Common EU Electricity Markets
Benefits and Regulatory Challenges
EU Common Electricity Market Seminar, 9-10 June 2015, Vihula Estonia

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Key points of the presentation

- What is the role of NRA:s, ACER, CEER, ENTSO-E, ENTSOG etc...
- Why to integrate the electricity markets?
- The European big energy picture - target 2014 by the Commission and Council.
- Regulatory and legislative development.
  - Directive and various regulations
  - FG and NC defining roles / responsibilities for NRA, TSO
  - DA project (PCR) in production, XBID progressing slowly.
  - REMIT, EMIR, MiFID etc...
- European Infrastructure Package – PCI list, what it is and how to get there?
- World beyond 2020...
Regulatory governance in Europe

• National regulators, NRA:s have the jurisdiction and legal responsibility nationally, and in certain cases as part of the regional grouping.

• The NRA:s alone or as a regional group have the responsibility to make decisions according to the schedule set in the NC/GL.

• ACER as the Agency for Co-operation of Energy Regulators coordinates the work between the regulators and between regulators and the industry.

• Commission has the legislative powers and the Commission is not obligated to listen to the voice of the NRA:s, but in comitology the MS positions will prevail.

• ENTSO-E establishment as a coordinating body between the TSO:s is stated in Article 5 of Regulation 714/2009. ENTSOG for Gas TSO:s.

• Various stakeholders make their voice heard through branch organizations.

• Commission takes part in the legislative preparation and comitology.
What are CEER and ACER?

**CEER**
- Council of European Energy Regulators, established in 2000.
- The voice of Europe's national energy regulators at EU and international level.
- Through CEER, the national regulators cooperate and exchange best practice.
- Semi-informal, CRM, DSO, EQS

**ACER**
- ACER was officially launched in March 2011 and is seated in Ljubljana, Slovenia.
- Formal role in market issues, FG/NC development.
Why to integrate electricity markets?
What do a petri dish and electricity market have in common?
Why to integrate the electricity markets?

- Electricity markets have been originally developed from national perspective.
- Networks have been extended to cover whole nations, from border to border.
- Thus, power networks and systems serve primarily national needs.
- Exchange of power over borders started as technical support.
- Inevitably the generating park cost structure varies from country to country.
- Common Merit Order – should it be a national or an European issue?
- Security of supply – how much of power should be produced nationally?
- To what extent can power flow freely over national borders?
- EU XB target is 10% of the national peak demand by 2020.
The European big energy picture - target 2014 by the Commission and Council.
On 4 February 2011, the European Council gave a strong message and increased legitimacy to the move towards the IEM. In its Conclusions on energy, the European Council indeed stated that: ‘The internal market should be completed by 2014 so as to allow gas and electricity to flow freely’.

Following this, the European Commission invited on 18 April 2011 each existing gas and electricity regions to develop a regional action plan and to contribute to the elaboration of a “European Energy Work Plan 2011/2014”.

Legal framework for electricity regulation aiming at creating a true IEM

- Electricity Directive 2009/72/EC
- Electricity Regulation 714/2009
- Regulation on ACER 713/2009
- REMIT regulation 1227/2011, MIFID II, MAR
- Infrastructure regulation
- Work on Framework Guidelines / Network Codes
- National Codex, that needs to be in line with the Directive. Regulation is directly applicable law in MS.
- Etc, etc, etc, etc...
Commission proposal on Energy Union. Why an Energy Union?

• For Energy security, the Commission will..
  – Try to promote Diversification of energy sources and suppliers.
  – Develop a resilience and diversification package for gas.
  – Assess options for voluntary demand aggregation for collective purchasing of gas during a crisis and where Member States are dependent on a single supplier.

• For Internal energy market, the Commission will..
  – provide enhanced rules for cross-border energy trade and
  – propose appropriate measures to encourage renewable energy producers to better integrate in the wider electricity market.
  – Develop new ways to finance the energy investment projects

• For Energy efficiency, the Commission will..
  – review of the Energy Efficiency and Energy Performance of Buildings Directives to create the right framework for further progress in delivering energy efficiency in buildings.

• Further promote Decarbonization.
The characteristics of electricity market
Flow of power

System operations coordinates the balancing of the generation and consumption of power for final customers.

Source: GAO analysis.
CommonMeritOrder
Example of market coupling, no congestion

**Coupled markets A & B, CMO**

**Market A**
- TSO A
- Demand 100 GWh
- Generation 120 GWh
- Export 20 GWh
- Zonal price 50 EUR/MWh

**Market B**
- TSO B
- Demand 150 GWh
- Generation 130 GWh
- Import 20 GWh
- Zonal price 50 EUR/MWh

**XB capacity 20 GWh**

No congestion income
Example of market coupling, congestion

Coupled markets A & B, CMO

Market A
TSO A
Demand 100 GWh
Generation 120 GWh
Export 20 GWh
Zonal price 50 EUR/MWh

XB capacity 20 GWh

Market B
TSO B
Demand 180 GWh
Generation 160 GWh
Import 20 GWh
Zonal price 60 EUR/MWh

Congestion income 20 000 MWh * 10 EUR/MWh
= 200 000 EUR
Interconnected network of Northern Europe

Interconnected Nordic And Baltic Power Network 1.7.2010
European Power Network, Synchronous areas
Electricity market is many markets

<table>
<thead>
<tr>
<th>Physical market</th>
<th>Specific operating hour</th>
<th>Balance settlement</th>
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<tbody>
<tr>
<td>Power transactions</td>
<td>ELSPOT: 12 - 36 h, ELBAS: 1 - 32 h</td>
<td>Regulation power market, Balance management</td>
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Fixed transactions must be agreed and reported before the specific operating hour.
What has been achieved in the European electricity market by now?
Adequate Network Development (EU TYNDP)
TSO/ISO/ITO Unbundling
Strengthened powers and independence for NRAs
High coordination requirements (ACER & ENTSO-E)
European DA Power Market:

Original bidding zones in PCR Feb 2014

Iberia joined May 2014
Italy Feb 2015
4M launched 19 Nov 2014 using the PCR algorithm
IV – Convergence of prices.
Less price areas implies that more areas had identical prices

Number of price areas
(14 days before vs 14 days after NWE go-live)
Future challenges for power transmission in Baltic Sea Basin

- RES Production resources
- Sizeable demand, Generating capacity closure, RES generating
Figure 43: Evolution of the quarterly level of commercial use of interconnections (day-ahead) as a percentage of NTC values for all EU borders\textsuperscript{159} – October 2010–2013 (%)
Figure 47: Estimated ‘loss in social welfare’ due to the absence of market coupling, per border – 2012–2013 (million euros)

Source: ENTSO-E, data provided by NRAs through the ERI, Vulcanus (2014) and ACER calculations

Note 1: Only non-coupled borders are shown, with the exception of the borders between Great Britain and the Netherlands and between Poland and Sweden. See note under Figure 44.

Note 2: The borders within the CEE region with ‘multilateral’ technical profiles are not included in this figure; see note under. IE-GB (EWIC) refers to the East West Interconnector which links the electricity transmission grids of Ireland and Great Britain. NI-GB (MOYLE) refers to the Moyle Interconnector which links the electricity grids of Northern Ireland and Great Britain.
Intraday use of CB capacity remains a small fraction of the use in DA timeframe, but increasing (doubled since 2010)
Figure 66: Congestion revenues – 2013 (million euros)

Source: Data provided by NRAs through the ERI (2014) and ACER calculations

Note: The results were cross-checked with ENTSO-E data, and when different from ERI, NRAs were asked separately to confirm either of the amounts. For Sweden, "Unspecified" refers to revenues placed on a separate internal account without further distinction of spending.
ID liquidity levels differ largely across the EU. Germany/Austria is reaching similar levels as the Italian/Iberian markets.
Figure 49: Intraday liquidity and design in national markets – 2013 (TWh)

Source: The CEER national indicators database (2014)
Regulatory and legislative development
Processes to turn patchwork Europe to Unified Energy Europe

- Directives to be transposed into National codex.
- Regulations are directly applicable legislation.
- Establishment of ACER to coordinate NRA work.
- Establishment of ENTSO-E / ENTSOG for TSO:s.
- ACER to prepare Framework Guidelines, which will be handed to...
- ENTSO:s to prepare NC:s based on the FG, followed by Public consultation and Comitology.
  - Will lead into a legally binding NC.
  - However, the process is not clearly defined...
Internal Electricity Market

- Capacity calculation
- Long-Term Capacity Allocation
- Day-Ahead Capacity Allocation
- Intraday Capacity Allocation
- Balancing Markets

Adequate Network Development (EU TYNDP)
TSO/ISO/ITO Unbundling
Strengthened powers and independence for NRAs
High coordination requirements (ACER & ENTSO-E)
Network Code preparation process, simplified

- Framework Guideline
  ACER Prepares

- Comitology Guideline
  COM Prepares
  Legally Binding

- Network Code
  ENTSO-E Prepares
  Legally Binding

- Comitology Committee
  MSs represented
  Approves NC
Fundamental Electricity Data
Transparency 543/2013

- FEDT deals with the fundamental data, necessary to obtain transparency in the market.
- Based on the Commission objectives of IEM by 2014, transparency rules do not enable sufficiently accurate picture to ensure efficient functioning of the market and production, consumption and congestions should be reported more accurately.
- Adopted and published in OJ 14.6.2013
- Common platform for publishing all data, by ENTSO-E.
Who needs infrastructure???
Infrastructure vision for Europe

• Adequate, integrated and reliable energy networks are a crucial prerequisite not only for Union energy policy goals, but also for the Union's economic strategy.

• Commission has adopted the list of 250 PCI:s.

• The PCI:s could be eligible for investment subsidy.

• PCI investment proposals have been submitted at the end of October, 2012. The NRA:s involved will take a stand on the proposals by end of April, 2013.

• Next PCI round in 2015.
Goal and means of ACER and NRA-work with regard to EU-Infrastructure

- Create a framework to identify necessary investment needs and to select adequate investments for the EU-market including security of supply and sustainability.
- Facilitate TSOs and third parties to implement them efficiently.
- Solve potential problems on financing:
  - Sharing best practices on incentives schemes and on evaluation of higher risks.
- Solve potential problems on Tariffs.
Ten Year Network Development Plan, ENTSO-E 2012
Cornerstones of regulatory involvement on EU level

- TYNDP as the fundament for identification of needs and for selection of EU-investments
  - SOAF (scenario outlook and adequacy forecast)
  - Cost benefit analysis (CBA) methodology
  - Selection of PCIs (projects of common interest)

- NRA involvement on MS/regional level
  - Make TYNDP and other network development plans happen
  - Dealing with specific risks of new investments – incentives/return
  - Dealing with the risk of no investment or delay in investment – identify regulatory measures (including incentives)
  - Examples of interventions:
    - Solving potential problems relating to the recovery of efficient costs
    - Allocation of costs of existing and future cross border infrastructure (CBA-based)
How do we decide on investments in Europe?

**Planning**
- EU scenarios (SOAF) → TYNDP → Regional investment plans → National scenarios
- Cost sharing (CBCA, ITC) → Incentives
- Regulatory input in PCI-list → PCI-list → Investment

**Making plans happen**
- Done by Entso, Acer opinion needed
- Done by Cion/MS. Acer opinion needed
- Done by NRA via Reg. group
- Decision by NRA’s and Acer.
- Done by TSO’s. NRA’s opinion needed
European Electricity regions
What to expect beyond 2014...
The energy world beyond 2014...

- Objective is to have a common market that should enable truly free movement of energy and related services over national boundaries.
- Demand growth(?), less carbon, more RES, more state intervention...
- Multiple papers try to describe the potential obtainable state of the matters in the future: Target 2050, Vision 2025, SOAF 2030, Green Paper 2030, Energy Roadmap 2050
...but items that will shape the future, are beyond the NRA influence

- World economic situation, Energy efficiency, overall technical development, distributed generation, DSM etc...
- MS intervention level reflecting the political realities in every MS. National policies should not, however influence the neighbors and the IEM.
- Designing the rules for a common market under changing national policies is a challenge.
- Would MS politics dare to give markets a chance...
Thank you for your attention

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