2nd Regional Energy Conference
"Establishment of the organized electricity market in BiH "
Mostar 19-20/10/2017

"The status and gains of the Albanian Power Exchange project "

M.Sc.E.E. Elton B. Radheshi
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OST sh.a.

Legal framework and regulatory developments

Other very important regulatory acts as a result of the primary legislatin are which set the rules for the establishment and functioning of the PX:

- ✓ **Market Rules already prepared and sent for approval, it should be in place by end of 2017**
- ✓ **Draft changes to the PSL in order to mandate OST for the creation of the PX already submitted for the approval**
- ✓ **Balancing Market Rules under preparation with a TA (ELIA-LDK-E-bridge) financed from IFC. It should be in place by mid 2018. We are opting for a best European practice in this**

Certification and membership in ENTSO-e

- ✓ **Energy Community Secretariat has issued its positive opinion on the certification of OST on January 2017.**
- ✓ **OST has been certified based on the provisions under the new Power Sector Law by the Albanian Regulator on March 15, 2017 being the first TSO to be certified in SEE.**
- ✓ **On march 30, 2017, OST has become full member of ENTSO-E after its first application in 2004 even the synchronous operation with ENTSO-E dates far in 1987.**

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THE ALBANIAN POWER SECTOR MAIN PLAYERS AND ROLES

Independent body organised based on the Energy sector Law in late 1995. Board of commissioners appointed from the Parliament. Responsible mainly for tariffs methodology as well as licensing procedures. Safeguard of the Energy Sector

Incumbent generator. Joint stock company state owned.
Responsible for production of electricity mainly Hydro. Covers around 77% of Albanian generation sources

OST sh.a. is a joint stock company registered in July 2004, which shares are owned 100% from the Albanian Govt.
OST is responsible for (i) Transmission (ii) System operation, (iii) Market operation (we have opted for the TSO designation)

Joint stock company 100% state owned, after ri-nationalisation from CEZ a.s. in 2014.
Responsible for distribution system operation as well as last resort supply. Covers up to 90% of supply.

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THE ALBANIAN POWER SECTOR MAIN PLAYERS AND ROLES CONT.

IPP

Independent Power Producers, only Hydro. In 2015 the IPP connected to the HV grid more were more then 21. Majority have PPA with OSHEE for 20 years. In 2016 overall production was around 1.5 TWh.

Suppliers

As of 2012, after amendments to the PSL, all consumers connected to the HV network are obliged to be supplied from eligible suppliers. Actual size around 10% of the overall load, in 2016 their consumption was around 0.6 TWh. In 2016, 20 suppliers registered and licensed, only 4-5 active.

Traders

Mainly responsible for cross border trade or trade of electricity to OSHEE for the losses and surpluses from KESH. In 2017, 25 traders registered and licensed, only 4-5 active in the market.

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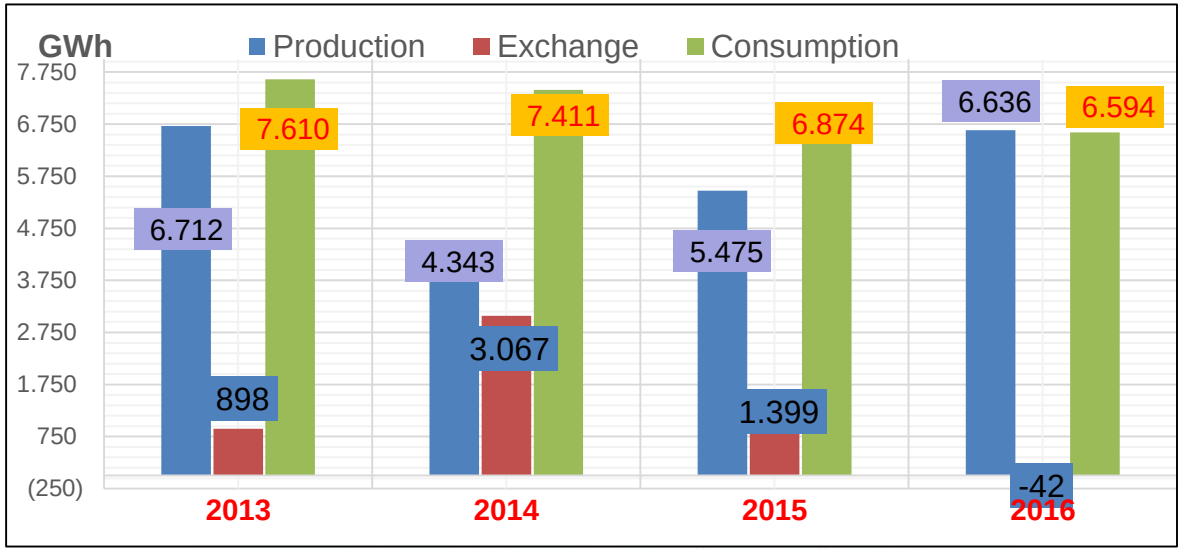
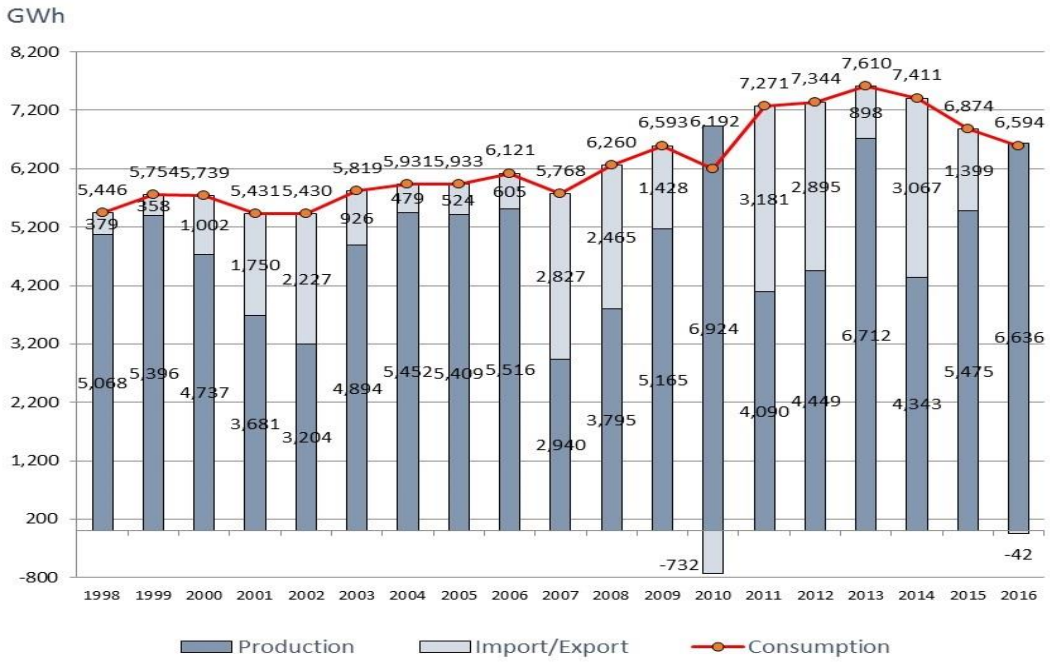
Power system key figures during last years

Albania is a net importer of electricity (20-30% of its demand depending on inflows) and will continue in the near future with such assumption. Exception is made for 2010 with 0.7 TWh and 2016 with small amount of exports.

Last year key figures;
Exports ~ 0.042 TWh
Demand ~ 6.594 TWh
Generation ~ 6.636 TWh

A demand decrease in the last 3 years is evident (last year drop was ~4%), mainly due to (i) drastic measures from the Alb. Government to increase collections and efficiency, reduce of non-technical losses as well as (ii) economic situation in the country and (iii) climatic changes. Anyhow previsions are for a small increase of the load for 2017, and 2018.

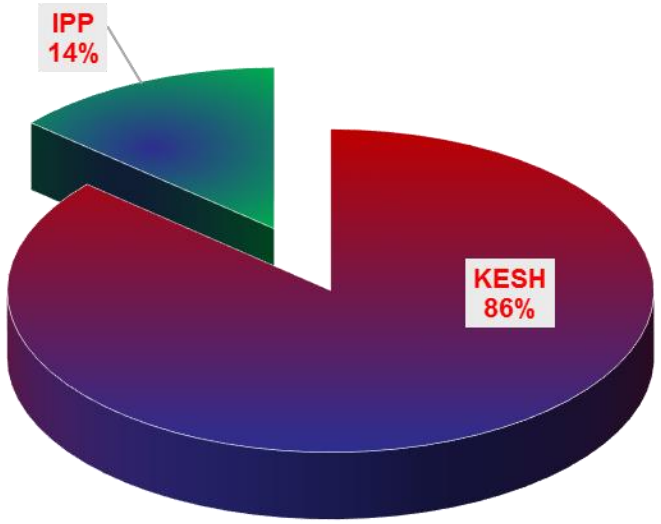




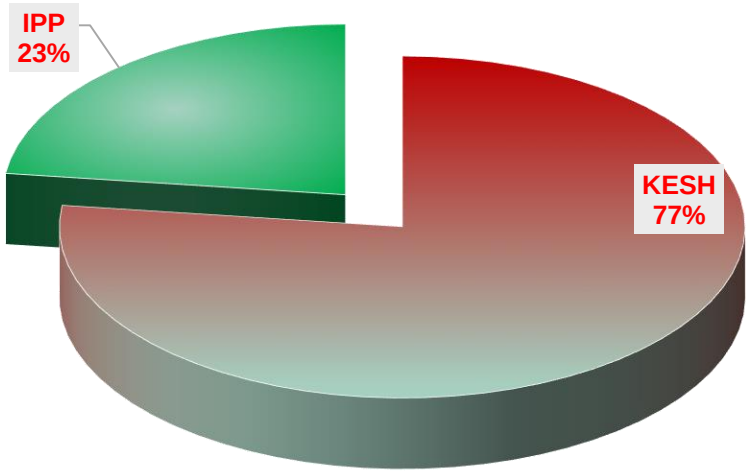
Power system key figures during last 2 years

Albania is 100% generation Hydro

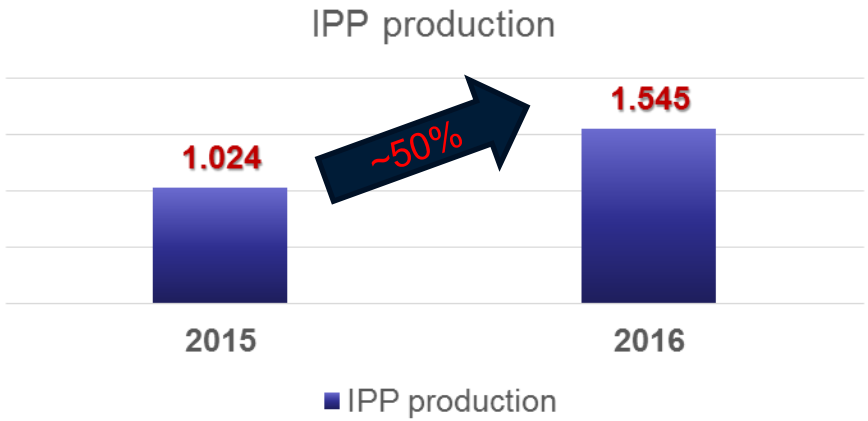
Generation structure in 2015



Generation structure in 2016



The share of the IPP in the generation structure is increasing year by year.



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Stepwise liberalization of the wholesale market

Provisions concerning the stepwise liberalization and phase out of the wholesale and retail supply even set in the Power Sector Law 43/2015 are not yet implemented. No customer is switching from the incumbent Supplier.

Liberalization has started with the amendment of the Power Sector Law in 26/11/2011, defining the provision that clients (around 10) connected to the HV network (110 kV and Higher) or have a consumption more then 50 Million MWh/year are obliged to be supplied on the free market. So far this process has gone smoothly.

Stepwise liberalization in the next two years as per PSL, 43/2015

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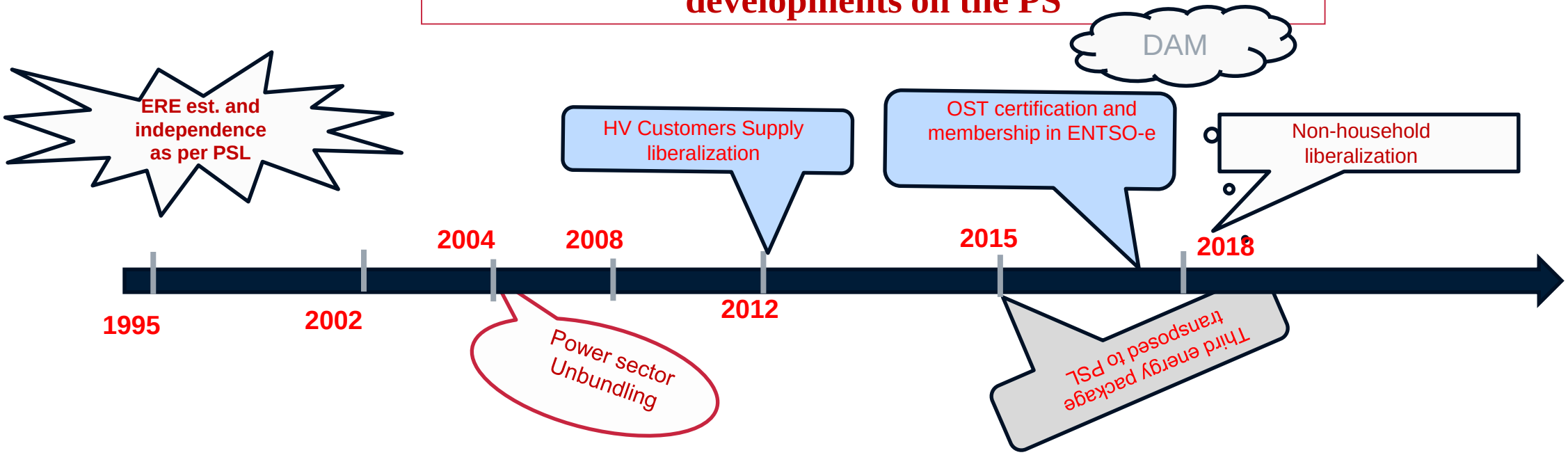
Main dates of the legislative and regulative developments on the PS



Other secondary regulations approved:

Market Model approved by the GoA in July, 2016 sets the grounds for the PX as well as stepwise volumes to be traded in the PX, by the end of 2019 around 82% of the whole volumes will be traded physically on the PX. This will increase not only liquidity but will also give real price signal to the Market.

Market rules, which sets the rules of the Operation of the PX, already sent to the regulator for Approval in December 2016.

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A staged approach protecting the customers

Year 1

Regulated Market			
Purchase MWh		**Sale MWh**	
Regulated tariff customers 10,6 and 0.4 kV	4.450.000	3.250.000	KESH
		1.200.000	IPP
TOTAL	**4.450.000**	**4.450.000**	**TOTAL**

Deregulated Market			
Purchase MWh		**Sale MWh**	
Customer HV	1.000.000	2 655 000	Import or generation by BRPs
Clients in 35 kV	45.000		
Clients in 20 kV	310.000		
OSHEE Losses	1.300.000		
TOTAL	**2.655.000**	**2.655.000**	**TOTAL**

Year 3

Regulated Market			
Purchase MWh		**Sale MWh**	
Regulated tariff customers 0.4 kV	2.900.000	2.900.000	KESH
CFD[2] for 70% regulated tariff volumes	(2.030.000)	(2.030.000)	
TOTAL	**870.000**	**870.000**	**TOTAL**

Deregulated Market			
Purchase MWh		**Sale MWh**	
CFD for 70% regulated tariff volumes	2.030.000	2.030.000	
Customer in HV	1.000.000	4 205 000	Import or generation BRPs
Customers 35 kV	45.000		
Customers 20 kV	310.000		
Customers 10.6 kV	550.000		
Customers 0.4 kV - Businesses, Non-budgetary	1.000.000		
OSHEE Losses	850.000		
Customers outside Albania	450.000		
TOTAL	**6.235.000**	**6.235.000**	**TOTAL**

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Why a Day-Ahead Market (DAM) is the Recommended Market Design for Albania

Generators may trade into balance in the short term horizon and relative to contractual obligations (e.g. at low or high water levels, or when a thermal unit has a unplanned stop and similar situations);

A certain amount of long term bilateral cross-border contracts will still be possible to secure longer term certainty on electricity prices, utilizing the cross-border capacity auctioned by CAO and TSOs in neighbouring countries

Financial contracts (CfDs) based on the DAM price can be used as a reference price in OTC contracts within Albania and Kosovo especially contracts between public generator and wholesale supplier

Consumers can procure electricity directly in the DAM or via suppliers/ aggregators procuring energy in the market and selling to eligible end-users

The proposed model will allow for:

Already implemented solutions and the best-practise adopted by the majority of European countries and the design in the Energy Community's agreed model

A proven solution which ensures that power will flow based on economic signals, i.e. from a low price to a high price area

The power exchange will be a central counterparty to all trades with a market model that is collateralized to minimize the risks for the market

Constitute a sensible business case where the costs for establishing the power exchange are kept low to allow for a sustainable operation.

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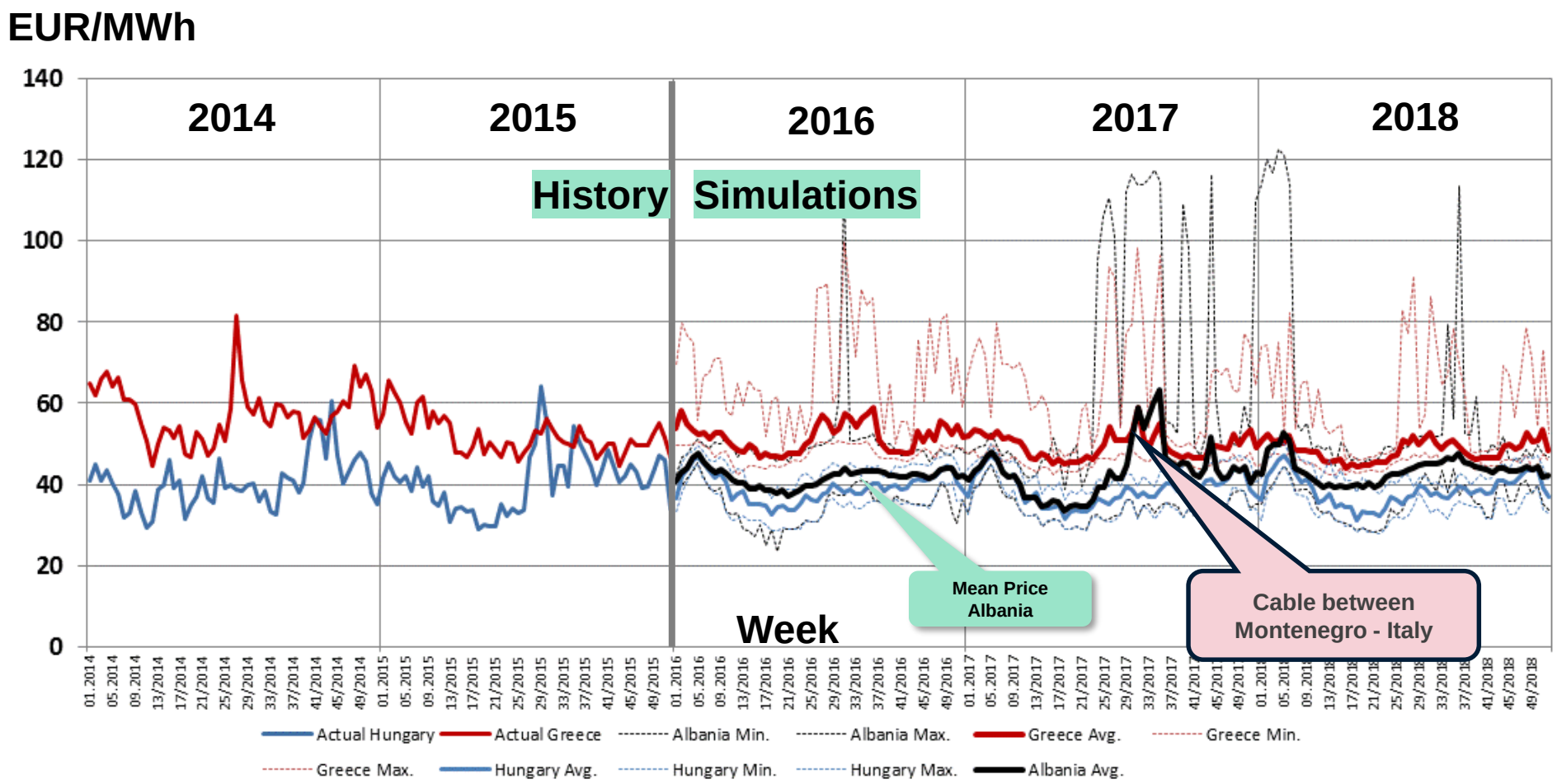
Simulated Spot Prices Albania Range Between Spot Prices in Hungary (HUPX) and the Greek Pool (LAGIE)



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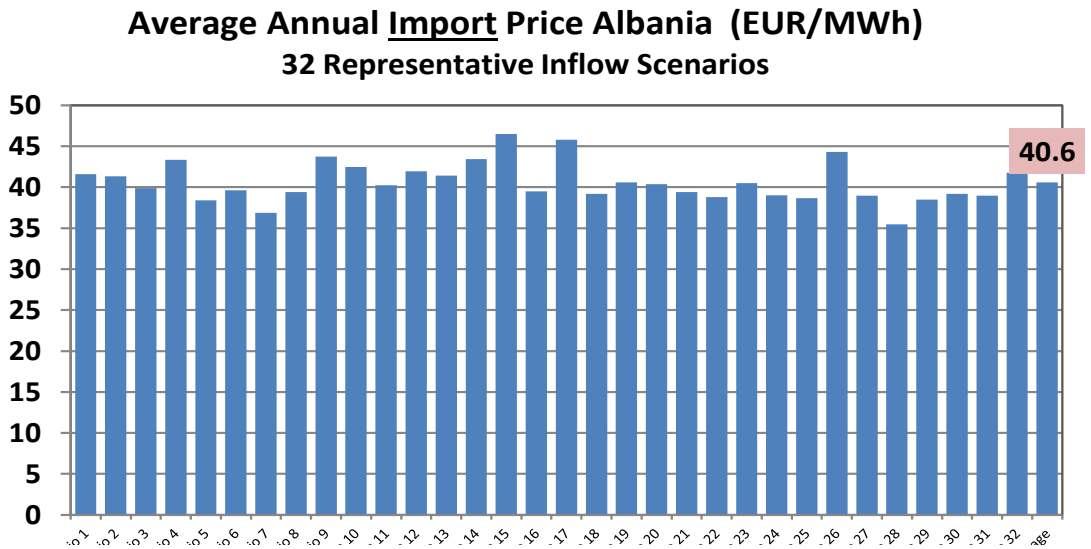
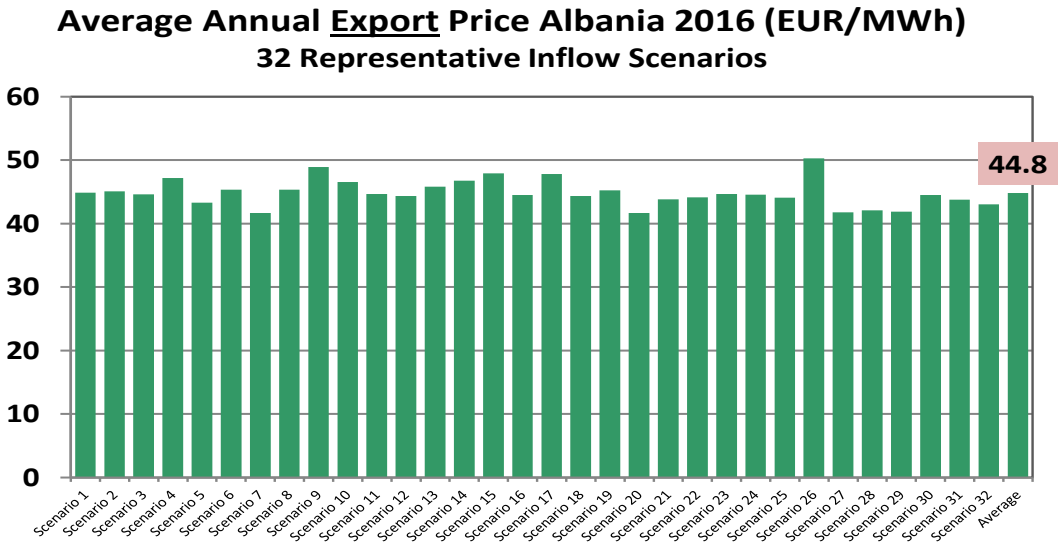
Import and Export Prices Albania 2017 (EUR/MWh)



On an annual basis, average import prices adjusted with OST's congestion revenues will be fairly stable and fluctuate around **40.6 EUR/MWh.** This is lower than today as import would mainly take place during off-peak periods.



Export would mainly be to Greece with average export prices adjusted for OST's congestion revenues ranging between 40 - 50 EUR/MWh (**average 44.8 EUR/MWh**).

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European target model – the same basic solution

The European target model shall ensure the completion of the **EU Internal Energy Market for electricity**. Guidance and standards for each timeframe: Day Ahead (DA), Intra-Day (ID), Balancing and Forward Market.

A fair and transparent day-ahead power price is an key factor for the models success.

Price Coupling of Regions (PCR)

- The initiative of 7 Power Exchanges to develop a single price coupling solution, launched Feb 2014
- EUPHEMIA algorithm

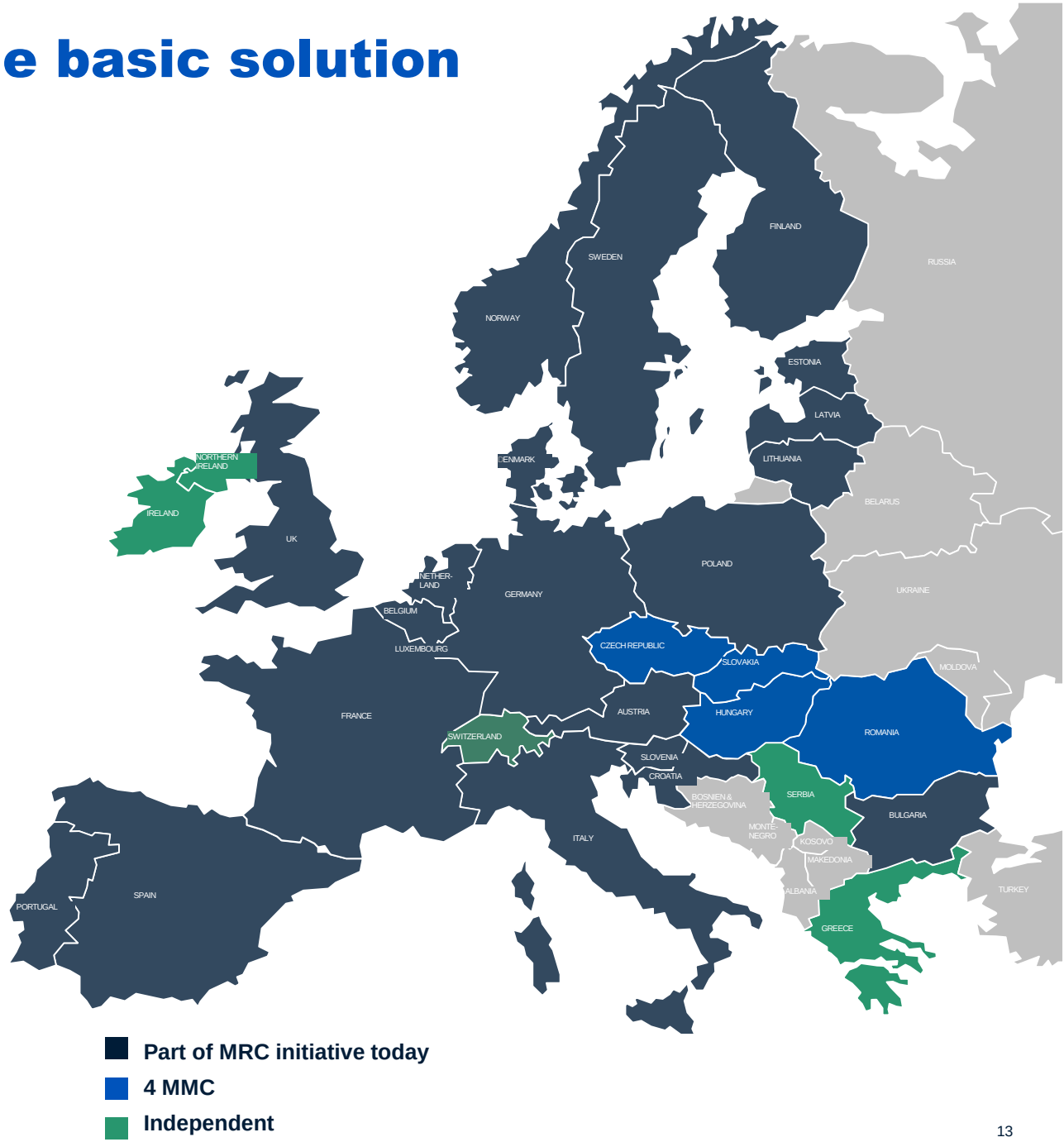
Multi-Regional Coupling (MRC)

- Coupling of regions and efficient management of available transmission capacities between areas and countries
- Implicit capacity allocation

Cross Border Intraday Trading (XBID)

The integrated European electricity market is expected to increase liquidity, efficiency, social welfare and transparency of prices and flows.

THE SERVICED PX concept opens for easy access



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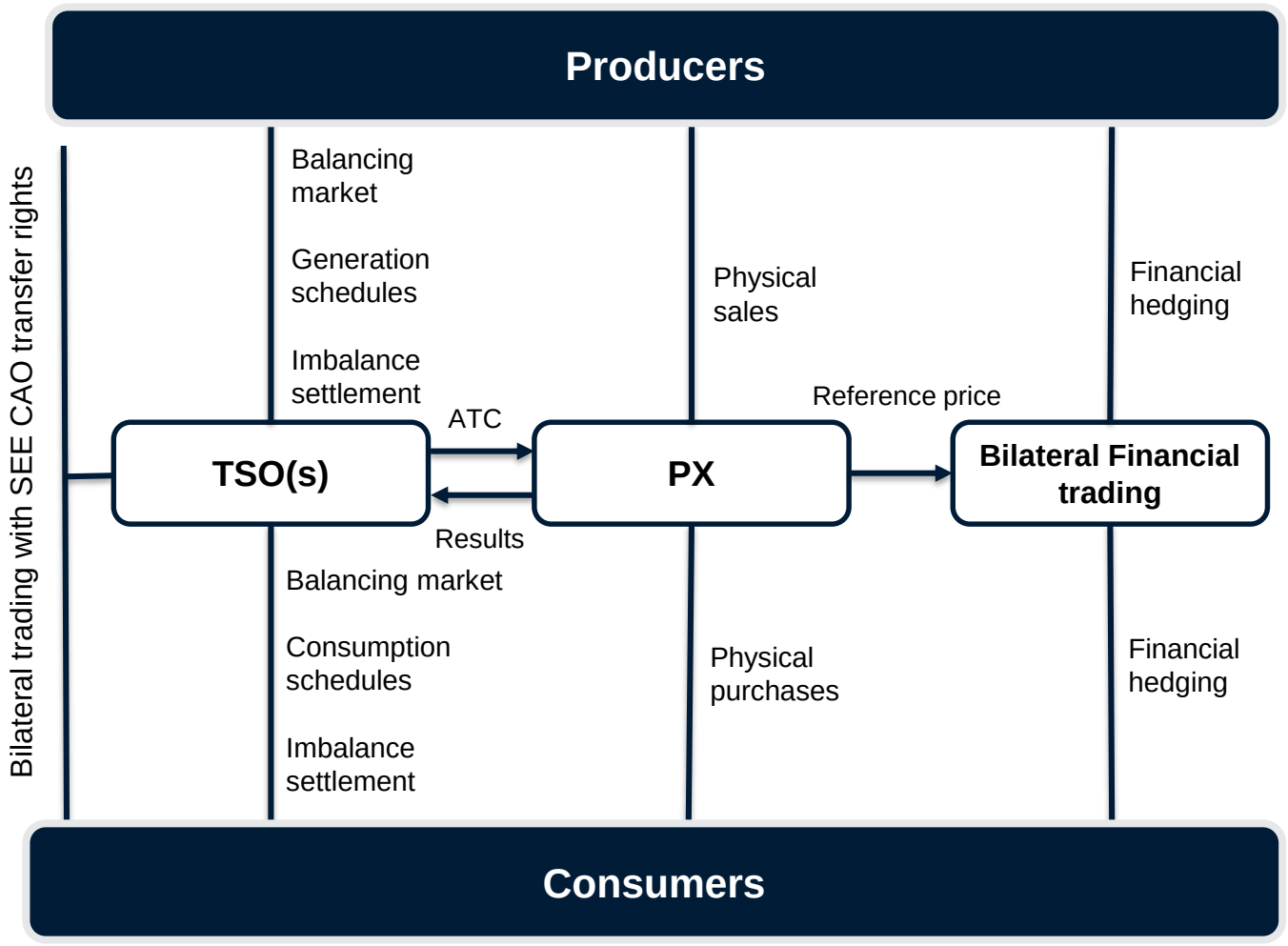
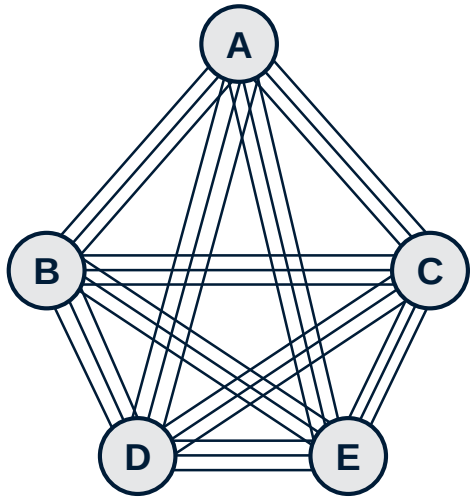
ELECTRICITY MARKET STRUCTURE

Market Roles – as defined in Albanian Market Model (AMM)



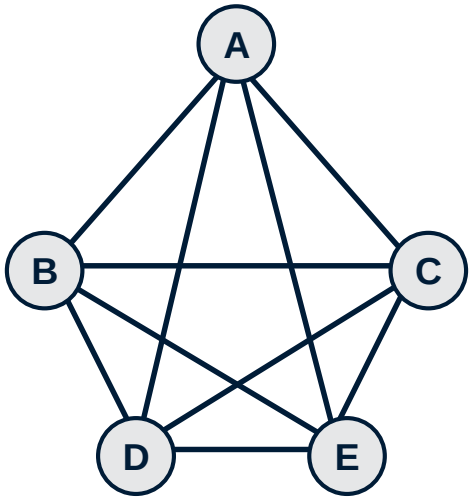
Clearing

Old world:
Bilateral trading
without netting



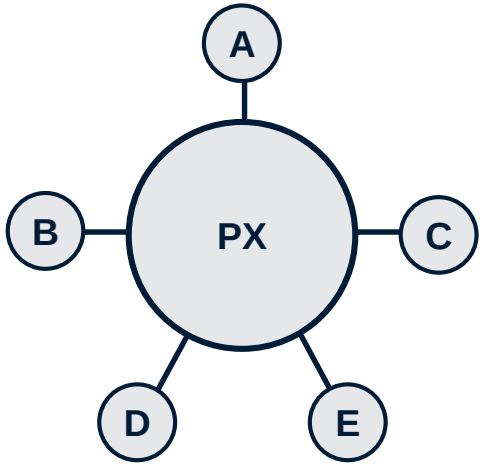
Several counterparties
and transactions

Bilateral trading
with netting



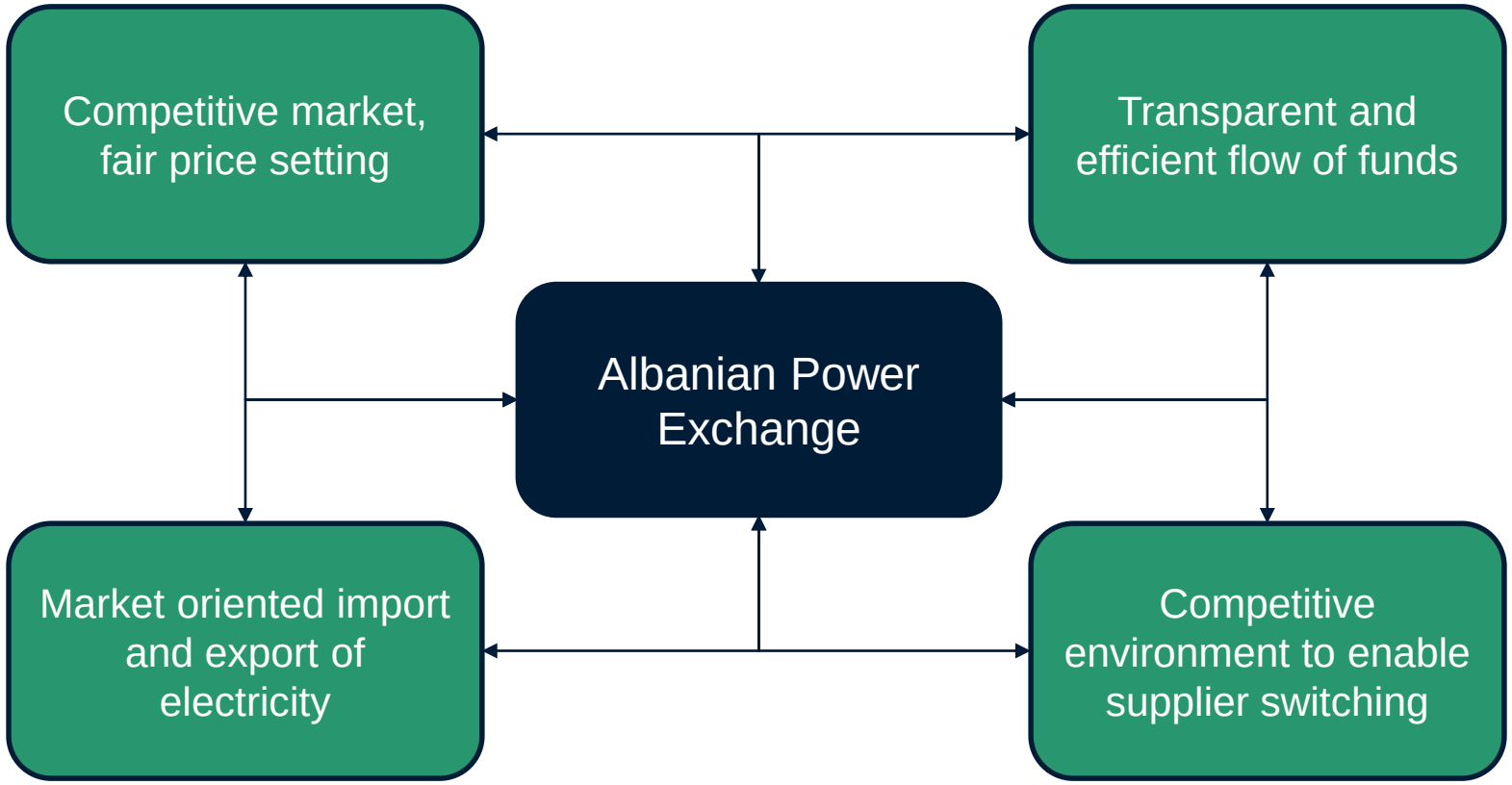
One transaction for
each counterparty

Most trading nowadays:
Trading with several
counterparties

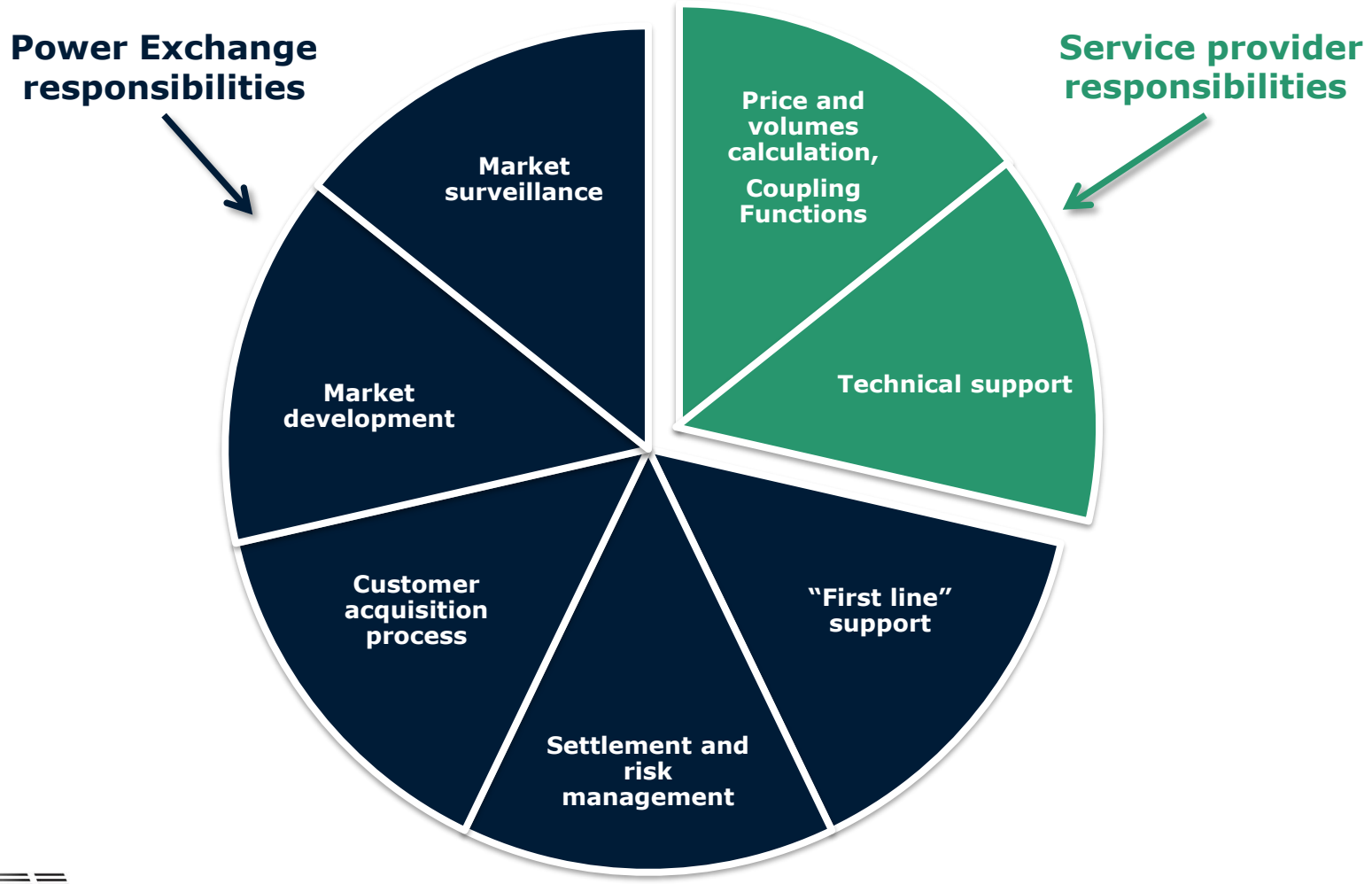


Always only one counterparty!

POWER EXCHANGE – Aim of the operation of organized markets



Power Exchange – Service provider task division



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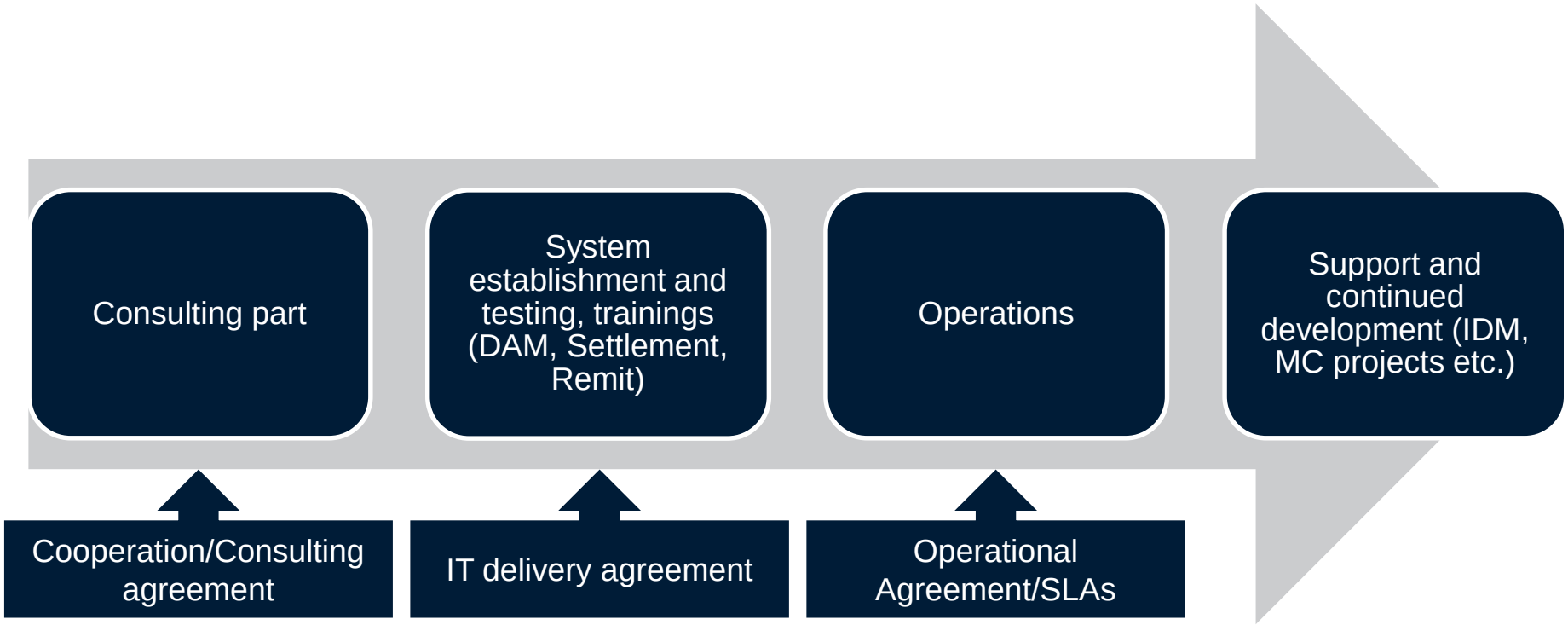
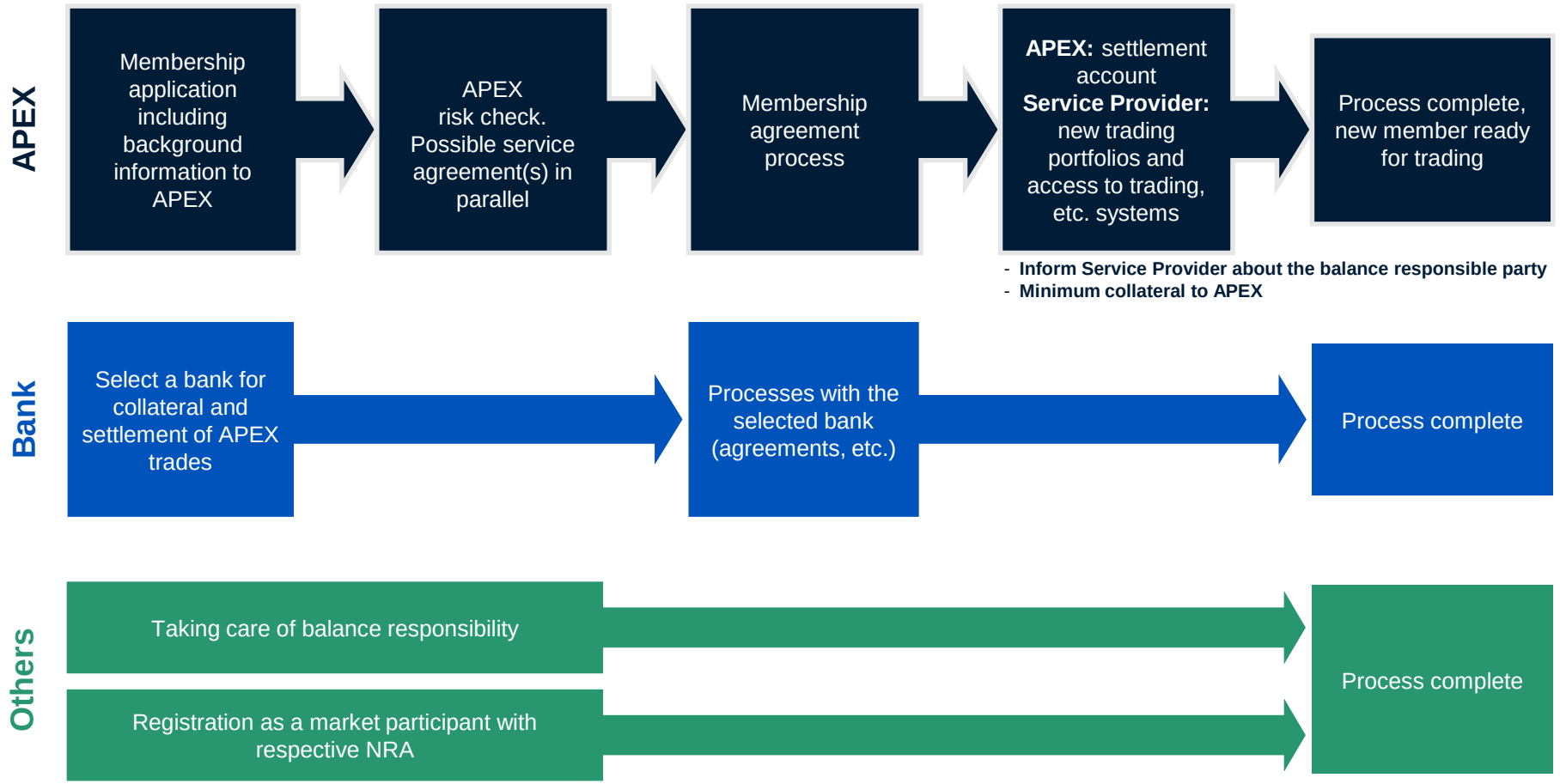
Power Exchange start up from Service Provider point of view



Membership admission process



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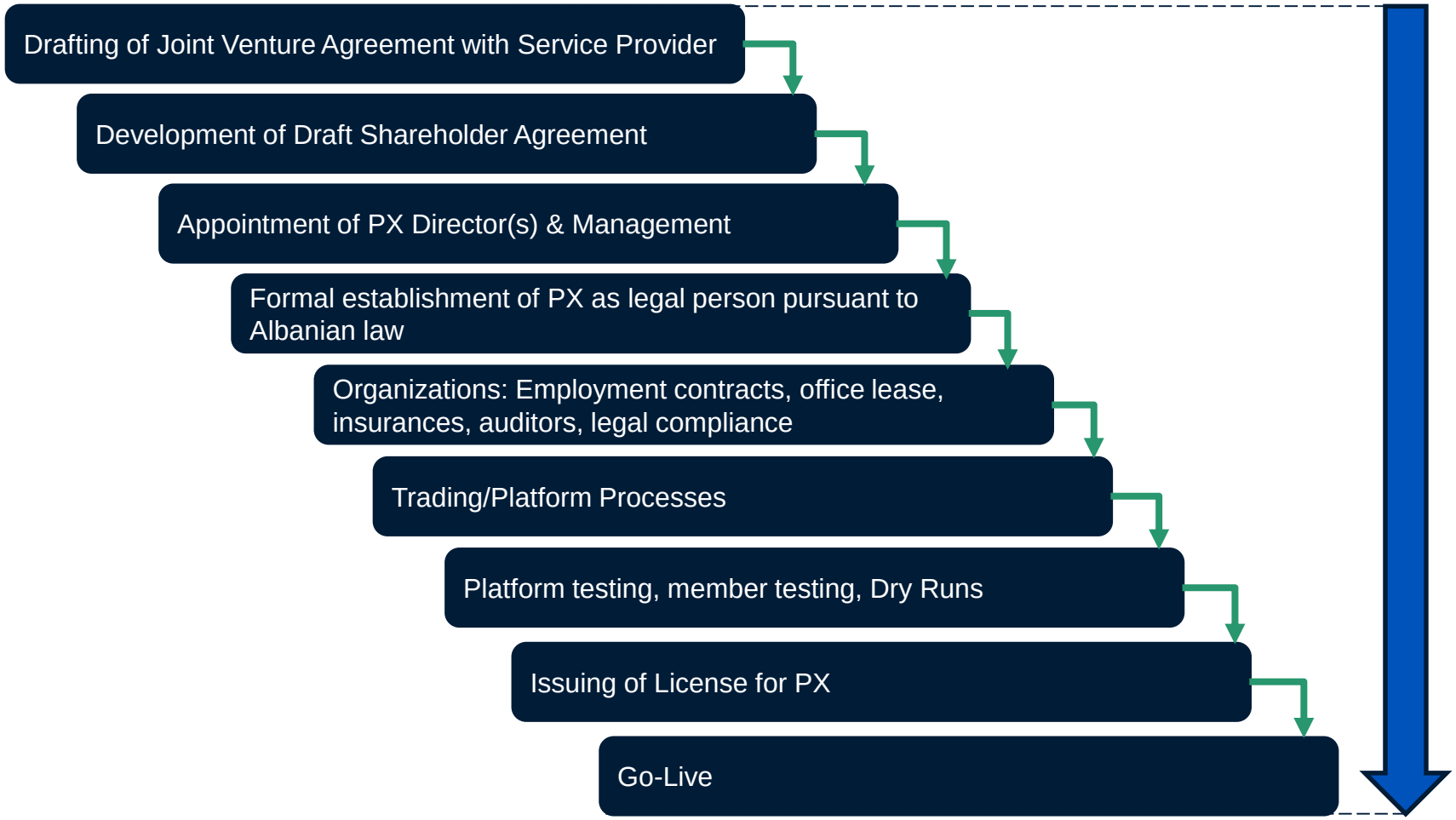
Roadmap for PX establishment and go live – key milestones



- 12 months process
- Many of related tasks already started earlier in 2017
- Go-live during 2018

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Challenges for the establishment and functioning of the Albanian Power Exchange

- ✓ Implementation of the obligations imposed by the Electricity Market Model for the creation of the Albanian Power Exchange;
- ✓ The cooperation of all National Actors defined in the Electricity Market Model to assist the establishment and legal procedures for the creation of the APEX structure;
- ✓ Approval of the New Market Rules;
- ✓ Service agreement with European operator;
- ✓ Agreements between market participants to be approved by the National Regulator (ERE)
- ✓ Establishment of the OTC financial contracts Models (transactions out of PX) between (BRP)
- ✓ Creation of all the types of contracts between APEX and BRP based on best European standards and practices;
- ✓ APEX licensing;

WHAT could be challenging;

- Political hamper towards the liberalization of the markets
- VAT
- Clearing and financial settlement in order to give reliable ground to the EU and regional actors to participate in the PX

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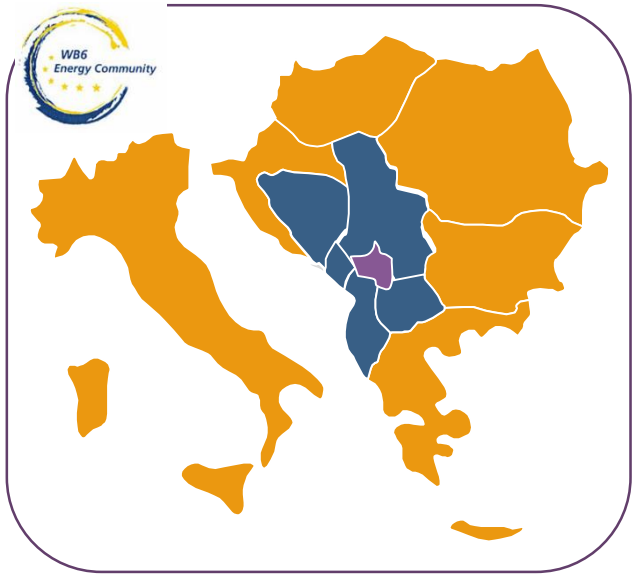
Implementing WB6 MoU



- ✓ **WB6 MoU signed on the 27-th of April 2016 in Vienna** by 16 regional stakeholders from 5 countries (Kosovo Stakeholders due to impossibility for any DAM or CB initiative didn't signed anyhow they are actively participating in the Programme SC)
- ✓ As of today different stakeholders from all neighbourhood EU MC of WB6 signed the MoU. Actually we have more than 30 signatory parties on the DA MI and more than 20 on the XBB.

- ✓ Technically very complex objectives in front of us like market coupling (Early CACM implementation, MRC, 4MMC) cross border balancing as well as SoS eventually.
- ✓ Different profile of the signatory parties (Ministries, NRAs, TSOs, PXs) – different interests and perspectives

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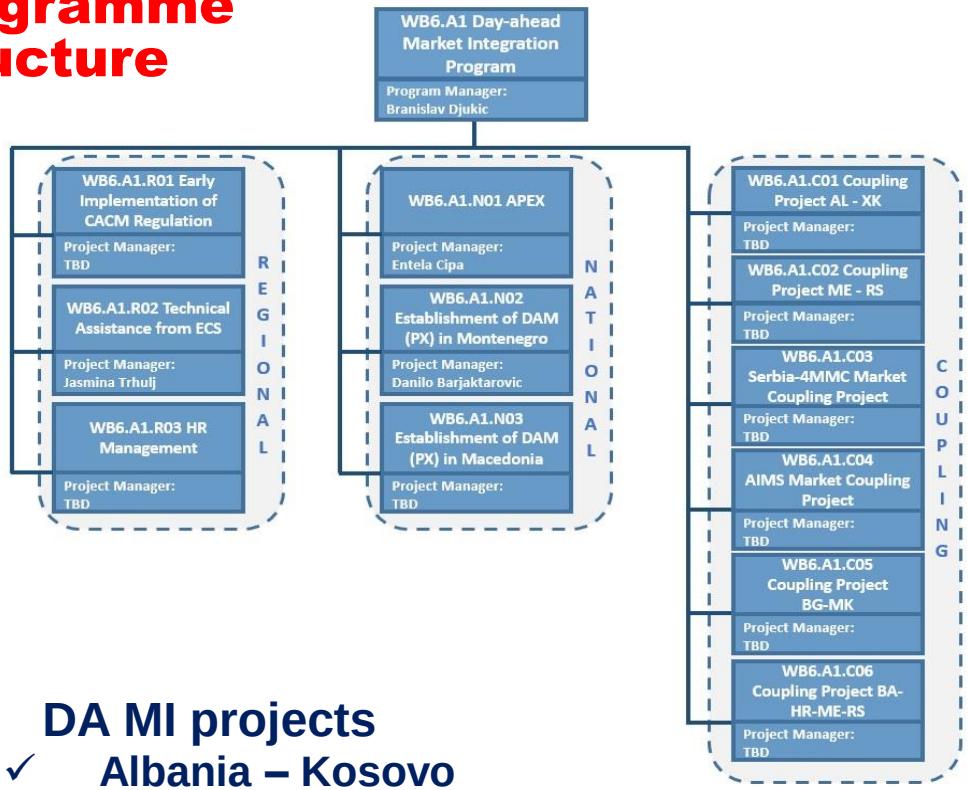
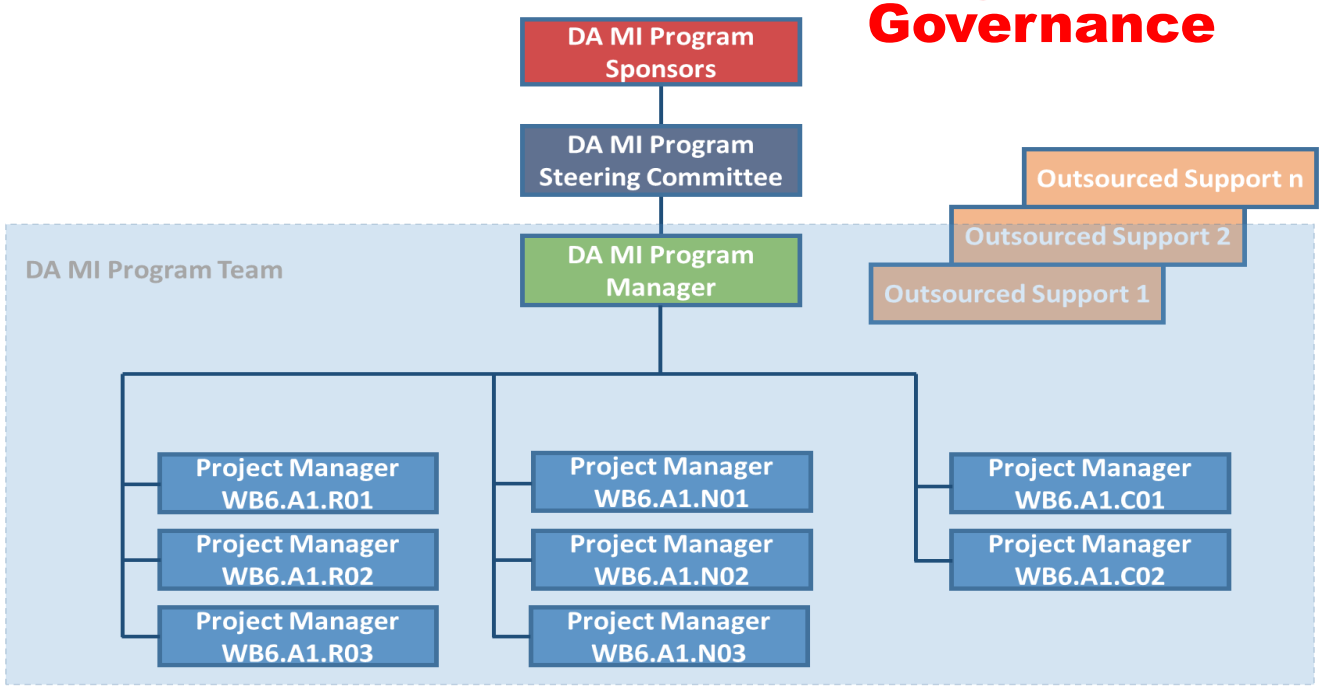
Implementing WB6 MoU DAMI

Programme structure



Programme Governance



- ✓ **DA MI projects**
  - ✓ **Albania – Kosovo**
  - Both Govt. have expressed their commitment for a common market between the two countries
  - An MoU between OST and KOSTT for the participation of KOSTT in the APEX is already prepared and agreed

  - ✓ **AIMS (Albania - Italy – Montenegro – Serbia) Market coupling project under evaluation**
  - First meeting between regulators, TSO's and PX successfully completed
  - ToR for the working group already prepared by the TSO's and under discussions for final adaptation by October 2017
  - Possible deadline for go live Q2 2019 (when the DC cable will be in commercial operation)

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Mutual Benefits from a Joint Power Market between Albania and Kosovo

Albania and Kosovo have generation with very different characteristics;

- Albania is almost 100% by hydropower which is totally dependent on inflow, but can start and stop production fast
- Kosovo is almost 100% thermal generation which is inflexible with respect to start and stop, but able to deliver the same output in dry and wet years.

Combining these two systems will provide mutual benefits to both countries:

- Kosovo will provide base load independent of hydrological conditions for the joint market
- Albania, with its flexible hydro power plants, will easily adjust to demand variations and produce peak load for both countries

A Day-Ahead Market may thus unlock the high value of Albania's flexible hydro power plants in the regional market and reduce average cost of electricity imports

This could be utilized both with a combined market as well as a national market in Albania with an import/export zone towards Kosovo.

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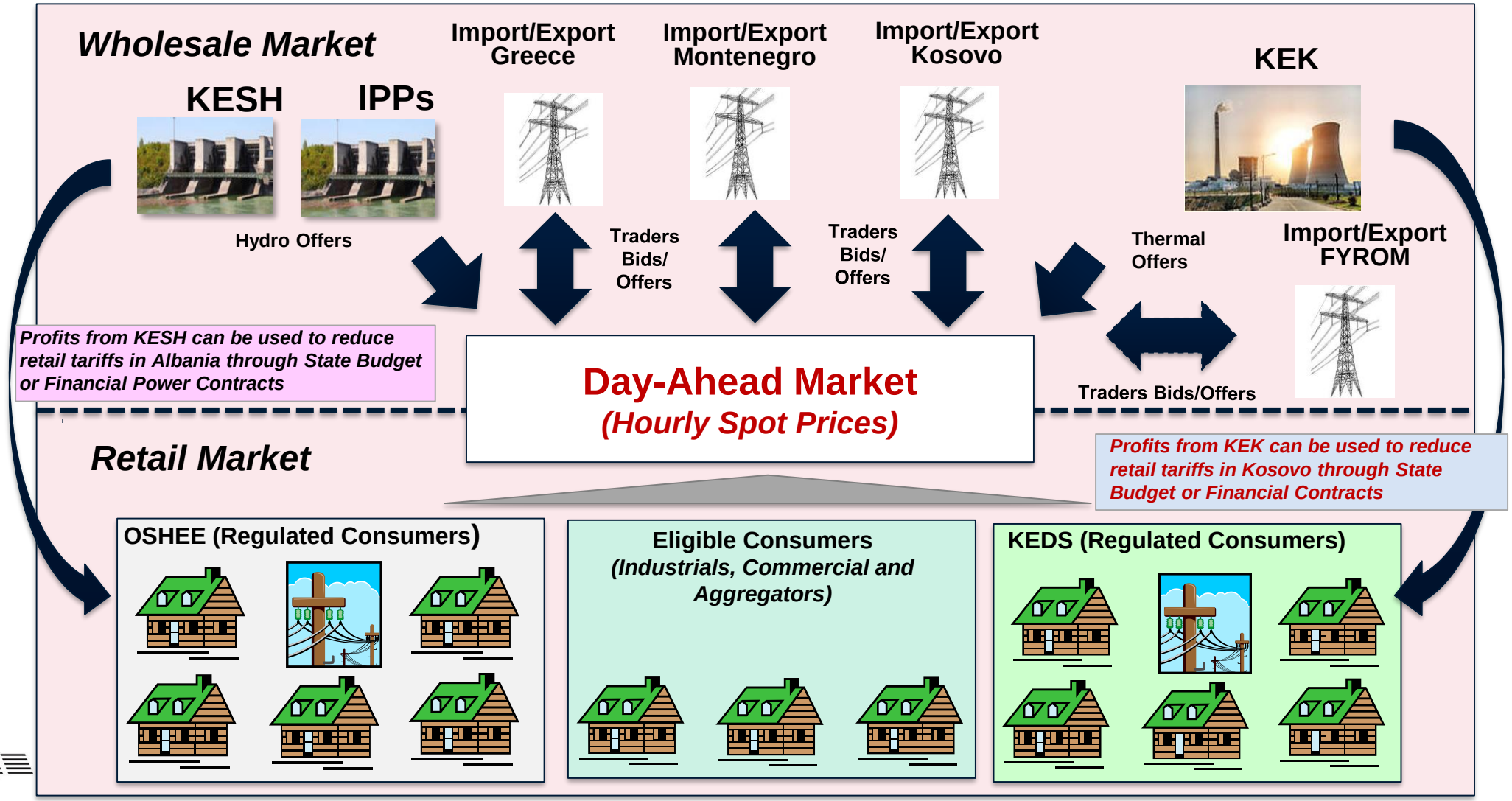
Conceptual Market Design

Joint Day-Ahead Market with Kosovo



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Thank you for your attention!

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