Introduction

Anders Plejdrup Houmøller, CEO Houmoller Consulting ApS

⇒ Appendix 1 explains how the spot prices in Northern Europe are calculated.

⇒ Appendix 2 contains a list of the terms and acronyms used in this presentation
  ✓ In appendix 2 you’ll also find a map of the Baltic-Nordic price zones.

⇒ Concerning documents referred to in this presentation:
  ✓ At houmollerconsulting.dk, you can download the documents from the sub-page Facts and findings.

⇒ This PowerPoint presentation is animated
  ✓ It’s strongly recommended to run the animation when viewing the presentation.

⇒ On most computers, you can start the animation by pressing F5.
  ✓ Now the presentation moves one step forward, when you press Page Down. It moves one step backward, when you press Page Up.
Crash of Nord Pool Spot’s re-calculation of the spot prices

Concerning the spot prices for 13 August 2012:

- Nord Pool Spot’s re-calculation of spot prices for the Baltic-Nordic-Polish area crashed
  - Because Nord Pool Spot was unable to include Poland in the re-calculation.

- The crash inflicted a loss of **EUR 900 000** on Baltic-Nordic sellers of electricity
  - As the crash blocked the planned spot export from the Baltic-Nordic area to Poland.

Due to lack of transparency, the analysis can not include this, but:

- The buyers in Poland have necessarily suffered a similar loss.
- And there’s the **loss because the financial contracts were settled using wrong spot prices**
  - This loss is substantial: the volume of the financial contracts exceeds the consumption with a factor of more than than 4.
Lack of transparency

⇒ Again, there is a severe lack of transparency – no publishing of EMCC’s spot prices. Also, many months after the accident still no Exchange Information from Nord Pool Spot informing on:
  ✓ What was the problem.
  ✓ Which steps will be taken to prevent this happening again.

⇒ As for the spot prices: an analysis of the flows and the published German and Nordic spot prices makes it possible to figure out the EMCC prices.

⇒ As the analysis reveals: for the two price zones in Southern Sweden (SE3 and SE4), we must assume EMCC calculated the same prices.

⇒ Also for the two Danish price zones, we must assume EMCC calculated the same prices.

⇒ Nord Pool Spot’s attempt to re-calculate the prices also gave the same prices in SE3 and SE4.

⇒ And the same prices in DK1 and DK2.

⇒ However, due to the inability to include Poland in the re-calculation, the re-calculation produced wrong spot prices!

The Swedish price zones SE3 and SE4

Loss for Swedish sellers:
EUR 680 000 ≈ SEK 5 600 000

Spot prices estimated from EPEX Spot’s published German spot prices

Spot prices first calculated by EMCC*

Economic optimization for the whole coupled region by Nord Pool Spot’s re-calculation

EUR/MWh

Time of day

* EMCC prices estimated from EPEX Spot’s published German spot prices
Spot prices in Denmark 13 Aug. 2012
The two Danish price zones DK1 and DK2

Spot prices first calculated by EMCC*). Economic optimization for the whole coupled region

Spot prices produced by Nord Pool Spot’s re-calculation

Loss for Danish sellers:
EUR 130 000 ≈ DKK 970 000

*) EMCC prices estimated from EPEX Spot’s published German spot prices
In a time where the producers are laying off staff due to low revenue, it’s stunning the Baltic-Nordic producers have to shoulder extra losses caused by the spot exchanges’ erroneous re-calculation of the spot prices.

And stunning the Polish buyers do not get electricity at the market price.

So the mutual benefit of international trade is lost because of an attempt to carry out a redundant re-calculation.
The losses inflicted – 1

By the spot exchanges’ redundant re-calculation of the spot prices

dling with more than a year (from September 2008 to November 2009)

Reason: when the market coupling was first launched in September 2008, Nord Pool Spot’s re-calculation of the Nordic spot prices failed daily.

For Germany and Denmark, the socio-economic losses due to the delay of the market coupling was more than EUR 24 mill.

The spot prices for 11 Nov. 2009: the re-calculations of both the German and the Nordic spot prices failed

Inflicting an as yet uncalculated loss on the market players.

The spot prices for 1 Dec. 2009: Nord Pool Spot’s re-calculation of the Nordic spot prices failed

Inflicting a loss of EUR 223 000 on buyers in Eastern Denmark.
The losses inflicted – 2
By the spot exchanges’ redundant re-calculation of the spot prices

- The spot prices for 28 March 2011:
  - The CWE exchanges’ re-calculation of the spot prices for the CWE area crashed.
    - Leaving the buyers paying up to 2999 EUR/MWh, although the market situation did not justify such prices.
    - Inflicting an as yet uncalculated loss on market players.

- For 12 October 2011 Nord Pool Spot’s re-calculation of the Nordic spot prices failed
  - Inflicting a loss of EUR 457 000 on buyers in Eastern Denmark.

- For all these days – as for all other days – we must assume EMCC software produced reliable spot prices
  - Market players and societies would have had no losses, if EMCC’s spot prices had been used in the spot settlement.

Dec. 4, 2012
Anders Plejdrup Houmøller
Unregulated monopolies are expensive
Much too expensive for a Europe mired in austerity and crisis

/problem: market coupling and market splitting make the spot exchanges monopolies*)

✓ And no corresponding EU regulation is in place to ensure high-quality, low-cost operation of the monopolies
  • As the exchanges’ track record and the exchanges’ proposals for future market coupling testify.

/solution: establish an efficient EU regulation of the monopolies

✓ And create a market coupling governance granting formalised influence to consumers, producers, market players and TSOs.

*) Please refer to the PowerPoint presentation Market coupling makes real competition betw. spot exchanges unfeasible
Appendix 1

Calculation of the spot prices in Northern Europe
Calculation of the spot prices in Northern Europe – 1

The daily operation

First, based on the spot bids and the trading capacities between the 22 price zones: EMCC calculates the spot prices and the flows for the 22 price zones in the CWE-Baltic-Nordic-Polish area.

CWE (Central Western Europe): green area. However, the EMCC spot prices and most of the EMCC flows are kept secret and never published (note the lack of transparency).

Only the EMCC flows on the four interconnectors linking CWE and Scandinavia are published.

For each hour for each of these four links: based on the EMCC flows, a price-taking purchase bid is submitted to the exchange at one side of the link.

A corresponding price-taking sales offer is submitted to the exchange at the other side of the link.

EMCC calculation: economic optimization of the whole coupled area

Copyright Houmoller Consulting ©11
Calculation of the spot prices in Northern Europe – 2

The daily operation

As an example for one hour for the NorNed link between Norway and the Netherlands:
Assume EMCC’s calculation gives a southbound flow of 700 MW.
In this case, EMCC submits a price-taking purchase bid of 700 MWh to Nord Pool spot in Norway – and a price-taking sales offer of 700 MWh to APX in the Netherlands.

Next, after reception of the price-taking bids:

For the 5 CWE price zones, the spot prices and the internal CWE flows are re-calculated by the CWE spot exchanges.
For the 17 Baltic-Nordic-Polish price zones, the spot prices and the internal flows are re-calculated by Nord Pool Spot.
Problems with the re-calculation

Problem no. 1: the re-calculation are sub-optimizations for sub-regions of the coupled area

Hence, the re-calculation are not only redundant

Because they are sub-optimizations, they can fail to reproduce the prices calculated by EMCC for the whole area

As the re-calculation track record testify.

Please refer to the PowerPoint presentation Market coupling – European price coupling.

Problem no. 2: the re-calculation have repeatedly crashed due to errors in the exchanges’ recalculation software or operational errors made at the exchanges!
Appendix 2
Terminology and acronyms
Terminology and acronyms – 1

As used in this presentation

**Baltic-Nordic price zones**  For the locations and acronyms of current Baltic-Nordic zones, please refer to the figure.

**Border**  means a border between two price zones. Hence, it need not be a border between two countries. It may be a border between two price zones inside a country.

**Coupled region**  A geographical area, for which you have a common IT system calculating the area’s flows and spot prices by using: the market players’ spot bids and the day-ahead cross-border trading capacities.

**CWE**  Central Western Europe. Strictly speaking, CWE means Belgium, France, Germany, Luxembourg and the Netherlands. However, in this document CWE includes Austria also.
Terminology and acronyms – 2
As used in this presentation

- **Double auction**  A calculation method whereby an exchange’s price is set by calculating the intersection between the exchange’s supply curve and the exchange’s demand curve.

- **EMCC**  European Market Coupling Company.

- **Energy flow**  Actually, in this presentation, “energy flow” means “day-ahead plans for cross-border energy flow”.

  Note that market coupling/splitting does not create energy flows. It merely creates day-ahead plans for the cross-border energy flows. Later, these plans may be modified by market players’ intra-day, cross-border trading and/or the TSOs’ cross-border trading of regulating energy.

- **Flow**  Short-term for energy flow.

- **Market coupling**  A day-ahead congestion management system, you can have on a border, where two electricity exchanges meet. The day-ahead plans for the cross-border energy flows are calculated using the two exchanges’ bids and information on the day-ahead cross-border trading capacity.
Terminology and acronyms – 3
As used in this presentation

Market splitting A day-ahead congestion management system, you can have on a border, where you have the same electricity exchange on both sides of the border. The day-ahead plans for the cross-border energy flows are calculated using the exchange’s bids and information on the day-ahead cross-border trading capacity.

Nordic and Nordic area refer to the countries Denmark, Finland, Norway and Sweden.

Price zone A geographical area, within which the players can trade electrical energy day-ahead without considering grid bottlenecks.

Price-taking bid The common term for a price-taking purchase bid and a price-taking sales offer.

Price-taking purchase bid A spot bid where the buyer is willing to buy at any price – even the exchange’s maximum price.
Terminology and acronyms – 4
As used in this presentation

- **Price-taking sales offer** A spot bid where the seller is willing to sell at any price – even the exchange’s minimum price.
- **Scandinavia** Denmark, Norway and Sweden.
- **Spot bid** A purchase bid or a sales offer submitted to a spot exchange.
- **Spot export** Export from a region organised via the spot trading.
- **Spot exchange** In this document, a spot exchange is an electricity exchange where
  - Electrical energy is traded day-ahead.
  - The day-ahead prices are calculated by means of double auction.
- **Spot price** A price calculated by a spot exchange. Either by a the spot exchange itself or by a company, to which the calculation has been outsourced.
- **TSO** Transmission System Operator.
- **Zone** Short-term for price zone.
Thank you for your attention!

Anders Plejdrup Houmøller
Houmoller Consulting ApS
Tel. +45  28 11 23 00
anders@houmollerconsulting.dk
Web houmollerconsulting.dk