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Briefing Paper

Nord Pool Spot and the Baltic Electricity Market: Difficulties and Successes at Achieving Regional Market Integration

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In April 2010 the three Baltic transmission system operators (TSOs) — Augstsprieguma tīkls of Latvia, Elering of Estonia, and Litgrid of Lithuania — agreed to create a common Baltic electricity market. According to the agreement, the three Baltic states would join the Nordic countries, Germany, and Great Britain in the Nord Pool Spot (NPS) exchange – one of the world's largest multinational electricity markets. This project has been of particular interest to the Baltic countries because of their continuing status as "energy islands" isolated from the rest of the European Union. As a crucial step in the European Commission's Baltic Energy Market Integration Plan (BEMIP), joining NPS was intended to increase energy security in the region by providing a direct link to additional sources of supply from Nordic electricity markets, while also fostering competition in electricity markets dominated by national monopolies.


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Despite the relative success of BEMIP in the electricity sector relative to the natural gas market, this program has unfortunately not yet fulfilled its initial promise. Since the final step in the completion of the Baltic power market—the opening of the Latvian bidding area—in June 2013, sudden price spikes have caused disagreements among the Baltic countries. One of the most obvious reasons for such price fluctuation lies in a lack of sufficient infrastructure. As former Lithuanian energy minister Jaroslav Neverovič has pointed out on various occasions, the common electricity market was politically initiated before the infrastructure was physically completed. This factor is at least being addressed, however, with interconnections such as Estlink 2 (between Finland and Estonia), which officially opened in March 2014[1], and both NordBalt (between Sweden and Lithuania) and the first stage of LitPol (between Lithuania and Poland) scheduled to come online by the end of

2015/beginning of 2016. Other reasons seem to be more political in nature, however. Estonian officials have accused their Latvian and Lithuanian counterparts of not keeping their promises and breaking market rules, threatening to leave the common market. To fully understand the context of those accusations one must first look at what the NPS really is and how it works—or, at least, how it is supposed to work.

What is Nord Pool Spot?

The main idea behind NPS is to provide a framework for producers, suppliers, distributors, and other market participants to trade electricity on a transparent basis in accordance with free-market principles. The functioning of the NPS is essentially quite simple. Trading is done on two markets: Elspot and Elbas. Elspot is a day-ahead auction, meaning that power is traded for delivery during the next day. Members place orders, hour by hour, through the web-based trading system. Producers place their bids in the bidding area in which the electricity is produced, while retailers correspondingly place bids in the area in which they wish to sell power. Simply put, this means that if a company producing electricity in Estonia wants to sell to customers in Latvia, it *first* has to sell the electricity it produces on the Estonian bidding area, and *then* buy power back on the Latvian one. When all orders have been submitted, equilibrium between the aggregated supply and demand curves should thus be established for all bidding areas. At 2:00pm Central European Time (3:00pm in the Baltics), after the closing of the Elspot auction, capacities available for Elbas – the continuous intraday adjustment market – are published. The main purpose of this latter market is to handle any unexpected changes in the energy balance, such as sudden drops in production (caused, e.g., by a power plant going offline) or sudden spikes in demand (e.g., due to extreme weather conditions).

Now that they are full members, the cross-border transmission capacities of the three Baltic states—together with those of other member countries—are also allocated by NPS. This is done in the form of implicit auctions: that is, auctions of electricity that implicitly include the necessary transmission capacity for bringing it to the country of consumption. The main benefit of this form of auction is that it is supposed to ensure that electricity flows from surplus to deficit areas (that is, from lower-price to higher-price areas), thereby helping to reduce the price difference. TSOs are responsible for creating a transparent, non-discriminatory, and competitive mechanism for allocating this implicitly auctioned transmission capacity. Accordingly, the three transmission system operators signed an agreement prior to the opening of the Latvian price area in June 2013. The agreement was most important for the Estonian-Latvian border, since among the three Baltic countries, Estonia alone has an overall electricity surplus. Hence, it makes sense—especially due to the very limited (about 500-900 megawatts, or MW) capacities on the EST/LV border—to transmit power from Estonia to Latvia and onward to Lithuania rather than the other way around. Implicit auctions were chosen by the TSOs to guarantee that this would indeed happen.

In addition to the TSOs, the national regulatory authorities of Estonia, Latvia, and Lithuania (respectively the *Konkurentsiamet* [Competition Authority], *Sabiedrisko pakalpojumu regulēšanas komisija* [Public Utilities Commission] and *Valstybinė kainų ir energetikos kontrolės komisija* [National Control Commission for Prices and Energy] play an essential role in ensuring that the market functions correctly. These national authorities all belong to the European Agency for the Cooperation of Energy Regulators (ACER), which can issue non-binding opinions and recommendations on certain specific cases; under certain strict conditions, it can even issue binding individual decisions on cross-border infrastructure issues. Nevertheless, ACER is not responsible for monitoring the behavior of market participants. Nor is it ACER's obligation to assure that national producers, TSOs, or distributors communicate with their counterparts in other countries to ensure for example that there are not too many maintenance-related shutdowns at any given time. All in all, there have been talks about whether national regulatory authorities should have more power to prevent the emergence of such issues. Estonian deputy state secretary for energy Ando Leppiman has cited this issue as one of the main outstanding challenges to the smooth operation of NPS.[2]

Summer 2013: Increased Prices, Increased Political Tensions

Even after putting in place all the above-mentioned measures, the functioning of the common (Nordic-) Baltic electricity market has not been quite as smooth as hoped due to price fluctuations. The most significant spike in electricity prices occurred in the middle of June 2013, when the price per megawatt hour (MWh) went up to about €200 in the Baltic Elspot areas, in contrast to the yearly average price of less than €40 in 2012.

There were several immediate causes of this price spike. First was a drop in production in Latvia, due to the low level of the Daugava river (the source for several key hydroelectric plants) seasonal factors (cogeneration plants, i.e., those that produce both heat and electricity, are less efficient during summer periods of low heat demand), and to flawed (or absent) infrastructure. Furthermore, an unexpectedly high number of power plants underwent repair projects at the same time. From the overall Baltic production capacity of 9200 MW, as much as 3450 MW was offline due to repairs, with Lietuvos Energija (745 MW), Latvenergo (443 MW), Vilniaus Energija (360 MW) and Eesti Energia (720 MW) having the biggest production units out of service.

Furthermore, some imports were lower than usual. For reasons still being investigated by Lithuanian government, only 80 MW of an overall import capacity of 1300 MW on the Lithuanian-Belarusian border was in use, further exacerbating the power deficit in the country. Also, during warm summers, the Estonian-Latvian border is capable of transmitting less power than usual due to the effect of heat on the transmission cables. The result of above factors was a situation in which production was abnormally low and prices abnormally high.

While the unexpected degree and nature of the price increase would have inevitably created difficulties for consumers, producers, and governments alike under any circumstances, the issue soon began to take an international

dimension. Indeed, months after prices began to recede, the dispute among the three Baltic states that began after the price spike in June continued to fester. Estonian officials accused their Latvian and Lithuanian counterparts of unfair play—accusations that were repeated in turn. Beginning immediately after the price spike**,** Juhan Parts, then the Estonian minister whose portfolio included energy, claimed that by allegedly holding back their electricity production from the NPS, Latvia and Lithuania were responsible for driving prices higher. Three months later he also sent a rather angry letter[3] to his Baltic counterparts claiming that Latvia and Lithuania had not opened their electricity markets as promised.

Moreover, there have also been non-public charges—as confirmed off the record to ICDS by officials from several countries—that Lithuania had been buying cheaper electricity from Russia on a bilateral basis. Such actions, of course, would have been in violation of the agreement made among the Baltic TSOs to conduct all trade with third countries through the spot market. Although these claims were not reported in published sources, they do help explain why Lithuania declined to purchase all of its electricity through NPS in 2013: Russian prices for bilateral electricity exports were simply much lower than those on the spot market. Part of the reason for this differential is that when exporting electricity to Latvia and Lithuania, sellers had to pay a transmission fee of approximately 10€/MWh—a fee that did not apply when importing from third countries such as Russia. [4]

At the same time, a technical debate began about whether the implicit auction system described above should be replaced by the previous system of explicit auctions, according to which power and transmission capacity are auctioned separately. Andres Tropp of Eesti Energia explained the situation at the end of 2013 by saying that virtually all electricity produced in Latvia and Lithuania at the time was sold to consumers outside the common market, making prices on the exchange unreasonably high and non- transparent.[5] Combined with the alleged unpredictability of transmission prices on the Estonian-Latvian border, this led to Eesti Energia's decision to stop signing new fixed-rate contracts in Latvia and Lithuania in September 2013.

Tropp also accused the Latvian company Latvenergo (via its subsidiary Elektrum) of supplying electricity to Estonian customers directly rather than via the exchange, thus directly violating market rules. The Latvian side rejected Estonia's accusations, with for instance Latvenergo sales director (and Elektrum CEO) Gatis Junghāns pointing out that it is not even possible to sell electricity directly from Latvia and Latvenergo to Estonia, because the whole of Estonian-Latvian transmission capacity is at the disposal of Nord Pool Spot.[6] Junghāns instead attributed the high prices on the Baltic exchange areas to the bottleneck on the Estonian-Latvian border. Similarly, former Lithuanian energy minister Neverovič countered accusations of deliberate malfeasance by saying that Estonians should focus on getting the market to perform better instead of blaming others.

Future Outlook

Some of the problems with the functioning of the common electricity market are already on their way to being resolved, especially the most important one: the lack of proper infrastructure. Accordingly, the new EU budget for 2014-2020 allocates €5.12 billion to infrastructure within the framework of the Connecting Europe Facility (CEF). In addition to the cross-border connections that are about to come on line—that is, NordBalt, LitPol, and the third Estonia-Latvia electricity interconnector (due by 2020)—a liquefied natural gas (LNG) terminal was constructed at Klaipėda in Lithuania. Regarding gas, there are plans to build a major regional terminal in Finland (along with a possible smaller local one in Estonia) as well as two major gas pipelines: Balticconnector, linking the site(s) of the terminal(s) in Estonia and Finland, and the Gas Interconnector Poland-Lithuania (GIPL) line.

By diversifying supplies and fostering a spot market for natural gas in a region highly dependent on Russian oil-indexed pipeline imports, these steps will enhance energy security in the region while, ideally, lowering gas prices as well. This would greatly benefit Latvian and Lithuanian electricity producers in particular, since a large proportion of their electricity is generated from gas. At the moment the two countries have chosen to produce less electricity than their maximum generating capacity would allow, as the price of gas inputs make such electricity supplies uncompetitive. Furthermore, there have been plans to build a nuclear power plant in Visaginas, Lithuania, which if completed would considerably expand capacity. Moreover, regarding the transmission capacity bottleneck on the Estonian- Latvian border, investment plans have been submitted and are awaiting approval by national regulators.

Other changes may now finally take effect. For example, while both Latvia and Lithuania admitted in June 2013 that they sold most of their electricity directly to consumers (something that Neverovič and Junghāns defended as normal, in accordance with market rules and Scandinavian practice)[8], both countries subsequently promised changes. Specifically, Latvenergo has promised to sell all of the electricity it produces to the market starting as soon as necessary changes in Latvia's legal system have taken effect, while former Lithuanian deputy energy minister Žydrūnė Juodkienė declared that her country would begin to phase out by this year the current requirement for public suppliers to make direct sales to customers who have opted out of the power exchange. Moreover, Latvian household customers officially joined NPS in January 2015, a move postponed from April 2014 due to fears that prices would increase by up to 40%.[*]

One of the more radical suggestions to improve the functioning of the market has been to give national regulators more control over TSOs, a question raised by Estonia's Ando Leppiman. He has also suggested regulating maintenance-

[*] While results for the first quarter of 2015 have not yet been released, preliminary analysis shows these fears not to have been justified; Latvia saw a month-on-month decrease of, for example, 18% in February; see http://elering.ee/electricity-market-price-falls-by-nine-per-cent-in-march/

related shutdowns at major power stations, in order to prevent the reoccurrence of what happened in mid-June 2013, when many power stations were temporarily offline for repairs at the same time. While Nord Pool's internal communications system provides regular information about all maintenance projects and related problems, it does not coordinate or direct such occurrences.

Conclusions

Though there are some problems with the common Nordic-Baltic power market at the moment, in the long run it is surely more beneficial for the countries involved not to abandon the project. One of the reasons why is also the main reason the EU has pushed for the common electricity market in the first place: because such a market, assuming sufficient interconnections, would foster true competition between sellers—which, in turn, would make the producers work harder to generate electricity as cheap as possible.

Furthermore, the common market enhances the security of supply in countries where such security is currently lacking. For the Baltic states, this means reduced dependency on Russian electricity exports, which have been unreliable and subject to political manipulation at times. Even Estonia, which is in a relatively better position than its neighbors at the moment with its current generation surplus, will most probably need to import more electricity in a decade or so, as it phases out oil shale generation (which currently accounts for 89% of the electricity produced in the country). Thus it makes sense even for Tallinn to keep investing in interconnections with other EU members for the sake of maintaining its energy supply reliability both in the near future and, especially, in the longer term.

All in all, at the moment there is much to look forward to when talking about the development of the common power market, especially when it comes to EU's infrastructure projects in the region. Yet, TSOs, national regulators, and the NPS management need to find a way to monitor the market and its participants more effectively in order to avoid preventable clashes such as scheduling too many maintenance projects at the same time. While the common market has indeed come a long way and has much longer to go, the energy future is still looking brighter for the Baltics.

[1] "EstLink 2 Has Considerably Increased the Cross-Border Electricity Flow in the Baltic Sea Region", Elering press release, March 6, 2014, available at http://elering.ee/estlink-2-has-considerably-increased-the-cross-border-electricity-flow-in-the-baltic-sea-region-new-interconnection-inaugurated-today/

[2]Andrus Karnau, "Ministry Minded to Restrict Electricity Market", *Postimees*, July 3, 2013, available at http://news.postimees.ee/1289168/ministry-minded-to-restrict-electricity-market

[3] Andrus Karnau, "Parts Sends Angry Letter to Baltic Ministers Concerning the Electricity Market" (Parts saatis elektrituru küsimuses kurja kirja Balti ministreile), *E24*, September 4, 2013, available at http://www.e24.ee/1371516/parts-saatis-elektrituru-kusimuses-kurja-kirja-balti-ministreile

[4] Merily Murd, *Electricity Market Overview*, Enefit, October 2013, available at https://www.enefit.lt/-/doc/7211375/pdf/market_overview_october2013.pdf

[5] Andres Tropp, "There is No Such Thing as Cheap Latvian Electricity for Consumers" (Odavat Läti elektrit pole tarbija jaoks olemas), Eesti Energia blog, October 18, 2013, available at https://www.energia.ee/et/blogi/-/blogs/2013/10/18/odavat-lati-elektrit-pole-tarbija-jaoks-olemas#2013/11

[6] "Baltic Power Market Rift Continues", *ERR News*, October 29, 2013, available at http://news.err.ee/economy/c5f46595-dd97-4126-9aa3-6e8a3f5a4597

[7] Gatis Junghāns, "Transmission Restrictions Divide the Baltics into Different Price Regions"(Pārvades ierobežojumi sadala Baltiju atšķirīgu cenu reģionos), Latvenergo blog, September 13, 2013, available at http://www.energoblogs.latvenergo.lv/2013/09/13/parvades-ierobezojumi-sadala-baltiju-atskirigu-cenu-regionos/

[8] "In Electricity Market Row, Lithuanian Minister Deflects Complaints", *ERR News,* November 8, 2013, available at http://news.err.ee/politics/c23c3eff-0cc4-4666-bbc4-dbc68516144f

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