Market coupling – the role of a PXs as market place

BSP SouthPool, Energy Exchange

Trading Course on Electricity Markets and Trading, Podgorica, 03.10.2019
Ownership

Borzen

50%

Power Market Operator

ELES

50%

Transmission System Operator
## Market opening process

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.4.2001</td>
<td>Large consumers market opening ➔ above 41 kW</td>
</tr>
<tr>
<td>1.1.2003</td>
<td>Foreign participants market opening ➔ import/export transactions</td>
</tr>
<tr>
<td>1.7.2007</td>
<td>Full market opening ➔ households</td>
</tr>
<tr>
<td>10.4.2008</td>
<td>PX establishment ➔ energy exchange BSP</td>
</tr>
<tr>
<td>1.1.2011</td>
<td>SI - IT MC ➔ PX liquidity</td>
</tr>
<tr>
<td>31.12.2018</td>
<td>MC on all Slovenian interconnectors</td>
</tr>
</tbody>
</table>

### Volume of recorded contracts

<table>
<thead>
<tr>
<th>Year</th>
<th>TWh</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>11.7</td>
</tr>
<tr>
<td>2003</td>
<td>12.3</td>
</tr>
<tr>
<td>2007</td>
<td>50.6</td>
</tr>
<tr>
<td>2008</td>
<td>53.5</td>
</tr>
<tr>
<td>2011</td>
<td>73.1</td>
</tr>
<tr>
<td>2018</td>
<td>80.7</td>
</tr>
</tbody>
</table>

### Number of customers changing supplier

<table>
<thead>
<tr>
<th>Year</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>138</td>
</tr>
<tr>
<td>2003</td>
<td>836</td>
</tr>
<tr>
<td>2007</td>
<td>3.695</td>
</tr>
<tr>
<td>2008</td>
<td>5.211</td>
</tr>
<tr>
<td>2011</td>
<td>39.135</td>
</tr>
<tr>
<td>2018</td>
<td>62.449</td>
</tr>
</tbody>
</table>
BSP SouthPool

BSP at glance (2018)

7,77 TWh
Total trading volume

37 members

13 European countries

468 million EUR
Net financial settlement

17,81 million EUR
Assets

871.535 EUR
EBITDA

7,13 million EUR
Equity
BSP = **Whole** spectrum of trading opportunities

1. **DAY-AHEAD**
2. **INTRADAY**
3. **LONG-TERM AUCTION TRADING**
4. **LONG-TERM CONTINUOUS TRADING**
BSP SouthPool

Products

1. **DA and ID Auction Trading**
   - Hourly products (1-24) for DA and MI2
   - Hourly products (17-24) for MI6
   - Block products & negative prices for DA
   - Negative prices for MI2 and MI6

2. **ID Continuous Trading**
   - Base (00:00-24:00);
   - Peak (08:00-20:00);
   - Hourly Products;
   - Quarterly Products;
   - User Defined Products.

3. **Long-term Auction Trading with Physical Futures Products**

4. **Long-term Continuous Trading with Financial Futures Products**

Becoming a LONG-TERM Auction center for the Region

- Grid Losses for 2018, 2019, 2020
- Settlement of Imbalances for 2019
- Tertiary Freq. Control since January 2018
- TALUM - Purchase of Energy for 2019

FUTURES Q2 2019
Markets development

Trgovanje za dan vnaprej
Day-ahead market


IEM* integracija SI-CRO
IEM integration SI-CRO

IEM* integracija SI-AT
IEM integration SI-AT

IEM* integracija SI-IT
IEM integration SI-IT

Bilateralno spajanje SI-IT
Bilateral MC SI-IT

Izoliran trg
Isolated market

Trgovanje znotraj dneva
Intraday market

Bilateralno spajanje SI-IT
Bilateral MC SI-IT

Izoliran trg
Isolated market

Razvoj XBID-a**
XBID development

*IEM = Integrirani evropski trg
**XBID = Čezmejno trgovanje znotraj dneva
Producers:
- Balance scheme management
- Recording of contracts
- Market data management
- Electricity selling
- Reference price
- MC results
- CBCs for MC
- Long term physical products
- Long term financial products

Consumers:
- Spot market
  - Electricity buying
  - Data reporting
  - Imbalance settlement
  - Balancing market
- Long term market

TSO/MO:
- Trading with capacity transmission rights (JAO)
BSP SouthPool

Power Exchange

- REMIT
- CACM
- MiFID II
- Transparency
- Security
- Anonimity
- Liquidity

MiFID II

REMIT
Single Day Ahead Coupling - status

2013 – several regions

2014 – 4th February
MC NWE region

2014 – 14th May
MC NWE+SWE region →
MRC

2014 – 19th November
3M MC → 4M MC

2015 – 24th February
MC MRC+CSE region

End 2020 – CORE FBMC
– implementation phase

? – SEE – design phase

SDAC → covers 85% of European consumption or
over 1.500 TWh of traded volumes per year
Single IntraDay Coupling – XBID

1st Wave Go-Live

14 MSs

**Delivery areas coupled at first go-live**

- 50Hertz Transmission GmbH
- Amprion
- Austria
- Denmark West
- Denmark East
- Estonia
- Elia System Operator
- Finland
- Finland-Russia Exchange Area
- Lithuania
- Latvia
- Morocco Delivery Area
- Netherlands
- Norway 1-5
- Portugal Delivery Area
- France
- Sweden 1-4
- Spain Delivery Area
- TransnetBW GmbH
- TenneT TSO GmbH
XBID – 1st Go-Live observations

A significant increase in volumes and total number of trades since XBID go-live on 12th June 2018

<table>
<thead>
<tr>
<th>Month</th>
<th>In Million trades / month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jun 2018</td>
<td>0.490</td>
</tr>
<tr>
<td>Jul 2018</td>
<td>0.856</td>
</tr>
<tr>
<td>Aug 2018</td>
<td>1.092</td>
</tr>
<tr>
<td>Sep 2018</td>
<td>1.065</td>
</tr>
<tr>
<td>Oct 2018</td>
<td>1.414</td>
</tr>
<tr>
<td>Nov 2018</td>
<td>1.304</td>
</tr>
<tr>
<td>Dec 2018</td>
<td>1.579</td>
</tr>
<tr>
<td>Jan 2019</td>
<td>1.534</td>
</tr>
<tr>
<td>Feb 2019</td>
<td>1.466</td>
</tr>
<tr>
<td>Mar 2019</td>
<td>1.763</td>
</tr>
<tr>
<td>Apr 2019</td>
<td>1.890</td>
</tr>
</tbody>
</table>
Single IntraDay Coupling – XBID

2nd Wave Go-Live

• Go-Live Scheduled prior to end of 2019

• 7 MSs – Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania & Slovenia (subject to successful testing)

<table>
<thead>
<tr>
<th>LIP</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT-CZ, AT-SI, AT-HU, BG-RO, CZ-DE, CZ-PL, DE-PL, HR-SI, HR-HU, HU-RO</td>
<td><strong>NEMOs:</strong> BSP, Cropex, EPEX, HUPX, IBEX, Nord Pool, OPCOM, OTE&lt;br&gt;<strong>TSOs:</strong> 50Hertz, APG, CEPS, ELES, ESO, HOPS, MAVIR, PSE, Transelectrica, TTG</td>
</tr>
</tbody>
</table>
Market Coupling in Slovenia

Physically not connected

What next?
Main drivers behind liquidity growth

- Market Size
- Number of Market Participants
- Liquidity Provider Agreements
- Market Integration
- MC Projects
- Regulatory Requirements
- Market Design
Main elements of market design in Europe

- Coordinated explicit auctions for long term CBCs
- DA GCT at 12:00; results publication at 12:52
- ID GOT at D-1 15:00; ID GCT D H-1
- European clearing and settlement cycle
  - XB Clearing in Euro
  - Payment cycle T+1 or T+2
- Regulatory changes
  - Legislation supporting bilateral trading and trading on PX
  - VAT Reverse Charge Mechanism
  - Abolishment of duties/fees for cross-border trading with electricity
- 365/24/7 trading
Experiences learned from implicit allocation of electricity CBCs

- Removed risks (and additional costs) of trading transmission capacity and energy separately → one-step process;
- Maximizes utilization of allocated interconnection capacity → priority on interconnectors based on price difference between domestic and neighboring markets;
- Allows all spot market participants to benefit from cross-border access → increased number of market participants /reduced market concentration;
- Increases market depth and traded volumes especially → encourages liquidity share between coupled markets;
- Enabled formatting of market price indices → reliable price indices;
- Markets really merge into one single market when there is enough capacity → areas merge at that moment.
INCREASED NUMBER OF MARKET PARTICIPANTS

37 members
13 countries
Experience obtained from introduction of MC on SI-IT border

**INCREASED LIQUIDITY**
Increases market depth and traded volumes especially on SI DA market → encourages liquidity share between coupled markets

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**Traded volume and its share of Slovenian consumption**

- **Day-ahead Volume**
- **Intraday Volume**
- **Share of Slovenian consumption**

![Graph showing traded volume and its share of Slovenian consumption from 2008 to 2019 with an increase in volume and share over time.](image)
Experience obtained from introduction of MC on SI-IT border

RELIABLE SIPX INDEX
Enabled formatting of regionally recognized SI DA market price indices → reliable price indices
Specific experiences obtained from introduction of MC on SI borders

<table>
<thead>
<tr>
<th>PX</th>
<th>TRADED VOLUME (in TWh)</th>
<th>Δ (in %)</th>
<th>MEMBERS (in No. Mem)</th>
<th>Δ (in No. Mem)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>48 (2014)</td>
<td>+22</td>
</tr>
<tr>
<td>SI-AT (*)</td>
<td>5,931</td>
<td>7,013</td>
<td><strong>18</strong></td>
<td>39</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>37</td>
<td>-2</td>
</tr>
<tr>
<td>SI-HR (**)</td>
<td>7,195</td>
<td>7,608</td>
<td><strong>6</strong></td>
<td>37</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>36</td>
<td>-1</td>
</tr>
</tbody>
</table>


| PX      | PRICE SPREADS (in €) | | Δ | PRICE CONVERGENCE (in %) | Δ |
|---------|----------------------| |   |--------------------------|   |
| SI-IT   | 61,98 (GME 2010)     | 70,01 (GME 2011) | 14,65 | 12,81 | 0,01 (BSP=GME 2010) | 20,08 (BSP=GME 2011) | **20,07** |
|         | 47,33 (BSP 2010)     | 57,20 (BSP 2011) |          |        |                       |                       |
| SI-AT (*) | 29,02 (EPEX)         | 34,21 (EPEX)     | 9,41    | 10,18 | 4,39 (BSP=EPEX)      | 34,92 (BSP=EPEX)      | **30,53** |
|         | 38,43 (BSP)          | 44,39 (BSP)      |          |        |                       |                       |
| SI-HR (**) | 47,17 (CROPEX)       | 56,16 (CROPEX)   | 1,18    | 0,20  | 3,05 (BSP=CROPEX)    | 99,00 (BSP=CROPEX)    | **95,95** |
|         | 45,99 (BSP)          | 55,96 (BSP)      |          |        |                       |                       |

Regional PX liquidity in 2018

Markets in the region with operating PX and sufficient market depth for formation of DA price indices

<table>
<thead>
<tr>
<th>PX</th>
<th>VOLUME (in TWh)</th>
<th>CONSUMPTION (in TWh)</th>
<th>SHARE (in %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GME</td>
<td>295,56</td>
<td>322,22</td>
<td>92%</td>
</tr>
<tr>
<td>EXAA</td>
<td>6,58</td>
<td>7,14</td>
<td>9%</td>
</tr>
<tr>
<td>BSP</td>
<td>7,77</td>
<td>14,37</td>
<td>52%</td>
</tr>
<tr>
<td>HUPX</td>
<td>19,91</td>
<td>42,50</td>
<td>47%</td>
</tr>
<tr>
<td>OPCOM</td>
<td>23,54</td>
<td>57,93</td>
<td>41%</td>
</tr>
<tr>
<td>HENEX*</td>
<td>51,58</td>
<td>51,58</td>
<td>100%</td>
</tr>
<tr>
<td>CROPEX</td>
<td>2,10</td>
<td>18,18</td>
<td>12%</td>
</tr>
<tr>
<td>SEEPEX</td>
<td>2,32</td>
<td>39,09</td>
<td>6%</td>
</tr>
<tr>
<td>IBEX</td>
<td>6,06</td>
<td>34,06</td>
<td>18%</td>
</tr>
</tbody>
</table>

* Mandatory Pool

Source: PX Annual Reports/webpage and ENTSO-E Factsheet
Upcoming challenges

- CACM implementation
  - Finalization of pan-European electricity market in line with Capacity Allocation and Congestion Management Guideline and other Network Codes
  - Implementation of CACM on the markets out of current geographical scope of SDAC and SIDC
- Implementation of Clean Energy Package requirements → 3 Ds

Direct impact on PXs – i.e. introduction of 15 minute products
Thank you for attention!

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Director

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Email: anze.predovnik@bsp-southpool.com

We keep you well informed!