Nord Pool: A Successful Power Market in Difficult Times

By Erling Mork*

Editor's Note:This article is in rebuttal to the article by Ferdinand Banks, *Economic Theory and an Update on Electricity Deregulation Failure in Sweden,* in the First Quarter Issue of *IAEE News,* arguing that Nord Pool has not been particularly successful.

In the new world of deregulated, liberalised and restructured electricity markets, the Nordic market is often considered to be among the best. The Nordic electricity exchange, Nord Pool, considers itself the leading electricity exchange in the world. Yet Dr. Ferdinand Banks writes that Nord Pool is "overpraised" and has many flaws. I am one of the first to admit that the Nordic market is not perfect, as it faces difficulties such as low liquidity, lack of investment and regulatory risk. However, Dr. Banks has portrayed this market in a manner which I feel is undeserved, and in some instances, untrue. I hope to present another perspective on the current state of electricity markets in the Nordic region.

The first point I wish to address is Nord Pool's role in spot and derivative markets. One of Dr. Banks' major points, as he states in his conclusion, is that "...bilateral and other forward arrangements should maintain the dominant role in electricity trading, while conventional futures and options should be minimized...". For Nord Pool an important aspect of the market has been allowing it to trade freely and without undue restrictions both for physical and financial markets. Unlike other markets, such as the initial UK Power Pool, Californian power exchange CALPX and the current Spanish power exchange OMEL, the Nordic spot market has always been based on voluntary participation. Nord Pool's spot market share has grown over the years to about 33% of physical consumption as long-term bilateral contracts have expired and more volume is sent over the spot exchange. The "competition" the exchange faces from bilateral markets encourages it to improve its products, settlement procedures and bidding systems. Far from intending that the Nordic market be a large-scale spot market, as Dr. Banks claims, this physical part of the exchange was intended to exist aside physical bilateral and financial markets.

In the same way, Nord Pool's financial market has grown from the origins of bilateral and over-the-counter markets. Contrasting with many major exchanges, Nord Pool's direct membership approach essentially gives players a choice of whether to trade directly over the exchange or bilaterally. The decision to clear OTC-traded standardised contracts in 1998 was a deliberate choice to encourage liquidity growth in the market as a whole, rather than force liquidity over the exchange. In 2003 about 32% of financial volume was traded over the exchange. Standardised contracts are used for bilateral trading as well. This is why volume figures which sum the total amount traded and cleared, such as those published by *The Economist* (July 26, 2003), are in fact a meaningful measure of market size. Indeed, in 2003, which was a poor year volume-wise, players traded 1743 TWh either OTC or over the exchange. In 2002 the volumes were nearly double. Partially due to this free choice of trading place, we believe the share of non-cleared contracts (exotic derivatives, physically settled contracts, etc.) to be small, less than 5%. This is not a market which is forcing exchange mechanisms where they do not belong. On the contrary, most Nord Pool contracts listed today were initially traded bilaterally.

This explains why Nord Pool lists exchange-traded forwards, an unusual beast in financial markets. While short contracts are listed as futures, long contracts (currently those listed forward two months and up to four years) are listed as forwards. While the degree of standardisation has increased liquidity and volumes, many players in both bilateral and exchange markets find daily cash mark-to-market margin calls difficult to manage for long-term contracts. Note that this does not mean less security: Nord Pool's clearing mechanism ensures that daily losses on forwards are guaranteed by collateral or cash. Dr. Banks raises the question of why we, as opposed to the norm for futures exchanges, need to list derivatives up to several years forward? The answer lies in the nature of the commodity, and as the article points out repeatedly, electricity is unique. Non-storability makes seasonality important, and market players do not have the choice of whether to buy and hold or hedge. Hedging is the only option, so long-term hedging must be available. Liquidity is highest for medium-term forwards, and longer products are currently suffering from thinner markets caused, in part, by high price volatility. This is one of the challenges Nord Pool currently faces.

At this point I must point out that what Dr. Banks refers to as Contracts for Differences (CfDs) or swaps have a very special role in the Nordic market. Basis risk arises, according to Hull, when "the asset whose price is to be hedged may not be exactly the same as the asset underlying the futures contract."[1] In the Nordic derivatives market, this occurs when the futures or forward, which use the *area non-specific* "System Price" as a reference, deviates from the spot price *in a specific geographical area* to which the player is exposed. In not tying forward and futures to a specific area (of which there are 6-8 at any give time), players are able to trade without taking delivery area into account, which increases liquidity. The Nord Pool CfD is used to hedge this basis risk, the additional risk that the area price might deviate from the reference "System" price. Unlike the CfD known from the UK, which is a fixed-to-floating swap, this CfD can be viewed as a "reference-to-area" swap. This contract is mainly used for hedging rather than trading, and so volumes are naturally somewhat limited. This model has been successful in building overall market volume by maintaining liquidity in the reference contract.

Nord Pool has been successful as well in attracting many

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[1] See footnotes at end of text.

large players as traders, many of whom have not been based in the Nordic region and have used--and still use--Nord Pool as a "training ground" for trading electricity markets elsewhere, and I do not understand the basis for the statement to the contrary. Unfortunately for the markets, however, many major players exited trading operations following the Enron scandal. The realisation of the level of risk present in these markets came late to some, and caused a market consolidation. In some ways Nord Pool is still recovering from this loss, compounded by extraordinarily high prices and volatility in the winter of 2002-2003, which further tightened players' grip on risk capital. All the same, Nord Pool welcomed 20 new members to its financial market in 2003, and see large institutions again looking towards the Nordic region. The growth of the German market has competed for traders' attention and will hopefully foster a healthy competitive environment.

Is Nord Pool the perfect electricity market? Far from it. As touched on here, liquidity and volumes have suffered due to lack of risk capital and high volatility. The need for a variety of traditional and untraditional products spread liquidity more than it might for conventional commodities. Some issues not discussed here are equally important: taxation, lack of investment, end-user issues and environmental concerns. But both the Nordic market as a whole and the Nord Pool exchange have withstood the test of time. Rather than declaring this a failed experiment, we should work to continuously improve on what is by several measures a success.

Endnotes

1 Hull, John C., *Options, Futures, and Other Derivatives*, Fifth Edition, Prentice Hall, 2003, pg 75.

Electricity Market: Price Volatility No Flaw

By Tony Baldwin

When electricity spot prices spiked recently, the Major Users Group (which includes Comalco, Carter Holt, Pan Pac Forest Products and Winstone Pulp) protested: "The market is inherently flawed. Generators are price-gouging."

It is an easy catch-cry, but closer analysis shows the Major Users are likely to be wrong.

Over the weekend of 9 January 04, a section of the main North-South transmission line was blown over in a storm. Cheap hydro electricity from the South Island was temporarily unavailable in the North Island. In addition, some power stations in the North Island were out for maintenance. The result was a temporary power shortage in the North Island.

Spot prices in the North Island jumped sharply. For five hours on 12 January, prices spiked from 3c to $1.04 a unit. However, as soon as the damaged transmission line was repaired and hydro electricity from the South Island could once again flow north, North Island spot prices dropped back to around 3c per unit.

Spot prices jumped for two reasons. First, to reflect the higher cost of generating replacement power in the North Island. Second, to ensure that total consumption reduced to equal available supply. In any electricity system, supply and demand must always be equal.

The last units of available generation capacity are typically offered at high prices. This signals that supply is about to run out. For example, in December 03 the last increments of supply from Huntly (gas-fired) and Clyde (hydro) were offered at $2 a unit.

Generators are unlikely to have jacked-up their prices to exploit the temporary shortage. Publication of their pricing schedules is expected to show they were consistent with prices offered before the transmission outage occurred.

In short, the spot market worked well. The Major Users' claims appear to be unfounded. Volatility is an inherent part of an efficient electricity spot market. It is not a flaw.

The flaw is failing to hedge against it. Purchasing power on a fixed-price contract avoids spot market volatility.

Too many large electricity buyers appear not to understand price risk in relation to electricity. They do not seem to have digested how and why prices move, and do not accept that volatility in power prices is a business risk, like interest and exchange rates, which they have to manage – not the Government.

Generation costs vary dramatically. Key drivers are fuel costs (oil is more expensive than gas and coal), scarcity of water (the value of hydro increases sharply in 'dry periods'), transmission constraints (congested power lines can isolate some generation capacity) and consumer demand which varies with the time of day, weather and changing levels of economic growth.

The purpose of a spot market is to ensure that cheaper generation is used ahead of more expensive sources.

Many people believe the notion of an electricity market is simply a misnomer. No doubt, Jane Clifton spoke for most in saying: "…the mischief lies in the idea that electricity can be marketised...a benevolent, efficient state monopoly would be preferable." (*Listener,* May 2003)

Certainly, many Major Users prefer Government-controlled electricity systems as they find it much easier to win taxpayers subsidises in their power prices.

The main reason for moving to a market is *to* improve economic and environmental performance. Corner-stone aims include more efficient investment in new generation, and electricity consumption based on efficient price signals. The old government monopoly fell well short on these objectives.

Over the past 15 years, a standard model has emerged around the world. Professor Stephen Littlechild, the former regulator of the UK electricity market, points out that it has

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