First Securities' Nordic Energy Summit 2003
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1. Introduction

Let me first thank the organisers for this opportunity to present some views on energy issues that are of great importance to a company like Norsk Hydro. We are on the one hand a major producer of energy in the form of oil, natural gas and electric power – in total an annual production equivalent to 250 TWh. At the same time we are also a major consumer of energy. Our fertilizer and petrochemical activities make us one of the major European consumers of natural gas, while our metal business requires huge amounts of electricity making us most likely the largest consumer of electric energy in Europe. Our total energy consumption on an annual basis is equivalent to about 93 TWh.

As head of a large industrial company with extensive energy related activities as well as a past as Minister of Oil and Energy, there are many aspects of the current situation and outlook in the European and Nordic energy markets which could be tempting topics in a speech to a group like this. Fortunately, the organisers have not attempted to restrict my choice of topics as no title has been given for this presentation. The time is limited, however, and the fact that I may not cover all aspects of the energy business does not imply that topics that are left out are not considered important.

2. The Nordic market for electric power

As I was the minister responsible for introducing the legislation that led to the deregulation of the Norwegian market for electric power in 1990, I hope you can forgive me that I first would like to spend some time on issues related to this market.

My overall conclusion is that the legislation establishing the deregulated market has worked quite well. It has clearly served to improve the efficiency of the Norwegian power industry, and led to a better utilisation of the resources in the sector. Previously, requirements for security of supply had led to significant excess capacity and over investment. Under the new regime, the industry has been able to meet increasing demand despite very limited investments in new capacity. This improved efficiency in the sector as well as the integration of the markets in the Nordic countries has in turn led to an overall price development for electricity which I think it is fair to say has been clearly below the previously administratively set price levels.

The ability of the market and its players to handle a situation with rather tight supply-demand balances has also been demonstrated. The price served as the main mechanism for allocating available capacity. This has in periods resulted in very high prices, which of course has not been popular with consumers. [And

politicians, who could have taken this opportunity to try to explain to the voters how the market works, have instead been competing to see who could be the first to come up with support schemes for consumers who had problems paying their increased electricity bills.]

Legislation cannot, however, remove the key characteristics of a pure hydropower system. It has many environmental and other advantages, but is also exposed to significant annual swings in production potential as a result of weather variations. With limited cross border transmission capacity and relatively inflexible consumption patterns, such a system can experience quite large price variations.

As the balance between supply and demand is getting tighter also in years with normal weather conditions, the likelihood of large price swings increases. This also leads to increasing concerns related to the security of supply in dry years. Before deregulation, the responsibility for security of supply was well defined, and led to over investments and excess capacity. Security of supply was good, but expensive. The responsibility for the overall security of supply in the present system is not as well defined by the Energy Act. Statnett is assigned the task of managing the operations of the system which includes responsibility for making sure that demand is met by sufficient supply. It is also responsible for the development of the infrastructure, but new production capacity is to be provided by investments by generating companies that may find such projects attractive under the prevailing market conditions. There are no official requirements, neither on the Norwegian nor the Nordic level, regarding the level of security of supply in situations with low hydropower production.

As we are now approaching a new winter season with relatively low reservoir levels, speculation is ripe regarding new price spikes. It should, however, be underlined that the probability of the precipitation scenario that we experienced during the fall of last year was less than 1 per cent. It is, therefore, important that the relevant authorities do not, in order to score political points with voters, institute measures and regulations that may have significant negative effects for the functioning of an efficient market. The imposition of price ceilings (ref. the California experience) and requirements to prevent the reservoirs falling below certain levels are examples of such measures.

The potential supply tightness should instead be met through measures that disturb the current Nordic market model as little as possible, but rather seek to supplement any shortcomings in the market model to ensure security of supply. This could for example include some form of energy option schemes, something we understand the authorities are currently evaluating. The measures should be cost effective, and market based solutions should be preferred. Such measures will, however, not solve the supply demand imbalance, but rather serve as a temporary solution pending more permanent measures. In this context it would also be advisable to develop market based mechanisms which can lead to voluntary reductions in power consumption in shortage situations.

There is also room for other improvements in the current system. Harmonisation on a Nordic level is an important prerequisite for a well-functioning Nordic power market. I will particularly emphasize market splitting principles for the spot market

and harmonisation of the systems for handling constraints in the transmission systems, as this is important to ensure efficient utilisation of cross-border connections.

3. The imbalance between supply and demand

The key long-term challenge facing the Norwegian and Nordic electricity markets is the basic and growing imbalance between production capacity and expected demand. The solutions are, therefore, not to be found through tinkering with the energy legislation, but in consistent and concerted efforts by the government and the other actors in this market that can help to bridge the expected gap between supply and demand. With continued economic growth in the Nordic region the demand for electricity must be assumed to increase. The Norwegian outlook is such that the power system even in years with normal precipitation is highly dependent upon imports to cover domestic consumption.

In the Norwegian context one way of improving the supply situation is through expanding the transmission system. This should be aimed both at reducing regional imbalances within the country as well as increasing the capacity for exchange with other countries. With its electricity production totally dependent upon hydropower, Norway is exposed to larger swings in production potential from one year to the next than any other country in Western Europe. At the same time Norway's cross border transmission capacity relative to its consumption is below that of most Western European countries except the UK and Germany which both, on the other hand, have excess generation capacity. This serves to underline Norway's need for extended connections to other markets. As about half of Sweden's energy production also is based on hydropower with variations in line with those in Norway, it will be important to establish connections with countries that have spare capacity. Markets both on the European continent as well as in the UK may serve this purpose well.

4. Need for new capacity

But improved cross border connections cannot alone solve the growing imbalance in the Norwegian market. The imbalance is in essence a Nordic problem and must be solved in this context, but I shall in the following primarily focus on what could be done in this country. While most market participants agree that new investments in additional generation capacity is needed, the key question is whether commercial players will invest in new capacity, for example gas-fired power plants, in time to ensure security of supply. Current prices in the forward market indicate that the supply demand balance must become increasingly tighter before market players find it profitable to invest in new capacity. Last year's shortage situation can easily occur again, without affecting the long-term price level significantly.

While the market for electric power was deregulated in 1990, an extensive set of regulations, some formal – some more of a more informal and political nature, continue to restrict transactions of production assets and companies in this sector. These regulations, which it is not always easy to see the justification for, serve to

discourage the restructuring of this industry as well as to make new investments less attractive. The some times heated political debates about ownership of Norwegian power companies do not improve the investment climate.

Several transactions have, however, taken place in the last few years in this sector, both in Norway and in other Nordic countries. The prices paid in most of these transactions seem to be based on relatively low future rate of return assumptions. This tends to underpin the impression that this is an industry with generally speaking low profitability which to some extent may be caused by the fact many of the larger players in this sector are majority owned by national or local governments and might not be faced with the same demands for return on invested capital from their owners as companies operating in the private sector. A lower rate of return may also be justified by the assumption that the systematic risk in this business is lower than in other industries.

The present system assumes that investments in new capacity are handled by companies acting on the basis of commercial criteria. A company like Norsk Hydro that has many alternative investments projects and which has to meet the return requirements of the international financial markets, must evaluate any electricity generation project in this context.

The clear signal from the market so far is that with the present set of regulations and uncertainty regarding possible future regulations, it is not sufficient with one season with high prices for investors to launch new projects. It is not likely that commercial players will invest in new capacity just for the sake of security of supply, as the negative effects and costs for society of rationing are not reflected in the market prices. This justifies measures for security of supply, such as new transmission capacity. There is also a need to develop market mechanisms to mobilise voluntarily reductions in power consumption in shortage situations

The current rules regarding the so called “hjemfall”, i.e. the right of the state to take over hydropower assets owned by private sector companies at the end of the concession period, is one important regulatory element the discourages investments in the sector. This is of particular importance for projects designed to increase capacity and improve efficiency of existing facilities. To encourage private sector investments in power generation it is essential that the present regulations which excempt public sector companies from this regulation, are harmonized. The uncertainty regarding possible future regulations for CO2-emissions and handling also serve to make investments in new gas-fired power plants more difficult to justify, while the heavy taxation of hydropower projects makes them less attractive.

It may also be that the present structure of the Norwegian electricity industry with a relatively large number of small actors with only very few production facilities each has a negative influence on the industry’s willingness to invest. Larger companies with a more diversified set of production assets may be better placed to launch new projects as there may be positive synergies and lower risk when a project is part of a larger portfolio.

In facilitating new investments in generation capacity it is important to observe the different roles of the government and the commercial players in this respect: The

government is responsible for maintaining security of supply at an satisfactory loevel, via Statnett's operation of the power system and development of the infrastructure, both domestic and cross border connections. The role of the commercial players is to invest in generation capacity within the general boundaries and regulations given by the government. The government must provide external conditions supporting new large-scale power generation facilities in Norway.

5. Renewable energy sources

In the debate about covering Norway's future energy needs, environmentalists and others stress that an increasing share should be covered by renewable energy sources. While there is a large potential in Norway for developing renewables, like wind power, power from such sources will be more costly than from conventional alternatives. A new wind power facility will require a total electricity price, including any "green support", which is almost twice that needed by a modern gas-fired cogeneration plant. The main issue is who should pay these additional costs and what mechanisms should be applied in this respect.

The present situation in Norway is that the financial situation regarding such projects, particularly wind projects, is unclear. The system with investment support is being discontinued, but it is not yet clear what it will be replaced with. This has lead to the postponement of several wind power projects. Hydro, which is one of the owners of the recently commissioned Havøygavlen project, has other projects at advanced stages of planning that may be ready for realisation once the new framework conditions are established.

While other countries have developed green certificate systems in order to facilitate the construction of renewable energy production, the Norwegian authorities have not yet clarified their position in this respect. The sooner a well functioning system with green certificates can be established, the sooner new projects for developing renewable energy sources can be carried out.

A system for green certificates should also include power resulting from upgrading of existing hydropower facilities. There is clearly an interesting potential for additional capacity in many existing power plants. With the right incentive structure this capacity may be developed without any significant negative environmental effects.

6. Uncertain future for energy intensive industries

On the basis of what I have said earlier, the outlook for Norway's energy intensive industries is quite challenging. Our original competitive advantage through access to low cost energy is being eroded. Little new hydropower is likely to be developed. Our large reserves of gas could possibly be used to increase electricity supply, but in a situation where Norwegian gas is highly valued by European customers, such gas-fired power may only become available at a price level which would be clearly

above electricity prices in other energy rich areas like Canada, Australia and countries with large gas reserves with limited alternative value.

In addition we have other cost elements, like labour related costs, which makes it even more challenging to justify new investments with the energy intensive industries in Norway. Projects that get the go-ahead, like our 5.6 billion kroner investment at Sunndal, are likely to be exceptions where special circumstances provide sufficient benefits to justify the investments.

In order to avoid further deterioration in the competitive situation for Norwegian energy intensive industry it will be important that different types of regulations are in line with those followed by other countries - and thus our competitors. It is of particular importance that regulations covering emissions of green house gases from process industries are adapted to conform with those which will be applied in the EU. It is of great concern to us if Norway introduces regulations that are different from those to be applied in the EU. Based on political signals received so far, I am afraid this could be the situation.

It is also important that the conflict between Norway and ESA regarding the way the Norwegian electricity taxation system is designed is brought to an end. I hope the Norwegian government is able to come up with a solution soon, preferably in its proposed state budget for next year, which is acceptable both to the relevant Norwegian industries as well as to ESA. The present unresolved situation represents a significant uncertainty for large parts of Norwegian industry. The position taken by Norway's Minister of Finance in this respect has my full support.

7. Hydro sees attractive opportunities

With our positions both as an active player in the European electricity markets and as a significant producer of natural gas for the European markets we see attractive business opportunities for Norsk Hydro as the European energy markets are being liberalised. We will continue to develop our activities in these markets.

Our gas reserves have enabled us to develop an interesting "mid-stream" gas activity serving larger customers in certain European markets. As our reserve base will increase significantly as the giant Ormen Lange field is made ready for production, we should become an even more attractive partner for European gas users and be able to expand our gas based activities in order to add value to our gas also beyond the European beachhead. To the extent that there is a convergence between the markets for gas and electric power as many experts expect, then our positions in these two key energy markets should provide us with attractive opportunities for profitable expansion of these activities.

8. Conclusions

In concluding I must again stress that the main problem in the Norwegian and Nordic energy market is the tight balance between supply and demand. The challenge is to improve the supply situation through improved transmission

systems and by encouraging new generation capacity. The deregulated Nordic electricity market is basically working quite well, even in very tight situations as we saw last winter. It is, however, important to improve to handling of security of supply issues and in this connection clarify the different roles to be played by the government and the market's commercial players. Possible new extreme situations should be dealt with primarily through market related mechanisms.

Renewable energy may contribute to bridging the supply demand gap, but rapid clarification of the future framework conditions, including the implementation of "green certificates", is necessary to secure implementation of new projects.

The energy intensive Norwegian industry is facing a period of structural change. This change will happen even more rapidly if Norwegian authorities implemented regulations for greenhouse gas emissions and electricity taxation that adds to the burden of these industries.

Hydro is well positioned to take advantage of growth opportunities in the deregulated European markets for gas and electricity and see many interesting opportunities which I may discuss another time.