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“Nuclear Power in Sweden following the Agreement on a Phase-out “

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I would like to begin by thanking you for inviting me to speak at this important conference. Germany and Sweden now have many ties in the energy field, and this applies particularly to electricity supply. I see my participation here today as a first step towards close contacts and the frequent exchange of experience in the field of nuclear power too.

Let me start by telling you a little about Vattenfall. Vattenfall entered the 1990s as an authority that managed the assets of the Swedish State in the electricity supply system. By the end of the decade, Vattenfall had been transformed into a limited company with a major part of its operations in other countries, above all in Germany.

Now to today's subject which, to be honest, I could deal with very briefly. Despite the fact that the government appointed a negotiator 18 months ago, there is still no concrete agreement in sight. Who should negotiate, and about what? When can an agreement be reached? These questions are still hanging in the air....

Before we move on to speculate about what can and should be done, I would like to give you a thorough background.

The Swedish electricity market is part of the Nordic market.

I will begin with demand trends in the Nordic region. (SLIDE 5-6)

In 2003, Sweden accounted for 145 TWh (38%), Norway for 112,5 TWh (30%), Finland for 85 TWh (23%) and Denmark for 35 TWh (9%) of the annual consumption.

At present, a total of approximately 380 TWh is consumed during a normal year. Around 100 TWh is consumed by energy-intensive industrial plants, while 80 TWh is heat.

If the political will exists to move towards the creation of a stable foundation for the energy system, including the existing nuclear power plants, the owners of the plants will of course play their part and help to ensure that the problems involved are solved in as sensible and effective a way as possible.

Twelve months ago, when a seminar was held to mark the more formal start of the discussions in Sweden, I said that the future of nuclear power must be linked to the greenhouse effect. The phase-out of nuclear power will lead to an increase in carbon dioxide emissions. Time and money will be required to minimise this effect of the phase-out of the Swedish nuclear power programme.

The future of nuclear power must also be linked to the effect on price trends on the Nordic generation market, and thus on prices for the customers.

The situation last winter, however, gave us an indication of what will happen if phase-out is implemented too quickly or in an uncontrolled way, for example by levying generation taxes that prevent necessary reinvestments. If we remove generation capacity that has low variable costs from the supply curve, market prices will increase dramatically. This is because the entire system has been developed over many, many years to provide an optimal mix of different forms of generation. This applies irrespective of whether it is hydro power or nuclear power capacity that is removed. We estimate that the reduced water flows in the Nordic region during the current dry year 2002/03 will correspond to a reduction of 40 TWh compared to a normal year. The Swedish reactors that are in operation today generate almost twice this amount (70 TWh).

A phase-out of our existing nuclear power capacity will lead to higher market prices for electricity and represent a burden on the national economy and the competitiveness of industry! The transformation of the energy system must take place over a very long period of time to ensure that competitiveness and growth are not put at risk. Sudden changes are not good for the health of the economy.

The way that nuclear power is handled in Sweden, together with the structure of the trading systems that are introduced to combat climate change, will have a decisive influence on electricity price trends in the Nordic region over the next 20 years. Vattenfall has recently performed indicative calculations. In total, we are looking at something like 100 billion EURO for the Nordic electricity consumers, or somewhere in the range of 5 billion EURO per year over a period of 20 years!

SLIDES 12 – 14

The extent of the Swedish nuclear power programme is presented in SLIDE 10 (certain increases in output are included here, I will return to these later).

The future of nuclear power has been a central issue in Swedish politics for almost 30 years. More than 20 years ago (March 1980), a consultative referendum was held that presented three alternatives: none of them gained a majority. A number of extensive public enquiries have been conducted on the issue, and political decisions have been made and then cast aside.

In 1997, a tripartite agreement was reached between the Centre Party, the Left Party and the Social Democratic Party on the closure of the Barsebäck plant. (SLIDE 11)

At the same time, however, the parties also agreed to drop the "final deadline", which had been set at 2010. It is this agreement that forms the basis of the energy policy of today.

The agreement between the German government and the owners of the German nuclear power plants in the summer of 2000 aroused immediate interest in Sweden as a possible way of handling the 10 remaining reactors. The long, drawn-out negotiations and the complicated legal process in connection with the closure of Barsebäck 1 probably also increased the interest of the parties involved in finding a new solution for the 10 remaining Swedish reactors.

Nuclear power plays a central role in both Sweden and the Nordic region today. When the Swedish government, inspired by the events in Germany, says that it wants to reach an agreement on the gradual phase-out of nuclear power, it is not talking about a simple, insignificant process. Such a transformation will take time - a great deal of time. Throughout this period, the nuclear power stations must continue to function and provide a basic, reliable electricity supply at the same time as scope is created for alternatives.

Let me also emphasise that the Swedish power industry fully supports continued operation! On the basis of our experience and professional expertise as electricity generators, we see no reason why operations at the nuclear power plants should be closed down prematurely. The Swedish plants play an important role as providers of base power in the Nordic production apparatus, and the plants are safe and have a good environmental performance. We are very proud of the Swedish electricity generation system, including the nuclear power plants!

Let me this clarify this even further: it will take a very long time to phase-out the entire Swedish nuclear power programme as it exists today if the consequence for the Nordic electricity market, Swedish society and the customers are to be reasonable and acceptable.

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Such an extensive transformation of the Nordic electricity supply system as the phase-out of the Swedish programme represents would thus have major economic repercussions.

But we should not be just talking about transformation and close down. Another important factor is the creation of a shared and implementable vision of what will replace nuclear power. (The situation in Germany is different as there is basic public acceptance of fossil fuels as a base for the generation of electricity). The Swedish electricity generation sector has to regain its faith in the future! This vision must be based on stable and realistic conditions and on the situation in the world around us, and it must also take technological development into account. Sweden must say yes to efficient forms of electricity generation that have reasonable environmental data. The demands that Sweden imposes on its electricity generation sector must not be significantly different from those that other industrialised countries impose on their generation sectors!

There is also another aspect that must be considered in connection with a phase-out. It must be possible to continue to run the remaining plants in a safe and efficient way over a long period of time until the last kilowatt-hour has been generated. This means being able to make significant investments during the phase-out period, keeping the plants manned, co-ordinating the planning of the phase-out in order to create as few dramatic price increases as possible and being able to provide sufficient new generation capacity of the right quality.

This in turn requires:

Stable planning conditions. Stability requires fundamental consensus and a joint acceptance of responsibility. Inconsistency and sudden changes in terms of the conditions and control measures imposed will ultimately lead to higher costs.

The abolition of the tax on nuclear power. Otherwise, we will not be able to cover the necessary reinvestments in a number of plants, and this will lead to an "uncontrolled" reduction in capacity. Such a reduction in capacity would have a dramatic effect on the price of electricity. Trying to get rid of nuclear power by taxing it to death is not only unethical in respect of those who have invested in the plants, it is also irresponsible from the point of the view of the customers. Taxing nuclear power at the generation stage is a marked deviation from the situation that applies in competing countries.

An understanding that overall capacity planning is required. We are sometimes criticised for the fact that the nuclear power stations are jointly owned, and it is claimed now and then that we take advantage of this fact to manipulate the situation. No such manipulation exists! The point of joint ownership is to increase efficiency and spread the risks. We take extreme care to run the jointly-owned plants so that no information is leaked and no other measures are taken that could lead to any improper influencing of

prices. We also take great care to ensure that all the market players have access to the information they need in accordance with the valid rules and regulations.

To sum up: we as power companies have said that we are willing to reach agreement on a plan for the transformation of the energy system providing that a stable regulatory framework that covers the entire transformation period is created, that the tax on the generation of nuclear power is abolished, that environmental considerations and the stability of the market are addressed, and, above all, that the needs of the customers for reasonable and stable conditions are really taken into account.

So, where do things stand at the moment?

14 days ago, the government's negotiator submitted a wide-ranging article to the debate page of Sweden's largest daily newspaper.

In this article, the negotiator first presented a detailed review of all the restrictions that have been imposed during the 30 years that energy issues have been at the core of the political debate. He noted that the transformation of the Swedish energy system will lead to serious clashes between conflicting goals, and that solutions will be required that are not entirely positive. The introduction of too far-reaching environmental demands will impose too tight restrictions on industrial development. There is a risk that Sweden's current climate targets, which are too one-sided, will lead to cutbacks in basic industries in Sweden at the same time as global emissions increase.

The negotiator followed this up by saying that Sweden needs a better solution for the future than the never-ending debates on the closure of every nuclear power station. A long-term, overall view of the development of the energy system would reduce the economic costs of the transformation process and reduce the risk of disruptions in electricity supplies.

The negotiator went on to say that he believes it will be possible to reach an agreement if all of the parties concerned dare to see the whole picture and strive to tackle the conflicting goals that exist. He believed that the next few months will be decisive in determining whether we will be able to create an overall view of the conditions governing the electricity supply system of the future.

In concrete terms, the negotiator stated that the phase-out of nuclear power, the emissions of carbon dioxide and the effects on prices, particularly for the large proportion of electricity-intensive industry (40 TWh in Sweden, 100 TWh in the Nordic region), must be weighed against each other and that there are no simple solutions.

There is, however, one solution. Time!

The analysis that I referred to earlier indicates that there is a time window. It is not until 2025 that the price of electricity will reach the long-term marginal cost for new capacity (expressed as CCGT) on the Nordic generation market. After this point, a premature phase-out of nuclear power will not have any decisive effect on price formation on the Nordic generation market (the plants will, on the other hand, still retain a capital value that can only be exploited if the plants continue to operate).

Time will also provide scope for development work and further research work in interesting areas, for example the separation and storage of carbon dioxide - one of the areas that Vattenfall is working on.

This is where we stand after 1½ years of work.

Hopefully, wide-ranging, concrete discussions will now begin, but there are no signs of this as yet.

The government's negotiator has also been given an additional assignment. He has been asked to present a solution by 30 April at the latest for the closure of the second reactor at Barsebäck. If he should fail to do so, parliament has given the government the go-ahead to apply the phase-out legislation that was adopted when the closure of Barsebäck was first decided on.

My presentation has perhaps raised more questions than it has answered. As to what will actually happen, I can only say "we will have to wait and see".

Meanwhile, the various players are tied to each other like the characters in a Greek drama. We share the same future and, above all, the same responsibility.

However, the following must be taken into account: SLIDE 15

The article by the government's negotiator (referred to earlier) clearly shows that there will be sharp conflicts of interest when the moment of truth arrives for Swedish energy policy. It is therefore up to all of the parties involved to find pragmatic solutions. This is a process that still lies ahead of us.