



Impact of the financial and economic crisis on the energy infrastructure development in countries with emerging energy markets

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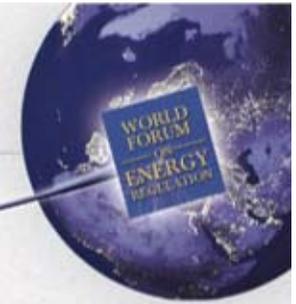
Main Topics



- Analysing elements of different market structures, operational model, regulation and financial circumstances of countries with different stages of market reform process
- Challenges of the market reform process
- Special effects of financial and economic crisis in the transient period of market building (special focus on infrastructure)
- Potential incentive mechanisms assisting infrastructure development

Which markets, countries and regions are analysed?

Input for the evaluation



- ERRA (Energy Regulators Regional Association)
www.erranet.org
- Wholesale market monitoring network



Market structure, market model elements supporting competition



- Most of the ERRA members are in the transient period of market building;
 - from state owned vertically integrated supply chain (national champion, centralized generation, regulated wholesale prices, controlled export-import)
 - to restructured, unbundled energy industry under TPA rules with market-based energy prices
- Most of the ERRA members reached certain level of wholesale competition;
 - Existing legal/regulatory framework for opening the market
 - Multi-player markets
 - New private investors (players)
 - No regulated price on wholesale market

Market structure, market model elements hindering competition (1)



Some reasons of inefficient competition;

- Hybrid model (regulated end-user price in major part of retail market → indirect cap for the free market as well)
- Single Buyer (Central Agent) model as intermediate step of transition process

Dilemma/Hesitation;

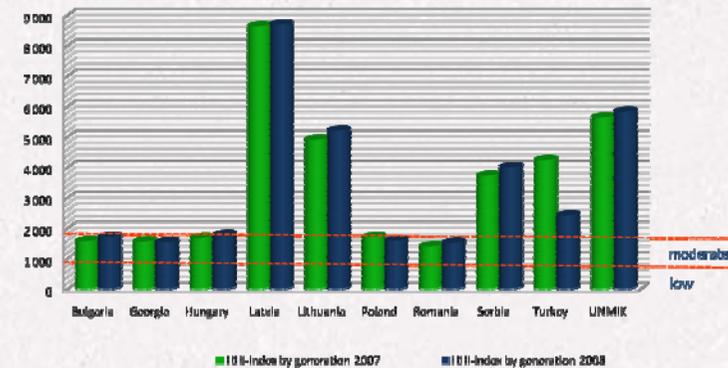
- At what stage of wholesale market building, should Governments/Regulators clear the way of market processes (e.g. market based energy prices) for the retail market?
- What are the indicators which „ensure” that the functioning wholesale competition shall „control” the energy prices (instead of the price-regulation of energy component)?

Market structure, market model elements hindering competition (2)

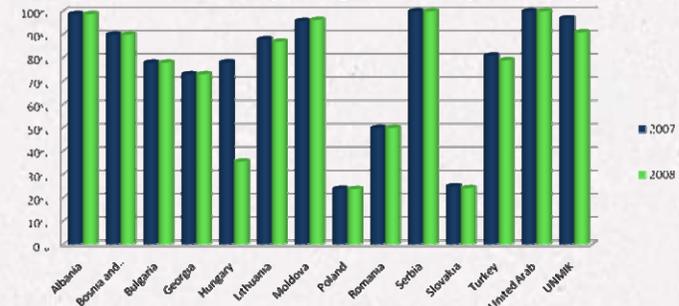


- High market concentration on small national markets
 - mitigation of market power with regional market building
 - active role of regulators convincing Governments for harmonizing rules + Voluntary regulatory cooperation
 - regulating Significant Market Power
- Capacity shortage in some regions → regulatory comfort for new investments, predictability, transparent decisions
- Relative high ratio of regulated end-user price

Concentration of Electricity markets – HHI Index by Generation 2007-2008



Ratio of Sold Electricity on Regulated Price (2007, 2008)



Challenges of the Market Reform Process (1)



Security of Supply (SoS) issues during the transient period:

Net export position of certain national markets of the CEE and SEE region is diminishing and is turning into net import position:

If there is a threat of capacity shortage and/or security of supply problems politicians may become concerned and often interact in a way, which does not support competition and regional market building (support national champion, priority at borders, artificial barriers at borders)

→ **Challenge:** How to avoid maintaining or re-creating isolated, relatively small national markets instead of establishing regional market conditions. The lack of regional market and the national administrative measures discourage new private investments, especially large scale new generation investment.

Challenges of the Market Reform Process (2)



End-user price issues during the transient period:

The EC sector inquiry (2007) report highlights the phenomena of regulated end-user prices acting as a market distortion, especially for industrial users.

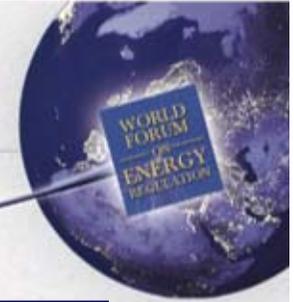
–Regulated end-user price for industrial users is not speciality of emerging markets

–„Universal Service” (USP) with regulated/controlled/monitored prices could be an umbrella for customers

→ **Challenge: Convincing politicians not to „create” more robust USP umbrella**

→ **Challenge: Convincing politicians to respond to industrial users as well**

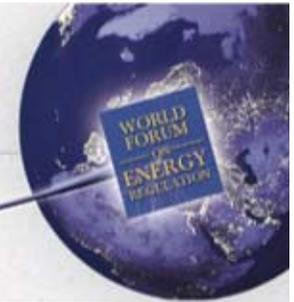
Special Effects of Financial and Economic Crisis in Transient Period of Market Building (1)



Present position of financial institutions in most „ERRA regions“:

- Limited latitude (freedom) of local private commercial banks (affiliates) – limited availability of funding
- Long Term Debt market has shrunk
- Higher risk sensitivity of banks;
 - Country/political risk of transient economies
 - Regulatory risk of emerging energy markets (market building process)
 - General energy industry related risk elements (CO₂ regulation, fuel prices, SoS, regional market tendencies)
 - Default-risk (long term PPAs with state owned national champions → annual contracts with market players)
- Shorter terms (10-18 years → 7-12 years);
- Lower leverage (80/20 → 70/30; 50/50);
- Higher margins (3-4x)

Special Effects of Financial and Economic Crisis in Transient Period of Market Building (2)



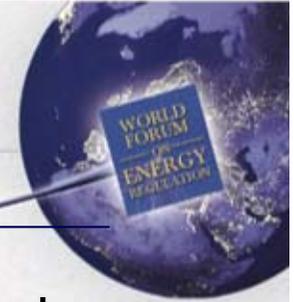
Consequences of new position of financial institutions in most „ERRA regions” (special focus on infrastructure):

- Anxious hesitation → Investment programs postponed (newly calculated financial conditions)
- Limited availability of funding → Only the „best” projects will attract financing
- „Best projects” mean in financial language;
 - Limited country/political risk → countries with transient economy → higher risk premium
 - Limited regulatory risk → transient period of market building → continuous changes → higher risk
- Shorter lending period + lower leverage → higher equity requirements → strong strategic investors + incumbents could build new projects

Consequences of Economic Crisis:

- Reliability of networks and service quality could reduce [less income (demand↓ by 5-10%) and increased cost (cost of capital↑) of TSO/DSO → less expenditure on M&D]

Potential incentive mechanisms assisting infrastructure development (1)



- Financial incentive is key (Regulatory „pressure” for network development is not enough)
- Potential regulatory tools:
 - „Real” evaluation of network asset (→ depreciation and cost of capital could increase among network costs → network charge↑)
 - Shorter amortisation period of network elements
 - Network charge adjustment during pricing period (activated new investment elements could be accepted)
 - Accepted return could be adjusted to new economic situation (Returns on Government bonds + risk premium)
- Cross border (inter-TSO) network → higher risk;
 - Higher accepted rate of return for new investment
 - Exemption from general TPA rules
- Negotiated tariff for gas storage facilities in competitive environment

Potential incentive mechanisms assisting infrastructure development (2)



Some suggestion:

- Economic model (tariff structure) of network investment should include both elements;
 - Reliability
 - Cost of congestion and network loss
- New, harmonised regimes are needed for inter-TSO developments on the fields of;
 - Reliability criteria
 - Economic (financial) criteria
 - Transmission pricing policies
 - Regional transmission investment planning
 - Transparent and „simplified” permission - procedure

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**Thank you for your kind
attention!**

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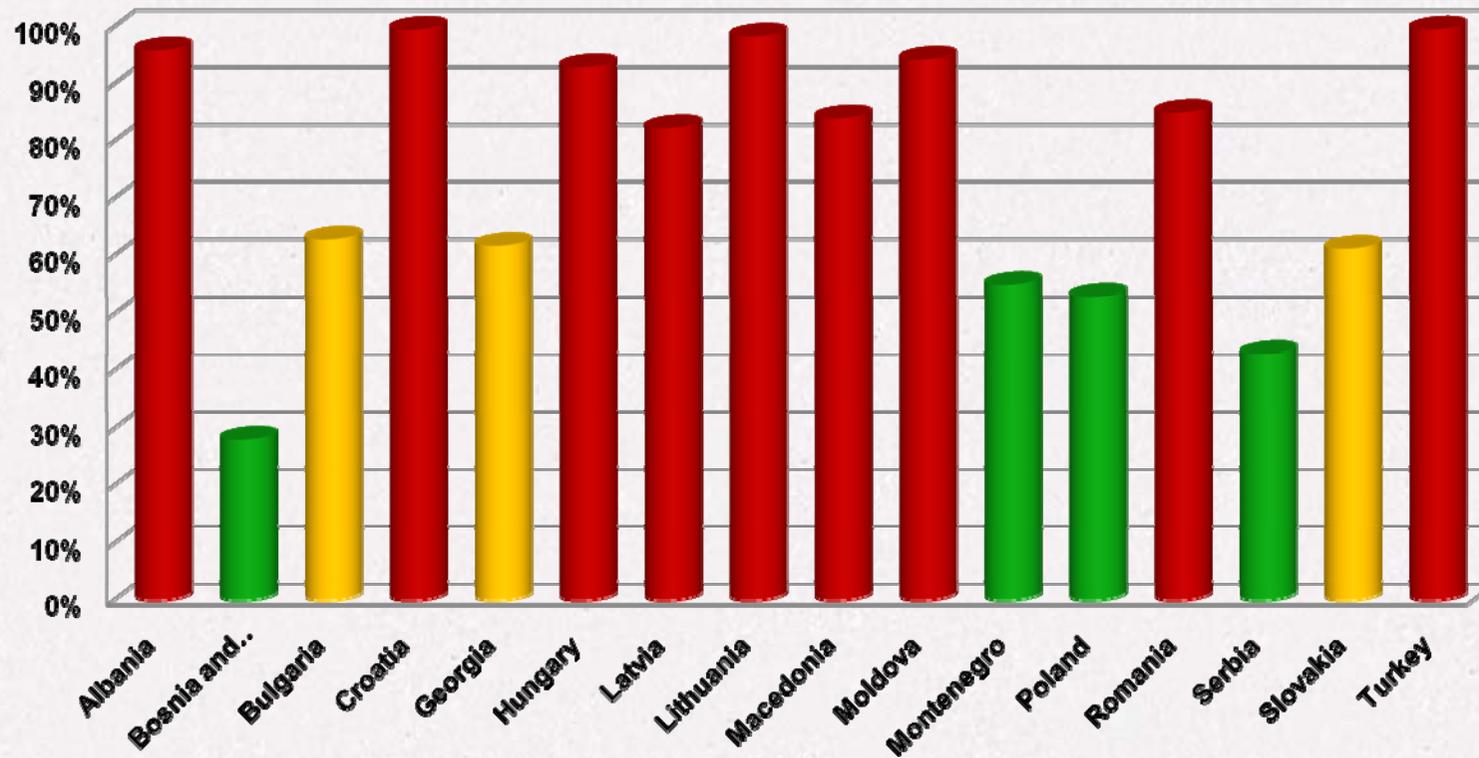


Background Information

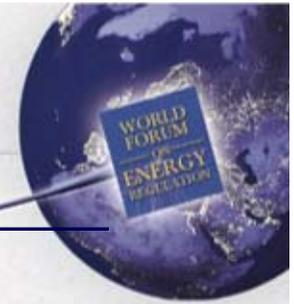
High market concentration



Generation of the 3 largest generators/ Gross generation [%]



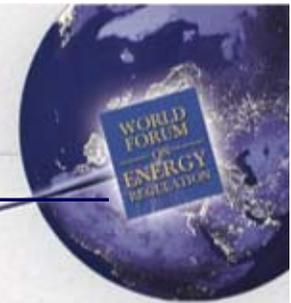
Limited competition between generators



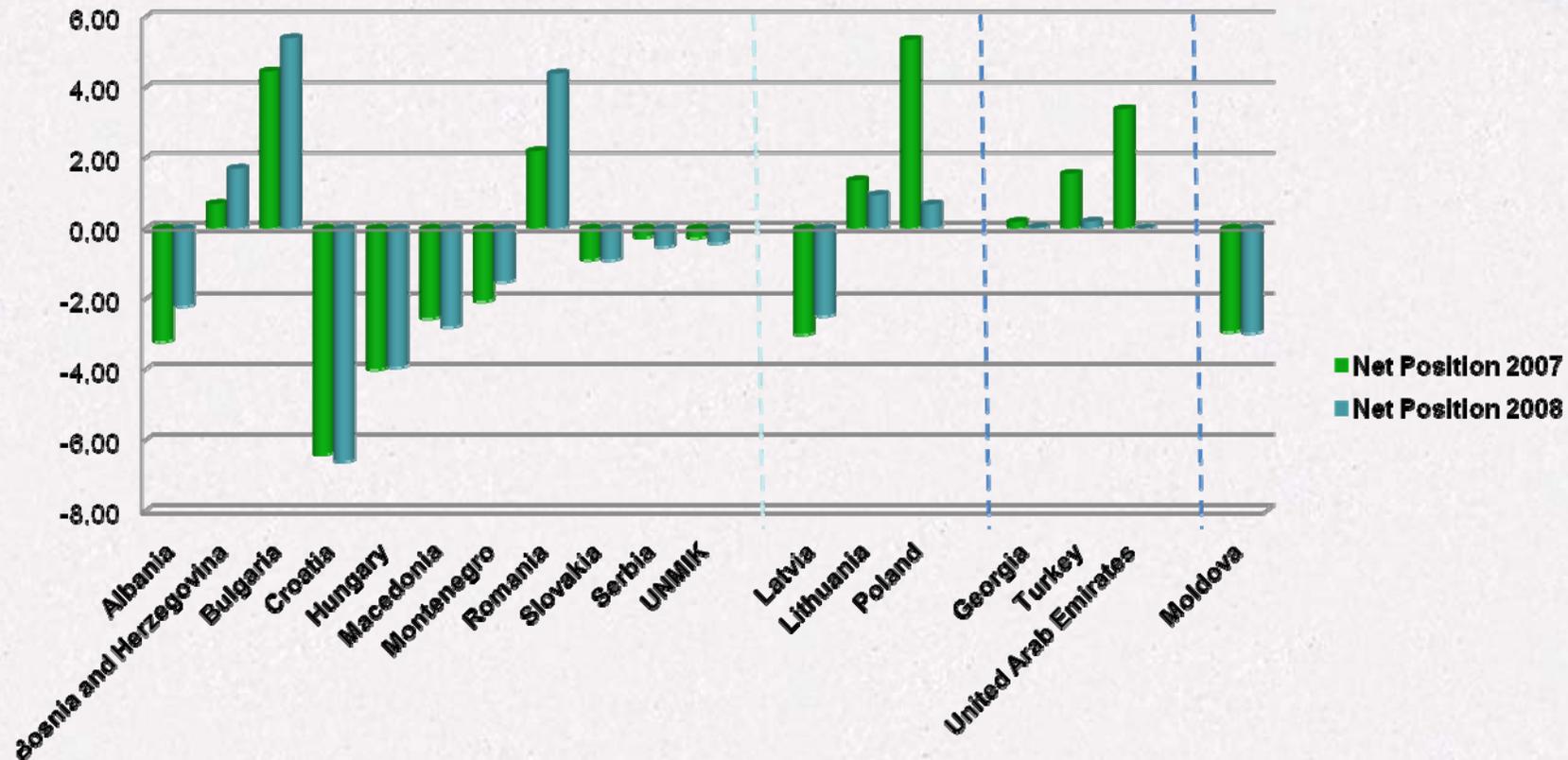
Generation Ownership		
State-owned	Mixed	Private
Croatia	Albania	
Moldova	Bosnia and Herzegovina	
Serbia	Bulgaria	
UNMIK	Georgia	
	Hungary	
	Latvia	
	Lithuania	
	Macedonia	
	Montenegro	
	Poland	
	Romania	
	Slovakia	
	Turkey	
	United Arab Emirates	

- Common owner (state) of „competing” Generators
- Government responsibility (SoS)
- Private investment already exists in most cases

Export and Import evolution from 2007 to 2008 in TWh



Balance of trade 2007 - 2008 (TWh)



- Capacity shortage in some regions
- Demand increasing slowed down with economic crisis

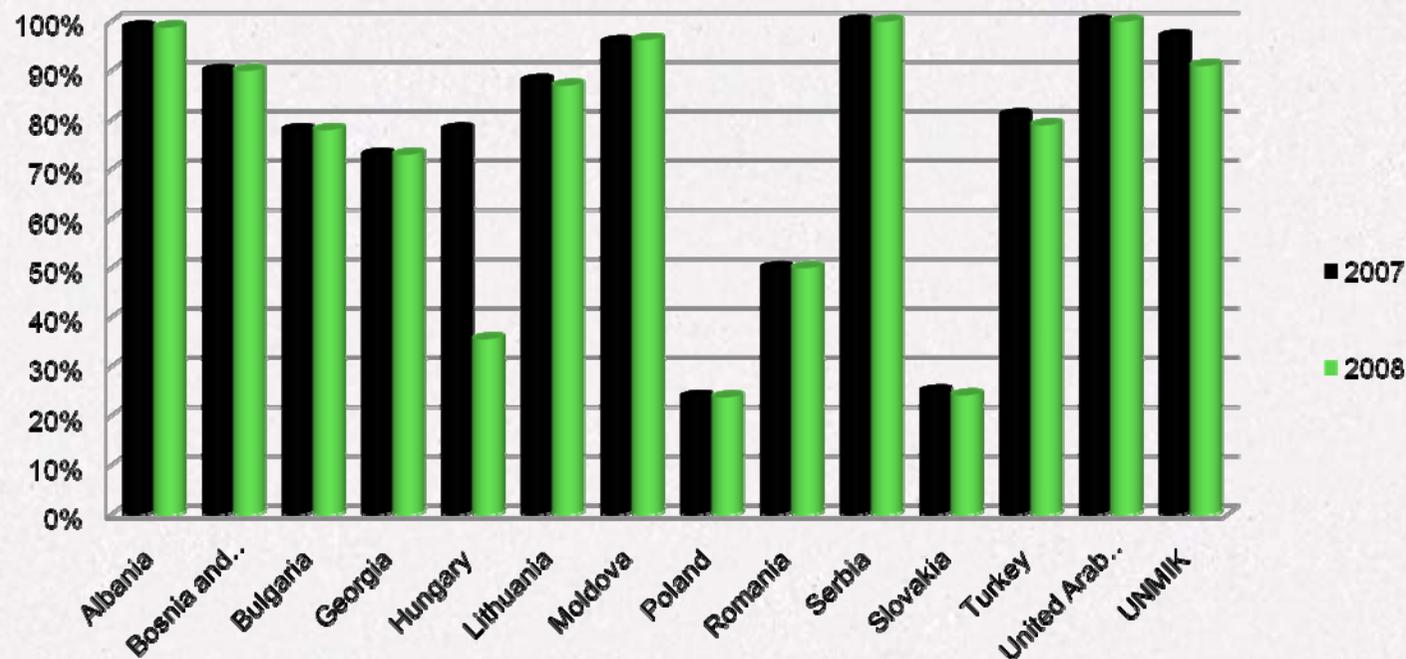
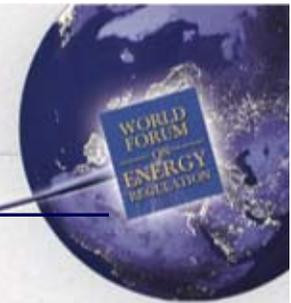
Price-regulation of energy „only” component



Wholesale price regulation		
Yes	Partly	No
Albania (revenue cap)	Bulgaria	Croatia
Bosnia and Herzegovina (Cost Plus)	Georgia	Latvia
Serbia	Lithuania (Price cap)	Montenegro
Turkey	Macedonia	Poland
United Arab Emirates (IWPP competitive tender)	Romania	Slovakia
UNMIK (except for one small HPP)	Hungary (only SMP)	

Retail price regulation		
Yes	Partly	No
Albania (revenue cap)	Bulgaria	
Bosnia and Herzegovina (Cost Plus)	Croatia (for Households and Small Enterpr.)	
Georgia	Lithuania (Price cap)	
Latvia	Poland	
Macedonia	Romania	
Moldova	Hungary	
Montenegro (Cost Plus)		
Serbia (Cost Plus)		
Turkey		
United Arab Emirates (CPLX controls)		
UNMIK		

Ratio of sold electricity on regulated price (2007, 2008)



Different concept (market model):

- Eligible customers could switch between two market segments (Regulated end-user price; Market price)
- Small customers could choose Universal Supply „only” (supply at regulated end-user price) → EU requirement → EU Members