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**HYDRO POWER AND ENERGY
PLANNING PROJECT (HPEP)**



PROPOSED POWER MARKET MODEL FOR GEORGIA

JULY 2014
GIORGI CHIKOVANI



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Outline

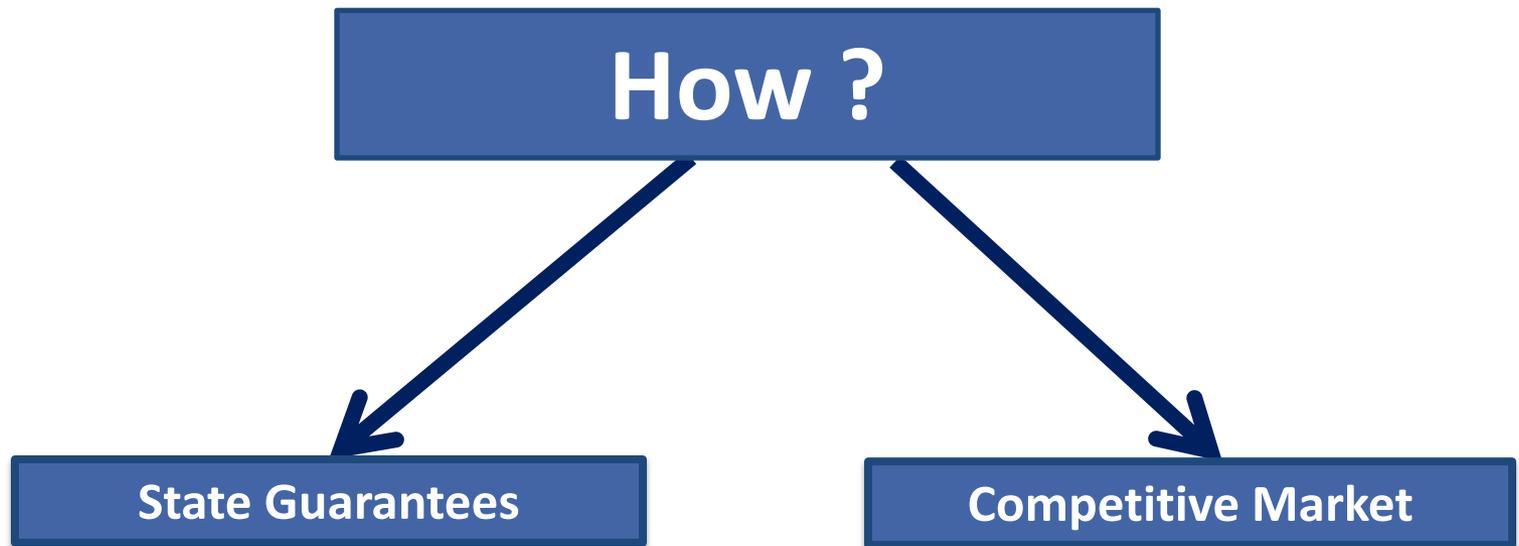
- Approaches to build new HPPs
- Market Model
- Results of market openings in the region
- What will happen in Georgia



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OUR GOAL IS TO ATTRACT INVESTMENT IN NEW HPPS IN GEORGIA



GOOD THINGS DON'T COME EASY!!! NO QUICK FIXES

	Advantages	Disadvantages
State Guarantees	<ul style="list-style-type: none"> • Quick solution • Comfort for developers • Useful only in crisis 	<ul style="list-style-type: none"> • Increased state liabilities & involvement • Burdon and Risk on Tax payers and consumers • Against EU principles • Distorts Market • Inefficient process (not market based)
Competitive Market	<ul style="list-style-type: none"> • Best option according to world experience • Compliant with EU • Sustainable process • Protects consumers & Taxpayers interests 	<ul style="list-style-type: none"> • Requires time, focused commitment and efforts by government, stakeholders, market participants



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GEORGIA HAS ALREADY CHOSEN COMPETITIVE MARKET

- EU competitive energy market principles accepted by Georgia (association agreement, energy community, etc.)
- Cross-Border Electricity Trading Agreement (CBETA)
- Program Implementation Letter (PIL), signed January 2013
- Minimum competitive electricity trading requirements to sell into Turkey and other regional electricity market
- Regional energy hub
- Black Sea Regional Transmission Planning Project (BSTP) loan conditions



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IF MARKET INCENTIVES ARE NOT STRONG ENOUGH AND SECURITY OF SUPPLY RISK IS IMMINENT:

- Government will tender for reserve capacity
- Best options should be selected
- Capacity payments will be fixed price for a fixed period, bid competitively
- Energy will be sold in DAM at a price of zero
- There needs to be a well established, functional competitive market



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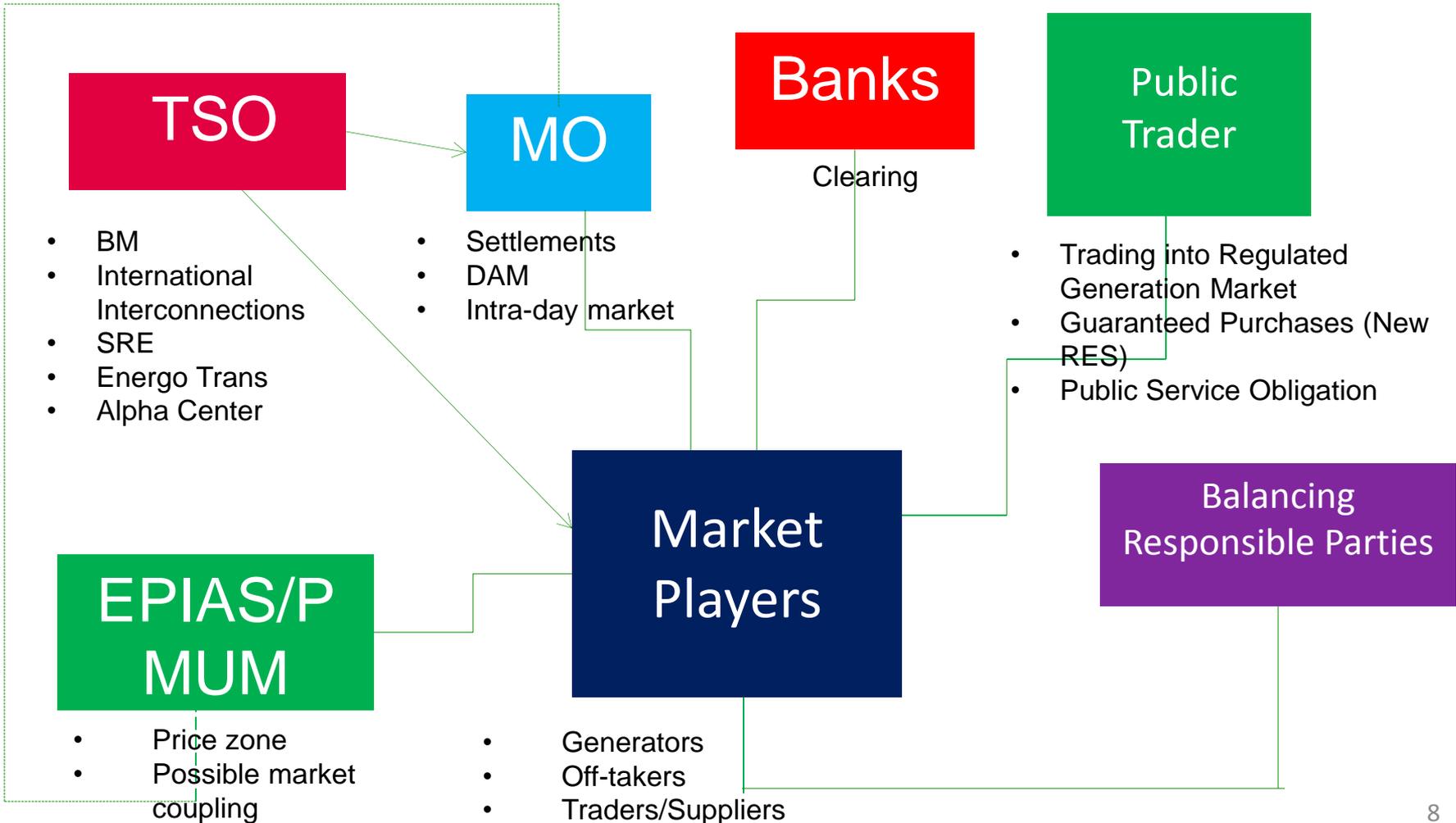
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TSO & MO

- Competitive electricity markets require a TSO to handle the technical issues of the market, a MO to organize the spot markets, settlement and a clearing mechanism to ensure all payments are 100% secured. These are prerequisites for any competitive market and traders/investors confidence.



PROPOSED POWER MARKET STRUCTURE





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PROPOSED TIMELINE

Task Name	2015				2016				2017				2018				
	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3
Decision On Market Design/Structure (Transitions and Final)	[Progress bar from Q1 2015 to Q4 2017]																
Establish Day Ahead Scheduling (Hourly)	[Progress bar from Q1 2015 to Q4 2017]																
Automatic Meter Reading System (AMR) is Fully Functional	[Progress bar from Q1 2015 to Q4 2017]																
Modifications in Law and Regulations	[Progress bar from Q1 2015 to Q4 2017]																
Establishing Bilateral Contract Trade by Day	[Progress bar from Q3 2015 to Q4 2017]																
Establish Market Trading by Day (MO)	[Progress bar from Q3 2015 to Q4 2017]																
Establishment System Services Trade By Day (Balancing, Ancillary, Reserve, Guaranteed capacity) (TSO)	[Progress bar from Q3 2015 to Q4 2017]																
Establishment of Public Trader - Public Service Obligation:	[Progress bar from Q3 2015 to Q4 2017]																
Export/Import, Feed-In Scheme, Trade with State Owned Generation,	[Progress bar from Q3 2015 to Q4 2017]																
Thermal PPs and Distribution Companies	[Progress bar from Q3 2015 to Q4 2017]																
Market Opening	[Progress bar from Q1 2015 to Q4 2017]																
Introduce Licensed Traders	[Progress bar from Q1 2015 to Q4 2017]																
Trading Softwares for MO and TSO (Design, Purchase, Develop, Test, Install, Train)	[Progress bar from Q1 2015 to Q4 2017]																
Start Staff training for Transition and Final Model	[Progress bar from Q1 2015 to Q4 2017]																
Unbundling is complete	[Progress bar from Q1 2018 to Q4 2018]																
Introduce Day Ahead Market (MO)	[Progress bar from Q3 2017 to Q4 2018]																
Introduce System Services Market (Balancing, Ancillary, Reserve, Guaranteed capacity, etc.) (TSO)	[Progress bar from Q3 2017 to Q4 2018]																
Introduce OTC - Secondary Bilateral Contract Trading	[Progress bar from Q3 2017 to Q4 2018]																
Introduce Market Coupling - Turkey	[Progress bar from Q3 2018 to Q4 2018]																
Introduce Capacity Allocation Auctioning Software	[Progress bar from Q1 2015 to Q4 2017]																
Energy Traders Are Active	[Progress bar from Q3 2017 to Q4 2018]																
Introduce Intraday Market	[Progress bar from Q3 2018 to Q4 2018]																



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BUILDING CONSENSUS ON GEORGIA'S POWER MARKET DESIGN AND STRUCTURE BASED ON EU ENERGY ACQUIS

- Third party access on the transmission and distribution networks
- Take or pay bi-lateral contracts
- Creation of energy traders including competitive retail suppliers
- Balancing market
- Balancing groups with associated balancing responsible parties
- Day ahead planning
- Spot market (DAM and eventually intra-day market) hopefully using the EPIAS price zone as the first step



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DECISION NEEDS TO BE MADE ON FOLLOWING ISSUES:

- The Market Operator must be established immediately
- Market Operator should be established by ESCO or GSE's Dispatch
- Daily or Hourly Market for day ahead planning
- Partial pool allocation methodology versus creating a Public Trader
- Unbundling



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HOW WE CAN ATTRACT INVESTORS AND BUILD THEIR CONFIDENCE?

- Investors believe in EU market principles
- Strong messages and actions by GoG to adopt 3rd package
- Transparent decision making process
- Clear market development plan, with deadlines, and responsible parties
- The result will be a competitive market with clear prices and predictable environment



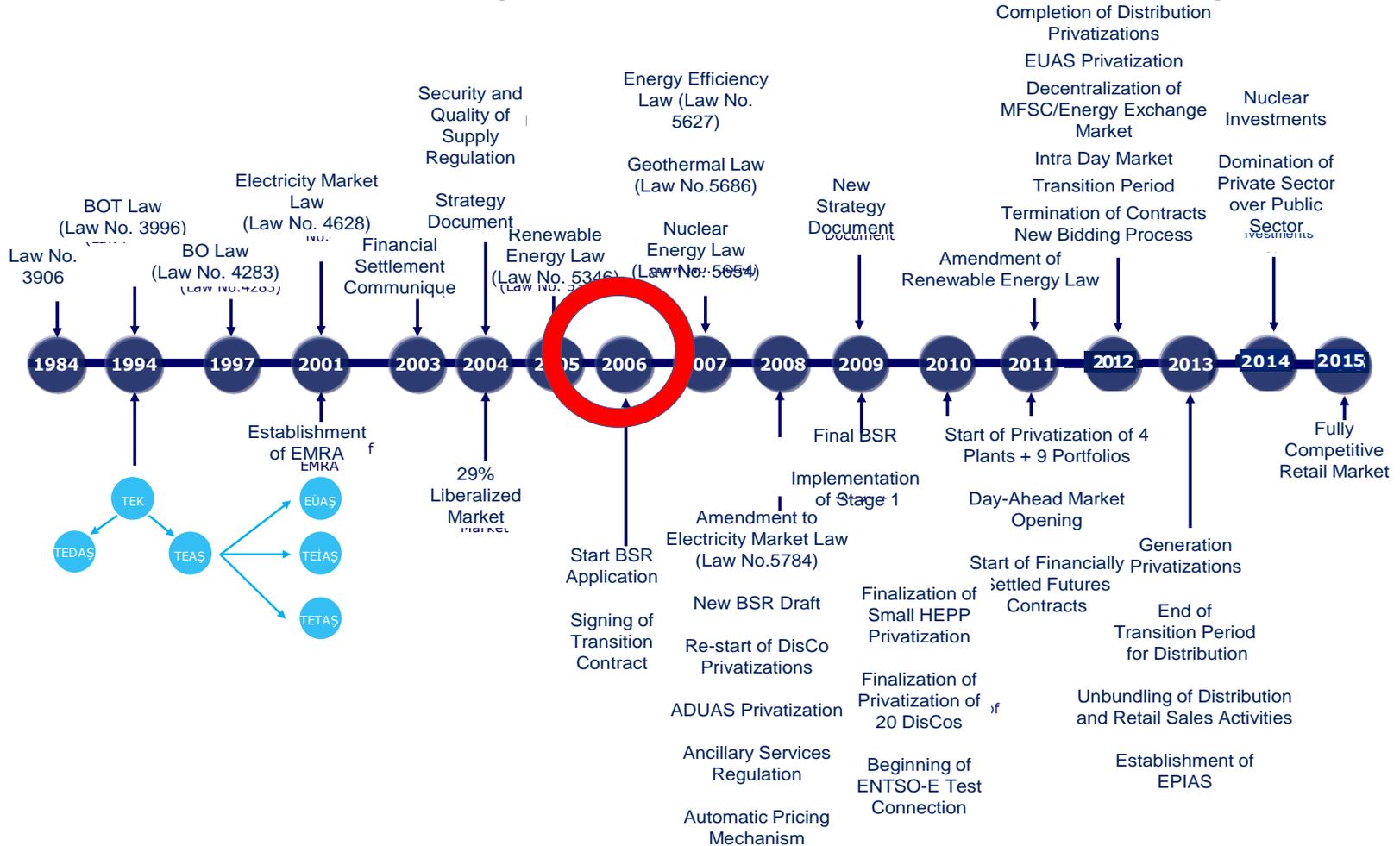
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Regional Experience

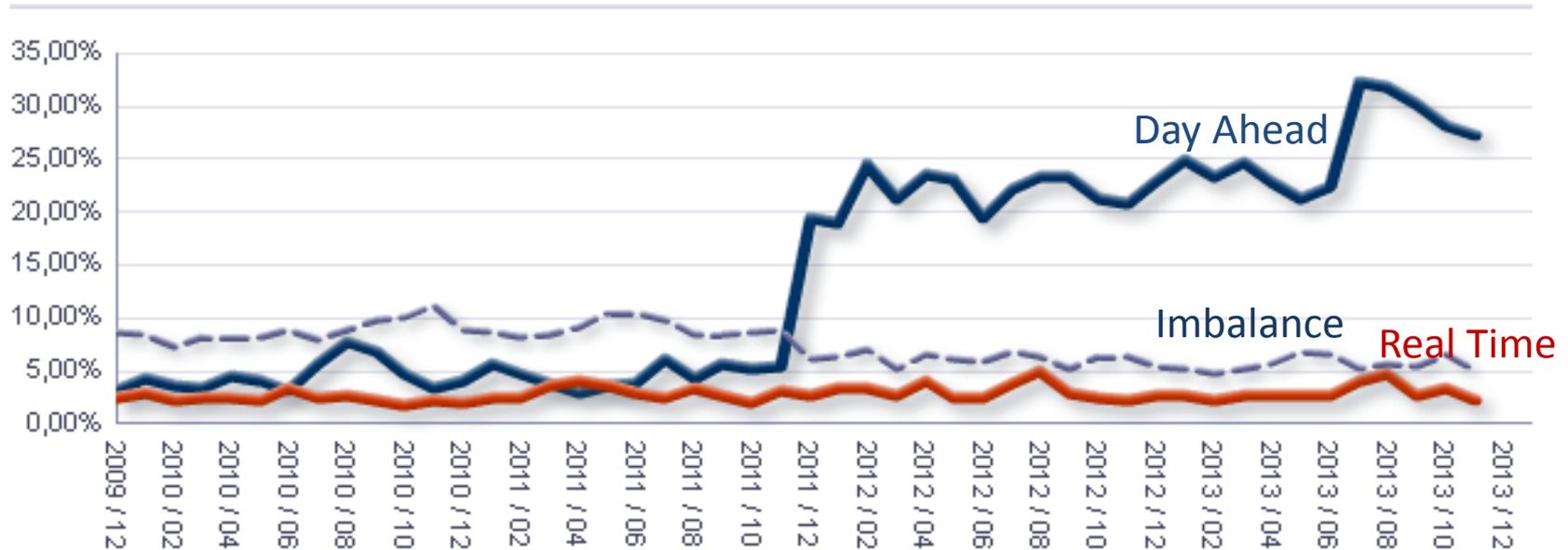


Start of competitive market in Turkey





- Growth of competitive market in Turkey.





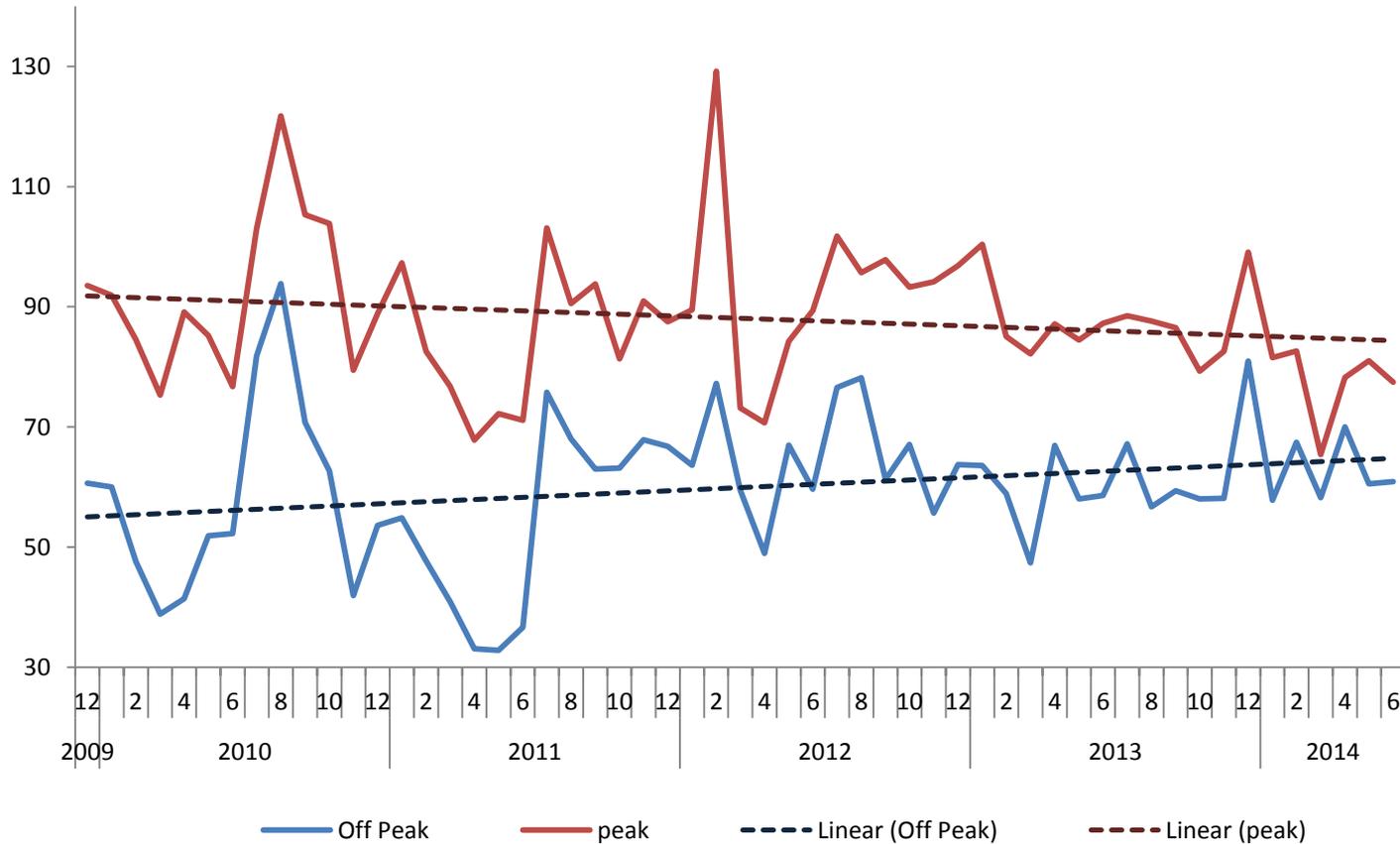
Growth of Direct Consumers





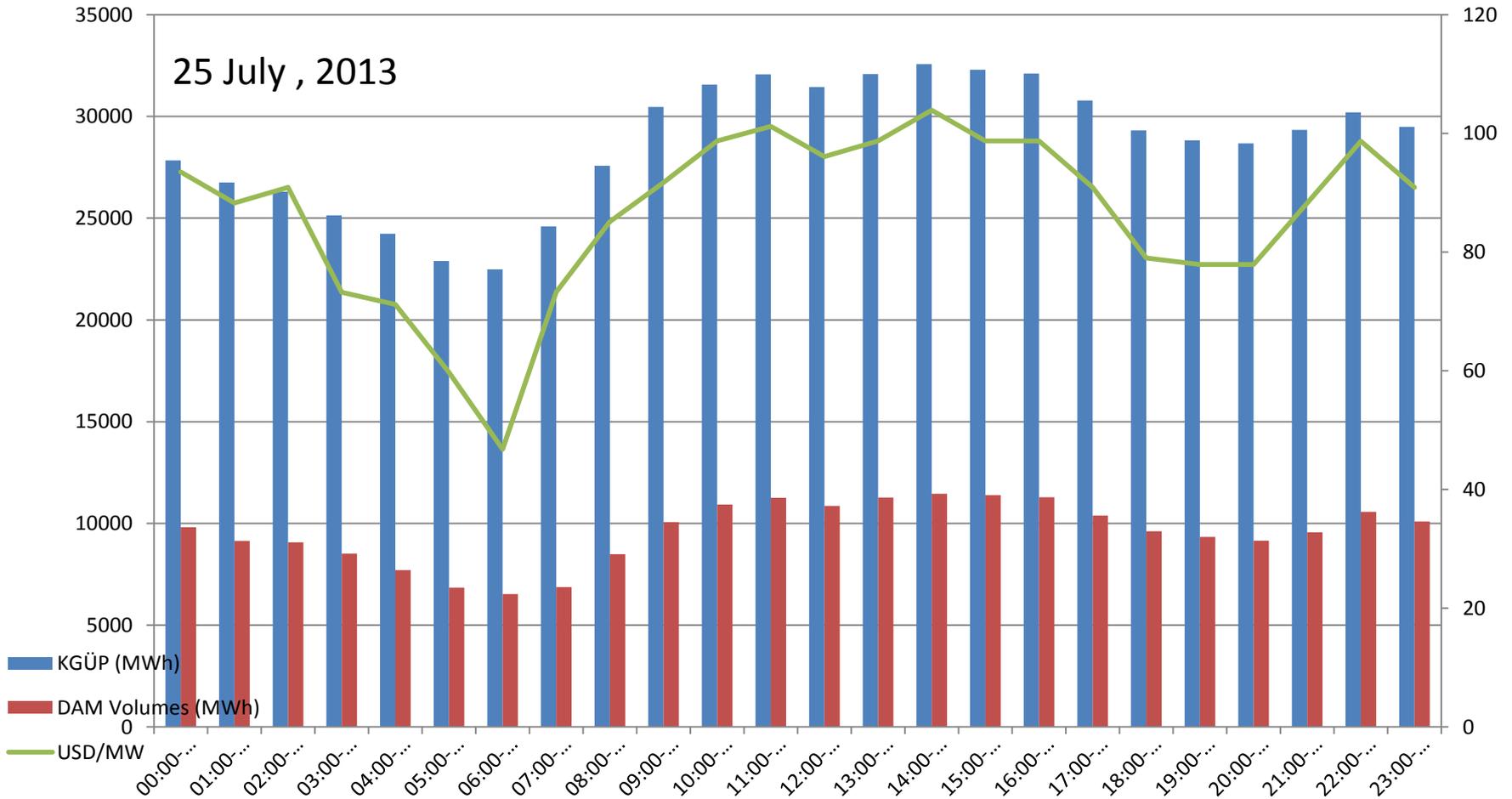
USD/MWh

Peak and Off-Peak Price Trend





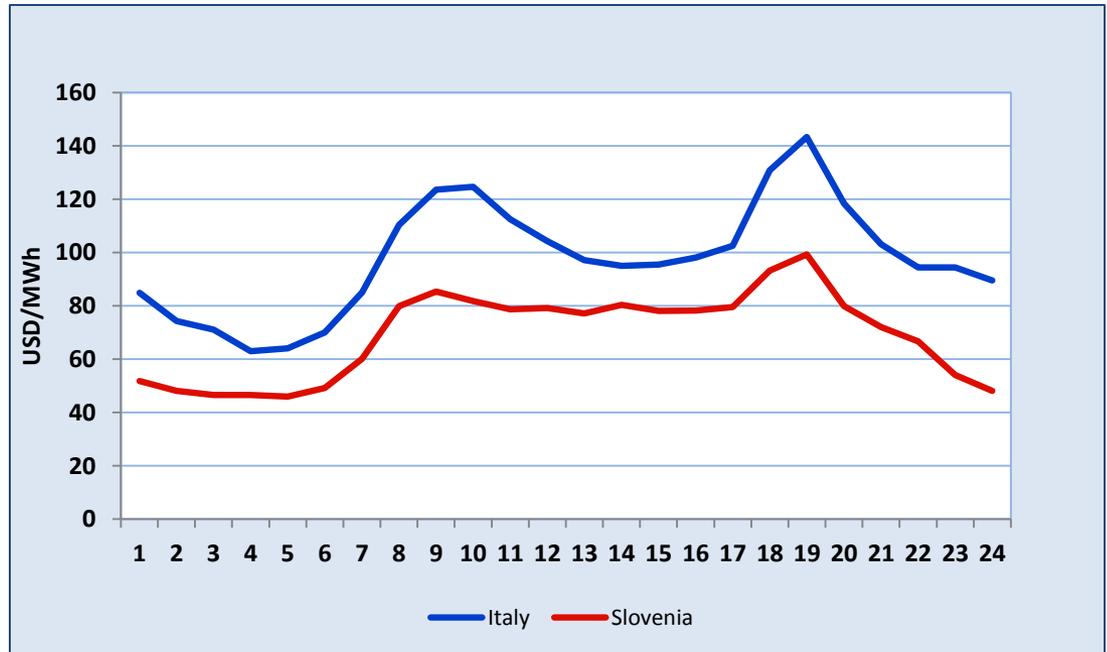
Prices vs Load





WINTER ELECTRICITY PRICES IN ITALY & SLOVENIA, January 18, 2013

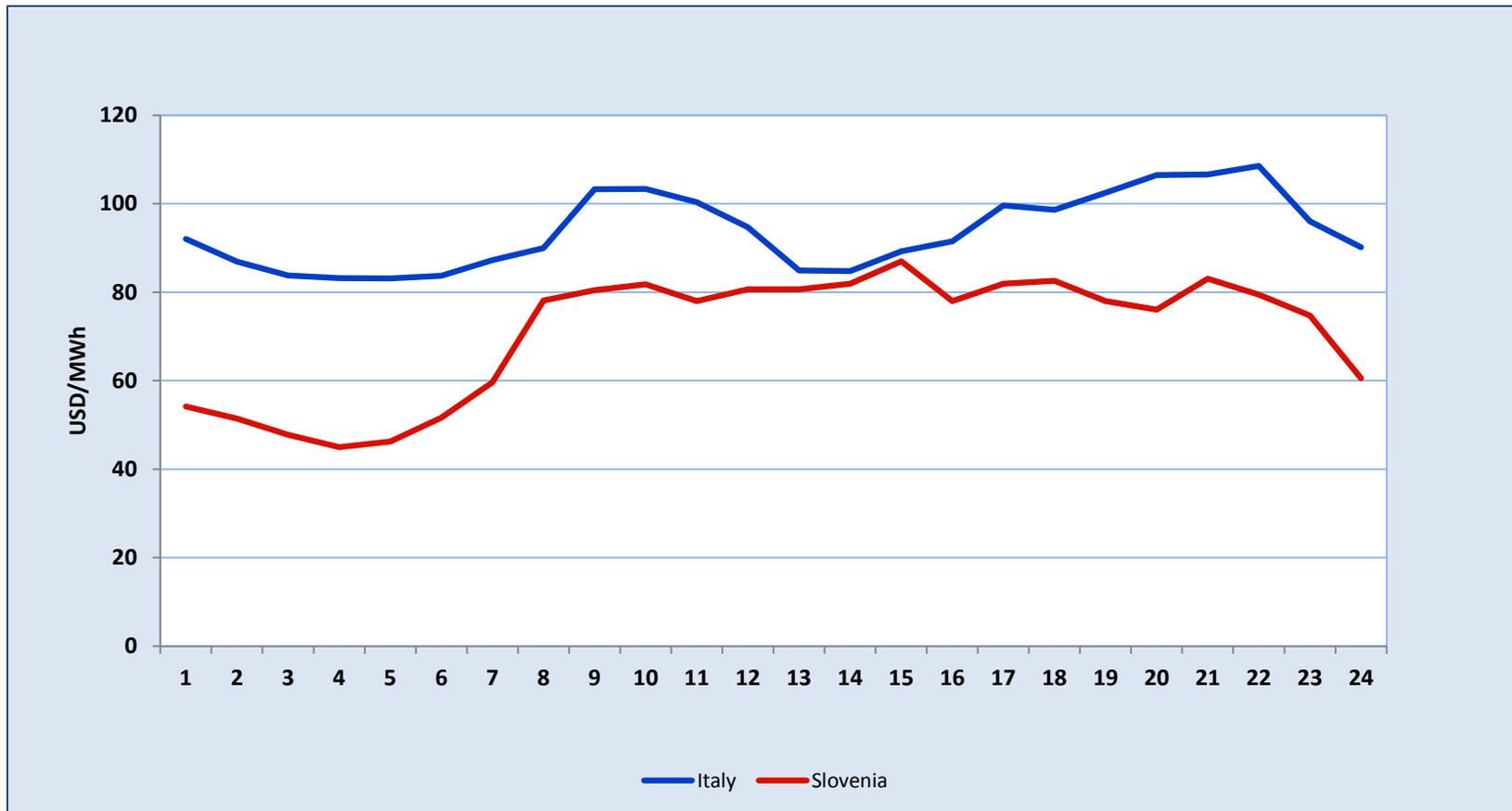
There is a strong relationship between the markets that are adjacent to each other as illustrated by the following examples:





SUMMER ELECTRICITY PRICES IN ITALY & SLOVENIA

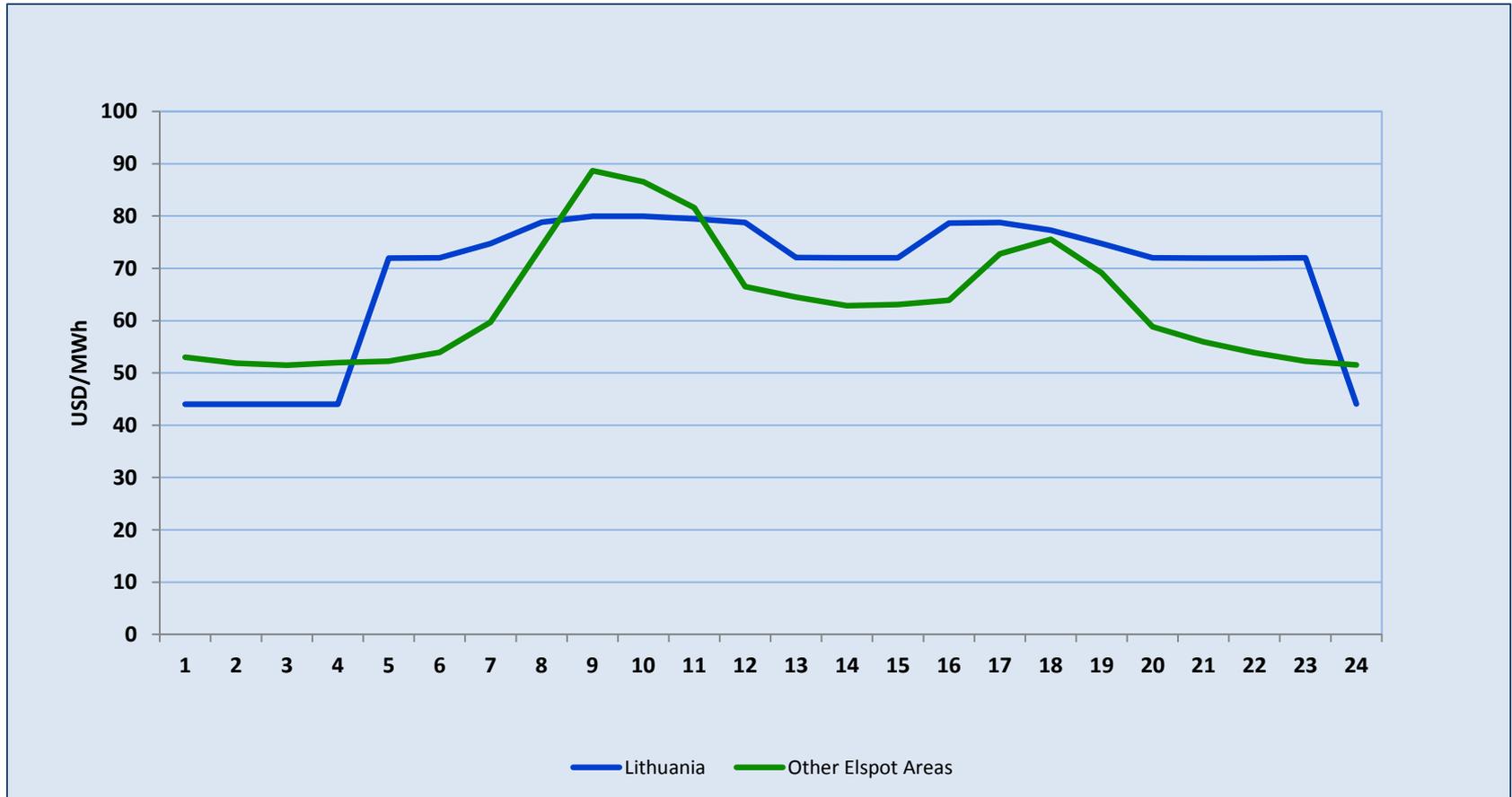
July 26, 2013





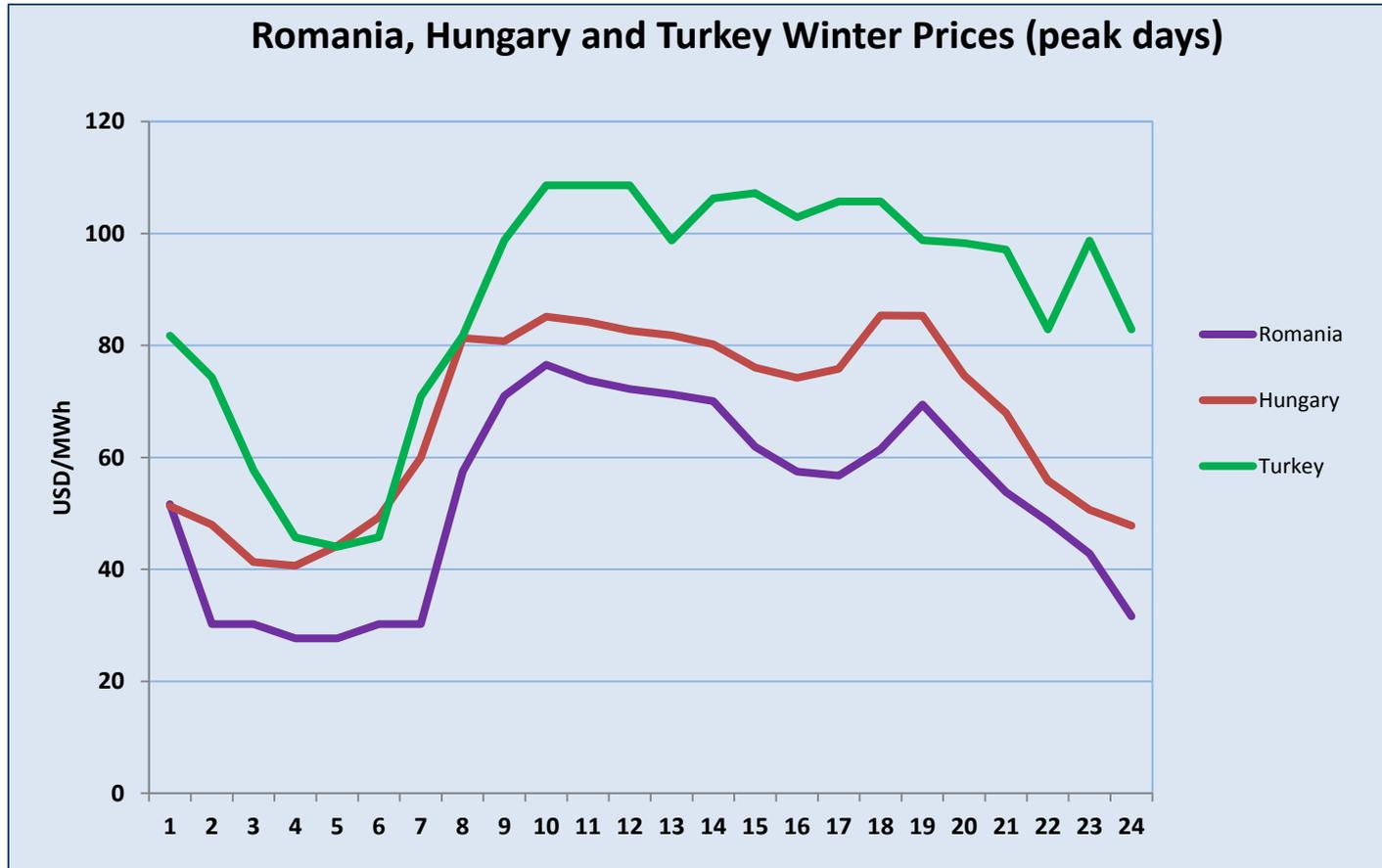
WINTER ELECTRICITY PRICES IN ELSPOT

July 26, 2013





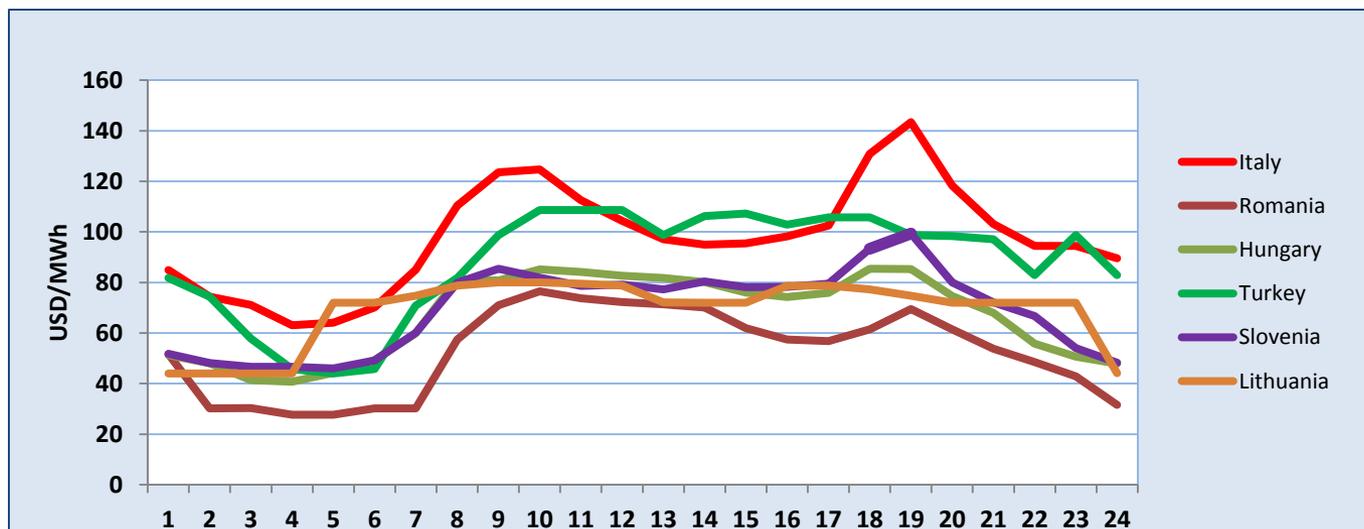
WHAT HAPPENED IN OTHER COUNTRIES IN THE REGION WHO OPENED UP THEIR MARKETS? January 18, 2013





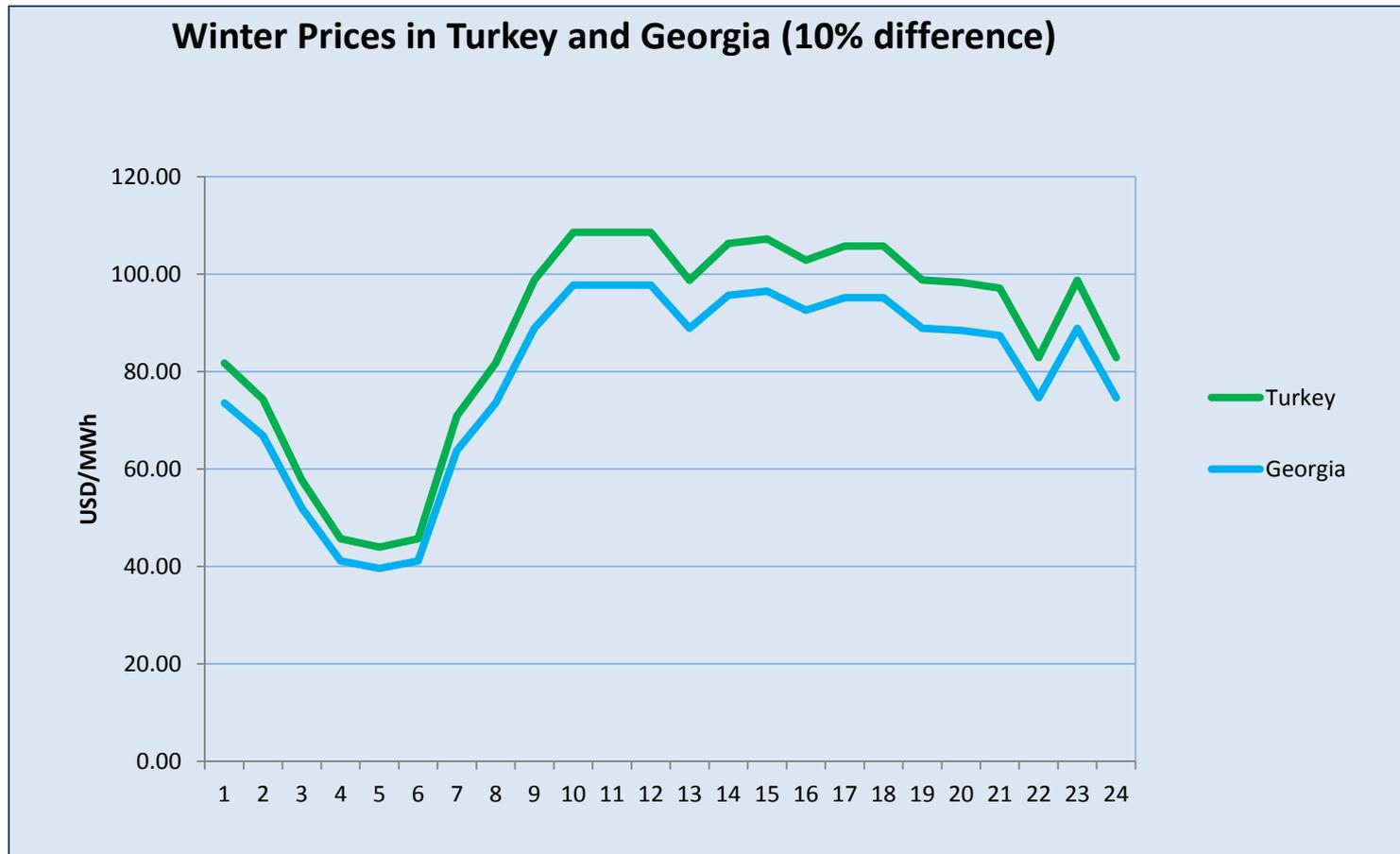
WHAT WE HAVE LEARNED FROM EU EXPERIENCE:

- Prices have similar pattern across the region
- The price differences are somewhat caused by the congestion on cross border interconnectors
- Competition puts downward pressure on the prices
- Transparent market signals are most efficient way to make decision on investments in new power plants. Jan 18, 2013



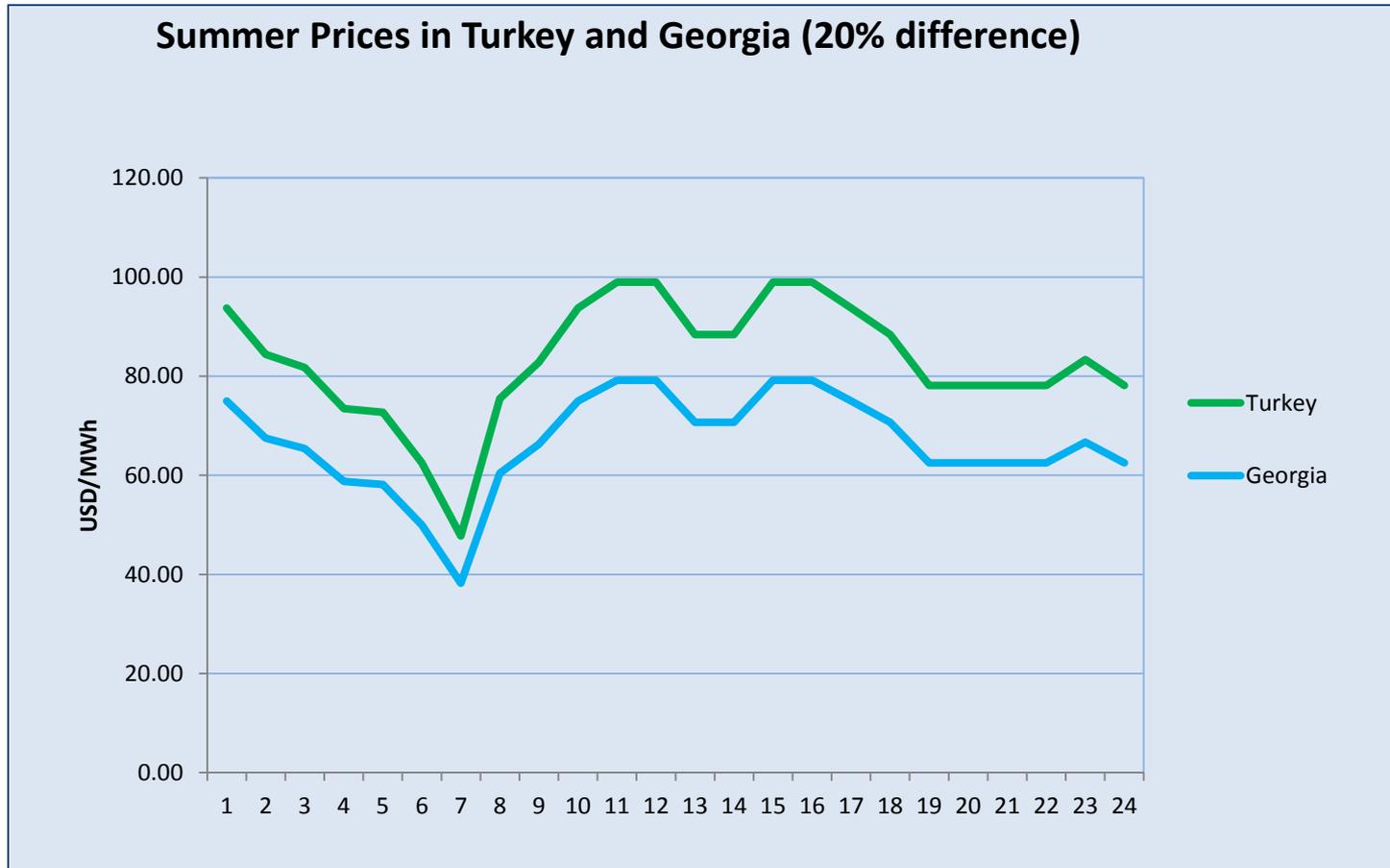


POSSIBLE PRICES IN GEORGIA DURING WINTER





WHAT WILL BE THE PRICES IN GEORGIA WHEN COUPLED WITH TURKEY?



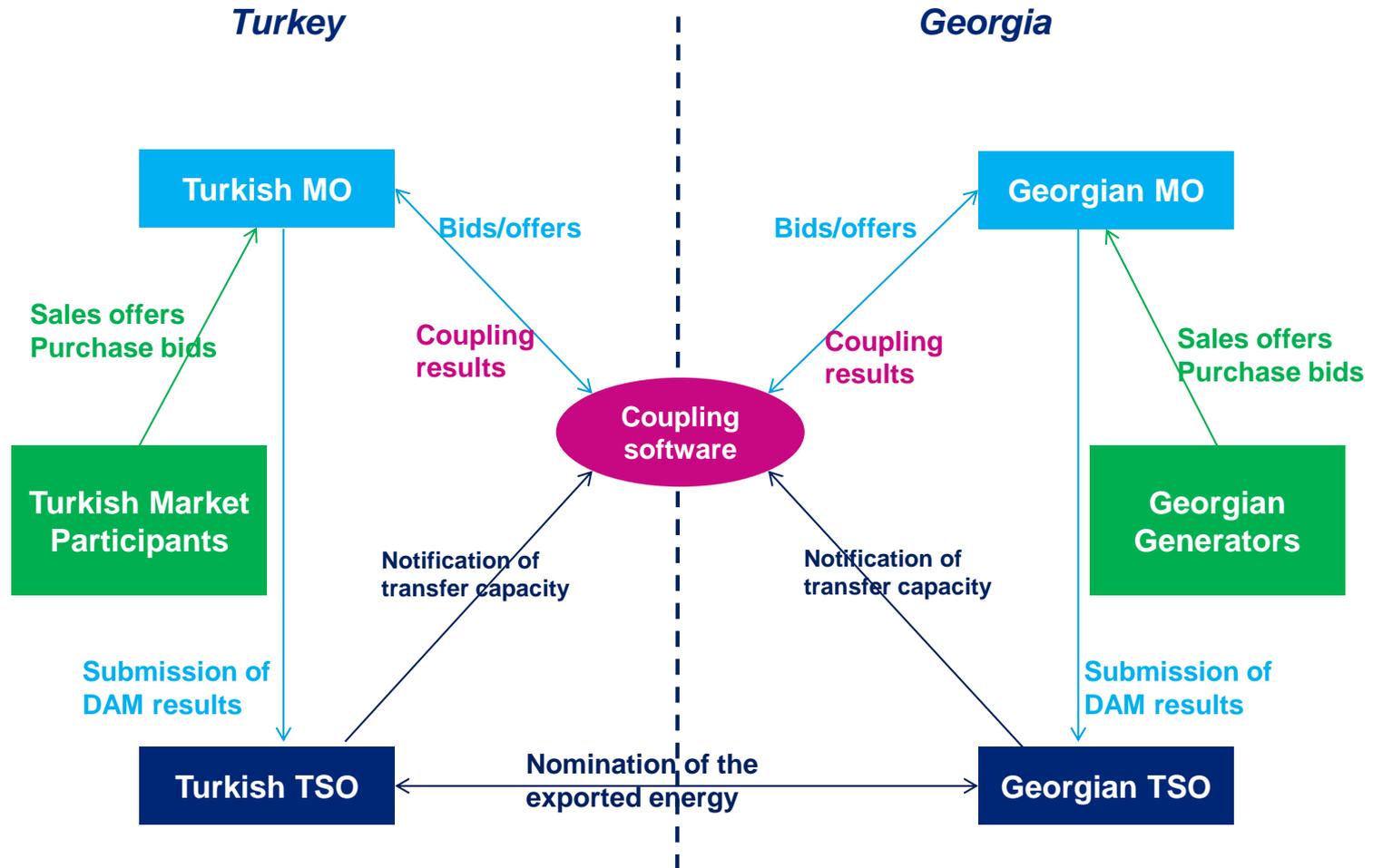


FIRST STEP TO DAM- PRICING ZONE ON EPIAS POWER EXCHANGE





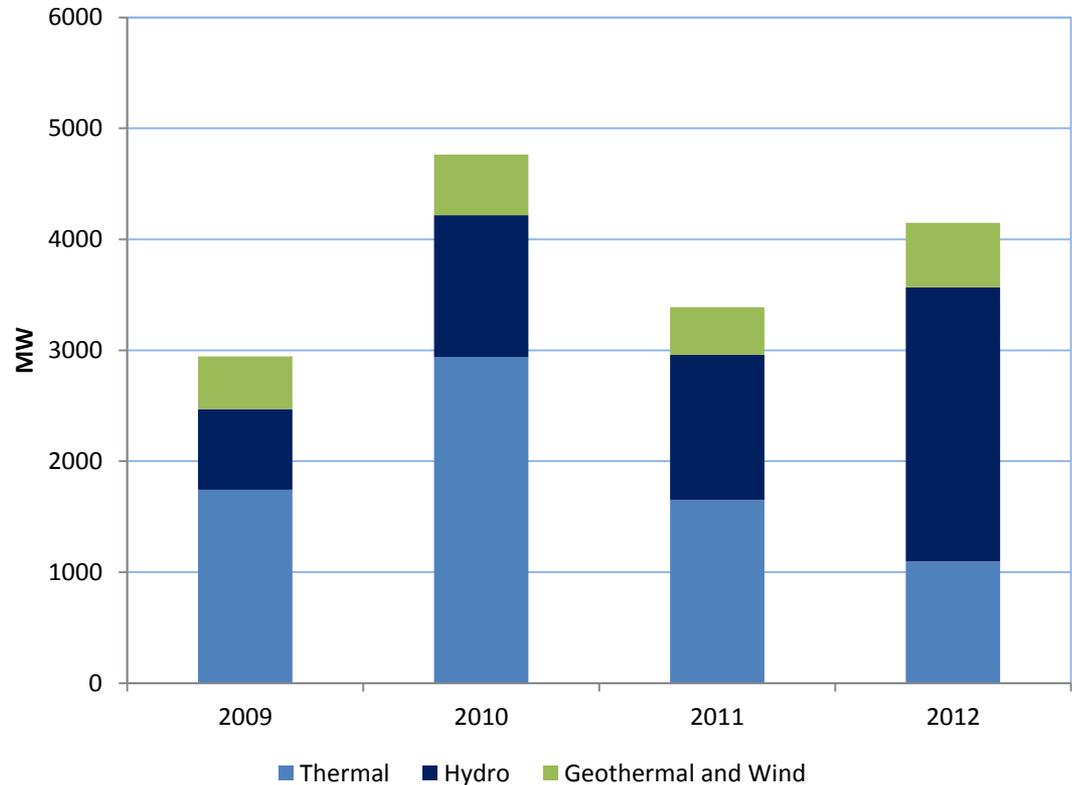
COUPLING WITH TURKEY





NEW POWER PLANTS HAVING COMMENCED OPERATION IN TURKEY SINCE 2009

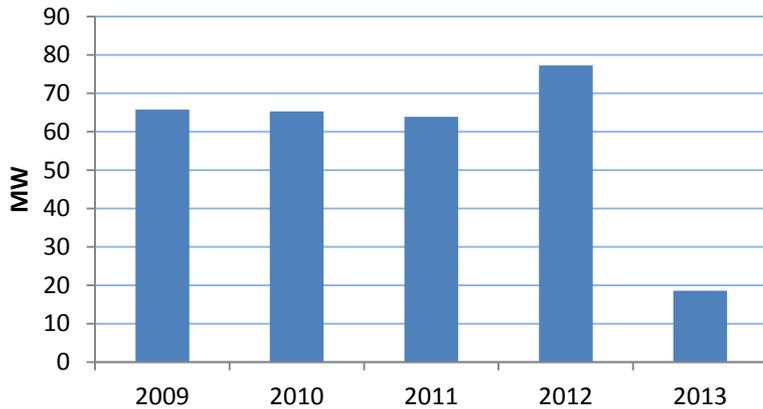
- Geothermal & wind power plants are mainly through feed in tariffs
- Large & medium thermal and hydro power plants are mostly merchant



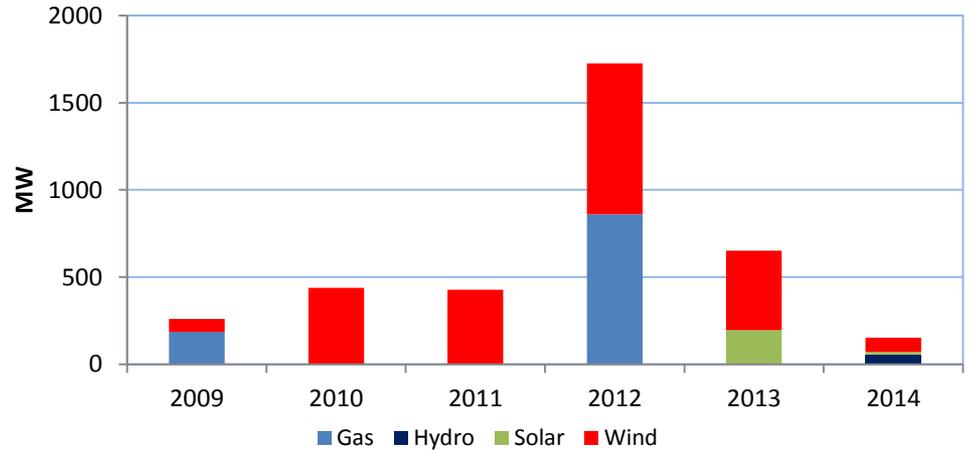


NEW POWER PLANTS HAVING COMMENCED OPERATION SINCE 2009

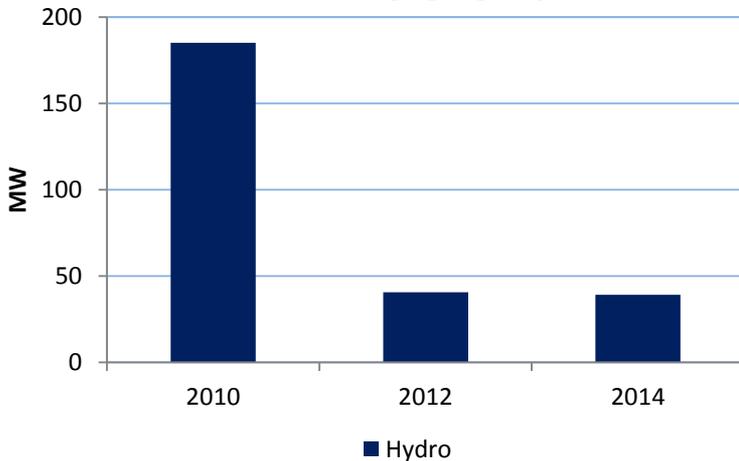
Lithuania



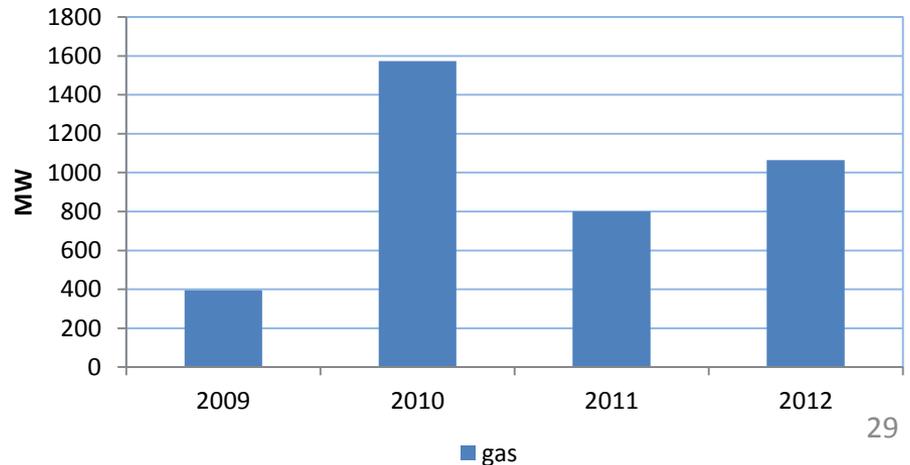
Romania



Slovenia



Italy





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THANK YOU



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