

# **SERBIA 2015 – The Country in Transition**

## **Serbia's Energy Market, its Structure and Role in the Regional Context**

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# The Country in Transition

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*Disclaimer: All data and information provided in this presentation are from public sources.*

*The views and opinions expressed in this presentation are those of the author and do not necessarily reflect the position of any department of the Serbian Government, or Electric Power industry of Serbia.*

# Geographical and Geopolitical place

## Serbia

- Territory of 77.500 km<sup>2</sup> (88.360 km<sup>2</sup> with Kosovo\*)
- Legal successor of former Yugoslavia
- Central geographical position in the South Eastern Europe
- Crossroads - Bordering with 8 countries
- Main transit routes - The corridor country
- Fertile arable land and natural mineral resources (copper...)
- Danube navigable length - 588 km (total of 2783km)
- Balkans are the stomach of Europe



\* Kosovo designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo declaration of independence.

# Geographical and Geopolitical place



- The world is entering a new era of strategic competition among global powers - regrouping, trade and currency wars
- World Economic Forum in its Global Risk 2015 report identifies regional conflicts as the highest threat to global stability in 2015 and they will not weaken during the next decade
- High unemployment rate and huge involuntary migration flows into Europe are driving factors of social instability

## Western Balkans on the transition path towards the EU

- The Western Balkans region is not a monolithic group with uniform views of Europe, ranging from enthusiasm to skepticism
- One of the important EU objectives is to build security in the neighborhood having the “ring of stability” instead of “ring of fire” along its borders
- EU is no longer the only show in town. Russia, Turkey, China, and several Gulf states are expanding their influence not just economically, but politically and even strategically

# Serbia - Political background

- Parliamentary democracy
- Transition to a new form of society
- Politicizing and corruptive transition process
- Long negotiation process in dispute with Kosovo\*
- EU accession negotiations since 2014
- Privileged political and economical relationship with Russia & China
- Foreign policy under serious pressure - between East and West



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# Demographic overview



- **Population of 7.1 million ( $\approx$  9 million with Kosovo\*)**
- **Natural increase, per 1000 inhabitants - 4.9% !**
- **Decrease of population about 30.000 per year**
- **Current life expectancy (M-72.2 F -77.3)**
- **Internal migration of about 700.000 from the former SFRY**
- **Outward migrations (brain drain) about 15.000 - per year**
- **About 4 million Serbian citizens live in diaspora.**
- **Republic of Serbia is a multinational and multiethnic community**
- **In addition to Serbs (83.3%), the most numerous are Hungarians, Roma people and the Bosnians**
- **More than six million inhabitants of the Republic of Serbia are orthodox (84.6% of the total population)**

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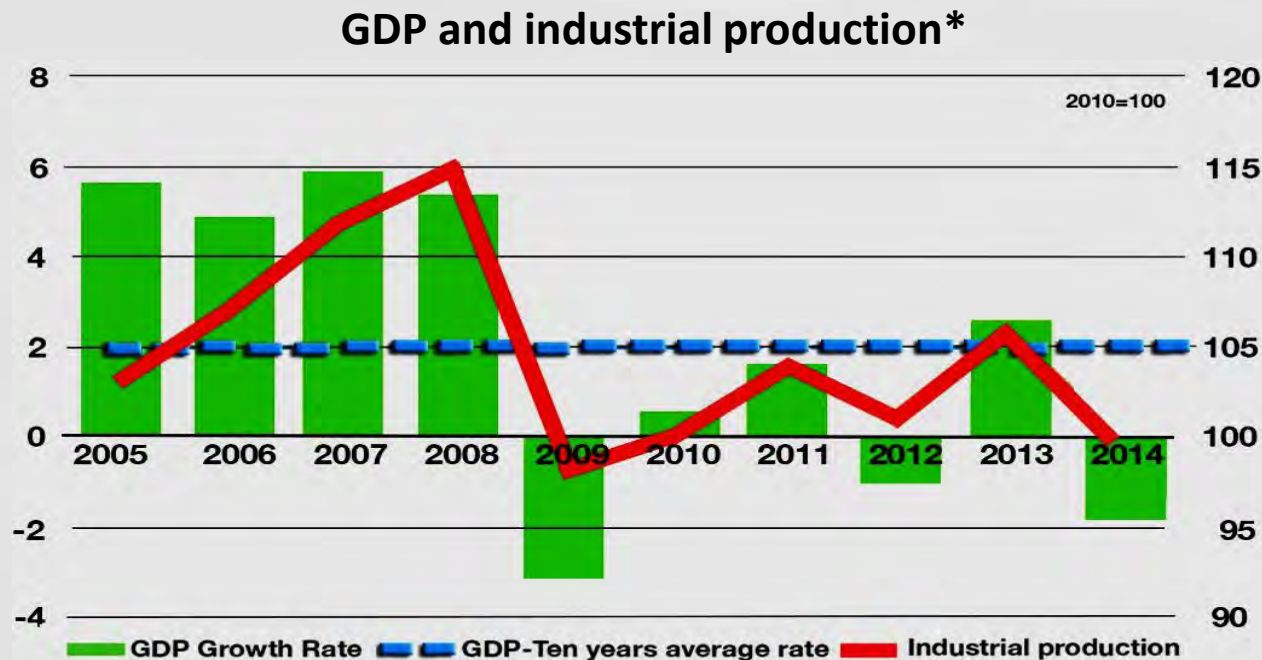
# Demographic and social changes

- **Depopulation of rural areas and inflow to major towns**
- **In the new social landscape Baby Boom generation has shown creative forces and adaptability to socio-economic challenges**
- **The mismatch between the available human capital and economic needs is significant**
- **Unemployment stood very high at 22% in 2013, particularly among the people under 35 (Y generation)**
- **Average per capita income, expressed in purchasing power standards in 2013 increased to 36% of the EU average**
- **Millennials - A new powerful generation born in the digital era. New rulers in the next 10 years. They will shape our future.**
- **People and their competence is Serbia's greatest asset**



# Serbia - Economic snapshot - 1

- GDP contribution: Services 60%, Industry 23%, Agriculture 11%
- High public debt - 71% of GDP - 2014
- Major floods in May 2014 with estimated damage at €1.5 billion, or 5% of GDP, has severely affected vital sectors (energy, mining and agriculture)



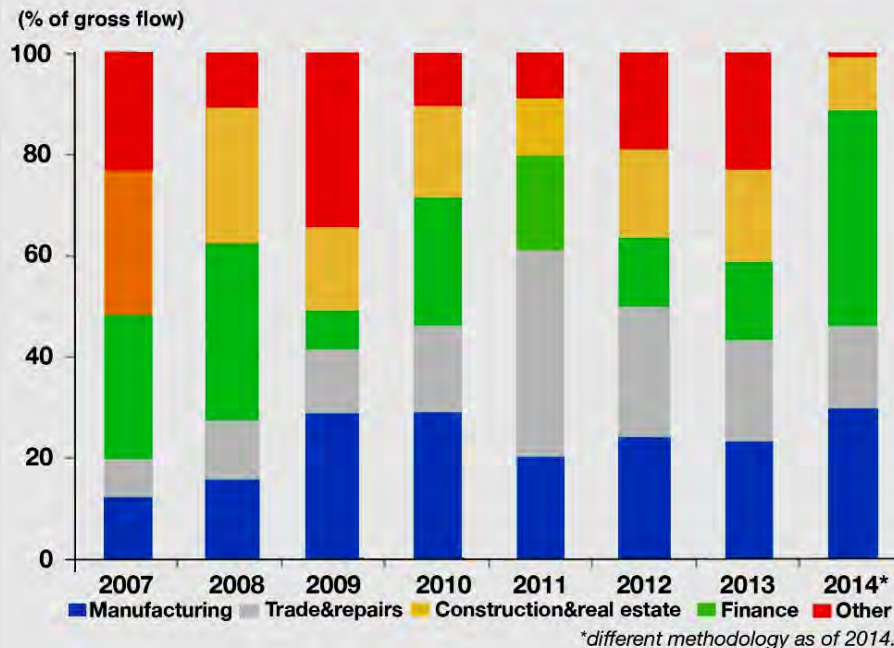
\*Republic of Serbia – Ministry of Finance



# Serbia - Economic snapshot - 2

- GDP (under current prices) - mil € 33.059 (2014), GDP/per capita - € 4.626
- Privatisation attracted significant foreign direct investments (FDI). Austria, Italy and Greece accounting for about 70 percent of the total stock of FDI in the region
- Serbia needs additional investments and an industrial renaissance agenda

## Inflows of FDI\*



\*Republic of Serbia – Ministry of Finance

# Serbia - National Energy Sector

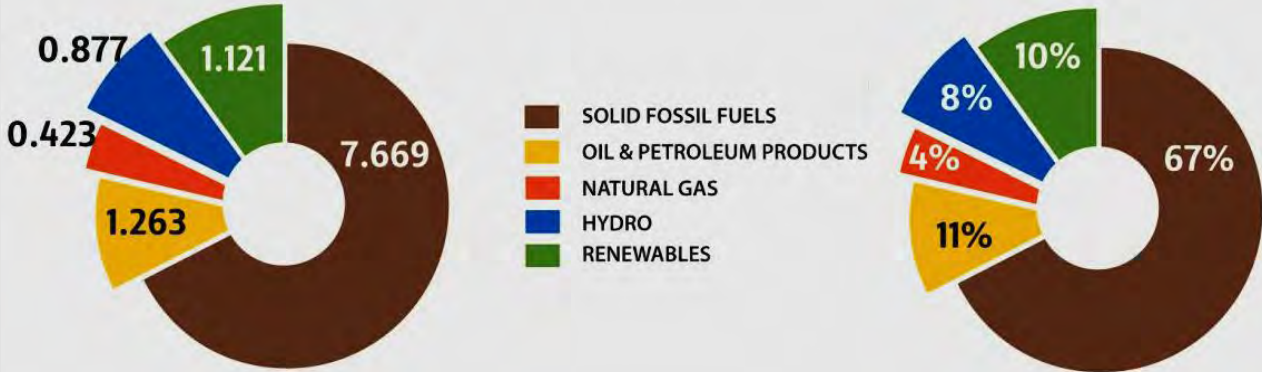
- Improved legal and institutional framework, reformed energy sector
- National energy policy and development strategy of the Republic of Serbia are formulated at the central government level and adopted by the National Assembly
- Domestic coal - mainly lignite represents a significant share of the gross inland energy consumption (53%)
- Average dependency energy import ratio for Serbia is in the range of 30% (average EU28 - 53%). For 2013, energy import dependence equalled to 24.10% (coal 3.48%, oil and oil products 59.60%, natural gas 77.33%)
- Serbia's 2013 energy import costs were around €2.2 billion
- Share of energy imports in the annual foreign trade deficit in 2013 was 44%
- Western Balkans countries and Serbia - below the European average in conventional energy sources
- Although oil markets are usually more liberalised, the creation of a regional electricity and gas market is some years behind the EU
- For most energy products, even the market price does not reflect all costs. Environmental costs (external effects) are usually not covered

# National Energy Demand and Supply - 1

Primary energy consumption by fuel – 14.906 Mtoe - 2013

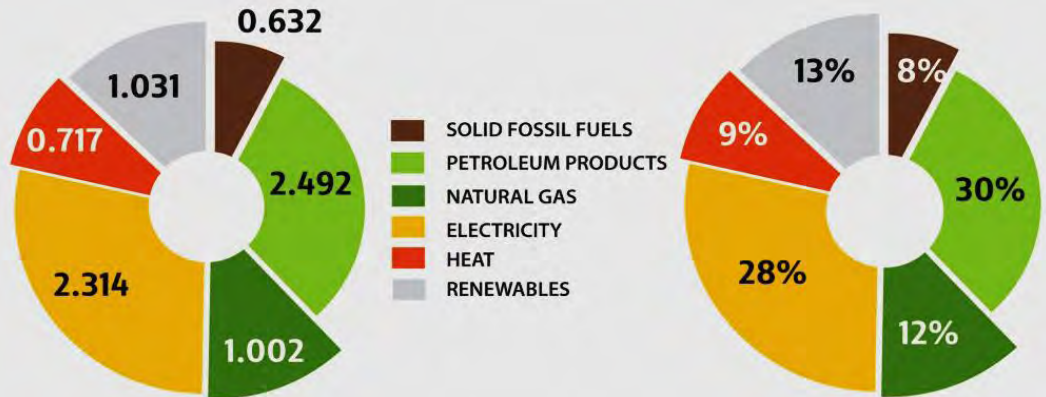


Primary energy production by fuel – 11.354 Mtoe - 2013

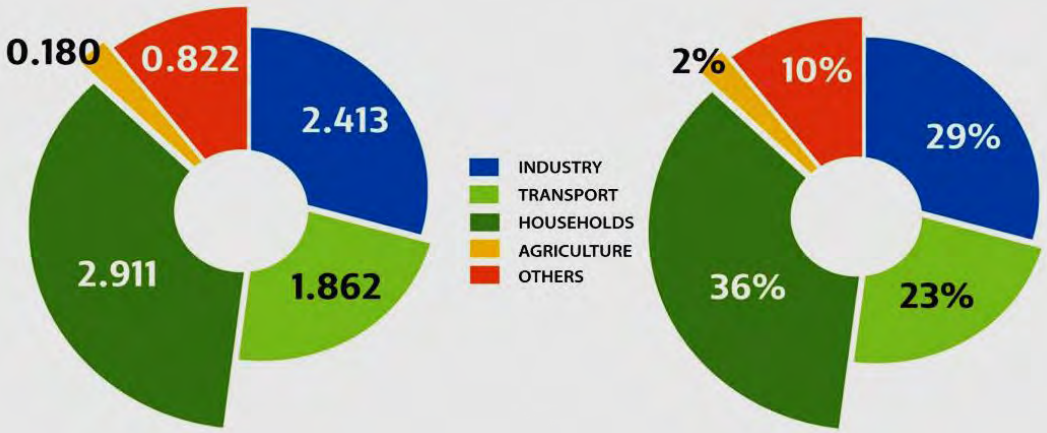


# National Energy Demand and Supply - 2

**Final energy consumption by fuel - 8.188 Mtoe - 2013**



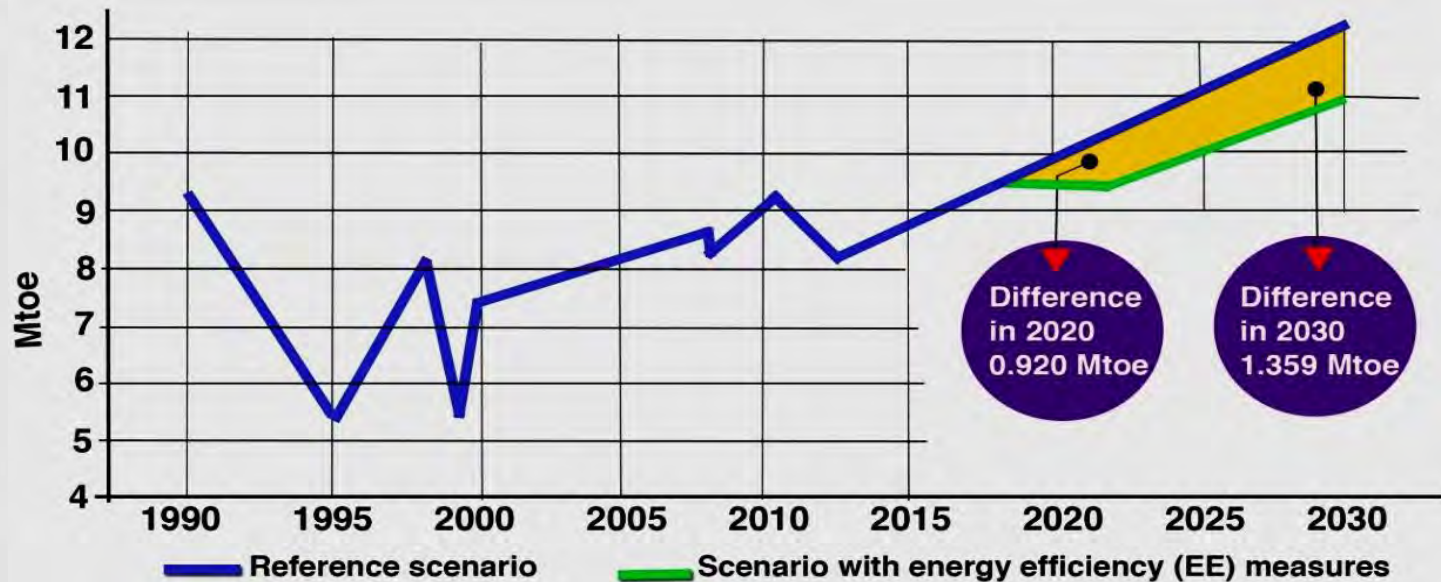
**Final energy consumption by sector - 8.188 Mtoe - 2013**





# Energy sector development strategy

Serbia - Final energy consumption projections under two scenarios\*



- The apparent stagnation of annual energy consumption in Serbia took place mostly due to considerable decline in industrial production
- Serbia's economy is highly energy-intensive. Serbia consumes 2.7 times more energy per unit of output than the average OECD country.
- Overall, energy intensity in the Western Balkans has remained relatively flat over the past 10 years, indicating limited progress on energy efficiency implementation

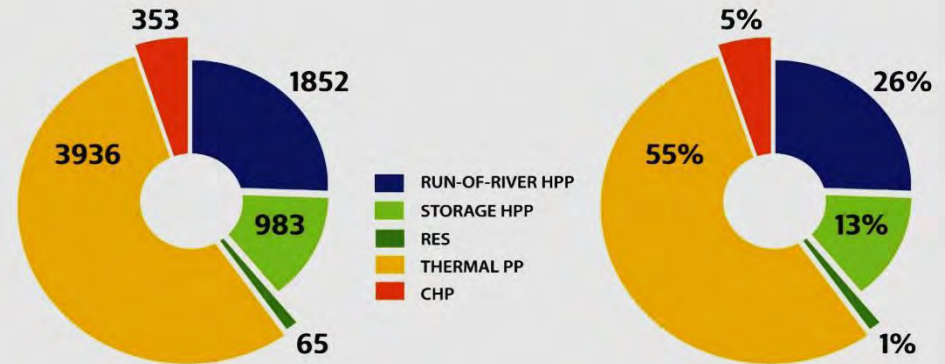
\*Draft Energy Sector Development Strategy of the Republic of Serbia for the period to 2025 with projections by 2030



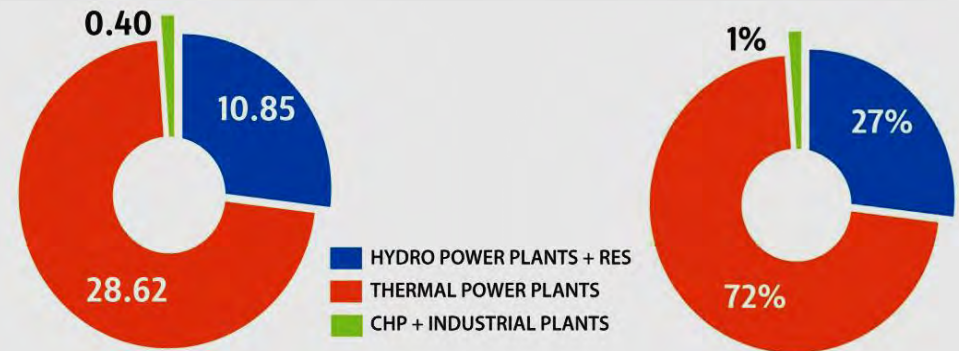
# Serbia - Electricity Market - 1

- Aged generation infrastructure
  - Decommissioning of old TPPs ≈900 MW in the next ten years
  - Majority of capacities are owned and operated by PE EPS
  - PE EPS - 7.124 MW on HV network
  - Independent producers - 65 MW on distribution network
  - New RES - still marginal
- 
- Self-sufficient, well balanced with seasonal variation
  - Hydrology sensitive
  - Demand sensitivity in response to given weather conditions
  - Incumbent PE EPS still covers 99% of the market

Installed generation capacities - 7.189 MW - 2014



Gross electricity generation - 39.9 TWh - 2013



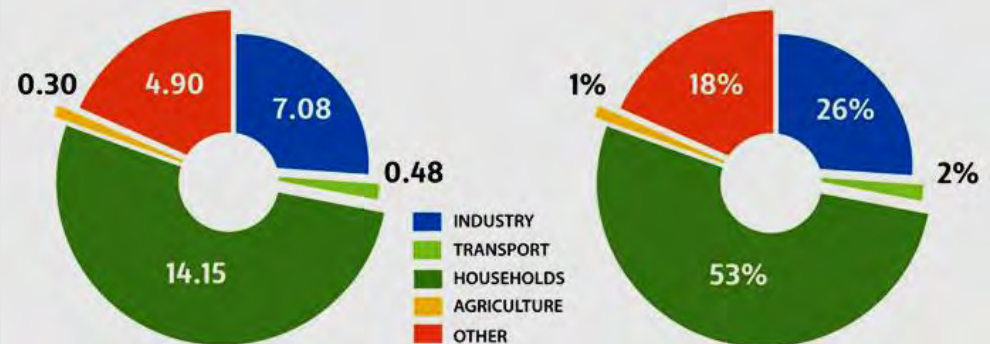
# Serbia - Electricity Market - 2

- Demand stagnation
- Gross consumption  $\approx 34$  TWh
- Huge losses in distribution
- Big share of households
- The lowest regional pricing
- Energy efficiency measures can save some 3TWh of the final consumed electricity in 2025 based on international benchmarks
- In the second half of 2014 retail electricity prices in Serbia for a standard household (6.08 €/kWh) and standard industry customers (7.94 €/kWh) were among the lowest ones in the region

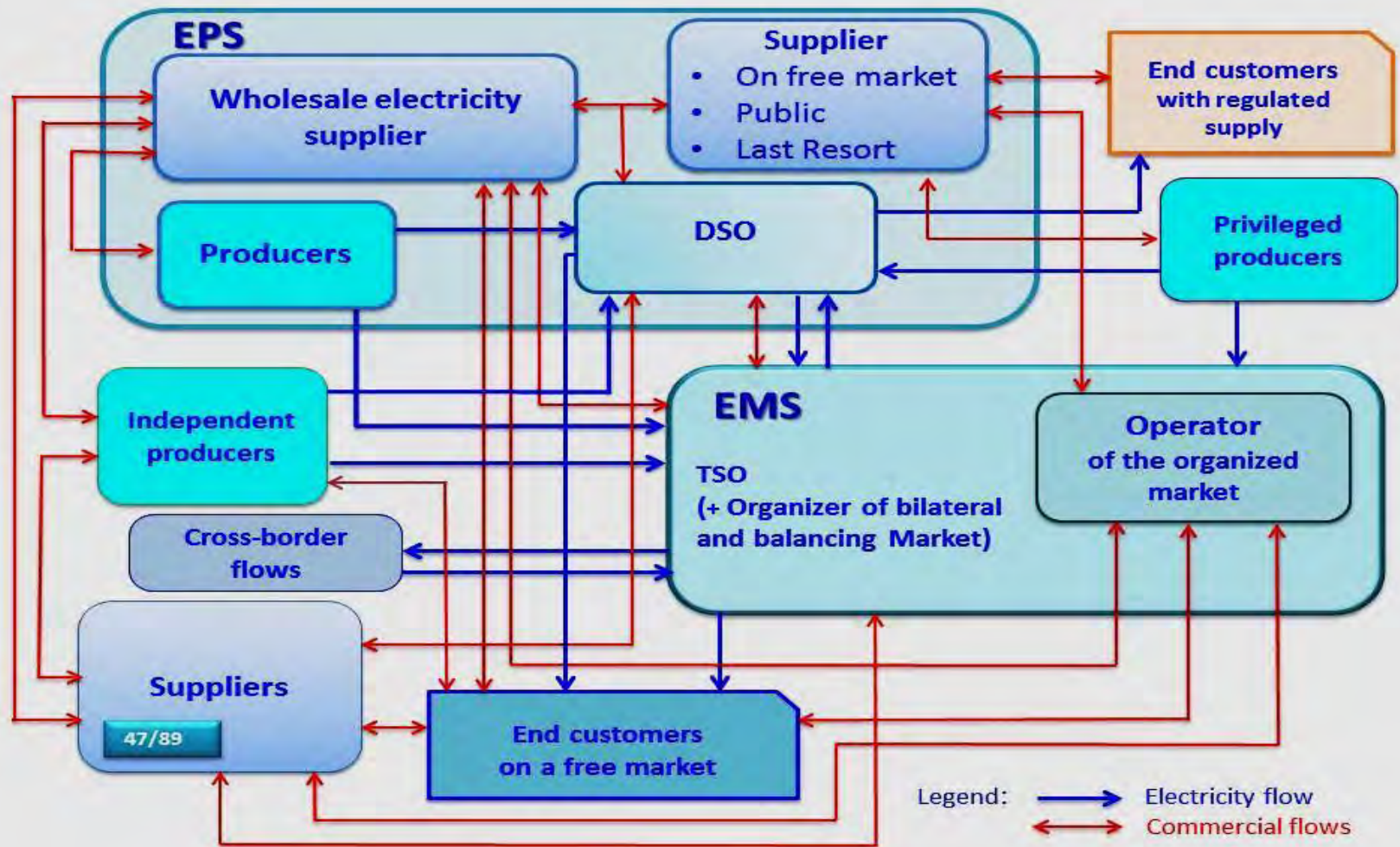
Electricity market share - TWh - 2014

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

Final electricity consumption by sector - 27 TWh - 2013



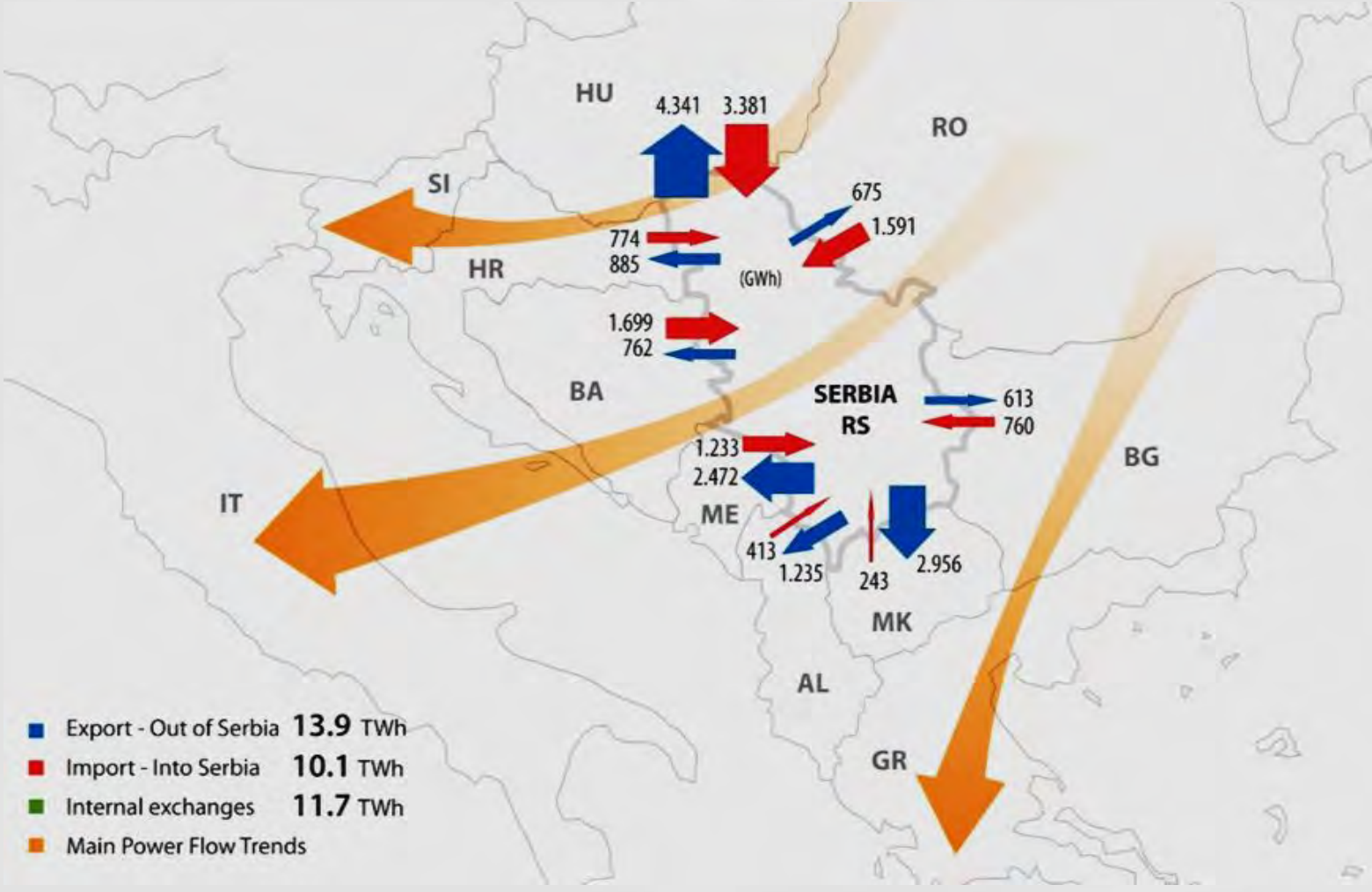
# Serbia - Electricity Market - 3





# Regional electricity Flows

Regional flows under commercial arrangements in 2013



# Regional EU perspective

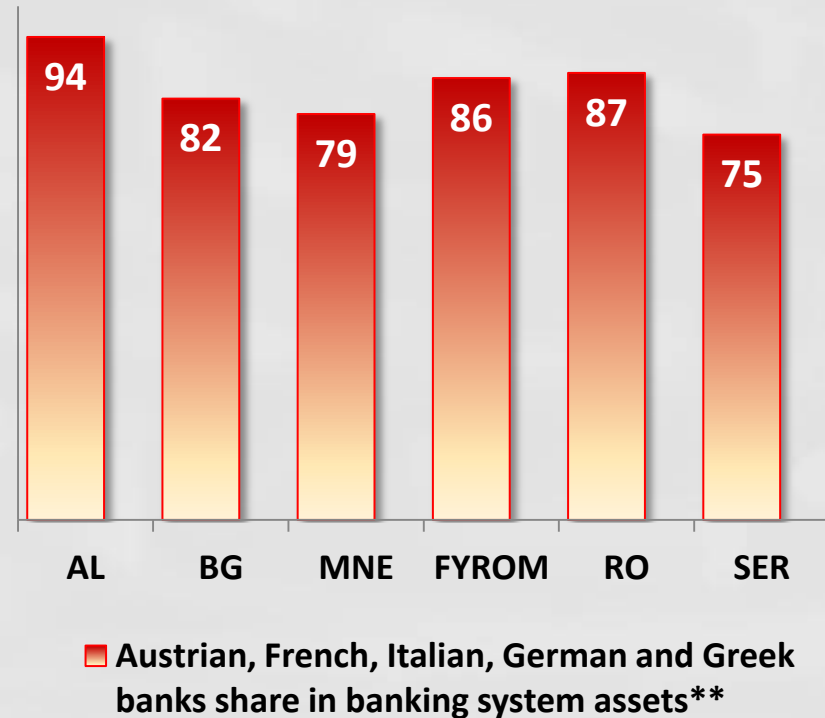
- All of the countries in the Western Balkans firmly believe that their future lies in the European Union. Greece was the Western Balkans ambassador to the EU
- The European and the Greek crisis have created new, negative realities under which the accession process is being pursued
- The Western Balkans countries are trying to join the EU at a time when notions such as “absorption capacity” and “enlargement fatigue” are dominant concepts in the EU
- Local political elites of the region are declaratively for the EU membership, in reality they are concerned with safeguarding their position in domestic arena
- Large-scale migrations, organized crime, or even the emergence of a new conflict are all potential threats to the Europe’s security if the Western Balkans countries’ accession is postponed or frozen
- The EU may have lost its magic, but it is necessary option for the region





# Regional Interdependence - 1

- The Western Balkans region has come a long way in the areas of political and economic stability, as well as in regional cooperation:
  - Normalization between BGD and PR\*
  - Name dispute between FYROM and GR
  - Constitutional problems in B&H
- Greece's "Balkan identity" has a strong role as trade and investment partner in the region
- Greek FDI - 30% in Albania, 20% in FYROM, 15% in Serbia (2008)
- Greek FDI in Serbia fell from € 336 million in 2007 to € 46 million in 2008-2009
- Greek banks market share 30% in Bulgaria, 15% in Serbia (2008)
- Greek involvement in regional banking declined by 25% in Romania and Bulgaria and by 18% in Serbia



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\*\* According to the EBRD in 2007

# Regional Interdependence - 2

- In the second wave of financial crisis coupled with Greek debt crisis Western Balkans economies experienced deterioration of almost all indicators, GDP growth, external debt, unemployment ...
- SEE region outlook continues to be driven by the EU developments
- The European Commission recognizes that corruption, organized crime and judicial inefficiency in the Western Balkans are the main barriers on the way to the EU membership
- Common problems in SEE countries: policy instability, inefficient government bureaucracy, corruption and access to financing

## Corruption Perception Index

Non EU Members	2012	2013	2014	EU Members	2012	2013	2014
Albania	113	116	110	Slovenia	37	43	39
B-H	72	72	80	Croatia	62	57	61
FYROM	69	67	64	Hungary	46	47	47
Montenegro	75	68	76	Romania	66	69	71
Serbia	80	72	78	Bulgaria	75	77	69
Turkey	54	53	64	Greece	94	80	70

Source: Transparency International

Additional comparisons of regional economic and energy indexes are on the slides 35, 36, 37, 38



# Energy Community (EnC) - 1

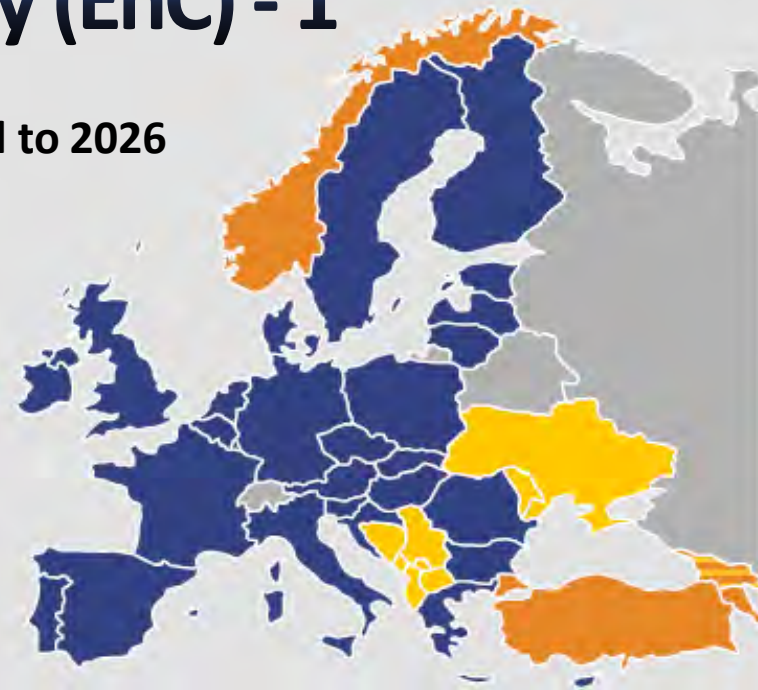
Energy Community Treaty signed in 2005, extended to 2026

- Create an integrated energy market
- Enhance the security of supply
- Attract investments to the energy sector
- Improve the environmental situation
- Enhance competition on the regional level
- Bring the Contracting Parties closer to their EU accession

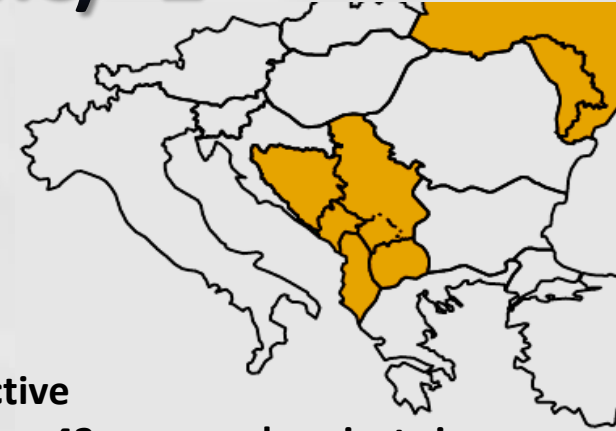
Creating regulatory and market framework for transposition of the core EU legislation in network energy (electricity, gas and oil), environment, competition, renewable energy, energy efficiency and statistics

After 10 years of EnC - Success record (evolution) but the need for improvements:

- Lack of acquis implementation
- Need for national or regional adjustments - not “one size fits all”
- Lack of private investments



# Energy Community (EnC) - 2



- Solid fossil fuels are still dominant
- Average energy dependency on imports 28%
- Slow energy market opening
- Great energy efficiency potential
- Upward trend in the share of RES
- Low investment - electricity markets are too small to be attractive
- On the regional PEI list of Energy Community Interest there are 43 proposed projects in electricity generation, 30 in interconnectivity, 23 in natural gas and 4 in oil.
- Estimated cost of all proposed projects is about € 14 bill
- Lignite fuelled TPPs are still needed to guarantee security of supply and maintain system stability. Fossils and renewables are back-to-back partners in the system
- Several proposed projects from Serbia are: HPP Middle Drina, HPP Velika Morava, HPP Ibar, CHP Novi Sad, TPP Kolubara B, and TPP Nikola Tesla B3
- Besides PEI's projects, Serbia signed a loan agreement with Chinese partners for the new TPP Kostolac B3-350 MW
- In the past 10 years many investment projects have been tendered without success
- Throughout the EU accession process, electricity sector will face mandatory and financially challenging CO<sub>2</sub> emission costs

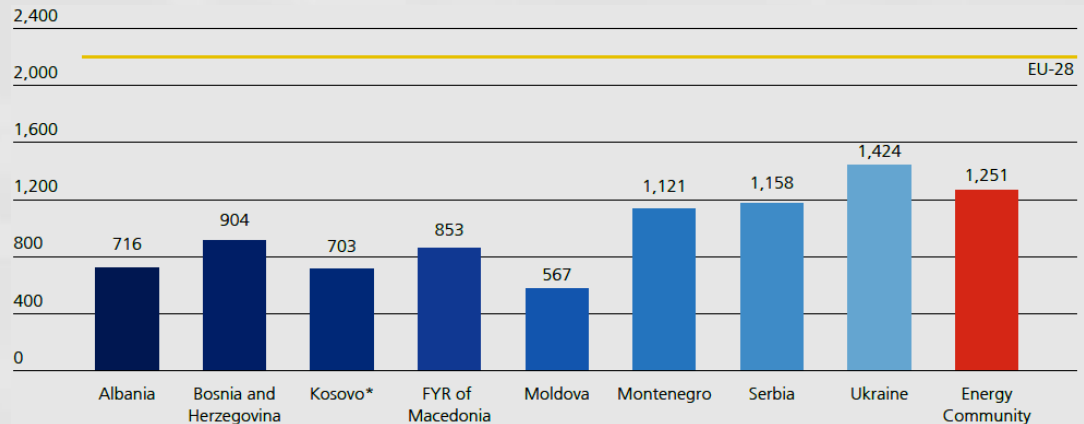
- Great potential of EE -“1st fuel”
- Limited progress in SEE
- Integrative approach
- Reducing consumption
- Challenge especially from the financial perspective

Energy efficiency and demand side response to compete on equal terms with generation capacity

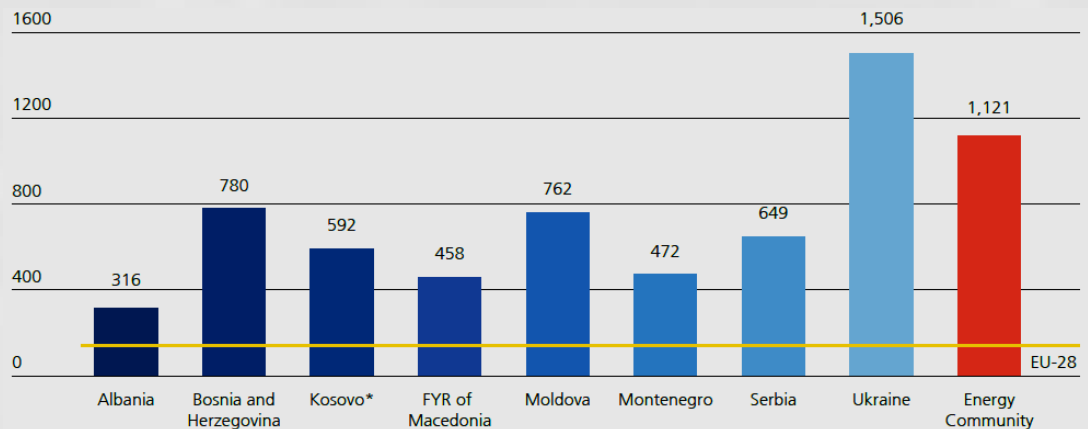
By EnC decision on October 16, 2015 Contracting Parties shall transpose and implement Directive 2012/27/EU to set a 20% headline target on energy efficiency in EnC in 2020

The EnC’s 2020 energy consumption has to be no more than 187 Mtoe of primary energy or no more than 133 Mtoe of final energy

Regional final energy consumption in kgoe/capita - 2013



Energy intensity of the economy GIC/GDP kgoe/1000€



Source: Energy Community, EUROSTAT, UN, National statistical offices

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- Regional wholesale market is still behind EU experience
- The issue of domestic electricity generation for own use is set at the level of national security and strategic importance
- From bilateral (OTC) to organized market (PX)
- A few hundred licensed electricity traders in SEE
- SEE CAO in Podgorica is the nominated regional auction office for transmission capacities
- The concentration of dominant national - incumbent suppliers
- National balancing markets do not exist, or still in the initial establishment stage, except Serbia
- Regional cross-border balancing and capacity mechanism integration in SEE is the activity oriented towards savings and efficient usage of generating resources
- Value of flexibility is not appropriately priced
- With the signing of the Long Term Agreement between TEIAS and ENTSO-E (15 April 2015), the Turkish power system is now permanently operated in connection with the Continental Europe system. Through interconnection with Greece and Bulgaria, Turkey can import 550 MW (0.8% of. inst. cap.) of electricity and export 400 MW (0.6%)
- European day-ahead market coupling is a reality and has to be regarded as focal point for further electricity market integration in the SEE



# Regional Wholesale Electricity Market - 2

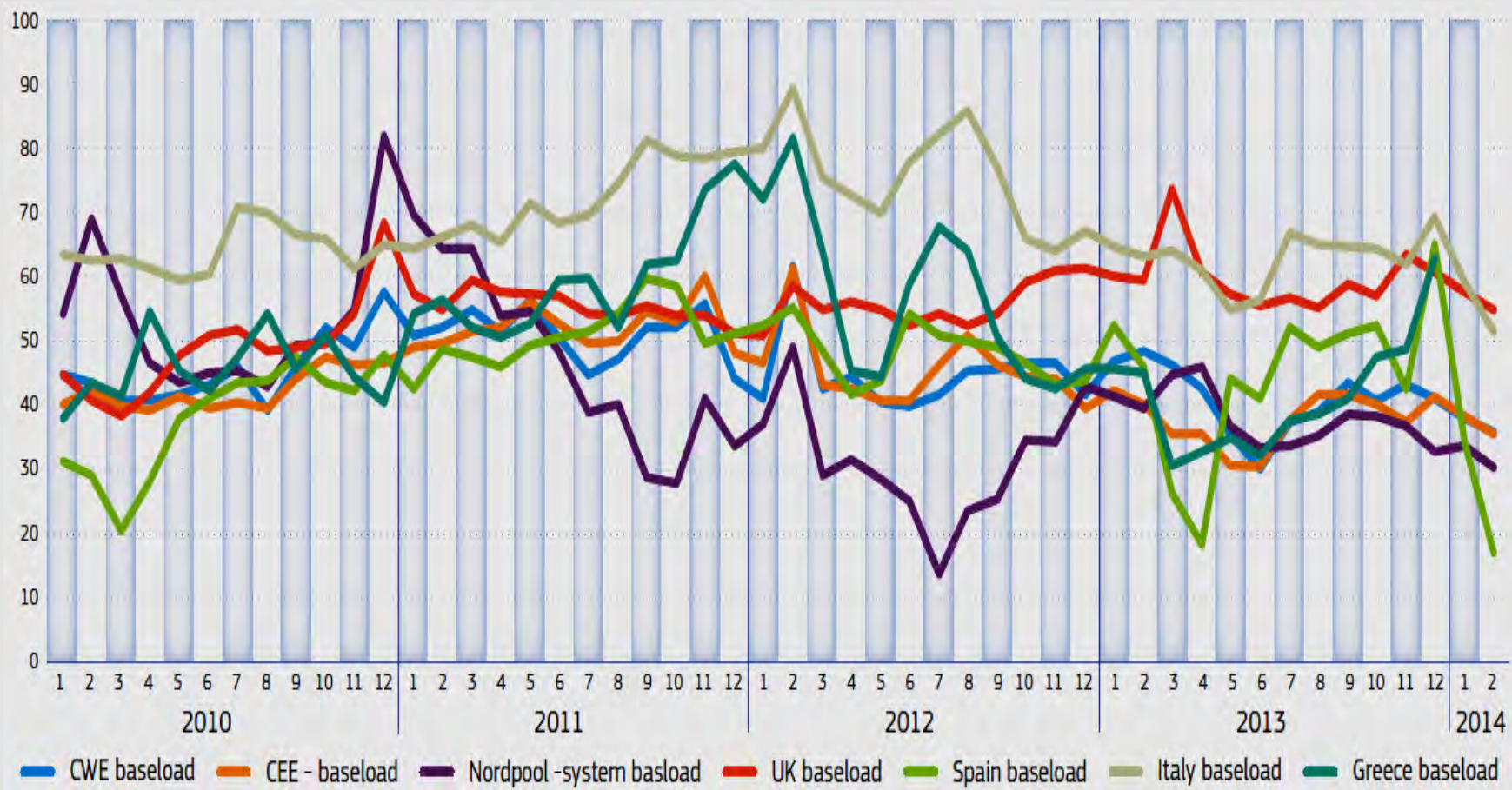
Snapshot of regional average day-ahead wholesale baseload prices (2013)

- Region is situated on a transit route from electricity excessive Central-Eastern Europe (CEE) region to Greece, Italy and Turkey characterized by deficits
- Region is a net-importer of electricity Croatia, Montenegro, FYROM, Albania (seasonally) are traditionally importers
- Romania and Bulgaria are traditional exporters within the region and to Turkey and Greece
- B&H and especially Serbia are transit hubs within the region
- Previously imposed surcharges on export/import on some borders have been abolished



# Wholesale electricity market in EU28

Evolution of Average Wholesale Electricity Prices in different European Regions (€/MWh)\*

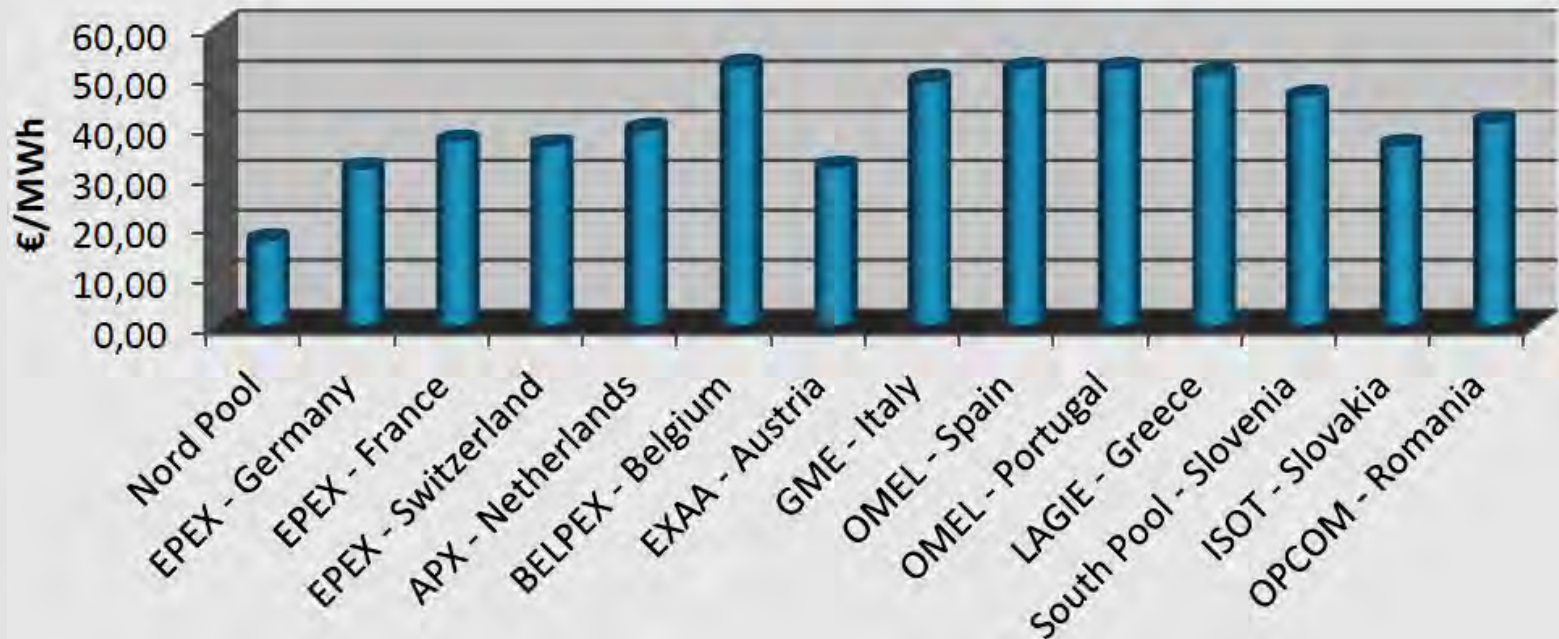


EC- Energy market 2014, Source: Platts, power exchange platforms



# Wholesale electricity pricing in EU28

## Wholesale Electricity Prices in Europe (September 2015)



- Central Eastern European wholesale electricity prices showed a high degree of convergence in the last four years, as German power prices served as a reference to many markets
- The German day-ahead baseload wholesale electricity price fell to a twelve-year low in May 2015 (25 €/MWh)
- For the SEE region, the Hungarian market (HUPX) is the main regional price driver

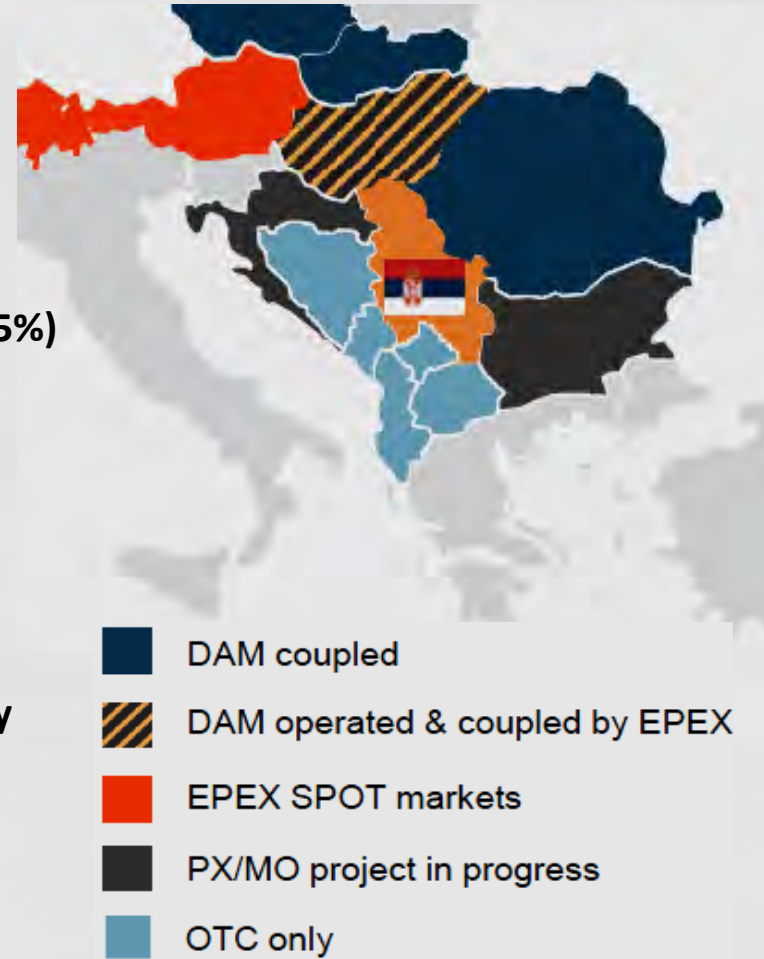
Source: power exchanges platforms

# Integrating Electricity Market

## SEEPEx - Organized power market in Serbia

- The Third Energy Package has been enforced
- 40 companies active on cross-border trading
- Foreign companies are entitled to directly trade
- Serbia is a natural extension with its 2 borders with the 4MMC (HU, RO, SK, CZ)
- SEEPEx is a joint-venture of EMS(75%) & EPEX SPOT(25%)
- SEEPEx will go-live in November 2015
- Ensure a transparent and reliable wholesale price formation mechanism in Serbia and SEE
- Harmonization of market rules & processes based on best European practices
- European day-ahead market coupling is a reality and has to be regarded as focal point for the electricity market integration in the Energy Community and SEE
- Projects of Bulgarian – IBEX and Croatian – CROPEX power exchange are on the way

[www.seepex-spot.rs](http://www.seepex-spot.rs)



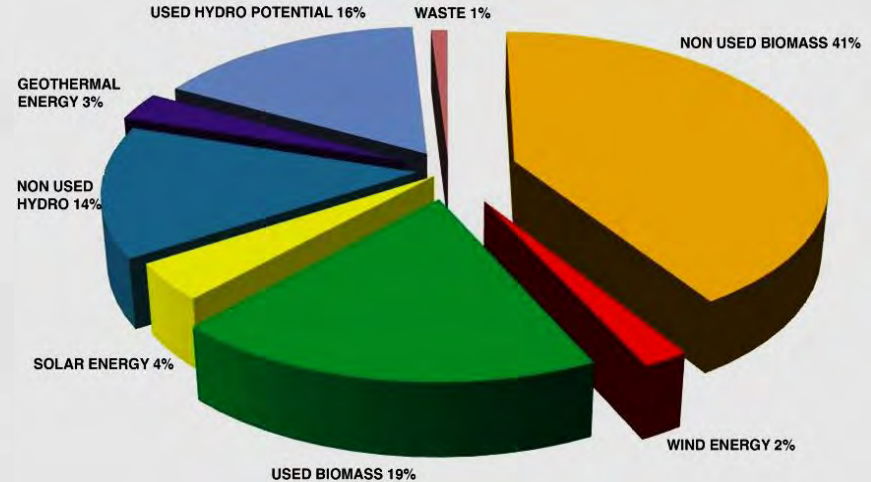




# Serbia's RES Potential

- There is some permanent progress in a number of new RES installation in Serbia, but investment in renewable energy sources remains minimal
- Serbia is currently not on track to meet its 2020 target, namely 27% in gross final energy consumption compared to 21,2% in the base year - 2009
- The main constraints are of procedural and economic nature
- Under the adopted *National Renewable Action Plan* aimed at reaching the binding RES-E target in electricity sector, Serbia plans to introduce investments of about EUR 2,5 billion in new 1092 MW (with estimated generation of 3653 GWh) electricity generation capacities until 2020 mostly in wind, hydro, and biomass

## RES – technically usable potential



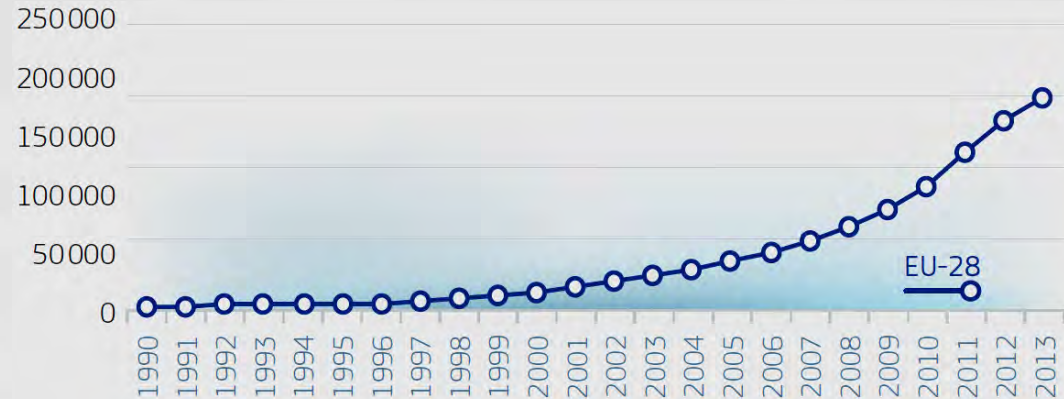
## Additional electricity from RES until 2020

Type of RES	MW	GWh
HPPs over 10 MW	250	1108
Small HPPs (up to 10MW)	188	592
Wind energy	500	1000
Solar energy	10	13
Biomass CHP	100	640
Biogas CHP	30	225
Geothermal energy	1	7
Waste	3	18
Landfill gas	10	50
<b>Total</b>	<b>1092</b>	<b>3653</b>

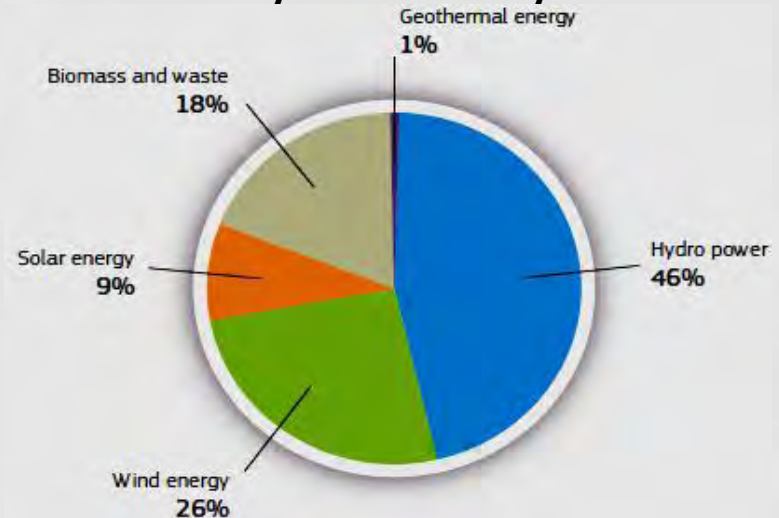
# RES Utilization in EU 28

- Three of the 28 EU Member States have already reached the level required to meet their national targets for 2020: Bulgaria, Estonia and Sweden
- The largest EU user of renewable energy is Germany. For the German system with its installed 40 GW of wind power plants and about 35 GW of solar power. It is estimated that the transition to green energy will cost German taxpayers up to 20 billion euro over the next decade
- The Energy Community Contracting Parties' share of renewable energy in gross inland consumption amounts to 6%, while the EU-28 share is twice as high (12%).

EU 28 - Cumulative Solar and Wind Capacity ≈ 200 GW - 2013



EU 28 - Gross Electricity Generation by RES - 799 TWh - 2012



- In the summer 2015, the Western Balkan 6 energy ministers and the European Commissioner for European Neighbourhood Policy and Enlargement Negotiations have adopted Joint Statement in order to reaffirm connectivity in energy, good neighbourly relations, regional cooperation and European integration
- Investment on priority projects means planning energy systems in a regional, rather than national fashion
- Region has great potential for renewables particularly hydro and wind power
- In order to improve regional energy security of supply, EU is ready to support (through Western Balkan Investment Framework) particular projects in gas and electricity infrastructure

## Priority interconnection project for financing and implementation under IPA 2015/2016

- Albania - FYROM - Electricity interconnection 400KV, Elbasan - Bitola
- Serbia - Montenegro - B&H - El. interconnection 400KV, B.Basta-Pljevlja-Visegrad
- Serbia - Romania - Electricity interconnection 400KV, Pancevo-Resitsa
- Serbia - Transbalkan corridor - Electricity connection 400KV, Kragujevac-Kraljevo
- Serbia - Bulgaria - Gas interconnection, Serbian section

Creating a regional power market will provide real added value to all investments.





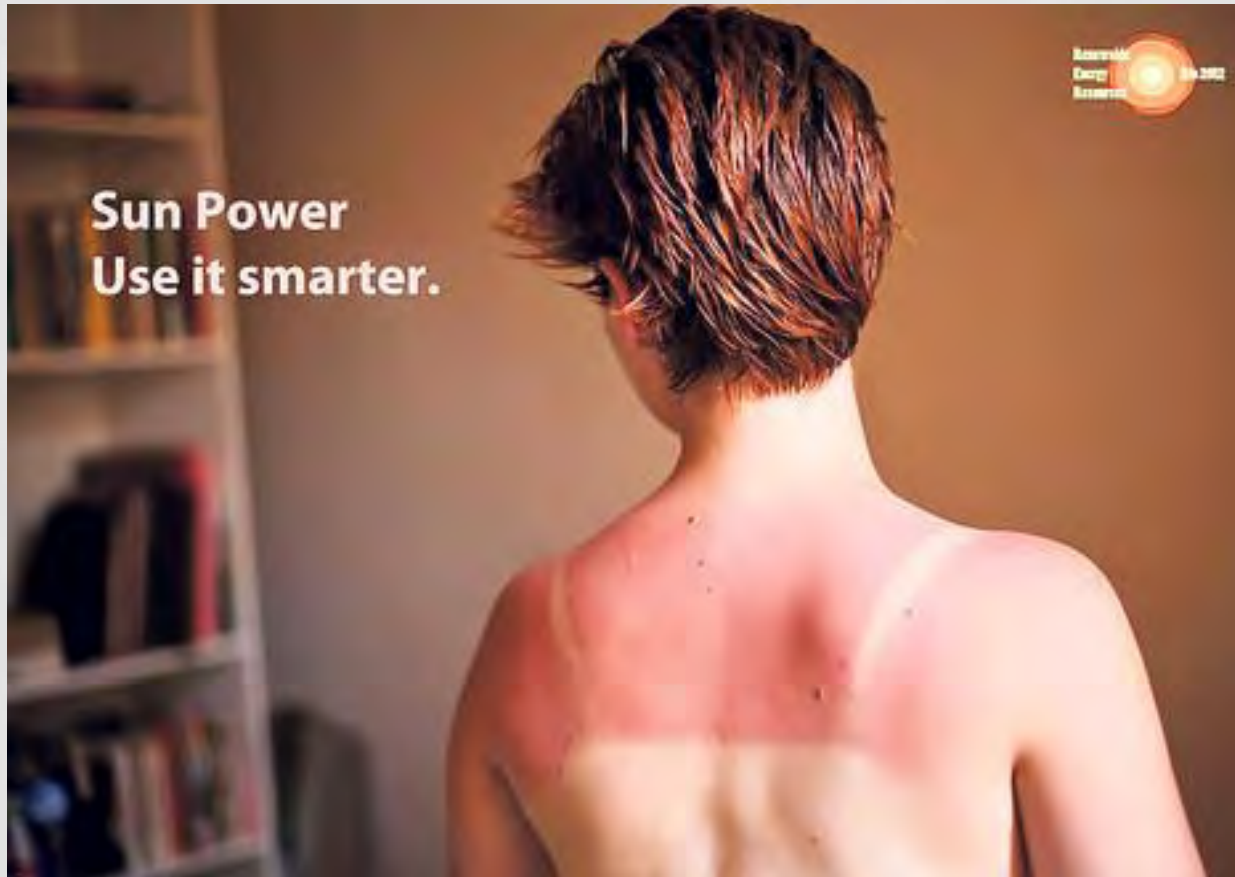
# Proposal for Conference Conclusions

- Energy is dependent on geopolitics, national politics, regulation and cooperation
- Energy efficiency must be the cornerstone of any national energy policy
- Energy sector has to be more transparent and reliable
- We need improved regional security of electricity supply and emergency frameworks
- New generation and transmission network upgrades inside the region are necessary
- National/regional markets have to be more efficient, safe and attractive for investors
- National balancing & capacity market to expand to regional level for economic benefits
- Market has to be more oriented to consumers and prosumers
- With the RES advantages, the SEE region can position itself as a leader in green energy
- We need more communication, cooperation and coordination
- Regional research initiatives in e.g. energy efficiency, storage potentials, district heating
- Region has both natural and human potential that may be used for the benefit of all of us

## For further reading:

- The Serbian based South-East Europe's first Regional Security Cooperation Initiative SEE – RSCI started providing regional services in summer 2015 - Slides 41 and 42
- Description of “Made in Serbia” - unique product deployed in over 154 distribution Control Centers in 70 Utilities worldwide Advanced Distribution Management System (ADMS) please find on slides 43, 44, 45 and 46

# Thank you for your attention



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# The Competitiveness Index

## The Global Competitiveness Index 2015–2016 by WEF

### The top 10 most competitive global economies



Country	Global rank*
Switzerland	1
Singapore	2
United States	3
Germany	4
Netherlands	5
Japan	6
Hong Kong SAR	7
Finland	8
Sweden	9
United Kingdom	10

Source: The Global Competitiveness Report 2015-2016  
\* 2015-2016 rank out of 140 economies

### The 10 most competitive Emerging & Developing European economies



Country	Global rank*
Poland	41
Turkey	51
Romania	53
Bulgaria	54
Macedonia, FYR	60
Hungary	63
Montenegro	70
Croatia	77
Albania	93
Serbia	94

Source: The Global Competitiveness Report 2015-2016  
\* Emerging & Developing European 2015- 2016 rank out of 140 economies

- Italy 43, Slovenia 59, Hungary 63, Greece 81, Bosnia and Herzegovina 111 (out of 140)
- WEF define competitiveness as the set of institutions, policies, and factors that determine the level of productivity of an economy

# SEE Indicators on Business Regulations

## World Bank Group - Ease of Doing Business Rank

Non EU Members	2015	2016	EU Members	2015	2016
Albania	68	97	Slovenia	51	29
B&H	107	79	Croatia	65	40
FYROM	30	12	Hungary	54	42
Montenegro	36	46	Romania	48	37
Serbia	91	59	Bulgaria	38	38
Turkey	55	55	Greece	61	60

- Comparing business regulations for domestic firms out of 189 countries
- Based on indicator sets that measure and benchmark regulations applying to domestic small to medium-size businesses through their life cycle: starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts and resolving insolvency



# Regional Medium-term Growth

- The World Bank announced that economic activity in the SEE6 countries is picking up growth to average 1.8% for 2015. The medium-term growth prospects are positive.
- In May 2014, severe weather and damaging floods hit the entire regions of the two Balkan states, causing damages and economic losses amounting to around €2 billion in Bosnia and €1.5 billion in Serbia

Real GDP growth, 2014–17	2014	2015f	2016f	2017f
Albania	2.1	2.7	3.4	3.5
Bosnia and Herzegovina	0.8	1.9	2.3	3.1
Kosovo*	1	3	3.5	3.7
FYROM	3.8	3.2	3.4	3.7
Montenegro	1.5	3.4	2.9	3
Serbia	-1.8	0.5	1.5	2
SEE6	0.3	1.8	2.4	2.8



- The economic growth of 1.5 percent projected for next year is still below the potential of the Serbian economy but it is quite realistic

\* Kosovo designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo declaration of independence.

# SEE Energy Indexes

## Energy trilemma dimensions

- Energy security
- Energy equity
- Environmental sustainability

## Energy architecture performance

- Economic growth and development
- Environmental sustainability
- Energy access and security

- WEF define competitiveness as the set of institutions, policies, and factors that determine the level of productivity of an economy, which in turn sets the level of prosperity



## Energy Trilemma Index by WEC

Non EU Members	2014	EU Members	2014
Albania	57	Slovenia	24
B-H	/	Croatia	32
FYROM	102	Hungary	33
Montenegro	95	Romania	54
Serbia	116	Bulgaria	67
Turkey	73	Greece	51

## Energy Architecture Performance index – EAPI by WEF

Non EU Members	2014	2015	EU Members	2014	2015
Albania	56	13	Slovenia	25	14
B-H	104	102	Croatia	43	21
FYROM	87	83	Hungary	21	18
Montenegro	/	/	Romania	12	27
Serbia	/	71	Bulgaria	45	52
Turkey	47	54	Greece	42	41

# Regional Retail Electricity Market - 1

## Regional Electricity Prices for Households

	Electrical energy, network and non-recoverable taxes	VAT and other recoverable taxes	Prices with all taxes and levies included
2500 kWh - 5000 kWh - EUR cent/kWh			
Albania	9.62	1.92	11.54
Bosnia and Herzegovina	6.80	1.16	7.96
Croatia	10.80	2.70	13.50
FYROM	6.61	1.19	7.80
Kosovo*	4.81	0.77	5.58
Montenegro	8.91	1.63	10.54
Serbia	5.07	1.01	6.08
Greece	15.01	1.96	16.97
EU -28	17.20	2.89	20.09

- While EU retail markets were characterized by more suppliers, regional SEE markets are dominated by incumbent, nationwide retail suppliers
- In Albania, FYROM, Serbia and Greece the great majority of customers are supplied by incumbent suppliers with market share close to 100%
- In Croatia, B&H and Montenegro there are few suppliers with various market involvements (national, intra-regional, just industrial ...)

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# Regional Retail Electricity Market - 2

## Regional Electricity Prices for Industry

	Electrical energy, network and non-recoverable taxes	VAT and other recoverable taxes	Prices with all taxes and levies included
500 MWh - 2000 MWh - EUR cent/kWh			
Albania	6.76	1.36	8.12
Bosnia and Herzegovina	6.55	1.11	7.66
Croatia	9.44	2.36	11.80
FYROM	7.51	1.35	8.86
Kosovo*	7.26	1.16	8.42
Montenegro	7.26	1.38	8.64
Serbia	6.62	1.32	7.94
Greece	12.39	1.61	14.00
EU -28	11.85	2.86	14.71

- Deregulated electricity prices for industry are more harmonized among SEE countries but still lagging behind of the EU Levels
- Cost-reflectivity of energy prices remains the only means of entry for new suppliers
- Electricity price is a market based commodity whose level varies depending on the wholesale market developments. Frequent energy component updates would allow the final price to reflect changes in the wholesale market

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# Regional Operational Coordination

The efficient and safe management of the European electricity system requires coordination and organizational structures at the regional level

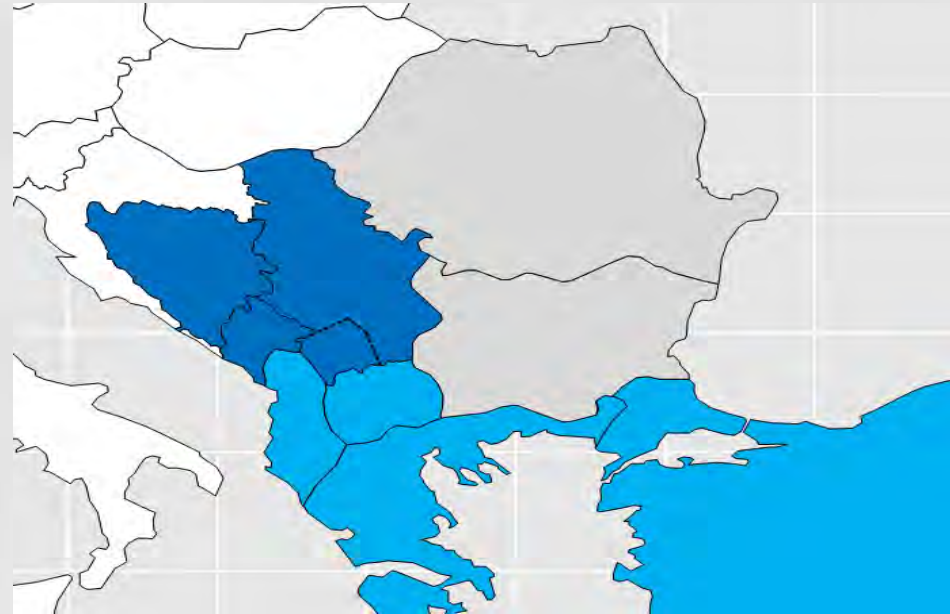
## INCREASED NEED FOR MORE REGIONAL OPERATIONAL COORDINATION

- Ensuring security of supply at regional level
  - Evolution of internal electricity market
  - Renewable energy's growing share
  - Upcoming European Network Code
- 
- TSOs of Serbia, Bosnia Herzegovina and Montenegro have set up South-East Europe's first Regional Security Cooperation Initiative SEE – RSCI
  - SCC a newly established company based in Belgrade (April 2015) with the main objective to develop services for its members defined by ENTSO-E operational planning standards
  - The previous experience of Coreso and TSCnet would be implement to maximize the region's potentials, joint capacities allocation, regional balancing market includes regional power exchanges



## Current Developments:

- SCC provides full scope of services to its member TSOs:  
EMS (Serbia), CGES (Montenegro) and NOS B&H (Bosnia & Herzegovina)
- Limited services to regional TSOs:  
MEPSO (FYROM), OST (Albania)  
IPTO (Greece), TEIAS (Turkey)



## For further spreading across the SEE, SEE RSCI developments focus on:

- Extension of security analysis - secure electricity flows
- Coordinated capacity calculations
- Outage planning
- System adequacy assessment - operational adequacy

Security Coordination Centre Ltd. Belgrade

[www.scc-rsci.com](http://www.scc-rsci.com)

# Distribution System Management

## Advanced Distribution Management System (ADMS)

Smart Grid Solution for Electricity Distribution Networks

ADMS solution provides:

- Real-time network monitor and control
- Mathematical network model and power applications
- Efficient management of faults and voltage improvement
- Network analysis (short-circuits, relay protection, losses...)
- Optimization and reduction of investments
- Reduction of network peak load and power losses
- Increase of utility's profit and revenue,
- Improvement of power quality and customer services



ADMS is built on Smart Grid Solution concept.

It integrates energy efficiency, demand response and distributed resources technologies to enable grid operators to make intelligent decisions that help them run the grid more efficiently, reliably and at a lower cost.

Schneider Electric DMS NS  
Novi Sad, Serbia  
[www.schneider-electric-dms.com](http://www.schneider-electric-dms.com)

ADMS provides many of the contemporary customer requirements:

- demand management
- accommodating distributed generation
- real time network monitoring and control
- automated restoration for self-healing networks
- reducing average duration of interruptions
- validating network topology
- predictive reliability
- reduction of losses and operation costs

ADMS solution has been deployed in over 154 Control Centers in 70 Utilities worldwide, supplying 90 million customers (meters)

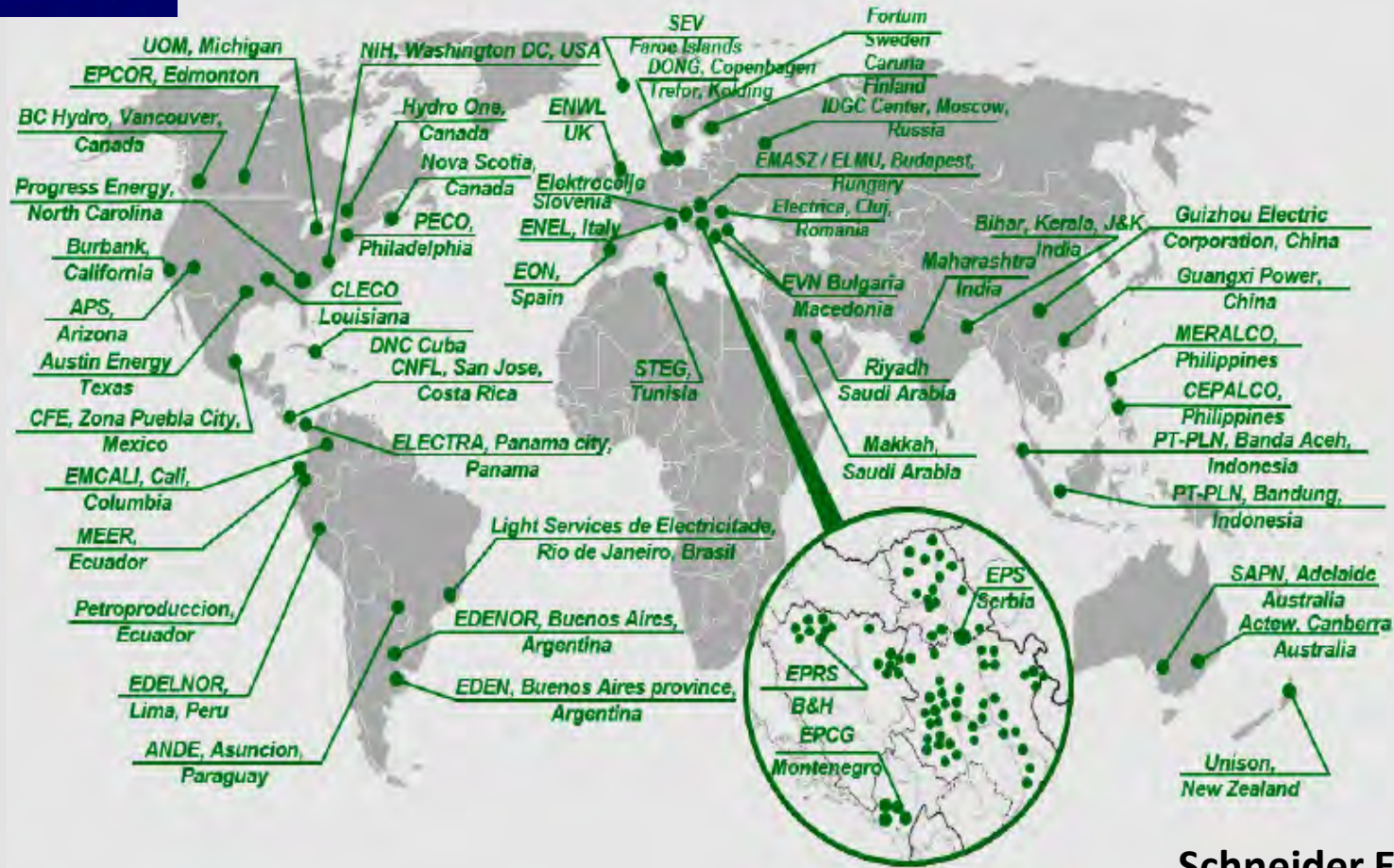
Company gathers over 1000 experts (31 Phds) in power and computer engineering from Novi Sad (capital of Vojvodina, northern region of Serbia)



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Novi Sad, Serbia  
[www.schneider-electric-dms.com](http://www.schneider-electric-dms.com)



# Advanced Distribution Management System (ADMS)



**70 utilities, 90 million consumers, 154 control centers**

**Schneider Electric DMS NS  
Novi Sad, Serbia  
[www.schneider-electric-dms.com](http://www.schneider-electric-dms.com)**

	RATING				
	Strong Negative	Caution	Promising	Positive	Strong Positive
<b>Gartner ADMS Report 2013</b>					
Alstom Grid				X	
Efacec ACS			X		
GE Energy				X	
Intergraph		X			
Open Systems International (OSI)			X		
Oracle				X	
Siemens			X		
<b>Schneider Electric</b>					X
Ventyx ABB				X	



Penetration to new business areas - AGMS  
 New technology for gas utility control room operation  
 Advanced Gas Management System for GASUNIE, Netherlands

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