NEPP north european power perspectives

jointly with ELFORSK market design Market Design

Fact sheet

April 2011

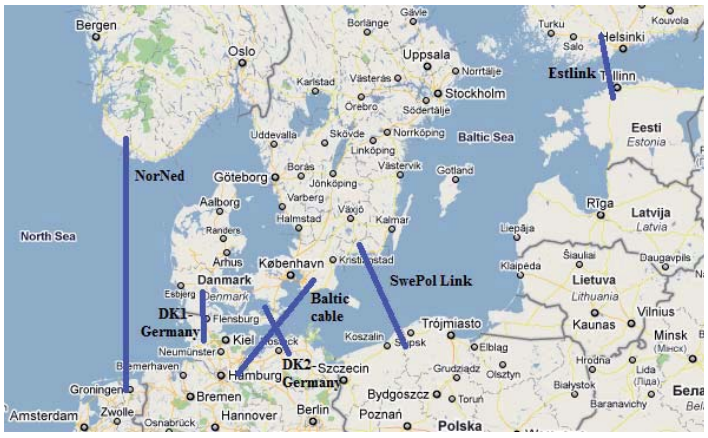
Market rules for electricity trade

between the Nordic countries and the continent, including legal preconditions for Merchant links

The future investments in cross boarder lines and the development of electricity trade between countries are of paramount importance in the creation of an integrated European electricity market. On the other hand, the way this market is organized will have a profound impact on different market players and their incentives to invest. This is the reason we will try to explain some of the more fundamental design parameters.

One of the corner stones of the electricity market regulation in the Nordic market as well as on a European level is that the ownership of the infrastructure should never be allowed to limit the competition in generation and supply. To optimizer the utilization of the infrastructure the development in Europe is towards market coupling. With market coupling power flows are a result of decentralised decisions made by generators and consumers and capacity between countries is used to minimise the price differences between the markets. This is different from a market design were the trade is based on bilateral contracts between producers in one country and consumers or suppliers in another country.. A merchant line is in this sense a cross-border line operating with exceptions from the general principals regulating the trade such as allocation of capacity and pricing.

The future investments in cross boarder lines and the development of electricity trade between countries are of paramount importance in the creation of an integrated European electricity market. On the other hand, the way this market is organized will have a profound impact on different market players and their incentives to invest. This is the reason we will try to explain some of the more fundamental design parameters in this and coming NEPP synthesis papers.



Two perspectives on electricity trade

Perspective 1 "Trade is made by traders"
With this way to organise the market traders buy power in one country from a producer or from a "local" marketplace, transport the power to a new region and sell it there to customers directly or through a local market place. To manage the transport of power the traders buy capacity from the owners of the cables or overhead lines connecting the countries. This can be done through long term contracts often referred to as Physical Transmission Rights (PTS). PTS are typically sold on Use It or Lose It permission. Capacity can also be bought on short term contracts in daily auctions, often referred to as "explicit auctions".

Perspective 2 "Price coupled markets"
In this perspective power flows are a result of decentralised decisions made by generators and consumers. Capacity between countries (or regions) is used to minimise the price differences between the markets. From a practical point of view this is done through the use of a common day-ahead-market (like Nordpool Spot for the Nordic countries) or through close cooperation between market places often referred to as "market coupling". The obligation of the owners of transport capacity is to allocate maximum capacity to the day-ahead-market (some capacity may be kept for ancillary services). Payment for transport capacity will be the remaining price differences between the two markets after trade, multiplied with the actual traded volumes. In the Nordic market this is sometime referred to as "bottleneck revenue". During periods when the price in the markets is the same there will be no revenue to the owners of the transport capacity. This way to allocate and pay for transport capacity guarantees optimal utilisation.

One discussion right now is whether or not the owners of trade-capacity should have an obligation to sell long term financial contracts covering the risk for price differences between countries. Such an obligation should be limited

to the maximum trade capacity. These contracts are often referred to as Financial Transmission Rights (FTR).

The development in Northern Europe is towards market coupling ("perspective 2"). In other parts of Europe the markets are still organised to facilitate for traders to move energy around ("perspective 1"). Market coupling is currently used for the interconnections NorNed, Baltic cable, Estlink and the DK1-Germany and DK2-Germany lines. For the SwePol Link a "light" form of market coupling called "price coupling" is used.

Background

Electricity trade across borders and between regions within countries is expected to increase in the future. There are a number of driving forces behind this expected development:

- An integrated European electricity market as such stimulates cross border trade as a mean to minimise production costs. The new decision making process defined in the third package is now in the process of defining a "Target Model for a European Whole Sale market". This market design will be implemented in Europe over the next three to four years (we will come back to this in later synthesis papers).
- European climate policy in combination with security of supply policies drive investments in renewable generation, mostly wind power. It is favourable to locate wind power in areas with good wind conditions and not necessary where the electricity is needed. This may create regional imbalances and therefore more trade.
- Since the output from renewable generation typically is not as stable as the output from fossil fuel or nuclear plants we will see a more volatile output in regions with a large share of renewable generation. If this volatility in supply can not be met by flexible back up facilities like hydro power or a price elastic demand, the electricity price differences between regions will increase and thus the power flows between regions will increase.

One condition for an increased trade is that the existing infrastructure can be used as efficiently as possible. There will also be a need for increased investments in the electricity grid to handle the growing demand for electricity trade. This synthesis paper covers some basic aspects on electricity trade between the Nordic region and our neighbouring countries within the new European electricity market framework.

Ownership and financing of interconnections

One of the corner stones of the electricity market regulation in the Nordic market as well as on a European level is that the ownership of the infrastructure (grid) should never be allowed to limit the competition in generation and supply. Different methods are being used so secure neutrality and efficient utilization of resources, for example unbundling, grid charges paid at the point of connection and market coupling. These rules should apply to all owners of the integrated grid. Nevertheless there has been a strong tradition in public ownership over the infrastructure, especially the national grids and cross-border interconnections in some cases. Private ownership has even been regarded as a problem, especially during the transition phase towards an integrated and competitive market structure. When well functioning spot markets and market coupling were not in place it was regarded as difficult to secure an efficient utilization of privately owned cross-border interconnections through regulation.

Lately there has been a new debate whether or not there need to be exceptions from the general rules regulating the use of and the revenue flows from cross–border interconnections. Such exceptions are now implemented in the EU legislation. Lines built under thesw exceptions are called "merchant lines". A merchant line is in this sense a cross-boarder line operating with exceptions from the general principals regulating the trade such as allocation of capacity and pricing. The motivation for exceptions is to stimulate investments in cross-border interconnections and the thinking is that such exceptions can open up for independent investors. This is however not the same thing as to say that merchant links are preferable from an EU perspective but rather a safety vault if the dominant grid companies tend to underinvest. Exceptions can be granted by the national regulatory agency. This possibility for exceptions does not overrule other national regulation, such as the Swedish legal monopoly for Svenska Kraftnät (SvK) to build and operate cross-border interconnections (see below).

For further information: Peter Fritz, Sweco

RULES FOR OWNERSHIP OF NEW LINKS (NATIONAL LAWS)

- **Sweden:** According to Swedish law, major cross-border interconnections need to be owned by SvK. The two merchant lines in operation, SwePol Link and Baltic cable, were constructed or decided before the current law came into effect.
- **Denmark:** There is no regulation of merchant lines according to Danish law. However, no merchant lines between Denmark and other countries exist today.
- **Finland:** According to Finnish law, The Ministry of Employment and Economy grants permission to build interconnections.
- **Norway:** The Norwegian regulation stipulates that a concession is needed for interconnection ownership and trading. Currently, the Norwegian TSO (transmission system operator) Statnett holds the only concession for cross-border interconnections. However, it is possible for other actors to apply for concessions.

European regulation: The ownership of new interconnections is regulated by EU law. For merchant lines, normally defined as transmission lines that are constructed and operated by a third party (not the TSO), an exemption from normal provisions is needed. Details are given by Regulation no 1228/2003 on conditions for access to the network for cross-border exchanges in electricity, article 7 and from 03.03.2011 Regulation no 714/2009 on conditions for access to the network for cross-border exchanges in electricity, article 17.