THE PRIME MINISTER

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ENERGY POLICY

The debate on energy that has taken place in the past few years has displayed a breadth and an intensity with few counterparts in our public life. Reports on various aspects have been presented by a series of Parliamentary Commissions. The comments received from the organizations and authorities to which these reports have been circulated have been extremely detailed and highly comprehensive. The state Energy Committee has held public hearings which have been attended by representatives of widely varying convictions, and there has been an intense debate in the mass media and in political bodies.

The most important new departure has been the study circles on energy policy organized by the voluntary adult education associations. Tens of thousands of people have gathered evening after evening to study and give their opinions on a public issue which is extraordinarily complex but at the same time will fundamentally influence our future development. We expected a great deal of these activities, but our expectations have been surpassed by actual events, both as regards the numbers taking part in the study circles and also as regards the involvement and breadth of the opinions put forward. I would like to express my boundless admiration for the work that has been done in these discussion groups.

Energy is one of the means whereby we hope to achieve the course of social development we desire. Energy is a resource that will make it easier to achieve our social targets. In order to control its own future, mankind must control technological development and channel that development in directions conducive to the protection and improvement of the social environment and the enhancement of public wellbeing. It is one of the inescapable tasks of a democratic society to evaluate, control and stimulate technological development on these terms. Energy, therefore, is not the exclusive concern of technologists and experts. It concerns each individual citizen and his or her hopes and prospects for the future. This is why we made such a point of making energy the subject of a deep-rooted debate among the general public. The response to these activities shows that we have to

a great extent been successful. People have made it clear that they want to play a part in shaping the developments which will have such a profound influence on their lives.

This has made it an important consideration of principle for the Government and Riksdag to defer their decisions concerning energy policy until these discussions have been completed and fully reported.

The discussions which have just been described by Sten Andersson involved 44,000 people. Answers have been received from 3,846 groups. We have been kept regularly informed of the views expressed. When the Government met some time ago to draw up the main contours of the Energy Bill, the final results of these discussions were at its disposal. I would like straight away to emphasize that the viewpoints expressed by the discussion groups were given a considerable amount of weight in our own discussions. Naturally the discussion groups reflected a variety of viewpoints and opinions. Nonetheless in their replies one can discern a number of clear points of policy which are firmly rooted among those who have studied these problems and which have been a source of guidance to us as well.

The Government will be putting its Energy Bill to the Riksdag in mid-March. Work on the drafting of this Bill is now in full swing, and the details have not yet been finally discussed in the Government. Before embarking on this final discussion, we have preferred to present the guiding principles of our energy policy to the supreme decision making authority of the Social Democratic Labour Party - the Executive Committee - together with some of the specific decisions which we feel will have to be made. If these guiding principles are approved by the Executive Committee, the Bill will be drafted and presented to the Riksdag in the usual way.

By way of introduction, I would like to say a few words concerning the current energy situation and the reason why deliberate economization measures have become more and more necessary.

So long as energy supplies remained a local concern, there was hardly any need for overall planning. Draught animals, windmills and water-wheels provided the motive power that was needed. The forests gave firewood for heating, and converted into charcoal this constituted for many centuries the foundation of a flourishing mining industry based on the ores of central Sweden.

The Industrial Revolution changed all this. Coal began to be used and we began to grow dependent on other countries. Hydro-electric power schemes were started, partly with a view to reducing coal imports, giving rise to the expression "the white coal of Sweden". These hydro-electric projects were speeded up during the blockades of the last war.

A new stage of development followed the end of the war, with the advent of oil. Starting at practically nil, oil came to account for 40 per cent of our entire energy consumption in 1950, while today it accounts for just over 70 per cent. Directly or indirectly, the overwhelming proportion of our oil is imported from the troubled areas in and around the Middle East. Only a further acceleration of hydro-electric development could - to a limited extent - restrain the rise in our oil consumption, and so as early as the 1950s we began to explore the peaceful use of atomic energy with a view to reducing our dependence on oil.

Energy consumption has risen fast. During the 1960s it rose by more than 4.5 per cent annually. In 1939 we were using about 130 TWH a year. We are now well past 400 TWH. Consumption has more than tripled in a quarter of a century. Its distribution between various main sectors has remained more or less constant. Industry uses over two-fifths, communications barely one-fifth, while housing and other consumption account for a further two-fifths. This development was encouraged by the availability of cheap oil: it was not until prices went up last winter that oil caught up with the post-war rise in commodity prices in the western world as a whole and in Sweden. Naturally there was also a great deal of wastage of this - relatively - inexpensive source of energy.

We should not forget, however, that the availability of energy has been a vital ingredient in the great transformation undergone by Swedish society. Social critics often point out the negative consequences, and in this way they do us a service.

But those who can remember the years of mass unemployment know that the exploitation of electrical power generated hopes of expansion and employment and that these hopes were fulfilled.

It can hardly be a coincidence that the discussion groups in thinly populated areas take the most expansive view of our energy requirements. No doubt they recall the way in which their living conditions were improved by the electrification of the countryside.

In 25 years we have built two million homes with modern equipment and efficient heating, and we have modernized a great many more besides. We have acquired appliances to take the drudgery out of domestic work, and we have invested in schools, hospitals and transport.

The plain truth is that energy has been one of the principal means whereby the living standards of ordinary wage-earners, pensioners, the sick and the handicapped have been improved and social standards raised generally.

There is particular reason to emphasize this now that we are confronted by a new situation. The time is past when increasing supplies of inexpensive energy could be more or less taken for granted. Wastefulness and the cult of the non-returnable product are no longer feasible. The implications of this new situation are certainly not wholly negative.

But there are no simple solutions at hand now that we must economize more strictly. There are bound to be strains and difficulties.

And we will have to gather our strength. We must show ourselves capable of achieving "planned resource management under popular control", to quote the draft Party Programme.

The need for planning first became apparent in connection with electricity supply. The long period of expansion involved by power station projects, the national grid system and the vital importance of reliable supplies made long-term planning inevitable. The rising importance of oil as a source of energy and the crises affecting the international oil market have made it necessary for society to assume greater responsibility for this sector. Energy consumption has now attained such proportions that an integral approach to the entire range of problems involved - including the level and direction of consumption - is becoming more and more necessary.

At the same time, energy planning must be co-ordinated with other aspects of social planning, above all with the long-term planning of employment and of industrial policy. But energy management is also closely bound up with regional policy and with the management of land, water and other natural resources. It is becoming more and more absurd for the determination of energy supplies to be relinquished to the mechanisms of the market economy. This would entail serious dangers to employment and prosperity. Properly thought out and carefully executed management of our energy resources will be of the greatest importance in

increasing our prosperity and in preserving and developing opportunities of meaningful employment for all.

Energy supply has an important bearing on the preservation of our national independence and on our ability to develop our country. At the same time, however, we form part of an international context of management, and in this sector too we are profoundly dependent on international developments. Outside this country, the unleashed forces of the economy play a more ruthless part than in Sweden, resulting in great inequalities of wealth and in direct starvation and poverty. The contest for raw materials is liable to produce serious conflicts between nations and between rival economic interests and is therefore a threat to peace and security. The poor countries are greatly justified in pointing to the unequal and unfair allocation of the use of world resources when they demand a new economic world order. At the same time we are realizing more and more that there are certain limits to the extent to which we can exploit natural assets and burden the environment. Many raw materials, particularly fossil fuels in the present context, are not renewable. In a very long-term perspective, the carbon monoxide emissions resulting from the combustion of coal, oil and gas may affect the climate, which in turn could have unthinkable effects on the conditions of human life.

If we want to establish a more equitable management of the world's resources coupled with measures to safeguard the environment, we must begin at home. International considerations must be included when we determine our level of consumption and the distribution of energy production between different sources of energy. Considerations of this kind will also entail our participation to the best of our ability in international co-operation. I shall be returning to this point by way of conclusion. But before going any further, I would like to say how gratifying it is to note the great emphasis which the discussion groups have placed in their assessments upon the international perspective. This means that they have greatly emphasized our duty of relating our energy planning to a context of international solidarity and partnership.

International partnership must to a very great extent be concerned with our own area of Europe. The Nordic countries have long-standing traditions to draw on regarding co-operation in the energy sector, especially electrical power. We now have great opportunities of broadening this co-operation, starting with

the large deposits of oil and gas that have been discovered in the territorial waters of the Nordic countries, and of developing it into industrial co-operation on a broad basis.

Planning is bound to involve a variety of chronological perspectives. We must try to solve the problems confronting us here and now, within the next very few years. We must be prepared to cope with, say, interruptions of our oil supplies or other unforeseen events. I need only recall the disruptions caused by the Suez crisis of 1956, the Seven Days' War of 1967 and the fuel crisis last winter. At the same time, we must be on our guard against effects that may influence the ability of coming generations to shape the society they live in or which may have climatic and environmental consequences on a very long-term basis. The futurological study we have started concerning energy may play an important part by shedding light on the relations between energy systems, social planning and the international scene in a variety of long-term alternatives.

This planning is an extremely difficult task. It is an illusion to suppose that problems can be solved merely by demanding planning or that planning can furnish definitive solutions. The factors of uncertainty are many and great. Short-term decisions must therefore also include measures providing alternatives for long-term policy.

Our knowledge and our ability to judge the development of the world's oil supplies are both limited. Crude oil prices, interruptions of supplies and other disruptions are all difficult to foresee, and the potentialities of nuclear power as a source of energy, its operating characteristics, and the attendant problems of waste and safety are also uncertain factors. The technical and economic feasibility of alternative sources of power such as solar energy, wind energy and geothermic energy are highly uncertain today. It will be the task of research and development, particularly as regards alternative sources of energy, to reduce this element of uncertainty.

I have already observed that the shaping of society and, with it, the organization of our energy supplies must above all be governed by social content, by the future chosen by people themselves. But our ideas concerning the shape of society by the beginning of the next century - with regard to such matters as the volume

and nature of production, the design of our living environment and our patterns of life - are in many respects unclear. Nor should we take it upon ourselves to dictate the way of life of future generations. To save those generations from becoming the prisoners of an energy system, energy planning must be aimed at preserving a wide range of alternative courses of action.

Of course, this involves a dilemma which we should not attempt to ignore. It is impossible to preserve more or less complete freedom of action pending future decisions, for we would then be unable to deal with more immediate problems which demand a solution. In other words, freedom of action would be tantamount to paralysis. We are forced to take decisions which to a certain extent will involve future commitments. But at the same time we will try to frame those decisions in such a way as to leave the door open to a free choice in future decision making situations as well.

Seen against this background, the purpose of energy management can be summarized as follows.
Firstly. It should contribute towards the realization of the social objectives of work for all, fair allocation, greater prosperity and security.
Secondly. It should help to safeguard our national independence.
Thirdly. It should be conducive to wider international co-operation with a view to safeguarding peace, protecting the environment and achieving an equalization of the living conditions of people in all parts of the world.

Seen in these terms, energy policy should be aimed at decelerating the growth of our energy consumption, guaranteeing our short-term and long-term energy supplies and creating freedom of action with a view to subsequent decision making situations.

Energy planning should focus on the next 10 or 15 years. We have taken 1985 as the focal point of medium-term planning. It is important for more long-term issues also to be taken into account in this context. Planning should be conducted in such a way as to facilitate the continuous adjustment of policy measures to improved knowledge, changing values and new development tendencies. This will mean continuous energy planning with recurrent new planned decision making situations.

DECELERATING THE GROWTH OF CONSUMPTION

The first cornerstone of Swedish energy policy must be a concerted effort to restrain consumption. The arguments in favour of such restraint are obvious: limited supplies, costs, the destruction of environment, considerations of international solidarity, and a wider ranger of choice for the future.

But how far can we go in our restraint without seriously jeopardizing major social values?

A great deal of research material is available on this point, both from Swedish and from international studies, and this material has been studied at great length by the discussion groups. The discussion groups do not believe in a sudden reduction or an immediate curtailment of growth at some future date. On the other hand a definite majority believe in the viability of a more moderate growth rate than hitherto, and there is a great deal of support for the idea of energy consumption eventually being kept at a constant level. Employment is the main argument put forward in favour of permitting a certain continued growth of energy consumption, and this is fully in accord with the traditions of the labour movement.

We are of the same opinion. We are convinced that we can aim high where the management of energy resources is concerned. The studies which have been carried out have revealed great potentital savings, above all perhaps with regard to heating, both in housing and in industry. We also believe that people are prepared to make certain sacrifices in order to achieve this target. We must prepared for changes in our living habits and patterns of consumption, changes which need not by any means be changes for the worst. Greater sympathy for the poor peoples of the world is leading many people to regard changes of this kind as a self-evident act of international solidarity. Efforts in this direction will be further promoted by such tendencies of social development as the relative growth of the service sector. We must be prepared to restrain certain consumer expectations, make more use of public transport and invest more in such services as hospitals, the care of the aged and child care.

But there is a limit. Energy policy must not stand in the way of our principal social objectives of employment for all, security, social equalization and a healthy working environment. The labour movement must always safeguard employment. We must prosecute an energy policy which can provide the foundations of continued industrial growth in this country. Drastic changes of energy policy giving rise to major disruptions of important social functions can only lead to social unrest and vehement counter-reactions.

The EEC has recommended the reduction by its member countries of their growth rate up to and including 1985 from the four per cent estimated previously to three per cent. We would like to set a bolder target. We wish to give serious consideration to the possibility of going down from the approximately 4.5 per cent per annum which has been the average growth rate of the past 15 years to an average of 2 per cent between 1973 and 1985. We also wish to give serious consideration to the possibility of energy growth being levelled out by about 1990, i.e. of establishing a constant level in the energy sector.

In this context I would like to emphasize a fundamental fact. Demand for electrical power has all the time been rising faster than total energy output, above all because electricity plays an important part in industrial processes of mechanization and rationalization and because it is a handy and clean source of energy in our homes. The development of oil prices can hardly be expected to reinforce this tendency. Thus a 2 per cent rise in total energy consumption can mean a very slight increase in the consumption of oil as a fuel and a relatively fast increase in electrical power.

This is aiming very high, and a great deal of effort will be required in order for us to succeed. We feel that we can safely venture this far without jeopardizing employment and other important targets of national wellbeing. Experience will show whether this focal point of planning is in need of revision. The realization of this aim will demand a purposeful and comprehensive economization programme. As far as the next few years are concerned, this programme will comprise the following main points.

1. The loans and grants which have already begun to be distributed for more efficient domestic and industrial heating should be continued.

2. Greater local and regional planning and co-ordination of energy supplies will make for more efficient utilization. Legislation concerning municipal energy planning is being drafted.

3. Amendments are being made to the Building Statute in order to limit heat consumption in new buildings.

4. New industrial ventures involving high energy consumption will be made subject to official approval, following an addition to Section 136 a of the Building Act.

5. Measures are being planned for the encouragement of processes that are more economical of energy in those of our industries which consume most energy, namely the iron and steel industry and the forest products industries, which togehter account for more than 60 per cent of industrial energy consumption.

6, Increases have been proposed in energy taxation.

7. Various expert groups and authorities will be commissioned to undertake a systematic review of all major energy consuming sectors of society in order to consider various proposed measures of economization.

8. The economization programme also includes the allocation of considerable resources to research and development. Special priority should here be given to research and development aimed at the more economical and more efficient utilization of energy.The heaviest increase and the fastest gains will come in this sector.

Rune Johansson will be discussing this matters in greater detail later on.

In the course of the energy debate during the past year, there has been a great deal of talk on the subject of alternative sources of energy. This is an important topic. The world must economize more on its fossil fuels, and many people are sceptical of a massive commitment to nuclear power. We must search for new sources of energy. I am alluding to hydrogen power, that great but as yet uncertain promise of the future. I am also alluding to solar and wind energy, which are constantly being replenished, and to geothermic energy. The time will come when we need these resources.

Before we can use them on any considerable scale, however, a great deal of research and development remains to be done. The plan is for a considerable proportion of our research and development programmes to be applied to research into alternative sources of energy. A great deal of this research should be done on an international basis, because it requires a lot of capital and technological know-how and also because it will take time.

It took 30 years for nuclear power to achieve its commercial breakthrough, and even today it holds a very modest share of the world market - less than one per cent. We cannot expect to derive any significant help from the development of, say, solar power, wind power and geothermic power before 1990, while fusion power, if it becomes possible, is unlikely to materialize before the turn of the century. To imagine otherwise would be deceiving ourselves. I think it is important to stress this point, so as to prevent people from unnecessarily talking at cross purposes in the energy debate.

To avoid misunderstandings, I would like to add that loca contributions are also valuable, and we have every reason to encourage development work in this direction as well.

In order to attain our social objectives of employment for all and greater national prosperity, while seeking to economize on energy, it is important for us to encourage and support interdisciplinary initiatives aimed at combining social research with economic and technological development work.

AN ACTIVE OIL POLICY

The second cornerstone of Swedish energy policy is an active oil policy.

The great mahority of countries are seeking ways and means of reducing their one-sided dependence on oil as a source of energy. Sweden must do the same, for a number of compelling reasons.

In times of international unrest and during international crises, dependence on oil can constitute a threat to our national independence and our policy of neutrality.

The combustion of oil is destructive of the environment and entails health hazards due to the production of sulphur dioxide and heavy metals. Over a longer perspective of time, the carbon dioxide generated by the combustion of oil may result in climatic changes which could become a serious threat to the conditions of our existence.

The affluent countries are rapidly consuming a natural asset which cannot be replenished. For reasons of international fairness, this asset should be made more readily available to the poorer countries and should be used for important industrial purposes instead of being burned.

The cost of oil imports is a great burden on our balance of payments. I would remind you that last year's price increases raised our oil bill by Skr 8,000 million in a single year, transforming a sizeable surplus in our balance of payments into a sizeable deficit.

It is nonetheless clear that, for the remainder of this century, oil will continue, at least in terms of sheer quantity, to be our most important raw material for the production of energy, whatever the line we take concerning nuclear power. What we can aim to do is gradually to reduce the importance of oil and improve the security of our supplies of energy.

Our efforts to achieve this greater security of supplies and to safeguard our national independence must follow three main lines of policy.

The first of these I have already referred to, namely energy saving and investment in native sources of energy which in the long run may possibly replace part of our oil imports.

The second line of policy is to reduce the risks inherent in one-sided dependence on oil by increasing our imports of other fossil fuels - coal and natural gas.

Our expectation is that the declining curve of coal imports will be reversed and that imports will be more than doubled by 1985. This is above all connected with the steel industry, more particularly with the expansion of Steelmill 80 (Stålverk 80) and the Swedish production of coke in Luleå. But in other connections too we should be prepared for a certain increase, though at the same time we must be cautious in view of the great environmental problems entailed by the combustion of coal.

Natural gas would above all replace heavy fuel oils and, later on, light oils as well. Natural gas contains practically no sulphur and is environmentally preferable for this and other reasons.

Our negotiations for the import of natural gas have not yet had any positive results, and no significant imports are likely before 1985.

Thus our ability to replace oil with other fossil fuels is limited for the time being to a certain increase in our use of coal.

The third line of policy is by various means to increase the security of our oil supplies and to achieve greater national control of those supplies.

Integrated oil policy under public control should comprise:

* Increased storage of oil
* More oil and gas prospecting in our own territory and in areas of international interest
* Part-ownership of known oil and gas deposits
* The development of our bilateral agreements with oil exporting countries
* The formation of state oil corporations to trade in crude oil and petroleum products
* State participation in the refinery industry in this country.

I feel that the responsibility which society is bound to assume for energy supplies calls for the vigorous participation of the state in these sectors. This integrated oil management involving public participation is the second cornerstone of an active Swedish oil policy.

Rune Johansson will be giving further details later on concerning the whole of this topic.

SAFEGUARDING OUR POWER SUPPLIES

The third cornerstone of energy policy is to cater for our electrical power requirements. As I said earlier on, even with a strictly limited rise in total energy, demand for electricity will rise faster in relative terms. At the present stage of technology, there are three possible ways of catering for electricity demand: the expansion of hydro-electric power resources, the expansion of oil or coal-based power production and the expansion of nuclear power. As I said, the acceleration of our hydro-electric power development during the 1950s and 1960s played a vital part in transforming Sweden into a modern industrial nation and welfare state. On the other hand it had only a marginal effect on the rise in oil imports.

Today we have approximately 61 TWH hydro-electric power either developed or in the process of development. Our total economically viable hydro-electric potential is commonly estimated at 95 TWH. The remaining 34 TWH include developments that would damage what is unanimously regarded as invaluable natural scenery. This alone implies restrictions. The same 34 TWH also include the great rivers of northern Sweden, the development of which has been opposed in a statement by the

Riksdag. This too implies restrictions. The discussion groups are overwhelmingly in favour of the expansion of hydro-electric power, but the question of expanding those development schemes which are the subject of seriously conflicting interests should be deferred, because the preliminary investigations are far from complete. As I shall be explaining shortly, 1978 may be a suitable point at which to consider more controversial issues of this kind. We therefore assume that, for the period ending in 1985, a hydro-electric increment of approximately 5 TWH will be possible, bringing the total up to about 66 TWH. Most of this increment will come from additions to existing development and from the development of a number of minor rivers.

Given the anticipated increase in demand, one is therefore bound to consider a further expansion of fossil-based electrical power or of nuclear power during the next few years.

Today we have a total output of some 5,000 megawatts in the form of oil-based electricity- condensation and counterpressure. Further expansion of oil-based condensation power can only come into question if all other expansion possibilities are excluded and if our needs cannot be sufficiently reduced. The reasons for this are the high cost of condensation power, the serious effects that a stoppage supplies would have on the whole of our power system, and the environmental consequences.

Coal-based condensation suffers from essentially the same weaknesses as its oil-based counterpart. Oil-based counterpressure power is preferable to condensation power, and it also has the great advantage of utilizing the energy content of oil roughly twice as efficiently as condensation power, since the hot water which it generates can be used for domestic heating. Plans have been made for the development of between 1,000 and 1,500 MW over the next ten years. This could provide between 4 and 6 TWh.

In the shadow of the fuel crisis, all the industrial nations sought to establish an active energy policy by means of actions affecting both the supply and the use of energy. Countries which are technologically advanced in this sector have invariably gone in for a considerable acceleration of their nuclear power programmes. An OECD study of energy questions published in January this year predicts that the nuclear power development

of the OECD countries will multiply more than ten times over eetween 1975 and 1990, rising from 80,000 MW to virtually a million. This is termed a basic plan. Investigations are also being made of the feasibility of accelerating nuclear development to give up to 1.3 million MW by 1990, but resources of capital and qualified technical personnel are expected to be two major bottlenecks here. For a long time now a major expansion of nuclear power has also been in progress in the USSR.

It might seem only natural for Sweden now to follow the example of so many other countries by going in for a long-term acceleration of her nuclear development programme. Unlike the countries I have just referred to, we have no domestic deposits of fossil fuels - at least, not yet. We are finding it difficult to create a market for natural gas in this country. We have no large reserves of hydro-electric power that could cater for rising electricity demand for any considerable period to come. But on the other hand we have considerable deposits of uranium, even by international standards, and we have advanced metal manufacturing and engineering industries that augur well for our nuclear self-sufficiency in the long run. This could do a great deal to reduce our dependence on oil.

But there are a number of reasons for displaying caution and for not irrevocably committing ourselves to a long-term policy of nuclear expansion.

The first of these reasons is to be seen in the hazards and uncertainties attaching to nuclear power. The hazards of nuclear power are mainly of two kinds. One kind is concerned with the safety of nuclear reactors and the other with the handling of exhausted fuel, including active waste.

Meticulous studies have been made, in Sweden and abroad, concerning the safety problems associated with nuclear reactors. These studies appear to suggest that the risks of reactor breakdowns involving dangerous consequences to the environment are small and that, even if such a breakdown were to happen, there would still be very little probability indeed of any serious injury being inflicted on people and animals outside the reactor. But even if this is the view predominantly

taken by experts in the field, there are still those who are sceptical of such findings, and so far we have only had a limited experience of operational nuclear power stations. The calculations that have been presented are, after all, no more than theoretical estimates which may require elucidation in the light of practical experience. By the end of the 1970s the number of reactors in operation in various parts of the world will have multiplied several times over and important material will have been obtained with which to test the accuracy of present estimates.

The processing of used fuel for the recovery of uranium and other purposes and the storage of active waste that cannot be recycled in the reactor combustion process - these are sectors of the nuclear energy fuel cycle that have not been studied with the same degree of thoroughness as the construction of reactors and the production of fuel elements.

The theoretical problems and problems of design associated with reprocessing plants are now regarded as solved, and a number of plants are in the process of construction.

The overwhelming majority of those who have studied waste problems are of the opinion that they can be solved. This is also the view of the Swedish AKA Commission. No final evaluation has yet been made of different possible methods, however, and no method has yet been put into full-scale operation.

However, the debate on these points which has taken place in the past few years has led to comprehensive efforts to find solutions to the problems. In other words, the debate has been both necessary and beneficial.

We may also observe that more progress has been made towards solving the waste problems of nuclear energy than has been made with regard to other serious side effects of industrial activities, such as the carbon monoxide and heavy metal emissions resulting from the combustion of oil, the discharge of mercury and so on.

In spite of this, the picture I have drawn points in favour of a cautious approach to large-scale, long-term nuclear power investments. But it does not preclude a nuclear

in Sweden.

Secondly, it has been argued that the profitability of nuclear power may be limited, the allusion here being to rising capital costs and the disruptions which have occurred. It should be pointed out, however, that the same proportional rise in capital costs has occurred in other electrical power stations and that quite considerable provision for the contingency of stoppages has been made in the estimates for the first two years of operation. There is a considerable gap between nuclear power and hydro-electric power on the one hand and, on the other, power production based on fossil fuels. It would take a very steep fall in oil prices to change this situation.

A third and very important reason for biding one's time is the view on these matters expressed with such frequency by the discussion groups. Only a few years ago, the predominant attitude towards the peaceful use of atomic energy was unreservedly positive. The intensive debate which has since taken place concerning the hazards of nuclear power and the problems of safety have changed this attitude. A critical attitude to nuclear power is now apparent, ranging from complete opposition to the use of nuclear power to attitudes characterized by doubt and uncertainty.

I think it would be correct to say that the first vehement counter-reaction to the earlier optimism has given way to a more balanced approach as people have come to study these problems more closely, but that scepticism and caution are still very much the order of the day. The attitude of the discussion groups can be summarized as follows. A great majority accept the nuclear power programme adopted by the Riksdag, at the same time calling for prudence and a reservation of judgment concerning the advisability of future investments in this field. We should act on this advice.

One is therefore led to conclude that Sweden should adopt a far more cautious policy than the great majority of other countries as far as the future expansion of nuclear power is concerned. We should avoid long-term commitments and aim for genuine freedom of action so that, in a future decision making situation when we have more reliable knowledge to go by, we

will be able to choose between alternative viable means of solving our problems of energy supply.

The retention of our freedom of action will entail particular demands on energy policy. In view of the long time it takes to build a large power station - between 7 and 8 years - we must specify the decisions that have to be taken in order to guarantee power supplies. At the same time we must specify the binding long-term decisions that we are going to refrain from taking for the time being. Relatively firm commitments for the future could result from decisions in favour of the construction of new oil-fired condensation power stations or nuclear power stations on new sites, and also from decisions concerning the further development of any of the major rivers as yet remaining unspoiled. These issues will therefore be deferred.

Nor is it our intention for the time being to put forward proposals concerning the erection of reprocessing plants, concentrating plants or facilities for the storage of radioactive waste. Heavy investment in nuclear power as the predominant source of power supply would imply excessive long-term commitments.

On the other hand the demand for freedom of action requires the continuation of research and development and of planning in these sectors. We must also preserve and develop the technological knowledge existing in Sweden in the field of nuclear power. If we neglected to do this and did away with our reactor industry, we would in fact be relinquishing our freedom of action with a view to subsequent decision making situations.

The question arises how we are to secure our electrical power supplies within this framework until 1985. Projects already approved by the Government and Riksdag will cover demand until the beginning of the 1980s. These programmes were adopted by the Riksdag with a great deal of unanimity. A reconsideration of the approval given for the 11 nuclear power units at 4 nuclear power stations has been mooted in the course of the debate which has occurred during the past year, and it has even been said that if we are sceptical regarding continued expansion we should demolish those nuclear

power stations that have already been built.

The closing down of our nuclear power stations or, more gradually, the discontinuation of work now in progress on new power stations of this kind would have very grave effects on employment and social development in this country. There is no form of technically produced energy which is completely safe or cannot possibly have undesirable consequences. This is equally true of fossil fuels and nuclear power.

Given this background and pending new information which may show that nuclear power entails unjustifiable risks, we should allow the production of power to continue in accordance with the permits granted hitherto.

The question still remains as to how we are to cater for the additional demand arising during the period ending in 1985, especially with regard to electrical power. Basically we have only three possible sources of supply: fossil-based power, hydro-electric power and nuclear power. Even with a major reduction of the growth rate hitherto and apart from the increment occurring in the form of oil-based counter-pressure power, we will still need about 15 TWh.

Hydro-electric power can be increased by 5 TWh without any serious conflict arising with conservation interests. Beyond this point one is immediately faced with the question of developing one of the major unspoiled rivers.

The choice of oil-based condensation power will require the allocation of a new site for purposes of expansion. Our dependence on oil will increase. Two 1,000 MW units, yielding approximately 10 TWh, will increase our oil requirements by about 3 million tons or nearly Skr 1,000 million. The sensitivity of the electrical power system to disruptions makes one particularly chary of increasing our dependence on oil in this quarter. Oil-based condensation power costs between 50 and 100 per cent more than hydro-electric power and nuclear power.

Much the same situation applies in the case of coal-based electricity. If we are ever able to secure adequate import facilities, coal will probably entail less danger of disruption

than oil, but it will involve greater environmental problems.

In the nuclear power sector, additional electrical power supply can be obtained by adding new units to existing nuclear power stations. No nuclear power stations need be built during the planning period I am referring to: two more reactors will be enough. This should give us an increment of approximately 10 TWh.

This would be a cautious addition to the existing building programme, in accordance with the uncommitted approach recommended by the discussion groups.

Our conclusion, therefore, is that the marginal but important increase of electrical power that will be needed during the next ten years should be provided by adding two reactors to an existing nuclear power station. The Forsmark nuclear power station is recommended for this purpose.

Now it is time for me to sum up.

Swedish energy policy must deliberately aim at reducing the growth rate of power consumption. Our aim is an average increase of 2 per cent per annum for the period 1973-85, followed by a constant level of power consumption in about 1990. At the same time the growth rate of electricity consumption will be higher and the growth rate of oil consumption lower than that of power consumption as a whole.

This radical deceleration of the growth of consumption presupposes an active programme of economization covering a wide range of activities. It also presupposes a vigorous programme of research and development aimed at economizing on energy and devising alternative sources of supply.

If the 2 per cent programme is successfully implemented, we will need an increment of just over 60 TWh for the period ending in 1985, over and above the present level of consumption of fossil and domestically produced fuels and over and above the programmes already decided on for hydro-electric power and nuclear power. Just over a quarter of this requirement can be catered for by means of a limited increase in oil imports, among other things for the expansion of counter-pressure

power production. Roughly half the increment would be provided by means of increased coal imports and roughly a quarter by the expansion of hydro-electric power and nuclear power production.

An energy policy on these lines will make it possible for us to avoid long-term commitments and to retain our freedom of action in subsequent decision-making situations.

According to this scheme of things, the next decision-making occasion will come in 1978, when we will have to decide how we are going to guarantee our energy supplies for the period 1985-1990.

By this time we should have improved our knowledge in a number of important respects. We should have acquired practical experience of the feasibility of economization, far greater practical experience of the running of nuclear power stations should have given us a better understanding of the safety problems involved, as well as the operational economics of nuclear power, and we should also have acquired a clearer appreciation of the merits and demerits of large-scale investment in alternative sources of energy. Official studies concerning the possible expansion of hydro-electric power will have been completed. The debate on energy supply will have progressed further and will at the same time have created a wider foundation of knowledge and a firmer body of public opinion. We should also have acquired a number of alternative courses of action to choose between if a further increase of energy output proves necessary or if a reapportionment between different sectors is both desirable and feasible.

INTERNATIONAL PARTNERSHIP

Finally I would like to return to the international perspective. International partnership should be the fourth cornerstone of Swedish energy policy.

The international debate in the past few years has dramatically brought home to us the interdependence of different parts of the global system. Although it is only a subsidiary aspect of the economy of a small nation, Swedish energy policy must also be related to a long-term global context. I have had many occasions in the course of this

address to refer to the relevance of this view to our own planning.

The discussion groups have clearly stated their conviction that this country should play an active part in international co-operation. This opens up new opportunities for Swedish foreign policy. Allow me briefly to outline a number of salient points.

It is in our own interests to contribute towards the solution of the crises which threaten our oil supplies and which can generate serious international conflicts. It is dangerous to look for a confrontation between rich countries and poor ones, between oil producers and oil consumers. We should look for ways to better understanding and constructive partnership. We shall work to this end in the United Nations Security Council. We should develop our links with the oil-producing countries and with developing countries generally. Our membership of the IEA provides us with opportunities of working to these ends, at the same time as we will participate in the automatic scheme of oil allocation applying between the OECD nations in the event of new crises of oil supply.

In the IMF and other international institutions, we must help to bring about solutions to the difficult financial and monetary problems which are partly a result of the fuel crisis.

We should contribute towards an international policy of solidarity and equality which will bring about a more requitable allocation of natural resources and prosperity. Developments in this direction will require a shift of power in favour of the poorer countries. Perhaps 1974 was something of a turning point in this respect, thanks to a long series of deliberations sponsored by the United Nations on the subject of global problems. The credibility of the declarations made on those occasions will now be put to the test. Very serious preparations are being made by the Swedish Government in this connection, as witness the appointment of a special working group to prepare for Sweden's participation in the General Assembly this autumn.

We should take part in international ventures concerning research and development for new sources of energy, economi-

the serious risks of environmental destruction attendant on rising energy consumption, particularly where climatice effects are involved.

Nuclear power will be expanded in many countries quite regardless of the policy we choose to adopt. Apart from the dangers involved by the military use of plutonium, this presents a serious risk of the uncontrolled distribution of plutonium. At the Disarmament Conference in Geneva and in the General Assembly of the United Nations, Sweden has taken the initiative in calling for international discussions of the dangers which thise involves. This initiative will be vigorously prosecuted with a view to international agreements on the inspection of particularly critical stages of the fuel cycle. Sweden will show no hesitation in acceding to such agreements.

I began by saying how impressed I was by the seriousness and involvement of the debate on energy problems which has taken place in this country and which has been reflected by the discussion groups. An immense number of practical and in some cases highly complex issues have been studied. The question has been the kind of society we wish to create in the future, and how to devise means of achieving a positive future for people in this country using methods that are somewhat different from those we have previously employed. These deliberations have taken place against the background of an international discussion guided by a fear of profound crises and of threats to the survival of mankind.

But the magnitude of these problems and the uncertainty of the future must not be taken as a signal for inactivity. We must face up to the problems and come to decisions. It has been a tremendous advantage to us to be able to define our standpoint under the influence of a wide, initiated and committed debate within our movement. This debate has been characterized by a strong sense of responsibility, and responsibility is indeed something which the Social Democratic Labour Movement has never fought shy of.

The debate will continue - the debate concerning energy policy, the shape of the society of the future and the demands of international solidarity. We shall not lose sight of the fact that energy is only a means - albeit a necessary means - to the achievement of the goals that mean so much to us: employment for all, a better working environment, a shorter working day, a good external environment and a society characterized by concern and solidarity.