



Nord Pool Spot, 26 September 2013

Technical error in Elspot price calculation 4 August 2013

1. Description

On Sunday 4 August 2013 Nord Pool Spot was unable to complete the calculation of area prices and system price for the Elspot market for Monday 5 August. According to Appendix 2a to the General Terms – Elspot Market Regulations point 8.1.2 Nord Pool Spot declared a failure of the price calculation. Prices and trading results from Friday 2 August 2013 were therefore applied.

8.1.2 If Nord Pool Spot is not able to determine prices before the delivery commences, the Price Report from the previous day will be valid hour by hour, as long as the situation lasts. Previous day means the previous Banking Day if the computer technological failure has effect on a Banking Day, and the previous holiday if the computer technological failure has effect on Saturdays, Sundays and specified holidays.

From **Appendix 1 – Definitions** – Banking Day is defined as follows:

Banking day means a day in which banks in Norway perform banking activities.

Price calculation procedures went as normal until gate closure at 12.00 CET.

Nord Pool Spot's order book was sent to the European Market Coupling Company (EMCC). The EMCC calculation and procedures were carried out according to schedule and the calculation for System price and Area prices was activated as normal.

The price calculation of both the System price and the Area prices did not return a result before the defined time limit (15 minutes) expired. The normal calculation time for the Area prices and System price is less than two minutes.

All Nord Pool Spot procedures for such a situation were activated. Troubleshooting through systems and input data commenced immediately and additional desk and IT resources, including algorithm competence, were utilised.

A first operational message about delay of the Elspot prices was published on Nord Pool Spot's website at 12:55. Thereafter the website nordpoolspot.com was regularly updated.

Poland was decoupled at 15:30 (according to agreed procedure). TGE, the Polish power exchange, proceeded to calculate Polish prices locally.

The possibility of going into a no-price situation was discussed at 16:00. From discussions in the Nordic Operational Group (NOG) it was estimated that the Transmission System Operators (TSOs) would need four hours to prepare for a no-price situation and at the same time maintain security of supply. The time limit for prices to be calculated and communicated was agreed to be set at 20:00 CET. All the Nordic and Baltic TSOs were kept informed about the status of the situation, by telephone.

To prepare the market for a no-price situation the following operational message was published to the market at 18:41 CET:

ELSPOT: Auction results for Monday 5 August 2013

04-08-2013 18:41:00

In case Elspot auction results are not published before 20:00 CET Elspot prices and Elspot volumes from Friday 2 August 2013 will apply. This is in accordance with [Nord Pool Spot's Rulebook Elspot Market Regulations paragraph 8.1.2](#).

A confirmation will be published via an Operational Message at Nord Pool Spot's homepage at 20:00 CET.

Nord Pool Spot will not re-publish the results for Friday 2 August 2013, this has to be copied manually.

At 20:00 CET an operational message was sent to confirm that Elspot prices and Elspot volumes from Friday 2 August would apply for Monday 5 August 2013 in accordance with [Nord Pool Spot's Rulebook Elspot Market Regulations paragraph 8.1.2](#). The message was distributed by e-mail to traders and operation rooms registered in Nord Pool Spot's customer relations system.

Throughout the incident Nord Pool Spot followed all its established routines and market members were kept informed.

2. Consequences

TSOs and EMCC

According to the Nordic TSOs, operation of the system during Monday 5 August was manageable. Consumption was similar on Friday 2 and Monday 5 August, generation from nuclear plants and available transmission capacity were about the same and wind conditions were similar.

In general there was little regulation in the Nordic markets (regulating market). The regulating power prices were similar to the published Elspot prices in Norway, Sweden and Denmark. Up-regulation in Finland showed higher balancing prices from the morning and throughout the day.

The TSOs in Estonia, Latvia and Lithuania also reported that operations were manageable on Monday 5 August.

For the SwePol link the flow on the cable was set to 0 due to the decoupling at 15:30. With the prices and trading results from Friday 2 August there was an imbalance of 600 MW from the morning throughout the day in SE4. There was little regulation in SE4 on Monday 5 August, and the regulation price was close to the Elspot price for SE4.

There were significant changes in the exchange of power between Denmark and Germany between Friday 2 and Monday 5 August. While Denmark was importing power from Germany on Friday, the volume coupling operated by EMCC between Central Western Europe and the Nordic countries results showed export from Denmark to Germany. EMCC was left with considerable imbalances in DK1 and DK2 areas.

Market members

Market members experienced smaller or larger imbalances with different economic consequences depending on the difference in each member's bidding, and the cost of imbalance on Monday 5 August.

For members with imbalances it was possible to trade in the Elbas market. Special attention was given to the operation of the Elbas system during the hours following this incident. Members in Latvia and Lithuania did not have the opportunity to trade their imbalance in the Elbas market as the intraday market has not yet been introduced in those countries.

Members experienced operational challenges as Nord Pool Spot was not able to re-publish trading results from Friday with the correct date of Monday. The manual work involved, particularly for members with several trading portfolios, was considerable.

3. Actions from Nord Pool Spot

Short term

Flexible hourly offers

After its first round of thorough analysis Nord Pool Spot has identified that the incident on Sunday 4 August was linked to the algorithm's handling of flexible hourly offers near the resulting System and Area prices. In view of this Nord Pool Spot decided to suspend flexible hourly offers until it is entirely confident that all issues related to the algorithm's handling of them have been satisfactorily resolved.

- From 7 August use of flexible hourly offers was limited to one per member, and from 31 August flexible hourly offers were suspended until further notice.
- Revision of rulebook with immediate effect has been undertaken and the market was informed.

Investigation of the detailed reason for the technical error arising is on-going.

Long term:

Rulebook

There will be a thorough review of Nord Pool Spot's rulebook related to incident handling, in particular the fallback clause in case of a failure of the price calculation. The review will be undertaken in cooperation with TSOs and other stakeholders. Any potential change to clause 8.2.1 of the rulebook will aim to ensure transparency and equal treatment for all parties.

Technical

Nord Pool Spot will continue to work to assess and solve the technical problem and implement long term solutions.

Nord Pool Spot will increase focus and intervals for periodical stress tests for the algorithm as market and bidding behaviour changes.

4. Further considerations linked to the North-Western Europe (NWE) and Price Coupling of Regions (PCR) projects

Operational:

Procedures will be read with this incident in mind and any rulebook updates will take account of NWE/PCR procedures.

Technical:

The data for Monday 5 August have been successfully tested in the NWE/PCR algorithm Euphemia which is able to calculate prices, including the flexible hourly offers.

Nord Pool Spot will aim to re-introduce flexible hourly offers no later than launch of the North-Western Europe (NWE) price coupling project.