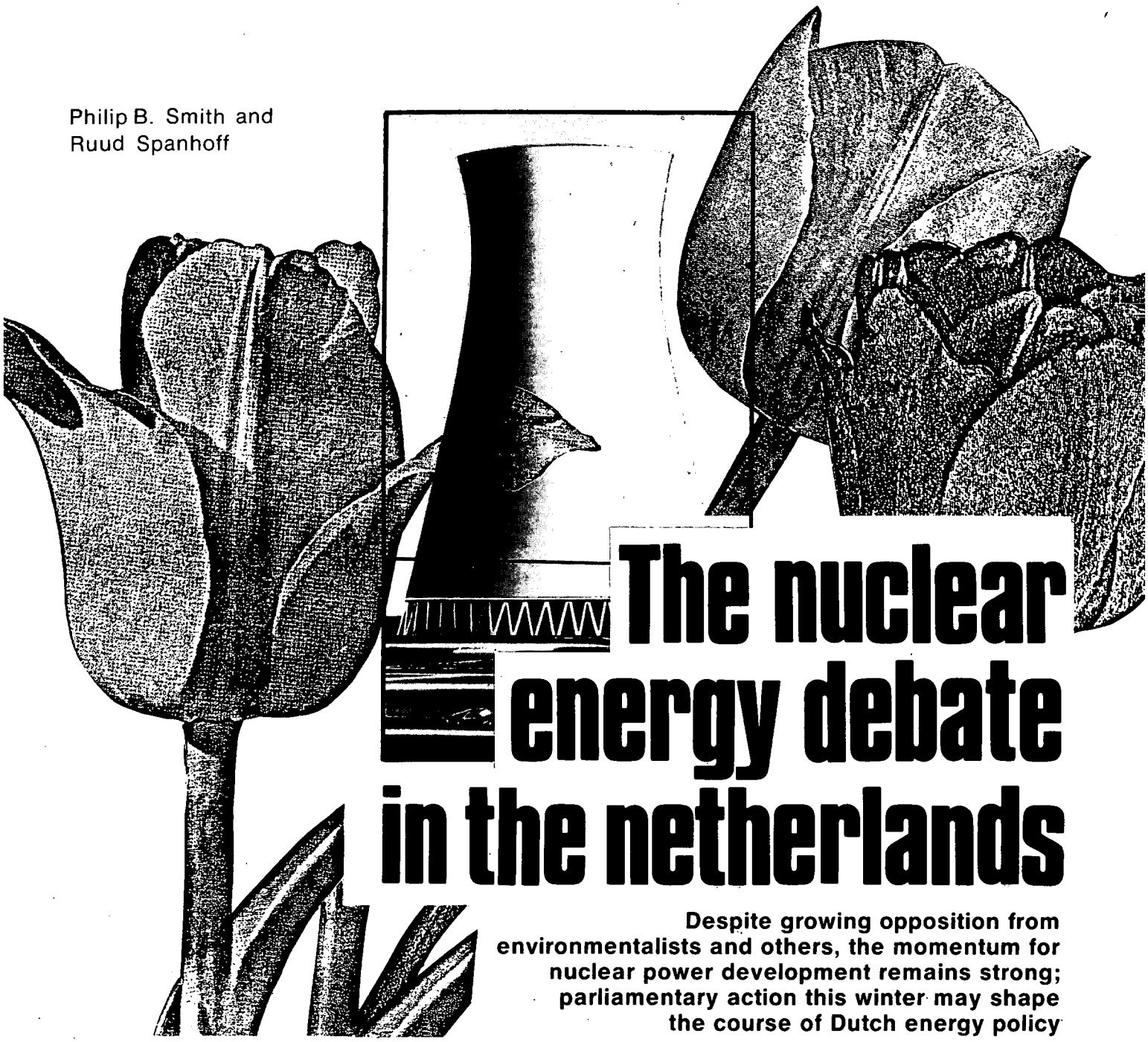
Philip B. Smith and
Ruud Spanhoff



The nuclear energy debate in the netherlands

Despite growing opposition from environmentalists and others, the momentum for nuclear power development remains strong; parliamentary action this winter may shape the course of Dutch energy policy

The 13.6 million inhabitants of the Netherlands consume approximately 6.5 kilowatts of primary energy sources per capita. Of this about 1.3 kilowatts go into the production of electricity with an average load factor (average electrical power produced/installed electrical power capacity) of 0.40. Of the installed capacity, 4.5 percent is nuclear. The major portion of the nuclear capacity is produced by the pressurized water reactor at Borssele in the southern coastal province of Zeeland that went on-line in 1973 and which has a nominal output of 477 megawatts of electrical energy (MWe). According to present plans, installed nuclear capacity will grow to 3,500 MWe by 1985, when it will amount to about 20 percent of the total installed capacity.

The object of this article is to give a general impression of the debate on nuclear energy that is now taking place, as well as to present useful background information on the energy problem in the Netherlands.

Proponents. In favor of the expansion of nuclear energy are the publicly-owned companies (provincial and municipal governments) that produce electricity in the Netherlands, which are combined in a central coordinating and planning organization (known as S.E.P.) that is responsible for a binding nine-year "electricity plan" for the construction of power plants; the representatives of industry; and the Ministry of

Philip B. Smith, an experimental physicist at the University of Groningen, is Secretary of the Dutch Pugwash Movement. Ruud Spanhoff is a graduate student in physics at the University of Groningen. This is another in a Bulletin *series on the nuclear debate around the world.*

Economic Affairs.

An important document, the "Energy Report," was presented to Parliament in the fall of 1974 by Rudi F. M. Lubbers, the Minister of Economic Affairs. In this report all aspects of the energy problem are treated, including patterns of growth in energy use, dependence on foreign sources, public (that is, government) control of utilities, and nuclear energy and alternative energy sources. The above mentioned expansion of nuclear electricity generating capacity is one of the cornerstones of the report.

Although there was considerable pressure on Parliament to place a moratorium of five years on further construction of nuclear plants, it resulted in a very minor restriction. Mr. Lubbers promised not to allow further construction of nuclear power plants to continue until the "doubts concerning the economic, environmental, and health aspects are removed by studies to be carried out by the ministries of Economic Affairs, Public Health and Environment, and Social Welfare and Employment."

These reports, which were completed during the summer and fall of 1975, give a green light for the execution of the plans for the expansion of nuclear power. The final authority to proceed, however, must still be given by the Parliament this winter. And it appears that a growing body of expert opinion testifying to the inadequacy of the reports may place some weight on the scale. The reports by the various ministries make uncritical use of the draft version of the U.S. Atomic Energy Commission's 1974 Reactor Safety Study (the Rasmussen report), despite the fact that the reviews of the American Physical Society and the Union of Concerned Scientists were available. So serious shortcomings are easy to find.

The built-in supposition that the reports of the ministries would be favorable, and that the decision to build the three new reactors has already been made, probably means that a cabinet crisis would ensue *if* Parliament decided not to give its final approval to proceed. The virtual impossibility of forming a new coalition, however, provides a strong motive for not carrying things that far.

Opponents. Among the ranks of those who are against nuclear energy, one sees the same array of individuals and groups as in other industrialized countries: a small group of natural, life, and social scientists, numerous public action groups, groups of doctors in various parts of the country, and about one-third of the public. This last figure, taken from a public opinion poll in mid-1975, provides a disconcerting perspective when one observes that the poll further reveals that 45 percent of the public has either never heard of nuclear energy or is not interested in whether nuclear plants are built or not.

An interesting newcomer to the ranks of opponents of nuclear power is the central organ of the three largest labor unions. This organ presented an "alternative" energy report (alternative, that is, to the report of Mr. Lubbers). Their report summarily dispels the myth that energy policy can be sensibly discussed separately from the political and social context in which it occurs. A key statement is the following:

> The question must be asked what the significance is of the gigantic investments the oil companies (at the cost of the community) are making in uranium mining and nuclear energy. Is this the best possible expenditure to ensure cheap and safe energy production in the future, or is it a means by which the oil companies and industry can maintain their present power and extend it so as to neutralize the growing power of the OPEC? As long as the community has no control on these investments it would be premature to assume the first.

This kind of statement from a coordinating office, however, has little effect at the grass roots. In fact, the Protestant Labor Unions have issued another statement considerably undermining the effect of the "alternative" energy report.

Several ministers in the coalition government, notably Mr. Fokele H. P. Trip of Science Policy and Ms. Irene Vorrink of Environment, are more or less opposed to the expansion of nuclear power. More important than this, many leading members of the largest political party, Labor, are strongly opposed to nuclear power. This fact offers the opponents of nuclear power little comfort, however, since Labor could not hold the coalition together if cabinet support were to be withdrawn from Mr. Lubbers (a member of the Catholic People's Party which is the second largest party in the coalition).

The conclusion which may be drawn from the above is that unless something unexpected turns up, there is little reason to expect that Parliament will further delay the plans to build the three 1,000-MWe nuclear power plants.

Patterns of Growth

A simple calculation on the basis of present trends leads to the conclusion that in 1985 the total energy production in the Netherlands will be $2^1/_2$ times what it is now. In the energy report presented to Parliament it is recognized that this is not a realistic assumption, considering the worldwide trend toward growing energy scarcity. Furthermore the foreseeable termination of a favorable situation in the Netherlands—arising from the enormous natural gas fields in the northeastern province of Groningen—leads to a prediction of further reduction in growth. That is, in order to safeguard the country's future and to conserve a nonrenewable primary energy source, the energy report states that the present accelerated depletion of these gas fields will have to be stopped. And this will lead to a greater dependence on foreign oil.

The government's central planning bureau has carried out a study in which only these "natural" trends are taken into account. This study predicts a deceleration of the present growth rate of 8 percent per year to 5.3 percent up to 1980, and 4.2 percent up to 1985. Under these assumptions energy production in 1985 would still be 62 percent higher than it is now, and not less than 68 percent of this demand would have to be met by foreign oil. These more realistic figures led the Ministry of Economic Affairs to propose a policy of reduction of the growth of energy production, strengthened by a series of measures which hopefully

The rationality of selling a high quality energy source (natural gas) and relying for supply on uncertain foreign sources (oil and uranium) is open to question.

would put some teeth in the policy and provide a reduction in Dutch dependence on foreign oil.

An eight-point program resulted from these considerations. In summary, these points comprise an extensive reduction both in industrial and household use of energy; a shift to diesel-powered automobiles and heavy taxes on large gasoline engines; an increase in the use of coal*; new regulations leading to improved insulation of houses; lowering of temperatures in houses; and construction of the three 1,000-MWe nuclear power plants.

The upshot of all of this would be a reduction in the growth percentages of energy use to 4.5 percent per year until 1980, and 2.2 percent per year thereafter. Dependence on foreign oil will still, however, amount to 60 percent in 1985, compared to the figure of 68 percent mentioned above, predicted on the basis of unchanged policy.

The above picture of a country striving to reduce its dependence on foreign energy sources takes on a completely different perspective if one compares the total energy *used* in the Netherlands with the total amount *produced* (that is, natural gas). At present, for example, more energy is produced in the Netherlands than is used, since large amounts of natural gas are exported to other European countries. Even in 1985, under unchanged policy, the country would still be producing 63 percent of the energy it used; but exporting most of its gas and importing all of its oil. If Mr. Lubbers' new energy policy is successful this figure would be 73 percent (mostly because of energy conserving measures).

It is, of course, not presently possible to power the transportation industry with natural gas, and the gas fields in Groningen will be exhausted by the year 2000 anyway. Nonetheless the rationality of a policy of selling a high quality energy source and relying for supply on uncertain foreign sources (oil and uranium) is open to question. Recent calculations of a member of the Dutch Pugwash group, Jan Kommandeur, indicate that if Holland were *now* to level off at the present energy consumption rates, Holland (and the rest of Europe) would be almost self-supporting at least in the 1980s *without any nuclear energy at all*—due to exploitation of the North Sea oil and natural gas fields. This would appear to be a more realistic approach to the energy problem.

Electric power is produced in the Netherlands by 14 publicly-owned companies combined, as mentioned above, in the S.E.P. The owners are the provincial and (in the case of the largest cities) municipal governments. In practice the effect of this public ownership has been nil. The "electricity plan," for example, is subject to no one's approval. A change may be in the offing, which is indicated by two developments.

First, the provincial parliament of South Holland and the municipal council of Rotterdam—the largest city of the province and, incidentally, the largest port in Europe—have rejected the S.E.P. electricity plan as far as the building of nuclear reactors is concerned. The plan assumes that at least one of the new nuclear plants will be built in this enormously congested region, and the Labor Party (with a large majority in the province) wants none of this. Furthermore, the municipality of Rotterdam was not only in favor of a five-year moratorium on all nuclear plants, but has refused to go along with plans of the S.E.P. to participate in the construction of two fast breeder reactors in France and Germany and to buy large quantities of uranium ore to achieve some measure of independence from supply.

It is not clear what the consequences of this development will be. As powerful as South Holland may be, there seems to be little direct possibility of influencing the policy of the S.E.P. If the stockholders (that is, the other provinces and municipalities) of the other 13 companies support the S.E.P. plan, the refusal of South Holland to go along will have no effect.

The second development is that Mr. Lubbers' energy report states unequivocally (if very politely) that the electricity plan of the S.E.P. should be subject to a review by his ministry, which means, in the end, some measure of actual control by Parliament. Furthermore, the minister considers it essential that the production of electric power by *nuclear energy* should not only be completely controlled by the state but must even be placed under a state monopoly.

Alternative Energy Sources

One of the most serious shortcomings of the energy report is that social, ecological, and political factors receive only a token treatment. The depth with which such factors are treated is exemplified by the built-in assumption that it is wrong and dangerous to depend on foreign oil but right and safe to depend on foreign uranium. The U.S. export embargo last year on enriched uranium may be causing second thoughts, although the Dutch, German, and English centrifuge project may solve this problem in time.

A second shortcoming is that possible alternatives for energy production are treated rather scornfully, whereas the possible, probably, and even empirically certain disadvantages of nuclear power are essentially ignored. That very strong influences played a part in producing this distorted picture is suggested by the fact that the first version of the energy report prepared by the ministry

*In 1950, solid energy sources provided 80 percent of the primary energy in the Netherlands. The extensive closing down of coal mines, which could not compete with the low oil prices of the 1960s, has reduced to negligible proportions the present use of coal in the country.

(which leaked out)—though arriving ultimately at the same conclusions as the final report—treated the real, objective dangers and disadvantages of nuclear energy in an adult manner. Apparently it was decided at a higher level that such an adult treatment would have a deleterious effect on "doubt removal," and that these things should be left unsaid.

As far as concrete measures go to develop alternatives to nuclear energy Mr. Lubbers has proposed setting up a coordinating research agency, the Netherland Energy Development Company, which can contract with various institutions to perform applied energy research.

Rising costs finally made the whole question of the viability of the Kalker fast-breeder project so uncertain that the Dutch government decided to terminate its support.

Fast-Breeder Politics

Much of the public's interest in nuclear energy has been concentrated on a project called SNR-300. The SNR-300 is a liquid-sodium-cooled 300-megawatt prototype breeder reactor being constructed in a joint German, Dutch, Belgian project in the German town of Kalkar not far from the Dutch border. One reason for this excessive interest is that the government was forced to resort to an unusual form of financing in order to pay for the Netherlands' share of the project. As is being experienced elsewhere, the only thing which seems to be able to grow exponentially forever is the cost of a breeder reactor.

A 3 percent levy was placed on electric bills in the Netherlands in July of 1973 for the specific purpose of financing the breeder reactor. This had the result of bringing forcibly home to everyone that the breeder was being financed also by those who felt that they and their children would be brought into danger in the event that faulty operation of the breeder or accidents with radioactive waste should contaminate the environment or diversion of plutonium should lead to the end of our civilization. In point of fact the difference between this form of financing and the usual method of simply paying for government projects from general taxation funds is marginal. Nonetheless, opposition crystallized around the "Kalkar tax."

The struggle has been particularly bitter. A young physicist in Groningen refused to pay the tax (he paid his electricity bill, minus the 3 percent). After some time he was cut off from electricity. This was particularly unpleasant as it was in the winter and the central heating in his house needed electricity to operate. A lower court ruled that since he did pay for the electricity the company had no right cutting him off. However, the issue was much deeper since the question of freedom of conscience was involved. With the financial help of many friends the case finally landed in the Supreme Court where he clearly fought it out on the issue of conscience—and lost.

Mr. Lubbers apparently realized that there might be dire consequences if such actions of defiance were to snowball, and he made a timely decision (and also a very interesting precedent) that if anyone had a conscientious objection to supporting the Kalkar project and signed an oath to this effect, the 3 percent tax would go into a special fund for the development of alternative energy sources.

More than 70 municipalities declared that they would refuse to hand over the 3 percent collected on electricity bills to Mr. Lubbers if the money goes to the Kalkar project. The world famous Institute of Technology at Delft stated the same about its (not inconsiderable) 3 percent. A later ruling, however, made it clear that the regulation of Mr. Lubbers was never intended to do more than placate a few cranks, since only consciences belonging to persons are eligible for consideration.

In the meanwhile the Kalkar project itself is becoming a small disaster. When questioned by Hannes Alfvén, during the 1974 Pugwash conference in Baden, Austria, the ex-project leader of Kalkar, Wolf Hafele, acknowledged that in fact the SNR-300 cannot breed at all, since the breeding factor is less than 1. This is in marked contrast to a brochure prepared by the S.E.P. and delivered door-to-door to millions of homes in the Netherlands. The brochure, which was intended to "inform" the Dutch public about the Kalkar project, states unequivocally that the SNR-300 *is* a breeder reactor and that breeder reactors have breeding factors between 1.3 and 1.4.

Exactly how much is or was known at the governmental level about this discrepancy is not clear. However, rising costs finally made the whole question of the viability of the Kalkar project so uncertain that the Dutch government recently decided to terminate its support for the project.

In summary. Now that the Netherlands have withdrawn, the outcome of the debate on the continuation of the Kalkar project is uncertain. The German government at Bonn, now bearing almost the entire cost, is also getting uneasy. Those closely involved in the struggle realize that it is a crucial issue. Once a "breeder economy" is started, for political reasons alone, there can be no turning back. As long as enriched uranium is used for fuel in the light water reactors the possibility exists of phasing out nuclear power in another generation. It is clear that this will be a year of infighting. But it is also clear that whichever side loses this round, they will come out fighting at the next opportunity. □