

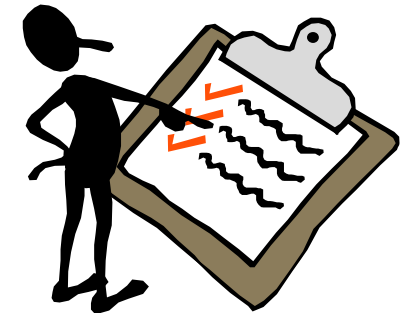


Introduction

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- ⇒ **In the appendix, you'll find a list of the terms and acronyms used in this PowerPoint presentation.**
- ⇒ **Concerning the documents referred to in this presentation:**
 - ✓ **At *houmollerconsulting.dk*, you can download the presentations from the sub-page *Facts and findings*.**
- ⇒ **This PowerPoint presentation is animated**
 - ✓ **It's 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.**

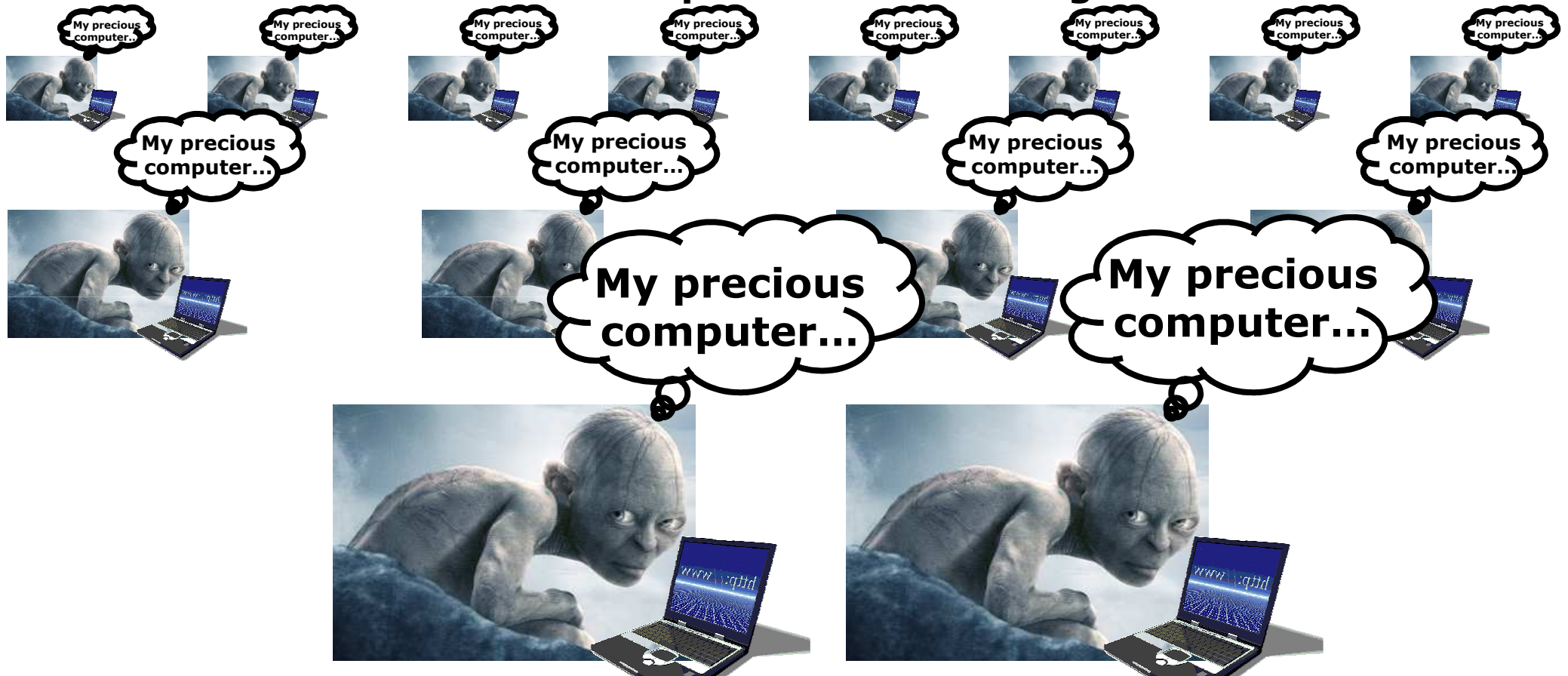
European market coupling



- ⇒ **Preconditions for a well functioning Single European Electricity Market:**
- ✓ **A well-functioning day-ahead congestion management system**
 - **Creating economical optimal energy flows.**
 - ✓ **Reliable spot prices.**
 - ✓ **Fair and secure influence for all stakeholders: nations, consumers, producers, market players and TSOs.**
 - ✓ **A cost-efficient way of achieving the three things mentioned above.**
- ⇒ **This presentation will argue, we need a **single spot price calculation in order to have a well functioning Single European Electricity Market.****

The exchanges seem to cling to the idea of a spot calculation per exchange (their PCR model)

Lots of redundant calculations: based on all spot bids submitted in the whole, coupled area, each exchange calculates all the spot prices and all the flows for the whole coupled area – all using the same software.



This is an extremely expensive form of price coupling!
And very dangerous, too: we have previously seen a local calculation centre straying from the agreements – thereby producing unreliable spot prices

The circular firing squad

However, apparently this is the only thing the spot exchanges can agree on.

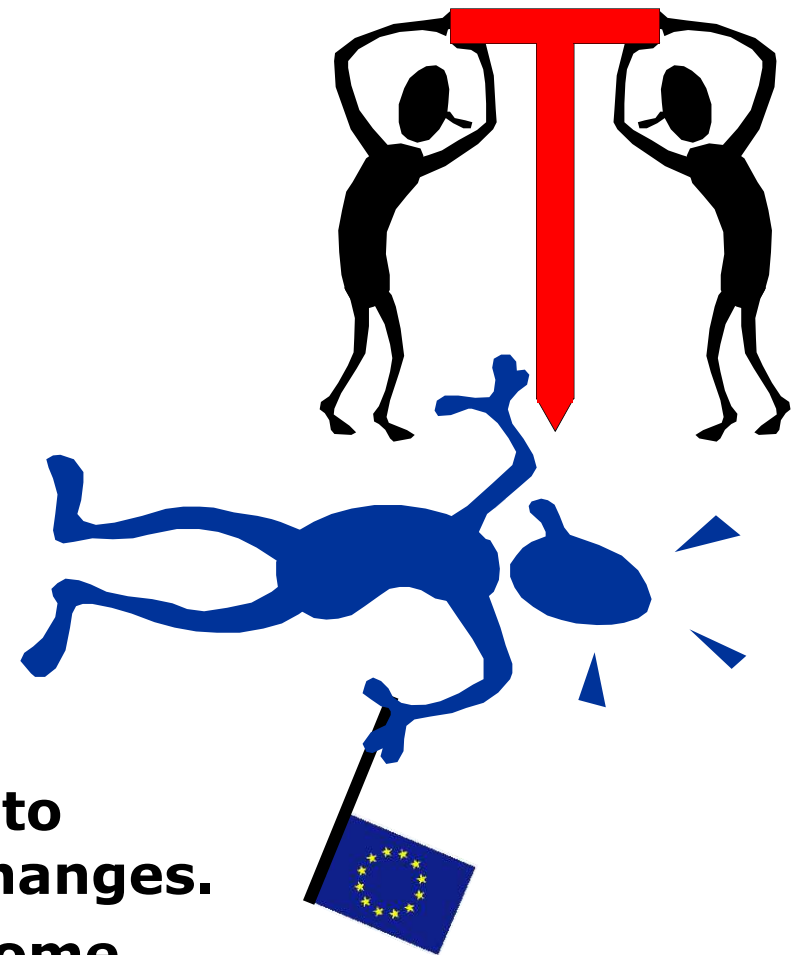
During the last months of 2011, we witnessed a bizarre upheaval

When Nord Pool Spot and EPEX Spot tried to force their spot price calculation software down the throat of Europe.

This caused the European Commission to launch an investigation of the two exchanges.

Unfortunately, the spot exchanges become monopolies, when we introduce market coupling.*)

However, the monopoly should not be abused (eg, by trying to force-feed Europe a given trading system).

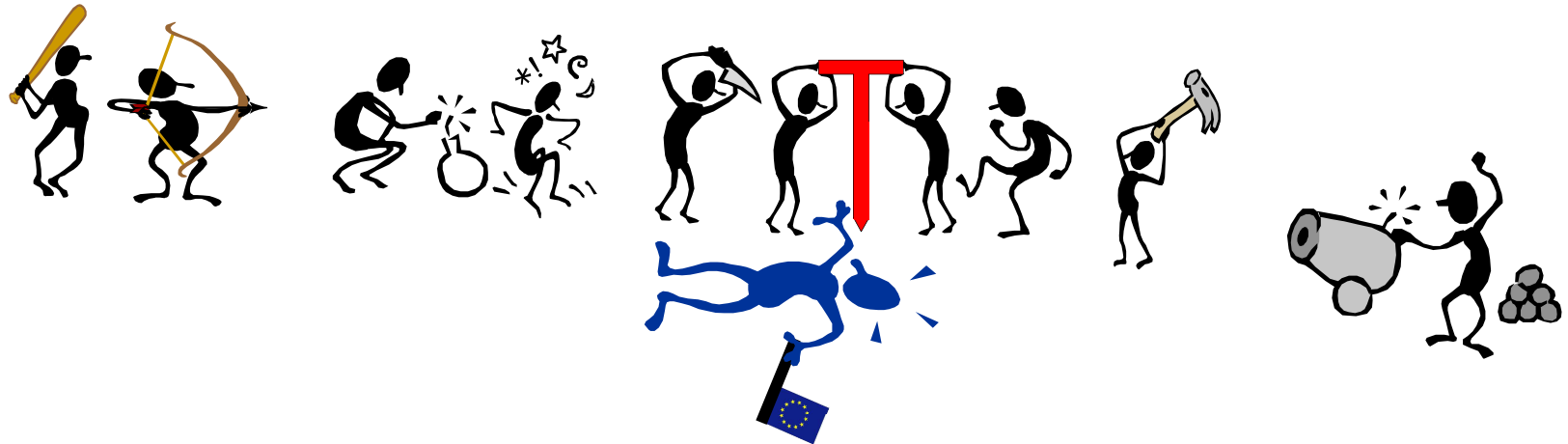


***) Please refer to the PowerPoint presentation *Market coupling makes real competition betw spot exchanges unfeasible* and the PDF document *Unbundling of spot exchanges and associated clearing houses*.**

**European
Commission**



End user



The scheming and bickering among the spot exchanges look like a re-run of The Muppet Show.

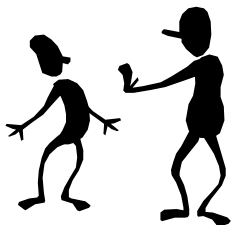
This is not the way to create The Single European Electricity Market...

Harmonisation and market coupling – 1

With market coupling, no exchange can single-handed introduce new products. Everything has to be agreed across the coupled area

⇒ **Even with the current ITVC coupling between CWE and the Baltic-Nordic area, the individual spot exchanges cannot have their own product development**

- ✓ **For example: a new, complicated bid type cannot be introduced by a spot exchange, before the bid is installed in the EMCC market coupling software**
 - **And if the new bid increases the calculation time of the EMCC software a lot, the other parties in the coupling may refuse to install the bid in the market coupler's software**



– Thereby making it impossible for the spot exchange in question to introduce the bid.

Harmonisation and market coupling – 2

With market coupling, no exchange can single-handed introduce new products. Everything has to be agreed across the coupled area

⇒ When we move to price coupling the harmonisation will be even stronger

- ✓ Among other things, price coupling means using the same spot price calculation algorithm for the whole, price coupled area**
 - Therefore: if a spot exchange introduces a new type of bid, this bid must be included in the common price calculation algorithm**
 - Actually, this means the bid will automatically be available for all players in the price coupled area!**
 - Hence, price coupling automatically imposes a common spot exchange product development**
 - Across the whole, price coupled area.**



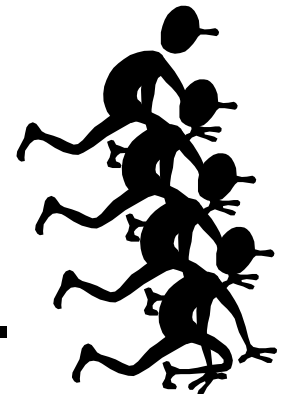
Harmonisation and market coupling – 3

With market coupling, no exchange can have own procedures for the daily price calculation

- ⇒ **Even with the current ITVC coupling between CWE and the Baltic-Nordic area, the individual spot exchanges cannot have their own procedures for the spot price calculation**
 - ✓ **If a crisis erupts during the price calculation, everybody must painstakingly do exactly as agreed in advance**
 - **As can be seen in the extremely complicated ITVC emergency decision tree.**
 - **Because: otherwise the spot price calculation will go down the drain – leaving the market with unreliable spot prices.**
- ⇒ **Naturally, when we move to price coupling this will be the same**
 - ✓ **Even if each spot exchange has a local computer, the individual exchanges cannot take own decisions in the daily price calculation (eg, if a crisis erupts during the price calculation)**
 - **As this would cause the different calculations to yield different results.**

Creating the Single European Electricity Market

- ⇒ Actually, it's very fortunate price coupling introduces this harmonisation.
- ⇒ **A necessary condition for a Single Market for Electricity is a single set of spot exchange products across the whole market**
 - ✓ All players must have access to the same products
 - Otherwise we'll not have a level playing field for the competition on the whole-sale market.
- ⇒ Also, in order to have a level playing field for the competition, the procedures used in the daily spot price calculation must be the same across the whole market.
- ⇒ *A case: the Baltic-Nordic area has a harmonised set of spot exchange products*
 - ✓ *Although the Baltic-Nordic countries have very different electricity production portfolios.*



The Single Market requires harmonisation

Fortunately, automatically enforced by price coupling

Therefore, fortunately, local computers do not give options for local differences

When we introduce price coupling.

This makes it even more odd the exchanges with the PCR model cling to their local computers.

For companies exposed to genuine competition, outsourcing is imperative, when it reduces costs and increases quality

The situation would have been entirely different, if the current spot exchanges could be exposed to competition by new exchanges, which utilised a single spot price calculation.

Unfortunately, market coupling makes the spot exchanges monopolies

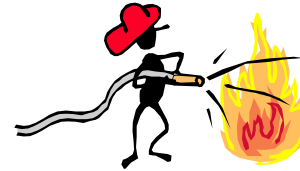
Making it possible for them to focus on computers.

Instead of focusing on delivering high quality and low cost.

Only though regulation can fix this.



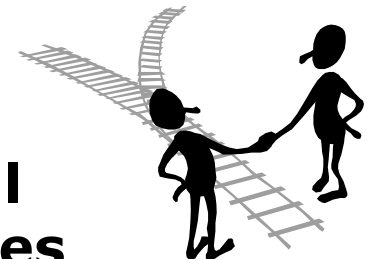
Handling Europe's crisis



- ⇒ **Commenting 12 November 2011 on Europe's crisis, the newspaper The Economist wrote:**
 - ✓ *The chances are that Europe will (...) continue rather faster down the path of genteel decline.*
- ⇒ **We better prove this wrong!**
 - ✓ **Naturally, the electricity supply industry is just a small corner of Europe's economy**
 - **But it's our corner, so it's the corner we must fight.**
- ⇒ **In order to do this, we must create a well functioning Single European Electricity Market**
 - ✓ **With tough competition where it's possible to have competition.**
 - ✓ **And tough regulation where competition is not possible.**
 - ✓ **Thereby for all services and products: ensuring strong customer focus by the suppliers, high quality and low costs.**
- ⇒ **However, we cannot get there without taking on vested interests!**

The solution

- ⇒ **In order to deal with the spot monopoly problem – and in order to create a truly European solution:**
- ⇒ **Let EMCC do the single price calculation**
 - ✓ **Having one primary calculation site and one disaster site.**
- ⇒ **Re-arrange the EMCC ownership, so EMCC is owned by the countries participating in the price coupling**
 - ✓ **With each country's share determined by the Lisbon treaty's voting weights**
 - **Each country's government decides who will represent the country in EMCC's board (subsidiarity principle).**
- ⇒ **Establish an EMCC market council with representatives for consumers, producers, market players and TSOs**
 - ✓ **And grant the council formal influence.**
- ⇒ **Give ACER and the European energy regulators a legal foundation for regulating EMCC and the spot exchanges**
 - ✓ **Note: having only local regulation would be pointless, as price coupling requires the same algorithm and the same daily price calculation procedures for the whole coupled area.**



This gives us a solution meeting the four requirements listed on slide no. 2



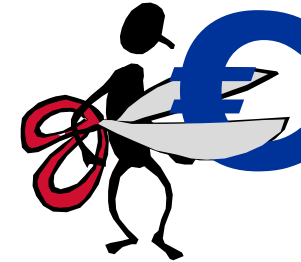
ACER and national regulators

**Market coupler EMCC
Board
National representation**

**Market coupler EMCC
Administration**

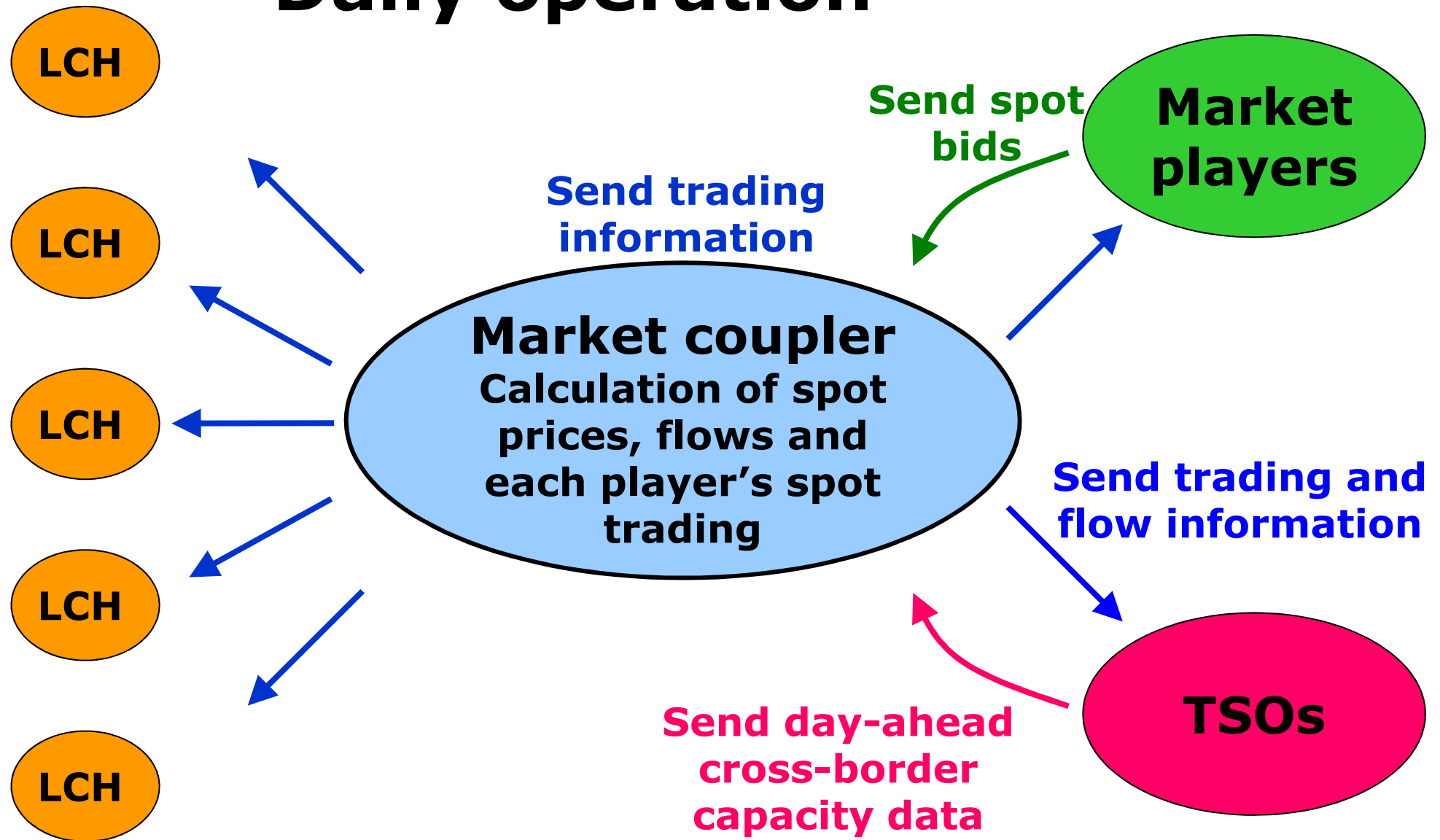
**Price Coupling
Council
User representation**

Cost effective solutions



- ⇒ **In the age of the internet, competition for collecting the market players' spot bids and the TSOs' day-ahead cross-border capacity data would be nutty.**
- ⇒ **On the route from submitting spot bids and capacity data to price calculation, we do not need a lot of greasy hands.**
- ⇒ **Via the internet, the information can simply be sent directly to the market coupler.**

Daily operation



LCH: Local Clearing House – settlement of the spot trading

Spot clearing and settlement

- ⇒ **Eventually, the spot settlement must also be consolidated into a single spot clearing house**
 - ✓ **Thereby enabling the players to net their spot positions over a large, geographical area.**
 - ✓ **For example, cross-border traders (and the market coupler) will no longer face huge, redundant collateral calls**
 - **As you'll have the same spot clearing house on both sides of all borders in the coupled area.**
 - **Thereby, we avoid this redundant binding of capital.**
- ⇒ **However, in order to keep things simple, it'll probably be easier first to establish a single spot price calculation**
 - ✓ **Doing just this will be a huge leap towards The Single European Electricity Market.**

Safe operation and safe route to the price coupling

How to and how not to do it

- ⇒ As a general IT rule: **for vital IT operations, you should not have a large number of semi-autonomous entities doing the job!**
 - ✓ The safe solution is a single operation site with a disaster site back-up.
 - *A case: in the Baltic-Nordic area there is not a calculation site per country!*
- ⇒ For the development of the price coupling software – **if you want high risk of getting a software development scandal with long development time and unsecure result:**
 - ✓ Give the task to a group of bickering entities!
- ⇒ In contrast: both for the development and the operation, the EMCC option is the safe option
 - ✓ Among other things, because this solution allows a clear and fair governance for both the development and the operation phase.

Gradual implementation

Terminology: PCA is the Price Coupled Area

- ⇒ **The single price calculation needs not be implemented simultaneously across Europe.**
- ⇒ **If a region R is willing to live with the draw-backs of volume coupling during an initial phase, the region can have an interim market coupling with a daily operation like this:**
 - ✓ **First the market coupler calculates the flows between R and PCA.**
 - ✓ **In this single calculation, the market coupler also calculates the final spot prices for PCA and the final flows internally in PCA.**
 - ✓ **When the market coupler's calculation is completed, the prices and flows internally in R are re-calculated**
 - **By R's local calculation system.**

Appendix

Terminology and acronyms

Terminology and acronyms – 1

- ⇒ **ACER** Agency for the Cooperation of Energy Regulators. An EU body established in 2010.
- ⇒ **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.
- ⇒ **CWE** Central Western Europe: Belgium, France, Germany, Luxembourg and the Netherlands.
- ⇒ **Double auction** A calculation method whereby an exchange's price is set by means of the exchange's supply curve and the exchange's demand curve. See the PowerPoint presentation *Maximizing the economic value of market coupling and spot trading*.
- ⇒ **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 does not create energy flows. It merely creates day-ahead plans for the cross-border energy flows. Later, these plans may be modified by intra-day, cross-border trading and/or the TSOs' cross-border trading of regulating energy.

Terminology and acronyms – 2

As used in this presentation

- ⇒ **EU** European Union.
- ⇒ **Flow** Short-term for *energy flow*.
- ⇒ **ITVC** Interim Tight Volume Coupling. The current volume coupling between CWE and the Baltic-Nordic area.
- ⇒ **Market coupling** A day-ahead congestion management system, you can have on a border, where two spot 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.
- ⇒ **Nordic and Nordic area** refer to the countries Denmark, Finland, Norway and Sweden.
- ⇒ **PCR** Price Coupling Regions. A market coupling system proposed by some European spot exchanges. Unfortunately, PCR would mean market coupling with a lot of redundant staff, computers and software installations – financed by captive costumers.

Terminology and acronyms – 3

As used in this presentation

⇒ ***Price coupling*** A version of market coupling, where there's only one calculation of the spot prices (ie, no local re-calculations lacking full information from the whole coupled area). This contrasts with volume coupling.

With price coupling the spot prices and the day-ahead plans for the cross-border energy flows are calculated using the following information:

- ✓ **The spot bids submitted in the whole coupled area.**
- ✓ **The day-ahead cross-border capacity for all borders in the coupled area.**

Also, for the whole coupled area, the same calculation algorithm is used.

Hence, even if there are many calculations taking place (as the PRC model suggests), all the calculations have the same input and use the same software (!).

Terminology and acronyms – 4

As used in this presentation

- ⇒ ***Price zone*** A geographical area, within which the players can trade electrical energy day-ahead without considering grid bottlenecks.
- ⇒ ***Spot bid*** A purchase bid or a sales offer submitted to a spot exchange.
- ⇒ ***Spot exchange*** In this document, a spot exchange is an exchange where
 - ✓ Electrical energy is traded day-ahead.
 - ✓ The day-ahead prices are calculated by means of double auction.
 - ✓ Note: this document strongly recommends the price calculation is outsourced to EMCC.
- ⇒ ***Spot price*** A price calculated by a spot exchange. Either by a calculation performed by the spot exchange itself, or by a calculation performed by a body, to which the calculation has been outsourced.

Terminology and acronyms – 5

As used in this presentation

⇒ ***Volume coupling*** A version of market coupling, where the spot prices are calculated twice:

First there's an initial calculation using all the information from the whole coupled area. However, the spot prices produced by the initial calculation are not used.

In the next step, there are local re-calculations of the spot prices. The spot prices used in the settlement of the spot trading are the locally calculated prices.

Because the local re-calculations do not have access to the full information from the whole coupled area, the local re-calculations can produce wrong spot prices.

⇒ ***TSO*** Transmission System Operator.

Thank you for your attention!

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