

An update on Serbia's Electricity Market

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Topics of Interest

- Developments following the liberalisation of the market
- Predictions of the effects on trading
- New Energy Law harmonized with the 3rd Energy Package for Electricity
- Cross-border Capacity Markets update, SEE Coordinated Auction
 Office and Joint Auctions
- Regional Balancing Initiative, Market Monitoring
- A focus on Regional Power Exchanges and Plans for Market Coupling
- How does the future look?

Serbian Electricity Market

- New Legal Framework
- Electricity market model & market participants
- Assessment of market share
- Supplier of final customers
- DSO role in the market
- Recommended content of the bill
- Supplier switching process in the retail electricity market
- Closed electricity distribution system
- Predictions for 2015

New Legal Framework

- 1) EU 3rd Energy Package, Directives and Regulations
- 2) Decisions of the SEE Ministerial Council
- **3) Energy Law** 2014
- 4) Bylaws under preparation

The New Energy Law (EL)

- Approved in December 2014
- 2 trading license prescribed:
 - Wholesale Supply
 - Supply (of final customers)
- More liberal licenses conditions for wholesale supply

Existing Bylaws based on EL 2011

2nd Energy package

Energy Law 2011

- √ TSO Grid Code
- **✓ DSO Grid Code**
- ✓ Rules for the allocation of cross-border transmission capacities
- ✓ Market Code Balancing responsibility
- ✓ Supplier switching rules
- ✓ Methodologies for determining electricity transmission and distribution use-of-system charges
- ✓ Methodologies for determining the price of electricity public supply

New Network Codes

3rd Package - NCs

- Production changes
- Increased generation of electricity from RES
- Increased generation on distribution network
- Consumption changes
- Increased Demand Side Response (DSR)
- Customers becoming consumers
- Increased use of new appliances (electric vehicle)
- Market integration
- Increased cross-border trade
- Coupling of electricity markets

Comparison of EU NCs & existing Serbian NCs

Connection Related Codes

- Requirements for Generators
- Demand Connection Code
- HVDC Connection Code
- Connection Procedures

- TSO/DSO GC
- TSO/DSO GC
- TSO GC
- TSO/DSO GC +

System
Operation
Related Codes

- Operational Security Network
- Operational Planning & Scheduling
- Load Frequency Control & Reserves
- Operational Procedures in Emergency
- Staff Training

- TSO GC
- TSO/DSO GC
- TSO GC
- TSO/DSO GC

NO

Market Related Codes

- Capacity Allocation & Congestion Management
- Forward Capacity Allocation
- Balancing Network Code

- CA&CM TSO
- CA TSO
- MC TSO

New EL - Market Participants

- 1) Generation
- 2) Wholesale Supplier
- 3) Final Customers' Supplier
- 4) Final Customer
- 5) Transmission System Operator
- 6) Distribution System Operator
- 7) Closed Electricity Distribution System Operator
- 8) Market operator (spot market)

Assessment of Retail Market Share

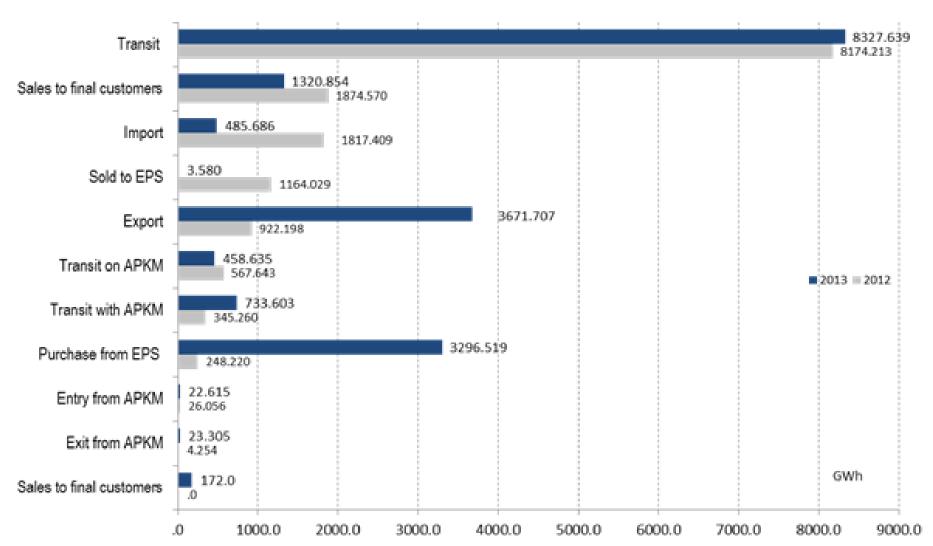
Gross consumption is 34.0 TWh

TWh

| REGULATED MARKET 🔽 | | COMPETITIVE MARKET | 7 |
|--------------------|------|---------------------------------|------|
| Households | 14.1 | Customers on competitive market | 8.3 |
| | | TPP, HPP consumption | 0.5 |
| Small | 5.6 | TSO losses | 1.0 |
| customers | | DSO losses | 4.5 |
| Total | 19.7 | | 14.3 |

Final consumption is 28.5 TWh
Market openness is 31%
In 2015 new 2TWh will be on free market

Suppliers' activities during 2012 and 2013



86 licenses 44 BRP

Final Customers' Supplier

- Generation
- Supplier

Contract on final customers supply

- Full supply (you pay as much as you consume)
- Supply with quantity of electricity determined in advance (according to the consumption diagram in line with quantities contracted in advance + BR contract)

at one metering point, they can not be combined ! 12

DSO Role in the Market

- Guarantees the ability and accuracy of measurements
- Maintains a database of suppliers, contracted metering points and the expiration date of the contract
- Informs the Reserved and the Public supplier if the measuring point is not covered by contract
- Provides metering data to customers and their suppliers
- Load profiles

Recommended content of the bill

Billing account (for consumers to see clearly what part is energy and what is network access):

- 1) Network access
- 2) Electricity

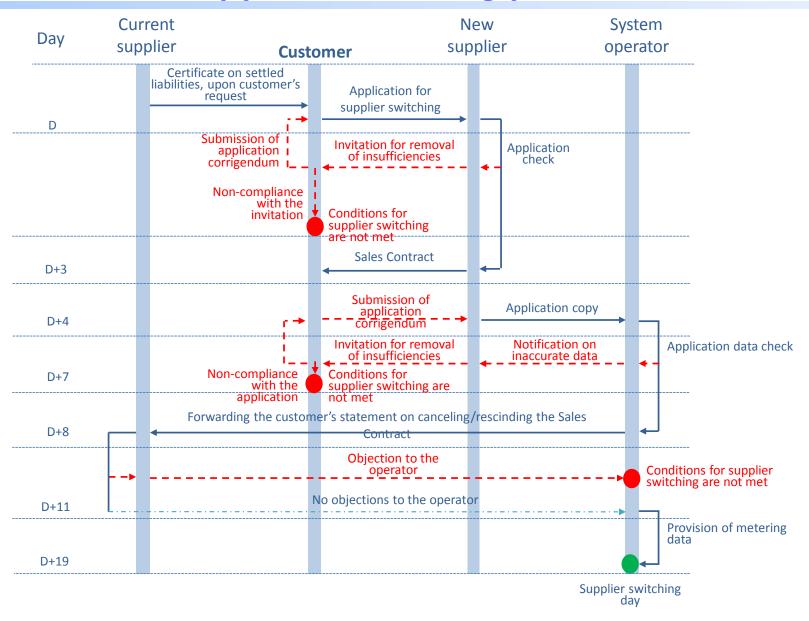
Due to possibilities:

- Of influencing the use-of-system charge by changing the way of spending
- To compare the bids of suppliers

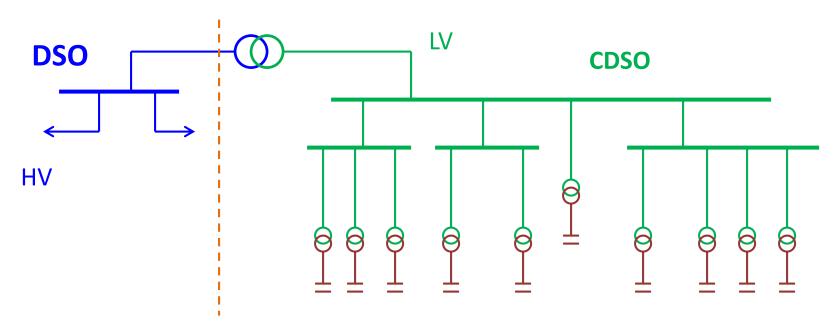
Supplier Switching Rules

- Rules for retail market
- Regulated financial obligations to the current supplier
- Process is driven by a new supplier
- The significant role of the system operator
- The day of the supplier switching is the same as when the meter was read
- Free of charge for customers
- Takes 21 days maximum

Supplier switching process



Closed Electricity Distribution System



EL 2014

- 1) Who can be the Operator of CDS
- 2) The rights and obligations of the Operator of CDS
- 3) Rights of customers connected to the CDS

CDS - Goals

- 1) Customers connected to the network OCDS can choose any supplier at competitive market
- 2) Maintenance and recovery of CDS is provided
- 3) Adequate measurement and meters reading

Problem: **The initial financing of the system preparation for licensing**

- OCDS may have a license for the supply in the open market (<100,000 customers)</p>
- Electricity and network access are purchased at HV and sold on LV
- Optimizing access prices + supply

Predictions for 2015

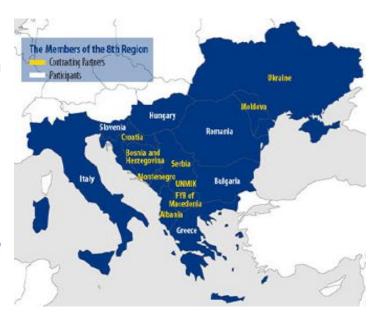
- Organized markets (Power Exchange of Electricity)
- Competitive market could be increased
 - Customers who lose status of a small customer due to a limit of yearly consumption to 30,000 kWh (+2TWh)
 - Households with consumption in the red zone
 - Some other consumption at LV
 - Industrial consumers within Closed Distribution Systems
 - Number of small customers will be decreasing

SOUTH EAST EUROPE REGIONAL ELECTRICITY MARKET



The 8th Congestion Management Region - SEE

- The so called 8th Congestion Management Region was established according to the approach used within the EU (ERGEG Electricity Regional Initiatives)
- The agreement on the South East European region was reached at the Ministerial Council in June 2008: The 8th Region was created by MC decision in June 2008
- The definition of the 8th Region was an important step towards the establishment of a SEE Regional Market for electricity
- As a result, a common Coordinated Congestion
 Management method, including capacity allocation,
 is to apply for the following territories:
 - the nine Energy Community Treaty
 Contracting Parties
 - the neighboring countries Bulgaria, Greece, Hungary, Romania and Slovenia
 - Italy with regard to the interconnections between Italy and the CPs to the EnC Treaty (DC undersea cables)
 - Moldova and Ukraine are not technically in parallel synchronous operation within ENTSO-E, and thus cannot perform operationally CACM mechanisms in the 8th region



SEE

9 contracting parties

>20 borders

Population: 137,12 million

SEE Coordinated Auction Office

- CEE and SEE TSOs decided to implement Explicit Flow-based CA
 mechanism in SEE Region ... vs. CWE, SWE and Nordic Region where Implicit
 NTC based mechanism is implemented (Market Coupling, Market Splitting)
- Coordinated Auctions and SEE CAO are in compliance with Regulation 1228/03 (714/2009) and CACM provisions
- Establishment of SEE CAO targets harmonisation of the allocation and nomination rules for Long and Short term transmission rights in the 8th Region
- EnC MC in December 2008 supported the location of SEE CAO in Montenegro
- Project Team Company in Charge of Establishing SEE CAO (PTC) has been officially registered in Montenegro on 4 July 2012 with the scope of preparing the effective operation of the SEE CAO (www.seecao.com)
- SEE CAO Company shareholder agreement by the TSOs of Albania, Bosnia and Herzegovina, Croatia, Greece, Kosovo*, Montenegro and Turkey
- SEE CAO started to operate in 2013
- First allocation procedure were organized by SEE CAO: Yearly allocation for Q1 2015: an initial step towards centrally coordinated forward capacity allocation
- NTC based approach for SEE CAO as the first step
- SEE TSOs drafted Auction Rules and SEE Regulators approved SEE CAO related rules and will perform CA and SEE CAO Monitoring + define revenues distribution
- Obstacles for participation: VAT problem (FYROM); Albania joining; Serbia activity plan

Third Energy Package

- On EU level, the entry into force of the Third Energy Package together with the target of completing the internal energy market by 2014 form the framework for electricity market development
- Third Energy Package was incorporated in the Energy Community in October 2011 with a transposition deadline by 1 January 2015
- This also includes adopting the European Network Codes, once legally binding on European level, in the Energy Community (Decision 2011/02/MC-EnC of the Ministerial Council of 6 October 2011)
- Ukraine has abstained from approval of the decision until the internal state procedures of ratification are performed
- Network Codes will, finally, have the form of a directly binding Regulation
- Different from EU, European Regulations do not develop direct applicability in the Energy Community but need to be transposed into national legislation
- The Energy Community Council by Decision 2011/02/MC-EnC empowered the Energy Community Permanent High Level Group (PHLG) to decide on the applicability of the European Network Codes and Guidelines in the Energy Community

South-East Europe Regional Action Plan

- The goal of integrating the seven European electricity regions into a single market area is addressed through the *Regional Initiatives* process which falls under ACER's responsibility and focuses on four cross-regional roadmaps:
 - Capacity calculation
 - Long term capacity allocation
 - DA capacity allocation (Market coupling)
 - Continuous mechanisms for implicit cross border intraday trading
- 8th Region participates in ACER's coordinated monitoring activity
- SEE RAP defines the steps for regional market integration in the 8th Region streamlined with the milestones and actions of the European *Electricity Target Model* and the four cross-regional roadmaps

Action needed to overcome the identified constraint(s) in SEE RAP

- All elements of SEE RAP can be implemented within the legal framework of the 2nd Energy Package
- Establishment of a regionally coordinated congestion management is explicitly required by Regulation (EC) 1228/2003
- However, stronger political support, promotion and commitment are necessary to proceed
- Fully regionally coordinated allocation process for the entire 8th Region still lacks participation of Bulgaria, FYR of Macedonia, Romania and Serbia
- Athens Forum in 2014 highlighted the need for TSOs of Bulgaria,
 Macedonia and Serbia, which so far have not participated in SEE CAO,
 to come up with concrete plans and timelines regarding their
 participation in a regional capacity allocation body
- Romanian stakeholders indicated clear commitment, once the neighbouring bidding zones' TSOs are cooperating within SEE CAO
- Serbia plans to establish Power Exchange SEEPEX in 2015; start operation in 2016; open for MC and offering services
- Plans for Market Coupling with Hungary one year after starting operation

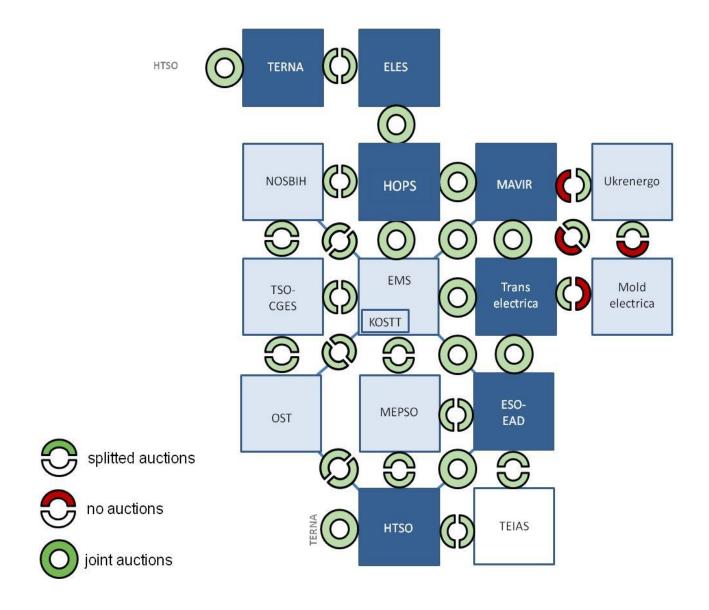
Conclusions on SEE RAP development

- Still existing lack of a regionally coordinated capacity allocation mechanisms remains a key concern, both in terms of market liquidity as well as compliance with the EnC acquis communautaire
- Insufficient transmission interconnection capacity with neighbouring systems remains a key barrier for limited crossborder trading and the establishment of a Regional Electricity Market
- Coordinated capacity allocation and congestion management schemes are therefore essential
- Although TSOs of all EnC CPs, except Moldova, have already introduced market-based capacity allocation mechanisms (based on NTC auctions) for congestion management at their borders, there is still insufficient harmonization in the 8th Region

Mechanisms for Capacity Price determination in the 8th Region (Q1 2015)



Cross Border Capacity Allocation Mechanisms in the 8th Region (Q1 2015)



Joint auctions

- All CPs TSOs, except TSO of Moldova, have introduced market-based mechanisms for cross-border auctions, namely explicit NTC-based auctions
- With regard to the Republic of Moldova, the draft regulation transposing Regulation (EC) 1223/2008 has been finalised with further amendments; approval is, however, pending and subject to adjustments in primary legislation
- Auction rules for cross border capacity allocation for the borders
 of Ukraine have been adopted by NRA; these Auction Rules
 are, however, not in compliance with the EnC acquis. Yearly
 and monthly allocations are introduced at all electricity borders
 while weekly and daily allocations are introduced only at several
 borders. Intraday allocations are also available at several
 borders, but on non-market based solution (first come, first
 served)
- CPs TSOs have started to implement joint auctions
- For 2013 the Croatian borders to Slovenia and Hungary are for the first time involved in CEE CAO (Y, M and D auctions)

Market Coupling

- The latest endeavours to establish Power Exchanges constitute a move into the right direction towards the development of spot markets and the provision of a condition for future implicit allocations
- The announced establishment of a Power Exchange in Serbia by TSO EMS and EPEX SPOT is the front-runner in these developments in the CPs of EnC
- More details on how other bidding zones will be involved in this project are expected
- Most EU countries of the 8th region have established trading hubs on a day-ahead level, namely in Greece, Italy, Slovenia, Romania and Hungary
- Romania joined Market Coupling mechanism between Czech Republic, Slovakia and Hungary; EPEX-Spot was selected as Service Provider by OPCOM/OKTE/HUPX

SEEPEX IMPLEMENTATION – legal aspects

- According to the Energy Law, JP EMS is entitled to develop organized market until the establishment of MO
- JP EMS has provided Ministry with the Basic principles for SEEPEX establishment – JP EMS – SP cooperation envisaged – EPS as Market Player in order to provide SEEPEX liquidity in the early stage
- Energy Law amended Organized market
- Ministry supports organizing SEEPEX
 - EU Directives and Regional Action Plan elaborated
 - JP EMS Strategic partner cooperation recognized
 - Pave the way for the next steps Ministry of Energy,
 Ministry of Economy and Ministry of Finance to support appropriate realization of the SEEPEX establishment

SEEPEX – Next steps

- SEEPEX establishment Q2/Q3 2015
 - Cooperation Agreement JP EMS Strategic Partner (possible options: SLA, JV, SLA with SP later participation in the ownership structure...)
 - SLA SEEPEX SP (preparation and implementation)
 - Establishment of the Clearing function
 - Registration of the company in the Serbian Business Registers Agency and other statutory registers
 - Constitution of SEEPEX governance (Supervisory Board, CEO) and execution of necessary by-laws
 - All necessary preparatory activities (eg. premises, employees, opening of accounts, etc.)
- SEEPEX DAM in operation end of 2015

SEEPEX contribution to REM

- SEEPEX will promote effective implicit allocation of cross-border capacity
- With all relevant stakeholders (Regulators, TSOs, PX) and regional partners - involvement in the region-wide market coupling

Cooperation with Strategic Partners:

Development Stage I

- Day-ahead reference price formation initially SEEPEX zonal price
- Transparent and non-discriminatory access to the market, standardization of products, etc.
- Introduction of "hybrid" coupling possibility for MP from neighbouring countries to participate on SEEPEX via available XB capacities

Development Stage II

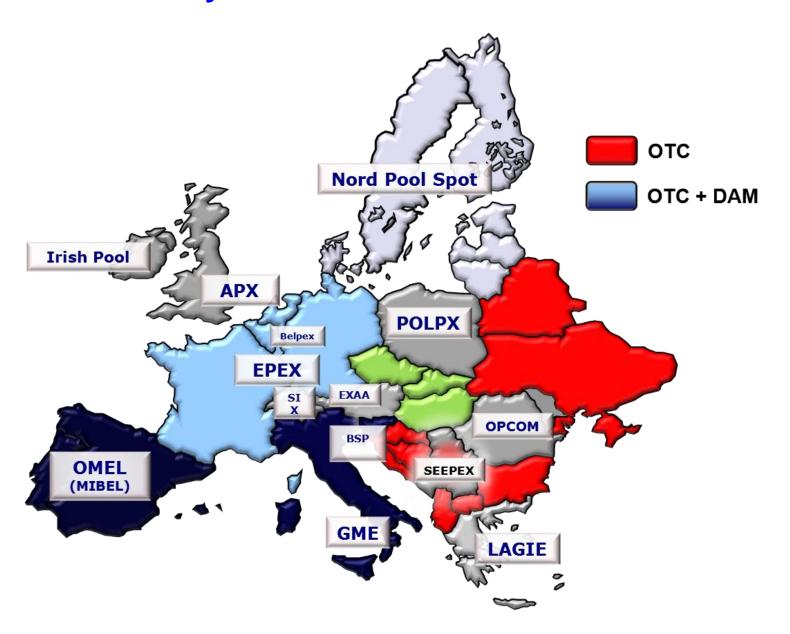
- Market coupling integrated regional price formation (expected uniform wholesale price index for more than 50% of the time)
- Ensuring efficient use of interconnector capacity

Regional Day-Ahead Market – SEEPEX project

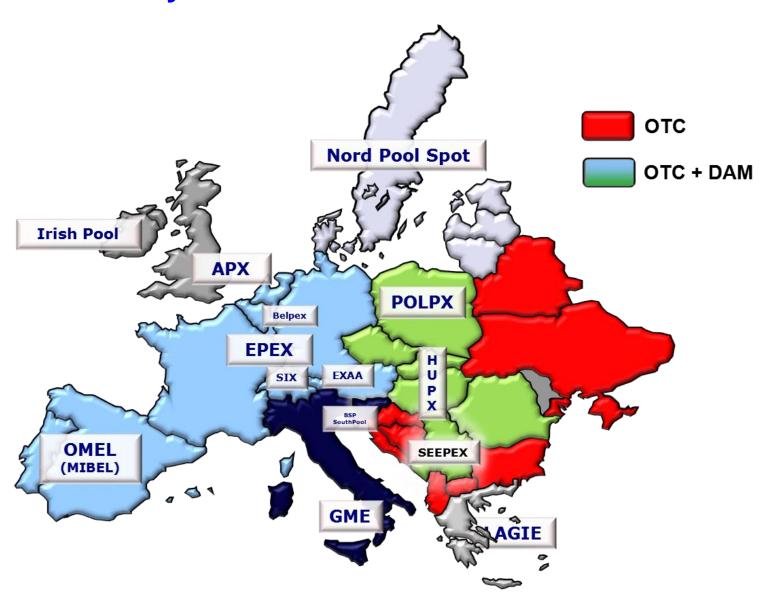
18th Athens Forum 2014 conclusions:

11. The Forum supported the proposal to use the SEEPEX project as pilot project for setting up a power exchange in the region and to prepare coordinated day-ahead and intraday capacity allocation... The SEEPEX can be extended to other Contracted Parties on a step by step basis as soon as possible.

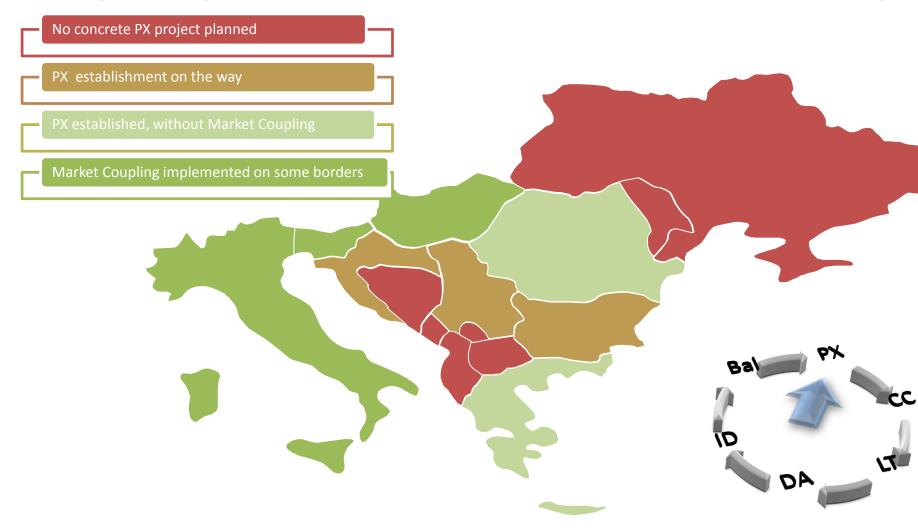
Day-Ahead Market 2013/2014



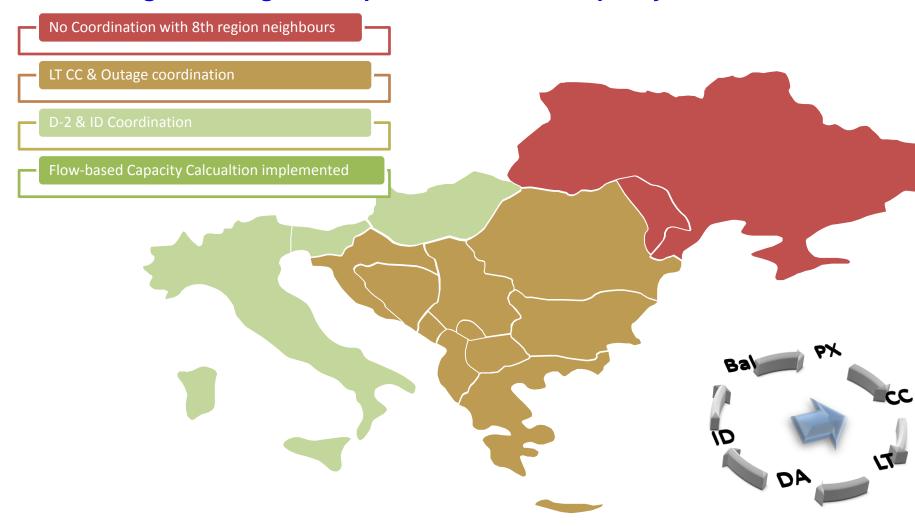
Day-Ahead Market: Plan for 2015



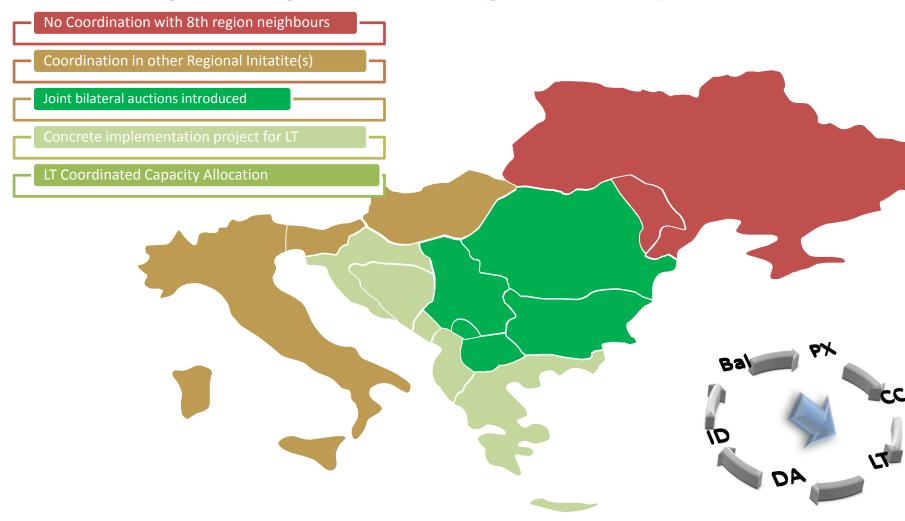
The 8th Region – Progress Maps – Establishment of PX (functionality) & Market Coupling



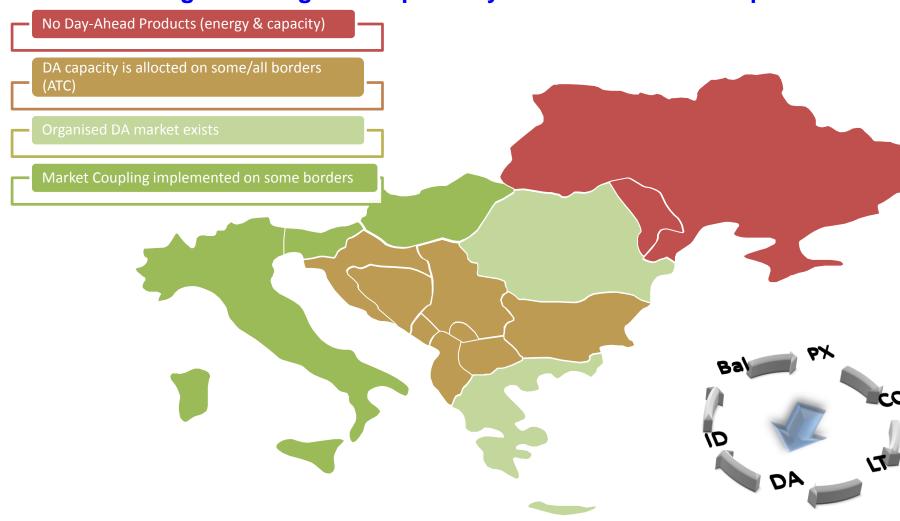
The 8th Region – Progress Maps – Coordinated Capacity Calculation



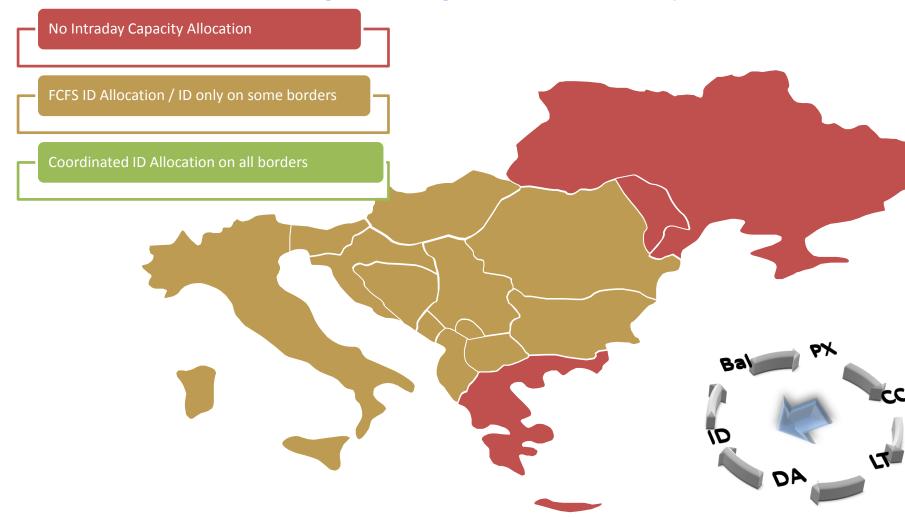
The 8th Region – Progress Maps – Long-Term Capacity Allocation



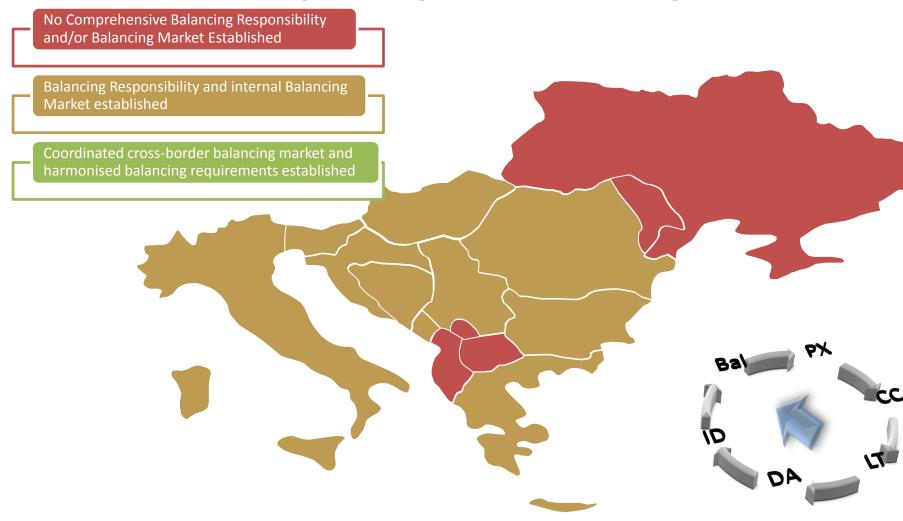
The 8th Region – Progress Maps – Day-Ahead Market Development



The 8th Region – Progress Maps - Intraday



The 8th Region – Progress Maps - Balancing



| | Activity | INDICATIVE TARGET Date | Action | State of Play | Deadline missed? | Explanation |
|----------------|---|---|---|---------------|------------------|---|
| | | | | | | |
| | Capacity calculation | | | | _ | |
| | Revise and enhance a common grid model (CGM) for the SEE region | Q4 2011 | ENTSO-E RG SEE | | | for LT implemented |
| | Harmonize methodologies/ procedures for capacity calculation for yearly / monthly / day ahead time horizons | Q4 2014 | ENTSO-E RG SEE | | | regionally harmonised day-ahead procedure in the final stage of preparation (RG SEE task) |
| 1 2 | Forward markets | | | | | |
| \vdash | Coordinated bilateral explicit auctions implemented | Q2 2015 | TSOs [1], NRAs, Ministries | | | 1 |
| | on all borders within the SEE region | | | | | |
| | Centralized multilateral coordinated (NTC-based in a first step, flow based remaining the final concept) auctions on relevant SEE borders (auctions performed by CAO as the service provider, i.e. single point of contact within SEE region) | Q4 2014 | TSOs, NRAs, Ministries | | | |
| | Multilateral coordinated auctions on all borders within the SEE region | Q3 2016 | TSOs, NRAs, Ministries | | | |
| | (regional one-stop-shop and, finally/or, EU solution) | | | | | |
| 3 | Day-Ahead market | | | | | |
| | Establishment of power exchanges in several SEE countries or contracting services from the existing PX | In line with National Action Plans but not later than 31 December 2014 | TSOs, NEMOs, Market participants, NRA, Ministries | | | not established for several SEE bidding zones |
| | Bilateral/trilateral market coupling in the SEE region (nucleus approach or different regional initiatives) — tight volume coupling as a possible interim steol [2] | Q3 2015 | | | | |
| | | 04 2047 | TSOs, NEMOs [3], NRA, Ministries | | | |
| | Implementation of price based market coupling (EU target model) in the entire SEE region | Q12017 | TSOs, NEMOs, NRA, Ministries, ENTSO-E RG SEE ⁻ ECRB | | | |
| | Pan-European market coupling including the SEE region operational | Q2 2018 | TSOs, NEMOs, NRA, Ministries, ENTSO-E RG SEE, ECRB | | | |
| ⊢ ₄ | Intraday market | l . | l . | | | |
| | Survey on existing intraday capacity markets in the SEE region | Q2 2011 | ECRB, ENTSO-E RG SEE | | | |
| | Establishment of cross-border intraday capacity FCFS solution on several borders in SEE | Q1 2013 | TSOs, NRA, Ministries | | | |
| | Establishment of cross-border intraday capacity market on several borders in SEE | Q1 2015 | TSOs, NRA, Ministries | | | not implemented |
| | Establishment of harmonized regional solution for intraday capacity allocation | Q2 2018 | TSO, NRA, ENTSO-E RG SEE, NEMOs, PHLG, ECRB | | | |
| | Pan-European intraday solution (continuous trading) including the SEE region operational | Q2 2020 | TSO, NRA, ENTSO-E RG SEE , NEMOs, PHLG, ECRB | | | |

Overview of the developments regarding the elements of the 8th Region's Regional Action Plan

| RAP element | Meeting the intermediary RAP deadlines | Prospects of meeting the 2015 deadline | Progress achieved / pending issues | |
|--|---|--|--|--|
| Capacity Calculation | Partly | unclear | Grid Model updated & LT Coordinated Capacity Calculation in place | |
| Forward Markets | No | Very likely for some bidding zones | With the establishment of the SEE CAO progressing, it becomes likely that coordinated LT allocations can take place in the near future; still, the relations between SEE CAO participating and non participating TSOs in the region need further clarification. First allocations are expected in the end of 2014. | |
| Day-ahead Market | No | Unclear In many countries of the region, Day-ahead market exists, and in most EU countries power exchanges are established. Market Coupling as target for this timeframe is still not implemented in the 8th region. The establi of power exchanges as precondition for the market coupling was announced for Bulgaria, Croatia, Macedonia Serbia. Still, regional cooperation remains unclear. | | |
| Intraday Market | No | unlikely | No measurable progress achieved | |
| Abandoning of barriers in national Legislation | Abolishment of barriers as part of the legislative reviews to implement the Third Energy Package with deadline of 1 January 2015 likely | | In the Region's EU member states and some of the Energy Community's Contracting Parties appropriate measures and market rules have been transposed. Regarding the implementation more detailed setting and application of rules in a coordinated manner is required. | |

Development of cross-border balancing

- During a Joint ENTSO-E & EnC WS on 3rd Package Network Codes, held in Vienna on 4 November 2013, representatives of ECRB EWG, ENTSO-E RG SEE, and ECS endorsed the launching of an Initiative aiming to develop a Regional Balancing Concept for the 8th Region
- In the beginning of 2014, ToR of this project were under discussion
- Project was taking place during 2014 btw SEE TSO/MOs, and NRAs will join discussions during 2015
- The "negative" opinion of ACER on the Electricity Balancing Network Code could cause delay in defining the projects work packages that should be based on the Code's requirements
- In January 2014, 3 TSOs of the SHB Control Block, ELES, HOPS and NOS BiH, concluded an agreement on the common procurement of balancing reserves
- This announced cooperation aims at reducing the overall amounts of procured balancing capacity and it constitutes a good starting point for further initiatives that widen and deepen this cooperation
- Negotiations between the TSOs of the SMM Control Block, regarding the common procurement and sharing of balancing reserves have started and were reported during the last quarter 2014
- Joint NRA-TSO/MO meeting will be held in order to discuss the regulatory barriers identified by TSO/MOs in relation to imbalance settlement

Transparency

- In order to increase Market Transparency most of SEE TSOs are participating in the ENTSO-E Transparency web platform -EMFIP
- Although, the quality of the SEE TSOs websites has increased, none of the CPs TSOs is in full compliance with the legal transparency obligations
- ECRB has adopted a recommendation on the adoption of Regulation 543/2013 on submission and publication of data in Electricity Markets in EnC
- Such recommendation is not binding, but endorses the endeavours of the 8th Region's TSOs and market participants to promote Transparency and Market development
- Discussion on the adoption of Regulation 543/2013 into the Energy Community acquis, which is likely to happen at the June PHLG meeting with an implementation date 18 months later
- ECRB EWG is currently drafting a report on the status quo of the compliance with the present publication requirements

SEE Market Monitoring

Two work-streams on Electricity Market Monitoring:

- 1) Market Monitoring Project with USAID/PE support is performed regarding evaluation of the maximum avaiable NTC to the market: MM Indicators as BCE, TRM, Critical Facilities at SEEAMMS web platform
- 2) Market Monitoring Report / ACER: List of input data for the indicators was presented with request for NRAs to answer:
 - (a) if certain data should not be available to the NRA in question;
 - (b) why (this information will be provided as background information in the final report to better explain cases where data is not available)
- •Check with ACER about possible intentions to establish a database for ACER Market Monitoring purpose (and possibility to include EnC data)
- CPs of EnC are not taking part in REMIT

USAID Market Monitoring Project in SEE Region

- USAID/PE presented its proposal for MM indicators within MM general work-stream:
 - Seven Market Monitoring Indicators to accomplish the objectives for monitoring Cross-Border transmission capacity market
 - Market Monitoring proposal was agreed and supported by ECRB EWG, based on the Consultant (Potomac Economic) Screens proposal
 - MM Dry-Run has started successfully with Indicator 1 in November 2009 as part of Transitional phase
 - Data collected by NRAs from TSOs
- Since 2010, under the ECRB EWG, MM Project developed:
 - **➤ Market Monitoring Guidelines**
 - > SEE Automated Market Monitoring System (SEEAMMS), web address: www.seeamms.com
 - ➤ Regional Monitoring Function (to coordinate activities across the region)



Thank you for your attention!

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