

20 YEARS OF COMPETITION – DID THE NORDIC POWER MARKET SERVE ITS PURPOSE?

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ABSTRACT

Deregulation of power markets is currently the main tool to improve efficiency in a historically sheltered sector. However, electric power, being a critical element in the modern society, must combine market economy with security of supply and public and political acceptance to succeed in competition with other sectors. The paper sums up main observations and lessons learned over 20 years.

INTRODUCTION

The Norwegian power market has been deregulated since 1991, the wholesale market from the start and the consumers market since 1997. The wholesale market was expanded to include Sweden in 1996, Finland in 1998 and Denmark I 1999/2000. Among the pioneers in such deregulation, the debate of whether this was an adequate and profitable undertaking for Norway still exist. What was gained, and what was lost for consumers, authorities and the industry itself? Did the deregulation serve its purpose, and what lessons could be learned to the benefit of other nations? This paper deals with these questions and proposes some answers following 20 years of observations and experience.

BACKGROUND

Norway is a country of ample energy resources. During the post-war industrial and economical development period until 1970, electric power was a limiting factor. Major hydro developments were undertaken, fuelling the general economic and social development. These projects were successful, placing the power industry well, both in public reputation and in international standing. Electricity in Norway obtained the highest energy market share in the world.

A concern about growing power prices due to increasingly expensive new developments, and further, the nature conservation movement's claim of over-exploitation of river resources arose from early 1970. New project developments resulted in conflicts, confrontations and civil disobedience (Mardøla, 1970, Alta 1978 with 10.000 protestors, among them well reputed public persons). This influenced the general view of the power industry, both with the public and with the government. The standing of the power industry started to decline

FROM MONOPOLY TO MARKET

Until 1990, the wholesale power price had been set by the Parliament based on long term cost for new power developments. Questions were however raised in the Parliament regarding the reliability of the growing power consumption prognosis as basis for the need of new developments. As the opposition to new hydro developments grew, a change in power business regime from regulation, cost sharing and sales monopoly to a marked based system was proposed and passed as "The new Energy Law" in the Parliament in 1990.

The objects were three:

1. Effectively limit new developments by exposing investment decisions to market risk, thus meeting the claim for over-exploitation.
2. Improving efficiency in the power industry by introducing market competition, thus reducing price to the public and cost base in the industry.
3. Facilitate geographic price levelling.

Initial consequences when putting the law into force were twofold:

Firstly, new investments dropped by 74 % from average 690 M € (5.5 BN NOK) for the period 1981-1990 compared to average 175 M € for the period 1991-2000, mainly due to lower prognosis for long term power prices (figure 1).

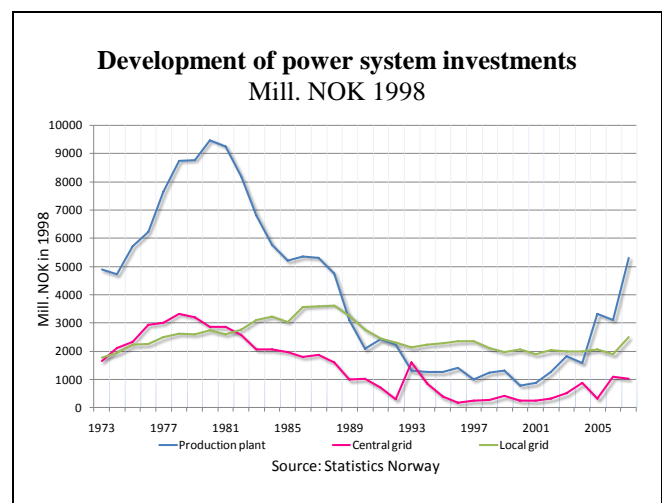


Figure 1: Norwegian power system investments

Secondly, power prices at the newly established power exchange stayed low for 10 years, due to the production redundancy designed to maintain security of supply for the hydro-based system (9 out of 10 years). However, price volatility rose considerably. This, combined with new framework directives introduced by the government (resource tax) turned the industry to focus to short term, rather than long term business (figure 2). Security of supply was left to the market to handle.

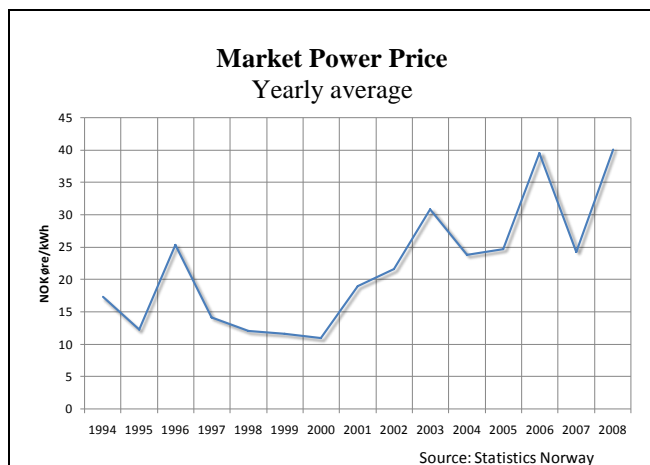


Figure 2: Power prices at the power Nordpool

Efficiency increased

Up through the nineties low power prices as a consequence of the embedded redundant production from previous developments further lead to restructuring of the industry. This improved efficiency and reduced operational costs. During the period from 1999 to 2001, power company transactions with a value of 8 BN € took place and the number of companies were reduced by 20 %. The work force was reduced from 19 560 in 1987 and down to 11 089 in 2007, a reduction of 43 %. This was due both to efficiency improvements and to outsourcing.

End-user market – low profitability

Establishment of an open end-user power market was encouraged by the competition authorities and resulted in new players in the market, competing on price. Traditionally, most municipalities owned and operated their local power distribution and sales organisations. In 1994, 99 nationwide consumer market sales companies operated. The number peaked in 1999 with 184 companies serving only 1.9 million customers. Churn rates were lower than expected due to relatively low price incentive for the customer to change vendor. Only in periods following fast rising power prices and price gaps, churn rates of more than 20 % were found. Margins were low and many of the newcomers went out of business. Those sales companies included in a vertically organized power concerns had a

better rate of survival compared to stand-alone sales companies. In 2009, 40 out of 89 nationwide vendors did not regain their estimated sales cost, and only 21 had better than 10% return on market cap [5]. From this, a possible conclusion is that profitability in the end user market is low compared to the embedded risk. And it may further be observed that in a country with 1.9 million customers, 89 sales companies are far more than regarded efficient in other countries. In this respect, deregulation has not yet provided efficiency.

Market split and confusion

A split between electric power as a market commodity product, and network services as a cost plus service was part of the New Energy Law. Choosing separate vendors for power and network services resulted in two power bills instead of previously one. Further, information content and readability of the power bill became an issue where the industry had to improve their product to serve the customers well. Surveys showed nevertheless that 72 % of the customers preferred a common bill for the combined power and network services, only 16 % preferred separate bills even in our electronic society [1]. This was in conflict with the object of the government and serves as a market barrier even today. However, for the first 10 year period, the objectives of the government when introducing the Power legislation were met.

Power industry public reputation

The last ten years of increasing power consumption and no new generation or transmission developments depleted redundant capacity and reduced security of supply. This was demonstrated in 2002, a very dry period. Precipitation in the 2nd half of 2002 was the lowest in 70 years. Power prices peaked by 200 % in the market and also in the consumer market, an all time high [2]. Some viewed this as a proof for the insufficiency of the market to handle a product such as electric power.

The reputation of the power industry dropped to seriously low levels. The political impact of the neglected issue of security of supply became considerable. A forceful political and public debate arose, the agenda was set by the press. The public openly doubted the ability of the market, the government and the industry to handle the “power crisis”, neglecting the fact that the industry had warned changing governments regarding the reduction in security of supply.

The history was repeated in 2009. In Figure 3, the negative correlation between power price levels and industry reputation is demonstrated. When the power price raise the reputation of the power industry drop and vice versa.

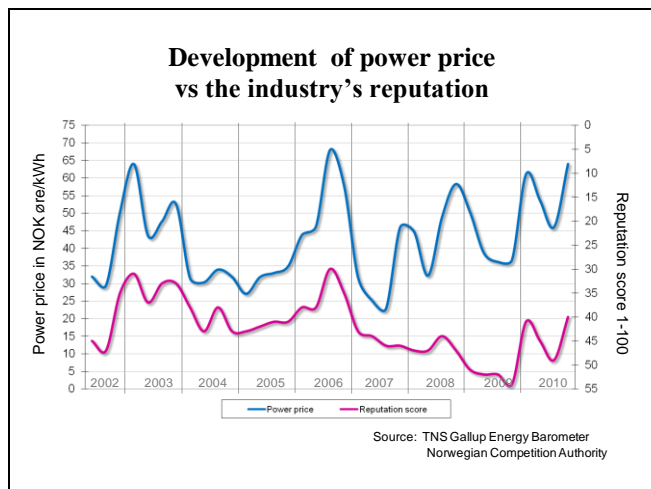


Figure 3: Negative correlation between power price and public reputation

However, with higher power prices, the production part of the industry made profits and started to consider new investments. The lead time for such investments is typically 6-10 years. Major public protests follow every development plan put forward, being for transmission lines or production. Interconnections to Holland and Denmark were however established to improve security of supply.

The industry reputation experienced a volatile period as power price and the reputation of the industry ratings were negatively correlated by 88 %. As low ratings in the long run reduce political influence and recruitment of skilled personnel, this worried the industry. In 2006, only 7 % of engineering students within the relevant subjects regarded the power industry as a likely employer [3]. A long term initiative to regain a positive reputation began.

Actions were taken to improve the public standing, paying attention to customer's needs and expectation. Emphasis was put on understandable and distinct information to the public, information campaigns orchestrated by Energy Norway (the Industry association) and the major companies. Focus was on hydro and other green sources of electricity as a sustainable energy source. This is "A part of the solution to counter the climate change". Further, projects for energy conservation, electricity for transport purposes and increasing the product portfolio into telecom were highlighted. Presenting work opportunities in the industry to schools and universities, including scholarships and trainee-opportunities increased the interest from young people. The recruitment base improved. The initiative has gradually succeeded. Lately, a substantial improvement in general public rating of hydro power as an environmentally friendly and CO₂-emission free power source has been documented: 89 % of the population prefers hydro [4].

FINDINGS

What lessons are there to be learned in order to establish an open power market? Apart from the obvious prerequisites such as liquidity and volume, trading rules and regulations, trust and an adequate number of participants, the driving force must be the possibility to improve value creation. Both the society and the participants must value this opportunity. The competence to operate in the market must obviously be present both with the government, the power exchange itself and among the participants. Open access to relevant information is imperative to maintain a high level of trust in the market. And equally important in this aspect is to maintain a stable set of rules and regulations, keeping out political intervention even in times of power shortage, rising prices and a public "call for action". It consequently is an advantage to start up the market in a period when there is a certain production surplus; a stable or declining power price eases the transition from regulated to deregulated market in the public eye.

Trust the market?

What about the society's benefit? The Parliament handed over the control of the development to the market in 1991. The public experienced long periods of low power prices, but also high price periods. The market did stay in operation during the power shortage periods in 2002, 2006 and 2010. The expansion to the Nordic Power market and interconnects to the European markets, both physically and financially are two of the main reasons. Another is that the politicians managed to refrain from intervention. Thus, although the public reflected their doubts in the market, trust in the market mechanism was established and maintained between the professional players in the market. This is an important prerequisite for the function of the market and consequently for the benefit to the society.

Benefit to the Industry?

Has the industry as such improved as a consequence of the deregulation? It definitely has. It has however been a long learning curve. Healthier and professional businesses are developed. Gradually, the public view the business as more reliable, innovative and trustworthy (figure 4). Improved customer ratings will in our view improve the industry's ability to be a part of the climate solution and to continue as prosperous industry serving the society.

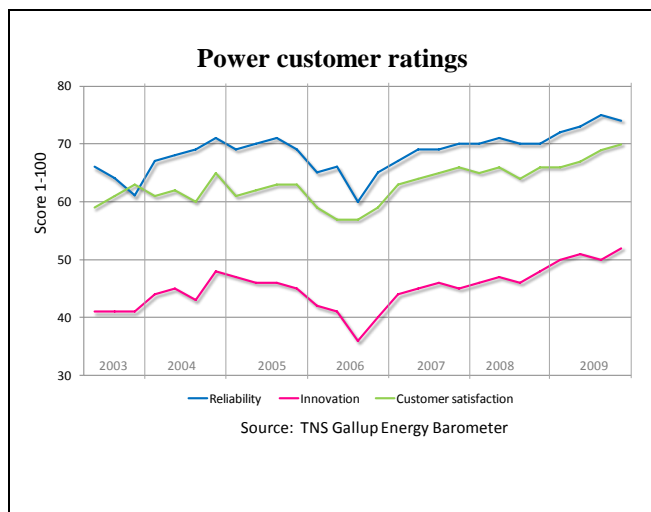


Figure 4: Long term development of customer rating factors.

Still important issues to be solved

Electric power is the essential energy source in a modern and sustainable society. It is however a long term process to create and maintain a climate sustainable energy system at a cost the society can afford. While market mechanisms provide efficiency and creativity, national and multinational carbon quota regimes are to provide a conversion to greener power generation. This in turn provides not only challenges in generation and transmission, but also in financing as the short term return on investment may be low. Further, selective and national support schemes for renewable power sources that favour selected technologies, may cause sub-optimal solutions for nations. As EU has concluded, deregulation, common market rules and regulations and cross-border transmissions and markets is the way forward. In addition, to establish needed new generation and transmission lines to make the markets function, and without creating a major public opposition will require a new creativity and flexibility from the Power industry. And if public reputation is of importance, stable prices and a customer-oriented conduct are important tools.

CONCLUSION

In our view, the opening of the Norwegian power market in 1991 and the extension into a Nordic and European market definitely has been to the benefit of both the society and to the industry. The market has survived periods of short supply and peaking prices partly due to non-intervention from political players and partly due to extended cross-border transmission capacity due to the extension of the market. However, the volatility of the power prices in the market has demonstrated the correlation between price and public reputation. Improvements in both processes to establish new generation and transmission, and in market design are needed to accommodate long term security of supply and stable prices. The power industry needs a solid public reputation as an important factor for a sustainable development. The Power Industry should be in the driver's seat to accommodate these important improvements.

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