



No. 4: Security of electricity supply reaches beyond new power plants

Christoph Tönjes, November 2003

Recent disturbances in electricity supply in the US, Italy, and Great Britain, and the announcement this August of 'Code Red' by Dutch Transmission System Operator TenneT, has made the Dutch public sensitive to the reliability of electricity supply. This article argues that rather than rashly calling for a reversal of the liberalisation policies, a broad and thorough discussion on the security of supply of electricity and primary energy carriers in liberalised markets, particularly natural gas, is needed to prevent possible future problems in energy supplies.

This summer has seen a variety of disturbances in the electricity supply of the United States, Great Britain, Italy but also Denmark and Sweden. In Dutch newspapers the cause of these problems were related to the liberalisation of electricity markets; very open on the opinion pages and more concealed in the regular articles. However, that link is by no means obvious. Throughout Europe power plants had to cope with cooling problems due to extremely warm weather. Such problems can also occur in non-liberalised markets, and did so in the past. In fact, the possibility to sell highly priced electricity on spot markets significantly contributed to the security of delivery, because large users had an incentive to reduce their consumption and sell part of their contracted electricity. Time-consuming studies will have to answer the question whether the liberalisation policies in the United States and Italy contributed to the disturbances in these countries. It appears, however, that liberalisation as such had little to do with it.

The liberalisation of European electricity markets is a reality. The new directive of the European Union stipulates that all customers can freely choose their electricity supplier no later than 1 July 2007. A reversal of this policy is highly unlikely. The liberalisation of electricity

markets provides electricity suppliers the incentive to fulfil customers' needs. If the price is too high or the kind of electricity sold does not match the requirements of the customer, electricity companies will lose customers and revenues. Customers get choice. Choice to buy Dutch, to buy green, to buy non-nuclear and, to a certain extent, to buy reliable.

Yet, there are indeed problems with liberalised electricity markets that need to be addressed and which make it necessary to think about additional policy measures to safeguard security of supply.

Traditionally customers could not choose their electricity or gas provider. Costs to maintain and ensure a reliable energy supply could therefore easily be passed on by electricity and gas companies to consumers. No doubt, the high levels of reliability that were achieved were also appreciated. In liberalised markets consumers can choose alternative suppliers, creating competitive pressure for the supply companies. This implies that companies which invest too much in security of supply (e.g. spare generation capacity), run the risk of losing customers because they become too expensive. Current price levels on the spot market are relatively low as a result of, most of the time, oversupply of electricity. In these circumstances, it is not economically prudent for companies to invest in new generation capacity. In the absence of other incentives to build new power plants, it is just a matter of time for generation capacity to become scarce when electricity demand continues to grow. However, Dutch TSO TenneT, also responsible for monitoring the supply/demand balance does not foresee problems with insufficient generation capacity in the Netherlands until at least 2010, provided imports and import capacity are sufficiently available. Nevertheless, it is sensible to start considering possible additional measures to encourage capacity investment soon. The availability of sufficient import capacity in the longer term needs to be assessed and, concurrently, an assessment needs to be made of the availability of production capacity in exporting countries. It can easily take more than 5 years to plan and construct a new power plant, which means that 2010 is not as far away as it might seem.

The Dutch Ministry of Economic Affairs has responded to the concerns that were articulated and initiated a broad consultation process on the necessary measures in the Dutch market. In addition to addressing the issue of sufficient generation capacity, the Minister of Economic Affairs Brinkhorst pointed at another dimension of security of electricity supply: the fuel mix. Security of supply policies usually endeavour to reach a balanced mix of fuels in power generation in order to mitigate the risks of becoming too dependent on one particular fuel. Currently, many studies predict that new power generation capacity will be gas-fired, shifting

the fuel mix towards natural gas. Indigenous European supplies of natural gas are decreasing, which implies that the European Union is becoming more depended on imported gas from 'politically less stable' countries. Insecure supplies and higher transportation costs might lead to higher prices of natural gas. Although at present this seems a luxury problem for the Dutch, also the Dutch reserves are finite and in the next two or three decades the Netherlands will become dependent on gas imports. A wider fuel mix in power generation would provide some security against high prices and supply shortfalls. However, the economics of the different types of generating plants make it currently very difficult to build anything but a gas fired power plant. The cost per kWh is simply lower than for the alternatives. Moreover, natural gas is the fossil fuel with the least emissions of hazardous substances and greenhouse gases. Thus, choosing for natural gas as a preferred fuel also internalises future environmental policies. For instance, the introduction of a CO₂ trading scheme, as prescribed by a new European Union directive.

The liberalisation of the EU electricity market indeed limits the possibilities for each national government to influence the power generation mix. Subsidies will only be allowed by the European institutions to a very limited extent. Compelling electricity generating companies to invest in more expensive technologies or energies, while companies just across the border are not confronted with similar restrictions will weaken the competitive position of the domestic electricity industry in an integrated European market. New generation capacity would be more likely to be built abroad. This does not pose a problem if the imported electricity has the same reliability as domestically produced electricity. The long run natural gas import dependency, however, remains just as large in such a situation, because new gas-fired power plants might then be built in Germany rather than in the Netherlands. Moreover, for a vital commodity such as electricity an increased import dependency is becoming more and more a sensitive topic for politicians and voters.

It is possible that the international gas industry will not be able to match the expected European demand for gas with new supplies. Investments in long-haul gas pipelines have not been forthcoming as easily as before because liberalisation of the European gas market brought a new set of risks to the gas industry. Furthermore, it is currently difficult to predict how and when the necessary additional Russian gas supplies, the biggest potential source for Europe, will be brought on-stream against the backdrop of an uncertain investment climate and progress in the transition process.

The liberalisation of electricity and gas markets did most probably not cause the problems in electricity supply this summer. Liberalised markets are an irreversible reality and offer consumers choice as well as options to flexibly react to short-term supply problems. The liberalisation might, however, lead to security of supply problems in the future. In truly liberalised markets governments have relatively little means to influence the choice of fuel in the power sector. Markets compel electricity companies to invest in the economically soundest options, which currently is natural gas. Higher dependence on natural gas in power generation makes the sector more sensitive to disturbances in gas supplies and to gas price fluctuations. Given that gas markets are characterised by only a limited number of major gas suppliers and dedicated networks, the exposure to disruptions and price risks is not negligible.

If gas supply falls short of demand, gas prices will increase and electricity generation might revert to other energy sources, such as coal, as the preferred fuel. Such a development will only occur when prices in the longer term provide this incentive.

Discussion about secure electricity supplies should not focus on reversing liberalisation. It should also not stop at the issue of providing adequate generation capacity but needs to extend to securing primary energy flows for the European Union. Given the important role of gas in the future energy mix, the Netherlands as well as the other European consumer countries should in particular consider developing a strategic and long-term perspective on their own gas production and possible gas imports.

¹Brief aan de voorzitter van de Tweede Kamer der Staten-Generaal, voorzienings- en leveringszekerheid energie, ME/ESV/3048488, 3 September 2003.

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