

Foundation of the BiH Electricity Market



Evolution of Market Structures and Operational Models with Private Participation in Hungary

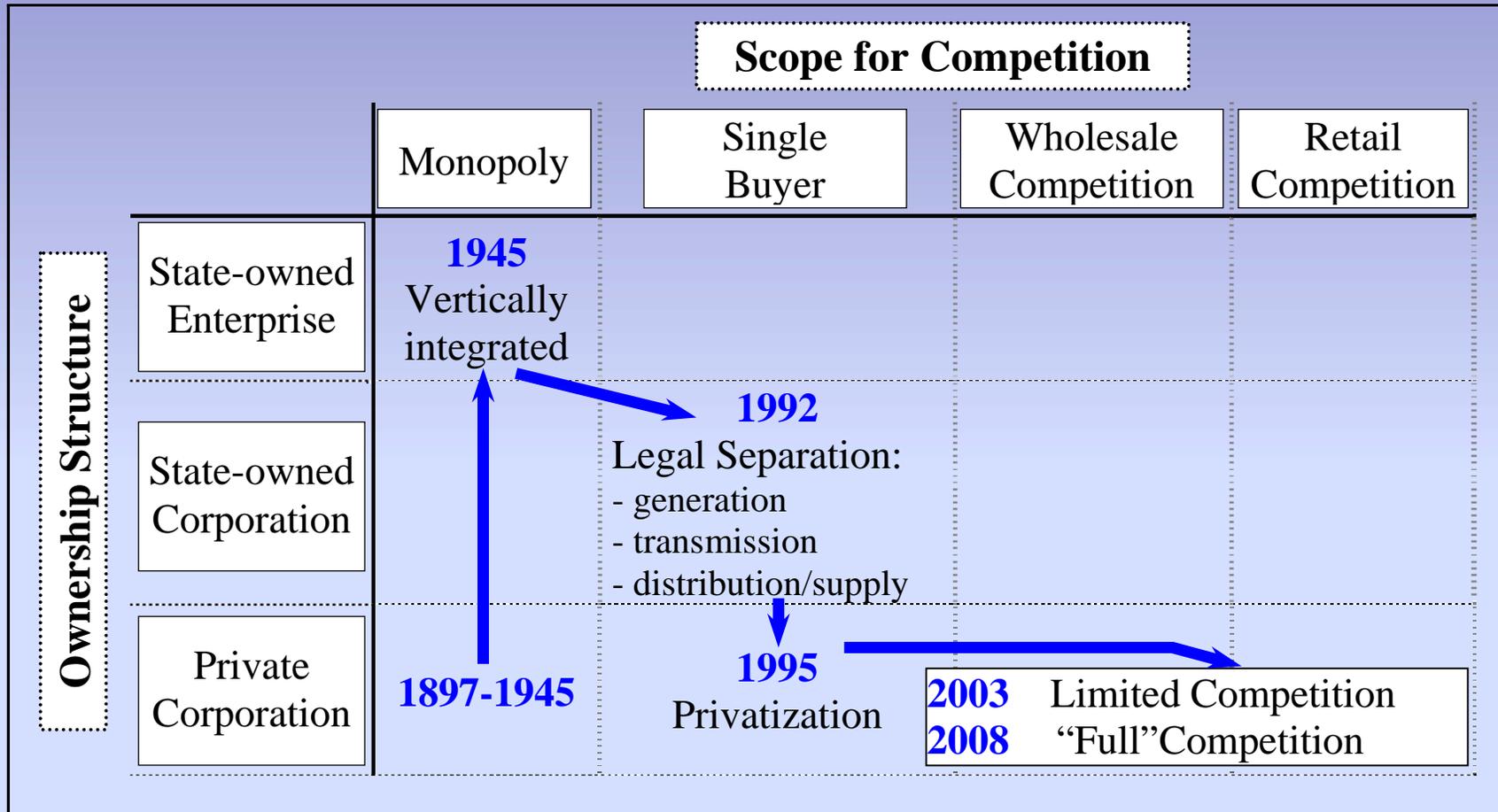
Dr. Gábor Szörényi, Director
Hungarian Energy Office
(Hungarian Regulatory Agency)

Bosnia and Herzegovina, Sept 13-14, 2007

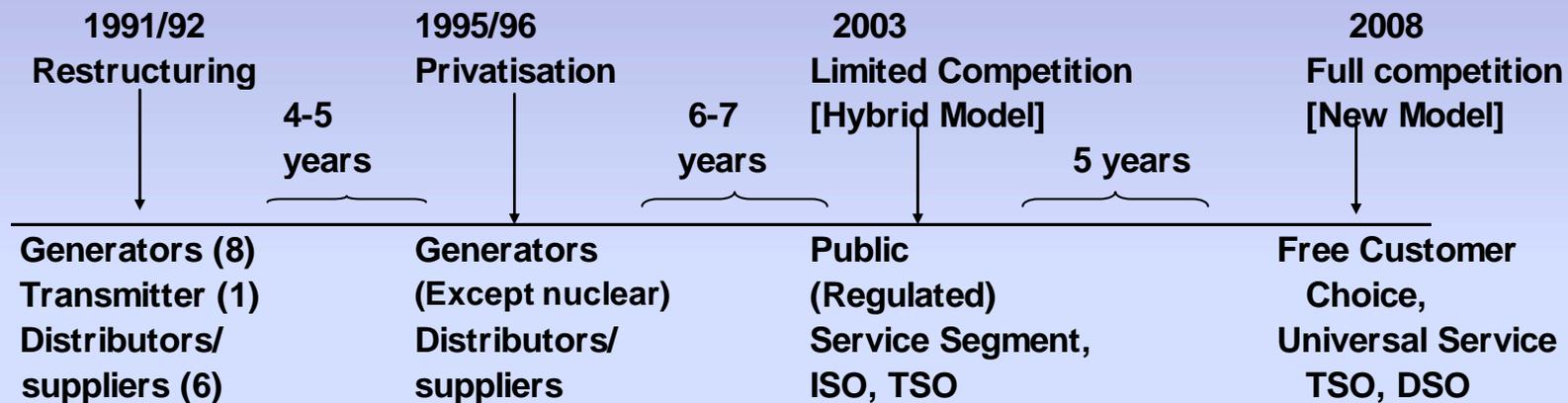
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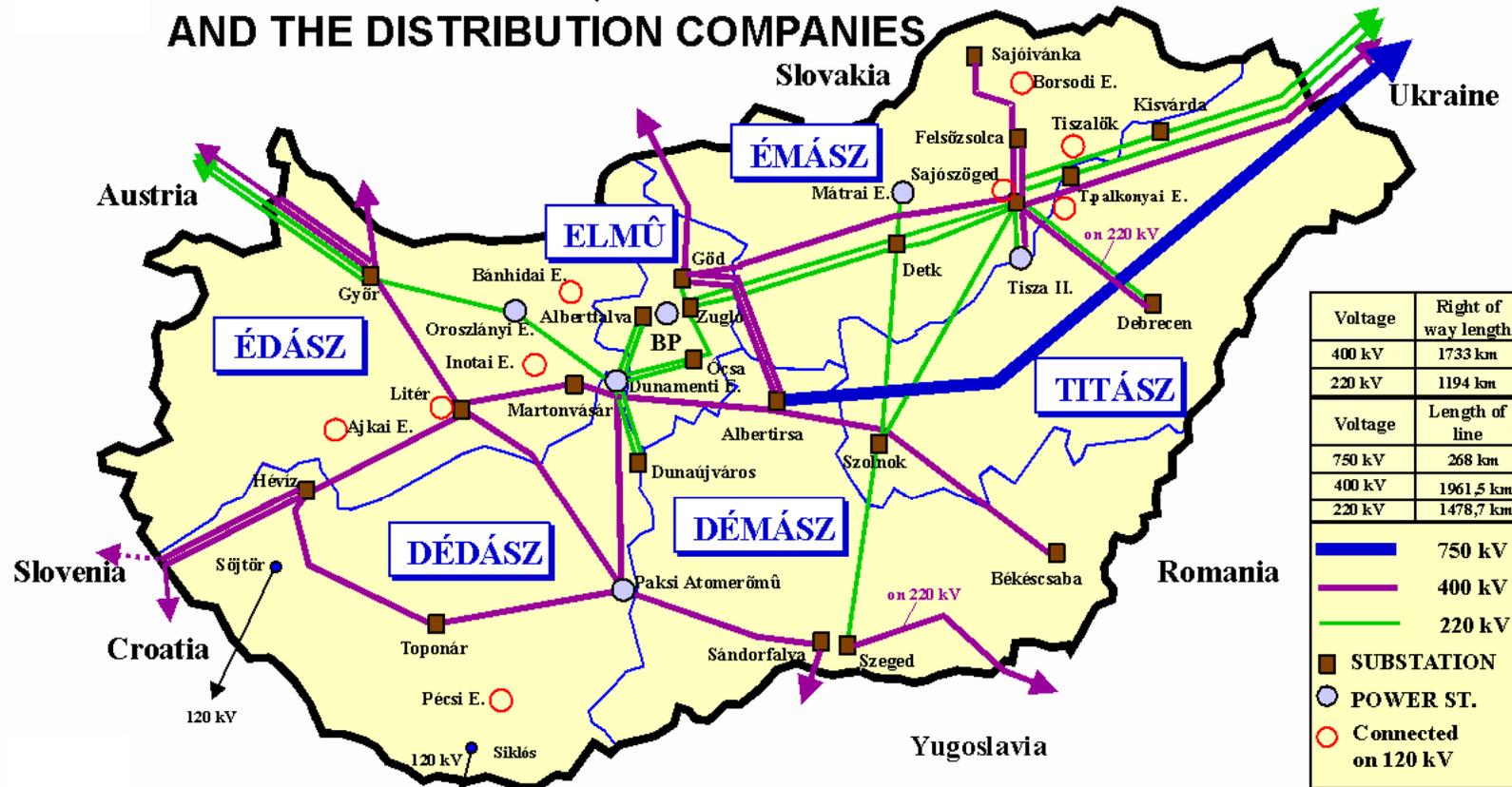
POWER SECTOR REFORM PATH IN HUNGARY



POWER SECTOR REFORM PATH IN HUNGARY



THE NATIONAL GRID, THE POWER PLANTS AND THE DISTRIBUTION COMPANIES



Bakonyi Erőmű Rt.

- Ajkai Er. 132 MW
- Inotai Er. 52 MW
- GT 170 MW

AES-Tiszai Erőmű Rt.

- Borsodi Er. 137 MW
- T. palkonyai Er. 250 MW
- Tisza II. Er. 860 MW

Budapesti Erőmű Rt.

- Kelenföldi Er. 197 MW
- Kőbányai Er. 21.9 MW
- Újpesti Er. 9.6 MW
- Angyalföldi Er. 9.7 MW
- Kispesti Er. 24 MW
- Révész utcai Fűtőmű

Dunamenti Erőmű Rt.

- 2206 MW
- Paks Atomerőmű Rt. 1840 MW

Mátrai Erőmű Rt.

- Mátrai Er. 824 MW
- Pécsi Erőmű Rt. 190 MW

MVM Rt. Szekunder gt-k

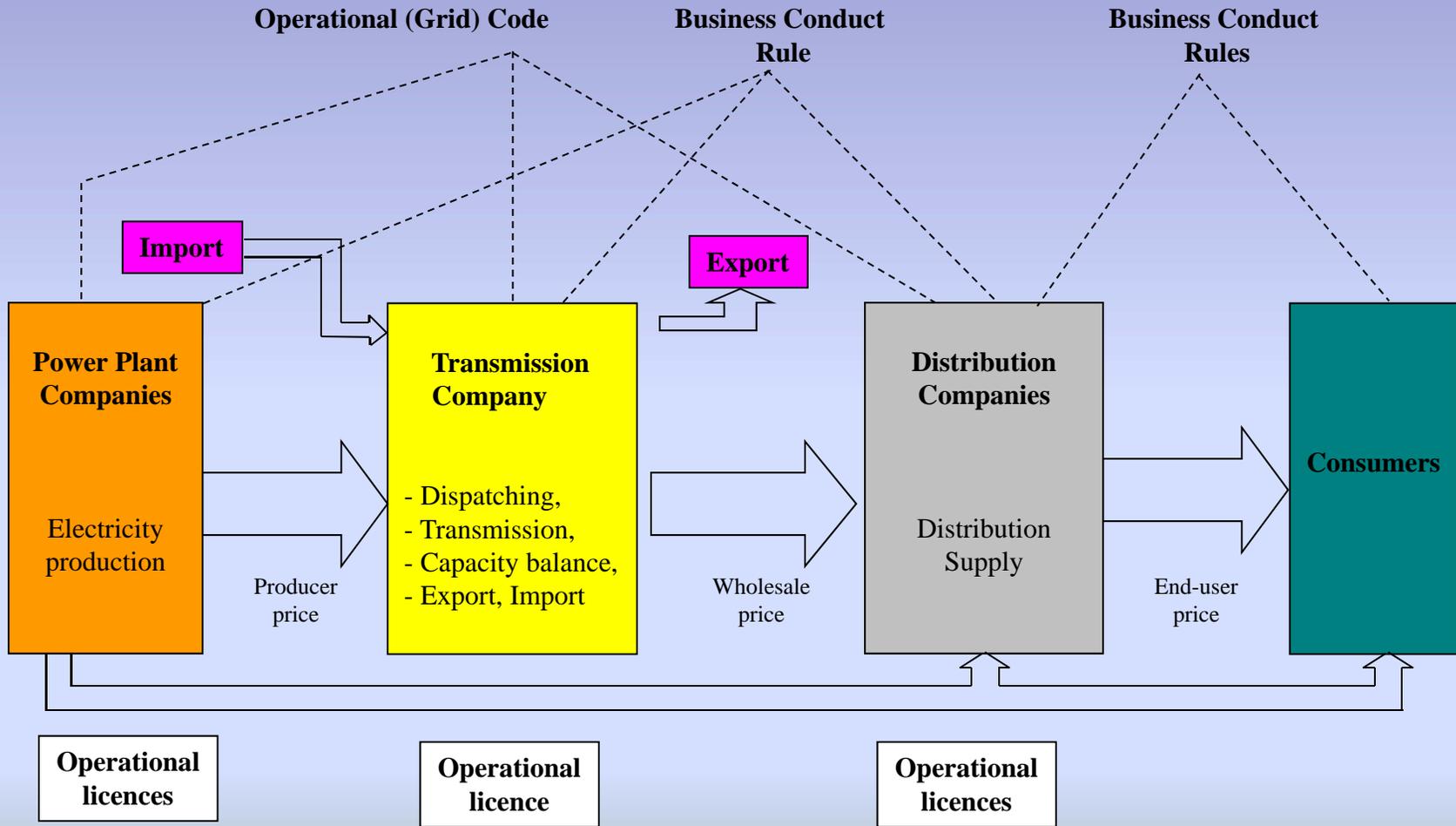
- Sajószöged 120 MW
- Litér 120 MW

Vértesi Erőmű Rt.

- Bánhidai Er. 100 MW
- Oroszlányi Er. 235 MW
- Tatabányai Er. 33.7 MW

Basic Idea of the Former (1994-2002) Electricity Law

Operational model of the electricity system (1994-2002)



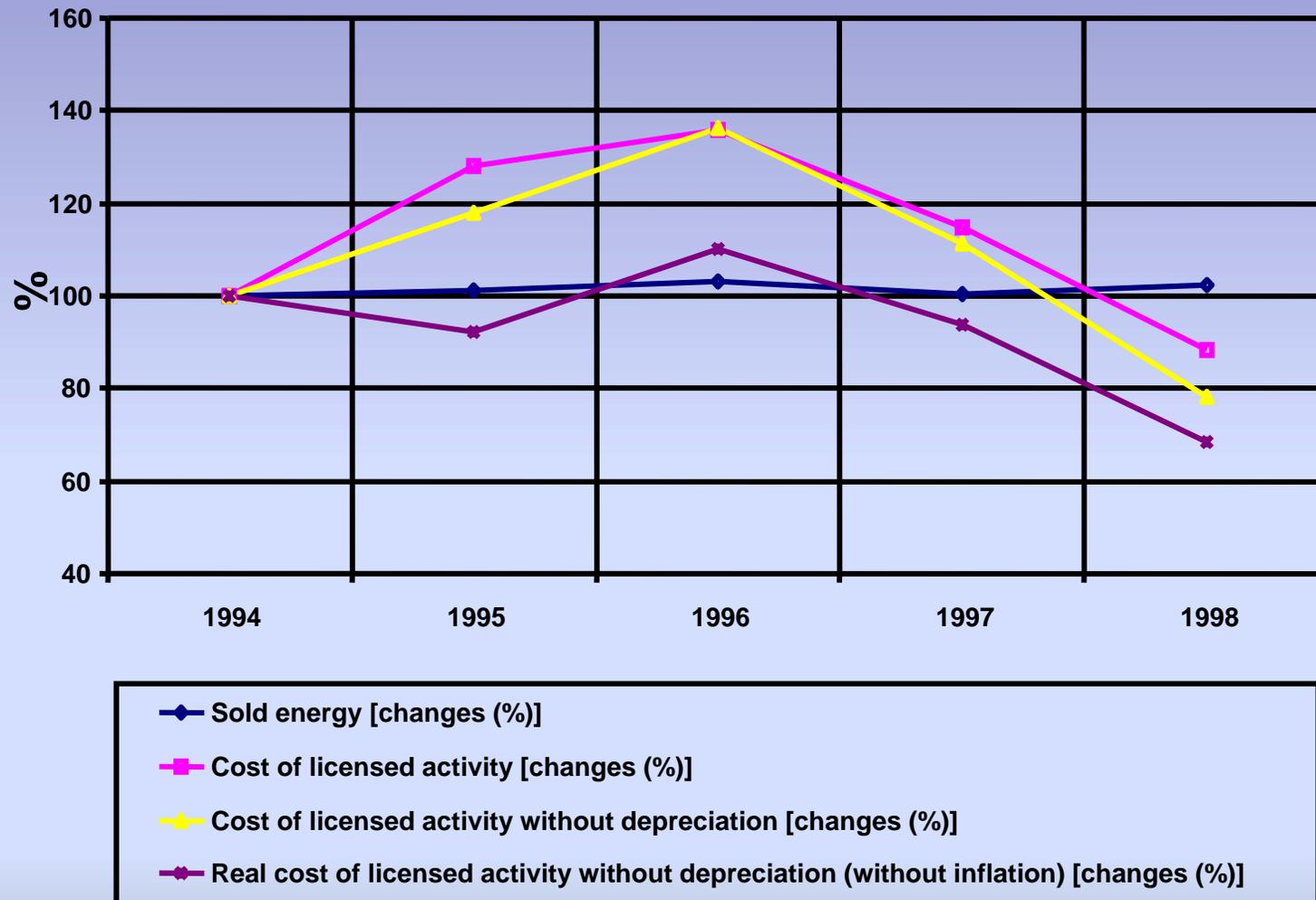
BENEFITS AND DISADVANTAGES OF THE HUNGARIAN SEQUENCES OF THE ACTIONS FROM LIBERALIZATION POINT OF VIEW

- **RESTRUCTURING, PREPARATION OF PRIVATIZATION:**
 - SEPARATION OF ACTIVITIES, ASSETS (+)
 - PRACTICE IN COMMERCIAL BUSINESS BETWEEN COMPANIES (+)
 - PREPARATION OF REGULATION DETAILS (+)
 - PRIVATIZATION STRATEGY
- **PRIVATIZATION:**
 - LONG TERM PPAs (--)
 - PRIVATIZATION INCOME (+)
 - KNOW- HOW, MANAGEMENT PRACTICE, INVESTMENT (+)
- **PREPARATION OF DEREGULATION (RE-REGULATION), COMPETITION:**
 - PREPARATION OF MODEL DETAILS
 - PREPARATION OF MODEL DETAILS, NEW LAW, SECONDARY LEGISLATION, RE-REGULATION "AGREED" WITH PRIVATE INVESTORS (--)
 - FURTHER SEPARATION OF ACTIVITIES (ISO) (-)
 - COST CUTTING => READY FOR COMPETITION (+)

LESSONS LEARNT FROM RESTRUCTURING, PRIVATIZATION + SUGGESTIONS

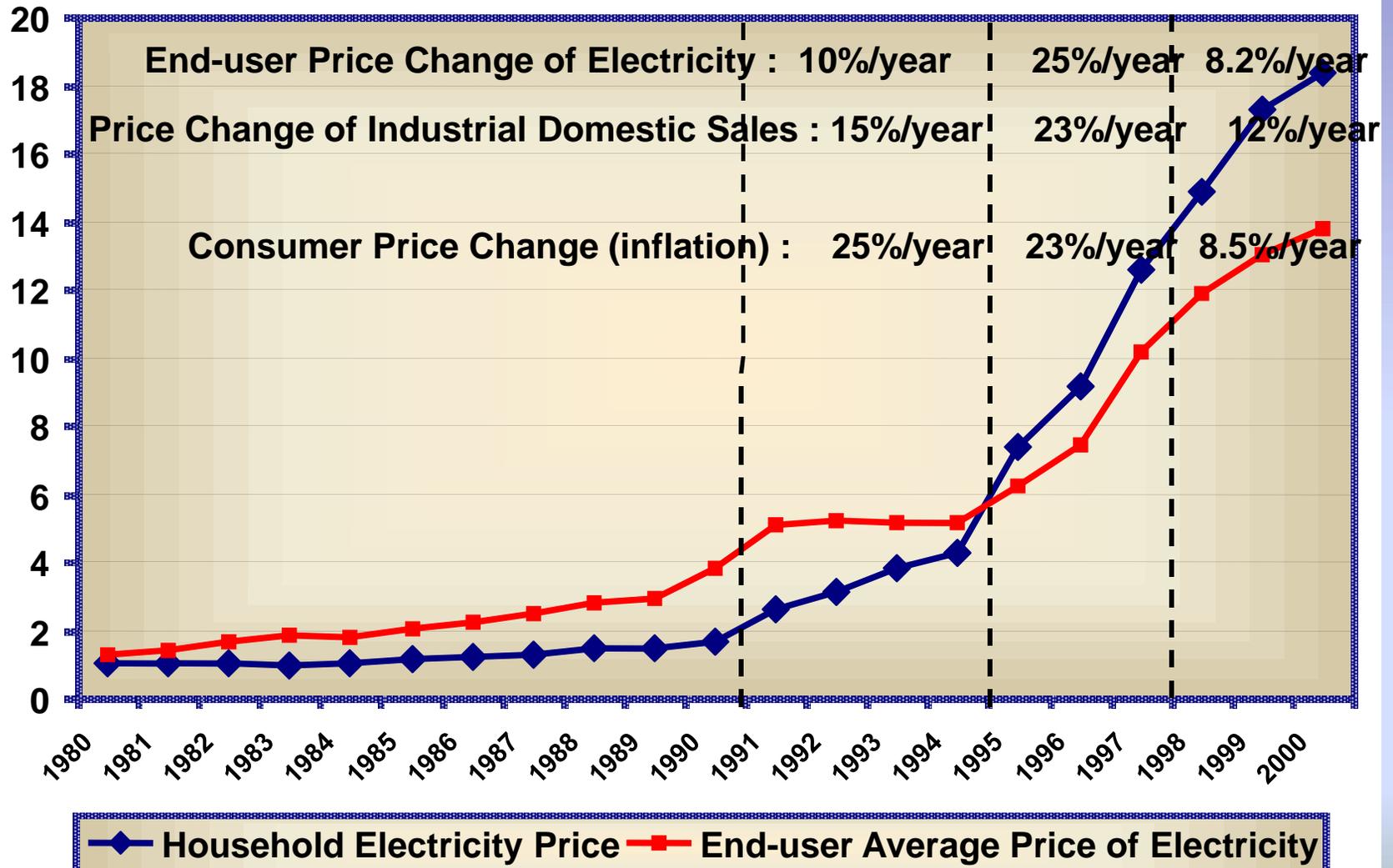
- **CLEAR MODEL (RESPONSIBILITIES, RIGHTS, DUTIES)**
- **TAKING INTO CONSIDERATION DOMESTIC CONSTRAINTS (LEGAL, ECONOMICAL, TECHNICAL, POLITICAL, ETC.)**
- **PREPARING FEASIBILITY STUDIES (IMPACT ON PRICES, ON NEW INVESTMENT)**
- **CLEAR FUTURE ROLE OF THE GOVERNMENT**
- **PRIVATIZATION INCOME VERSUS FUTURE PRICES**
- **MARKET DOMINANCE**
- **REGULATORY POWER (CUSTOMER + INVESTOR CONFIDENCE, STABILITY, CONTINUITY, PREDICTABILITY IN DECISIONS, FAIRNESS)**
- **NO HURRY BUT CLEAR SIGNALS, RIGHT DECISIONS**
- **SOMEONE (WHO IS WILLING TO AND CAN RESTRUCTURE / PRIVATIZE) TO TAKE THE LEAD**

REAL (DEFLATED) COST OF ELECTRICITY DISTRIBUTION/SUPPLY

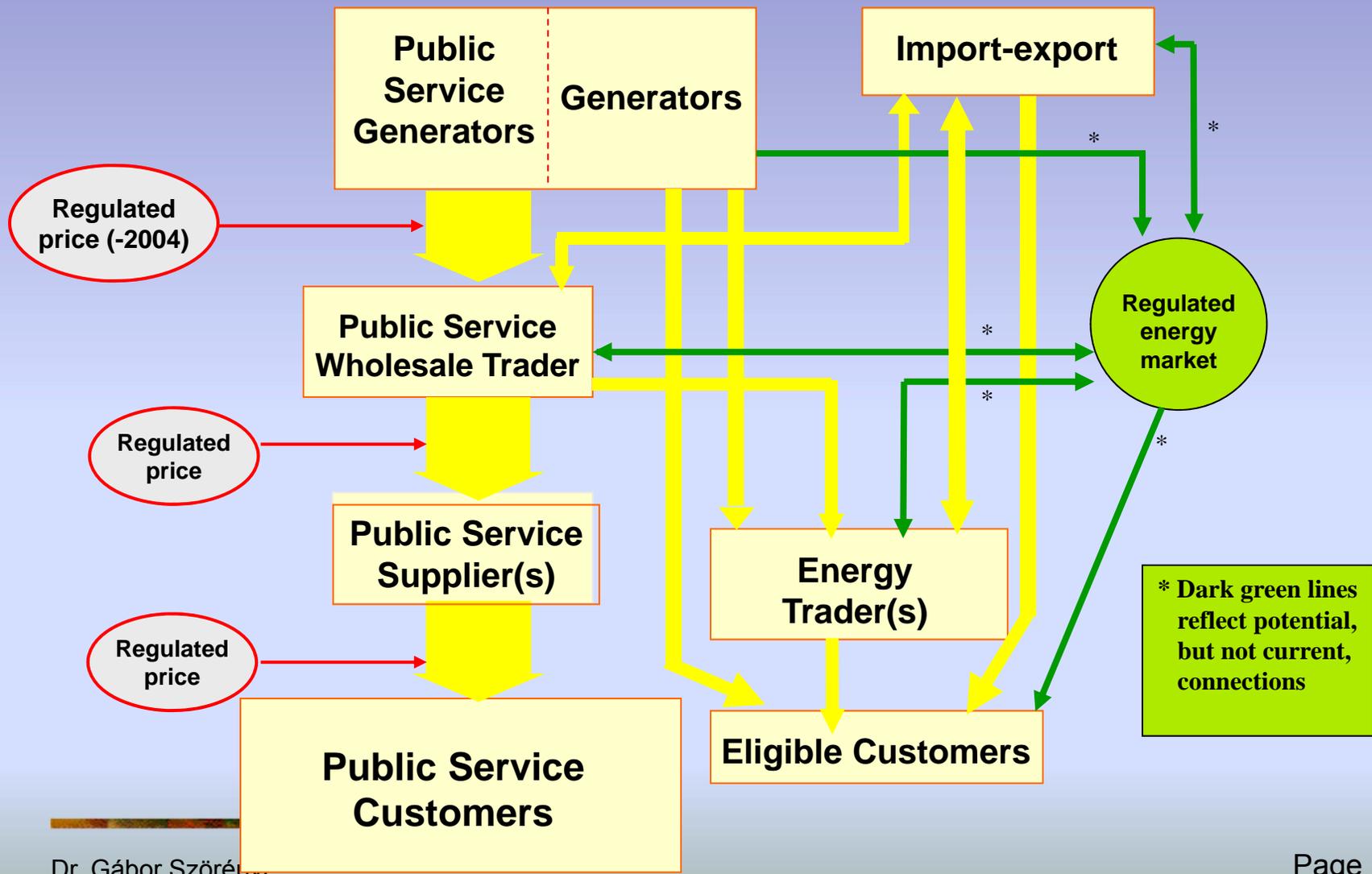


HUF/kWh

End-user Prices of Electricity 1980-2000



CURRENT HYBRID MODEL 2003-2007

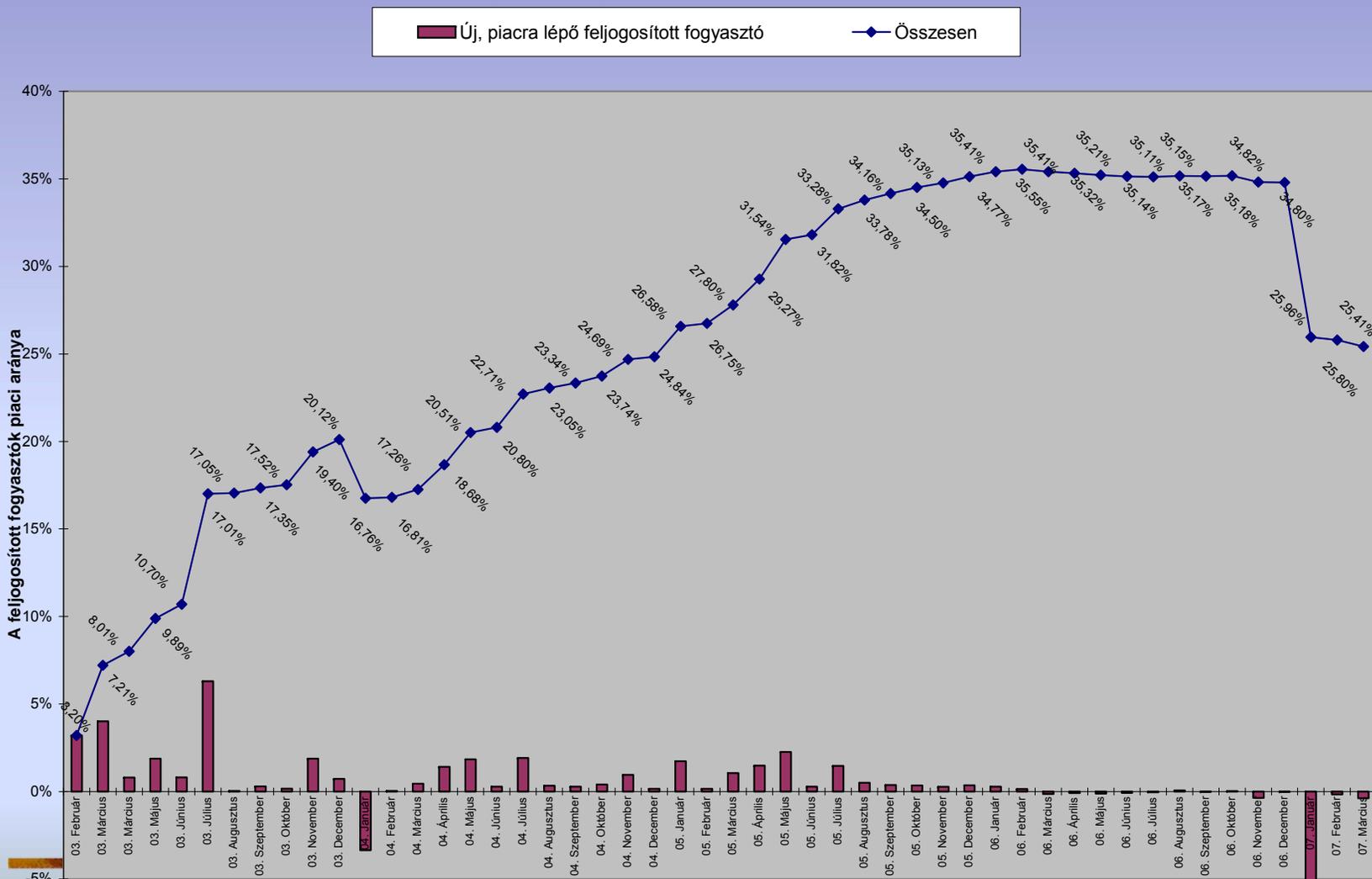


New concept of pricing for the free market segment (eligible customers)

- Un-avoidable cost elements (payable by eligible customers of the free market irrespective of supplier /trader and of negotiated energy price) as regulated tariff:
 - Transmission charge
 - System charge (system operation, reserve capacity, stranded cost, renewable support)
 - Distribution charge
- Energy (capacity) price – based on market
- Public Service Wholesale and Supply remain regulated (cover: energy + capacity + network + system costs)

Eligible Consumers Entering into the Hungarian Market (2003-2007)

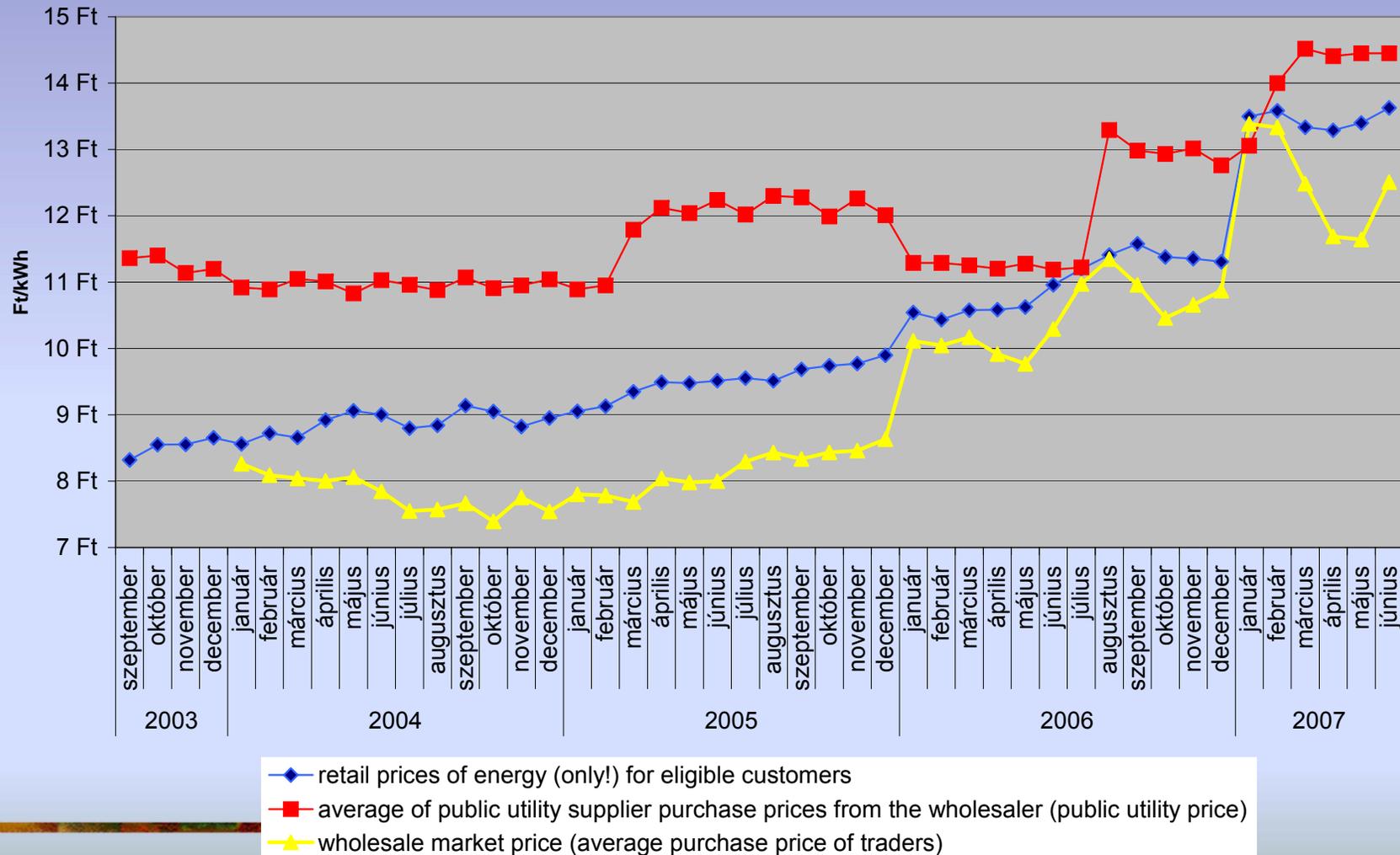
Feljogosított fogyasztók piacra lépése 2003-2006



Piacra lépett fogyasztók száma összesen: 2476

fogyasztási helyek száma: 12929

Retail prices in the competitive (free) market and wholesaler prices to the public utility suppliers (2003 September- 2007 February)



Main problems of the present hybrid model (1)

- No liquid free wholesale market
- Limited number of players on wholesale level
- Structure of PPAs
- No indicative wholesale market price (hinder new generation investment)

Main problems of present hybrid model (2)

- No real conditions for balancing market
- Lack of free capacity on wholesale level
- Contractual congestion at the borders (priority)
- Too attractive support scheme for renewable
- No free choice of suppliers (single buyer model in regulated segment)
- Regulated end-user price for industry (deviated from market price)
- Free movement between regulated and free market

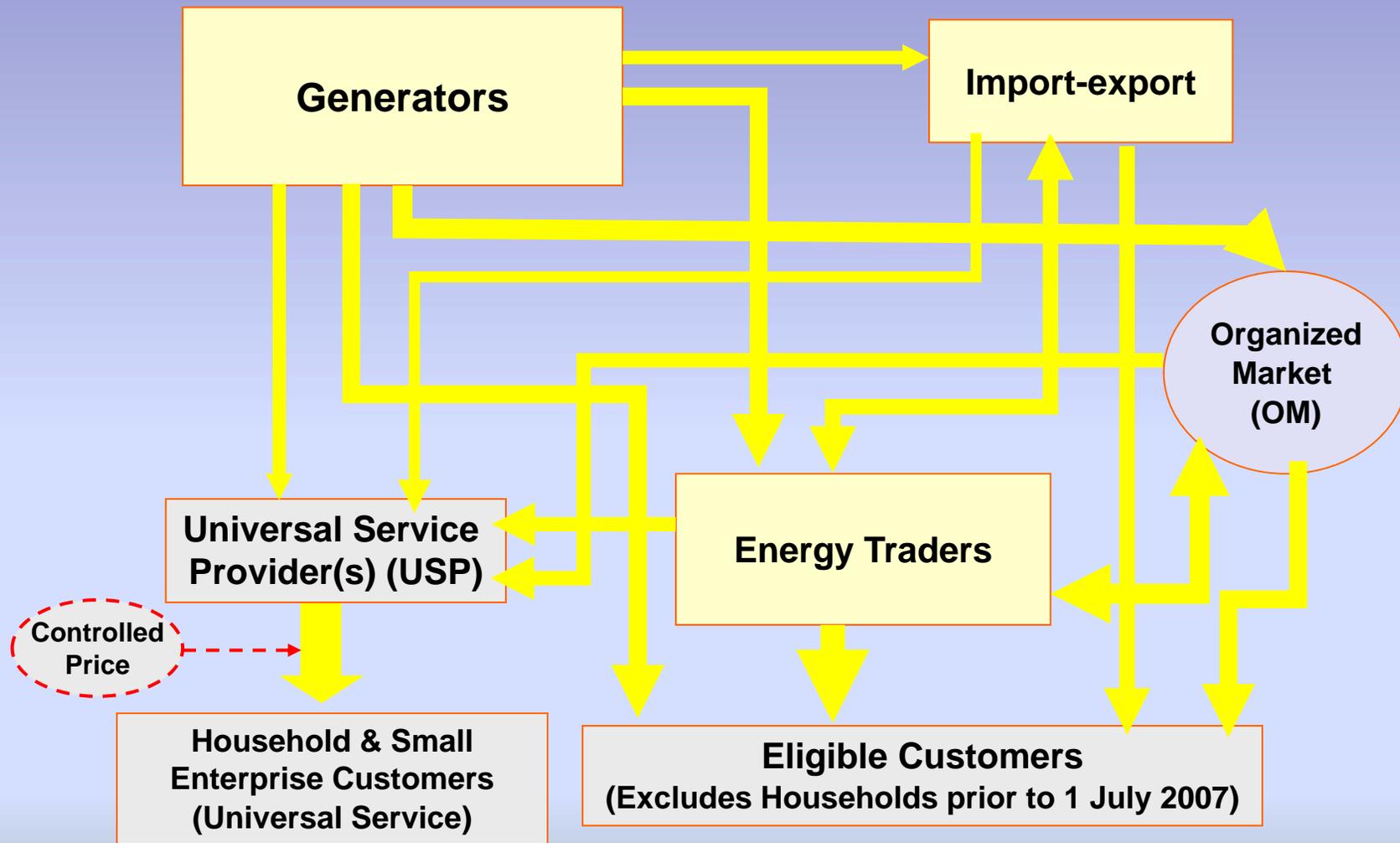
Proposed new market, main players

- Traders supply their customers on a market price (no regulated price)
- Limited circle of users of universal service (household + small others < 3x25A) (regulated or controlled market based supply price)
- Universal Service Providers obtain their energy on free market
- Establishment of Organized Market (OM) (with the objective of creating indicative market price signal) (with state role – MAVIR affiliated company)
- To ensure liquidity of the wholesale market in event of SMP existence (selling obligation) (bilateral contracts market, OM)
- Last Resort Supplier concept

Measures helping competition (liquid competitive market)

- Renegotiation (cancellation) of PPAs (capacity release)
- Establishment of Organized Power Exchange (Organized Market), assisting regional trade
- Limited number of consumers under „regulated” Universal Service
- Real market for Ancillary Services
- Special rules for those, who has Significant Market Power (SMP):
 - Obligation for capacity release
 - Limited supply obligation to Universal Service Provider(s)
 - Pro-form offer as obligation at Retail Market
- USP without regional limits

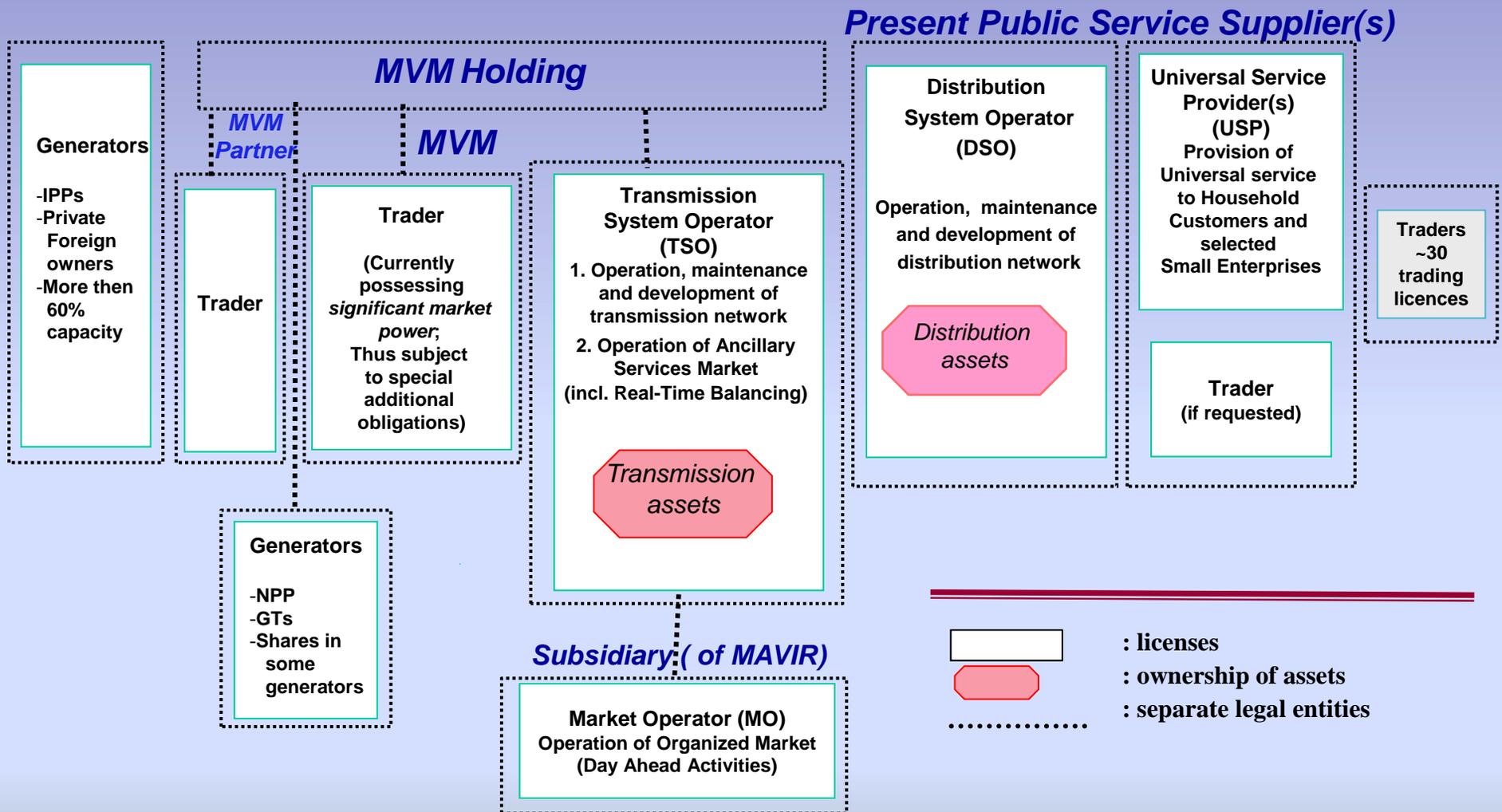
PROPOSED FREE MARKET MODEL (2008-) Capacity & Energy Flows



Actions necessary for the introduction of the new proposed model

- Cancellation of PPAs and PSAs → competition among generators
- New end-user pricing system
- New system of customer-protection (universal service, LRS, social assistance, assistance for handicapped people)
- Power exchange (organised day ahead market) with regional approach
- New Act and secondary legislation in time
- Support of competition with authorised Regulator (ex ante rules mitigating the potential abuse of players with Significant Market Power)

INDUSTRY STRUCTURE in 2007



Controlled/regulated prices for customers need social assistance

- Those eligible customers, who are not allowed to receive Universal Service should have market based supply (market price instead of regulated price)
- All of the customers under Universal Service are not requiring social assistance (market based universal service prices; controlled prices)
- Social tariff (?) + special assistance for those who require social assistance or other type of assistance (handicapped people)

Price regulation

Price elements	Free Market Price	Regulatory Intervention	
		Controlled (ex post)	Regulated (ex ante)
Network (system) charge			√
Price-gap of USP			√
Customer' energy price	√		
Households under Universal Service' price		√	
Households (on free market) price	√		

What type of actions and situation are necessary for the real benefit at consumer side (from 2008)?

Issues

- Choices → Efficient competition for consumers
- Security of supply → in all segment of supply chain
- Good conditions (price, quality, payment and supply condition) at industrial end-user side (minimum similar to the conditions at neighbouring markets)
- Stable, predictable prices for households
- Protection against abuse of market power and active elements of consumer protection

I./1. Choices – Efficient competition

- International (EU, US) practice shows: no retail competition (consumer's benefit) without efficient wholesale competition;
 - Original model proposal: no LT PPAs → competition among generators
 - Present situation → strong debate, different arguments:
 - Competition among generators → reduced end-user price for industry (benefit for the whole economy)
 - Strong national wholesaler
 - Pressure of EC DG Competition
- no political decision yet.

I./2. Robust supply market (as condition)

- Relative small national market (price regulation in the household segment further reduces the size of real market)
- Regional market' building fails on different government's actions protecting national markets
- Energy flow and price signal (negative effect) on capacity shortage in South-East Europe
- High wholesale prices support new generation investment

I./3. Clear, predictable and non-discriminatory Third Party Access (to the network) rules

- No more priority at the cross border capacities
- Predictability problems at the different borders in the CEE region (common allocation rules, but different calculation of NTC)
- Harmonised implementation and enforcement of EC Regulation (1228/2003 EC) → slow process
- Delay in the implementation of harmonised flow based calculation of cross border capacity for harmonised auctions

II. Security of Supply in all segments of supply chain

- More comfort of consumers at USP (less risk)
- No clear bilateral (OTC) wholesale market rules, but some disturbances (put into the New Law by lobbies)
- Actions supporting national markets in CEE could endanger the Hungarian market
- Big dilemma: How to save the interest (SoS, price) of Hungarian end-users from the appetite of the South-East European Region?
- Several hundreds of MW new generation investment in near future.

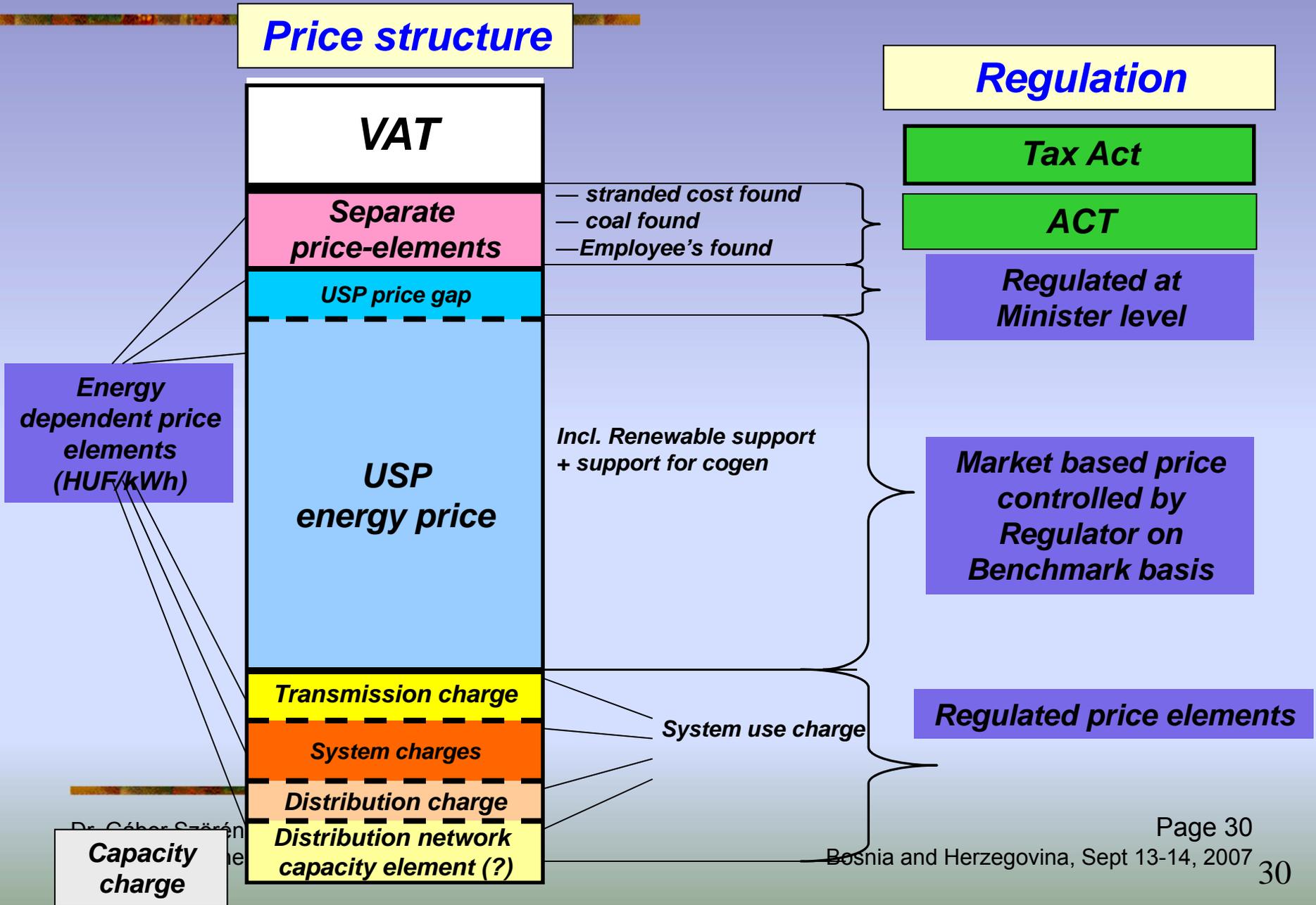
III. Good conditions for large end-users (for their competitiveness)

- Hungary has high energy prices among EU members
- Every small elements increases the network-system charge → reduces the competitiveness of the national industry (stranded cost, renewable support, coal support, etc.)
- Hungarian wholesale-market prices between the German PX prices and the very high SEE prices
- New, market based end-user prices (instead of former cost based) in present conditions (no real national and regional competition) with capacity shortage in SEE region could dramatically increase the prices for industry

IV. Stable, predictable prices for households

- Basic pricing issues for USP:
 - How to give incentives to USPs for low purchase (procurement) prices?
 - Accept the actual purchase price (path through) or Benchmark based reference prices?
 - What is the reference market price (German, SEE, portfolio purchase)?
 - Possibility of California effect at USPs (in case of strong political interaction – do not forget the legal unbundling → „weak“ suppliers without network asset)
 - What could be the acceptable price increase?
- Support of Renewable and Cogeneration is further pressure on consumers

Pricing of Universal Service



V/1. Protection against potential abuse of market power

- The New Act (accepted by Parliament) introduces the new concept of player with Significant Market Power (SMP). Ex-Ante rules (remedies) could be introduced by the Regulator on different relevant markets:
 - Wholesale markets,
 - Retail markets,
 - Reserve capacity markets
- HEO (Ex-Ante rules forcing efficient competition and reduces the possibility of abuse of market power) + National Competition Authority (Ex-Post Anti-Monopoly interaction) supporting each other.

V/2. Active elements of consumer-protection

- Customers need protection:
 - Registered customers for social assistance (< 700.000)
 - Different type of permanent social aid (low income persons, families, seniors; children-safety net)
 - Different group of handicapped people (> 100.000):
 - Can not read meter and bill, -dictate metered consumption, -pay the bill except cash-payment at home,
 - The health and life of customer could be in danger if cut of (in case of non-payment),
 - The life of customer could be in danger in case of electricity outage

V/2. Active elements of consumer-protection (cont.)

- Different type of social assistance:
 - Deferred payment, extension of credit (based on request max. one times per 12 month),
 - Possibility of pre-payment meter,
 - Before cut off (in case of non-payment) message to the competent social authority
- Different type of assistance for handicapped consumers (based on the type of handicap):
 - If no consumer at the consumption site without handicap
 - Monthly meter reading on site
 - Free control of meter
 - Possibility of bill payment on site
 - Special layout of meter
 - Introduction of bill
 - Other supports
 - For special handicapped group in special cases back of power' equipment + message to competent healthy institute

Regional conditions influencing the Hungarian market situation

- Strong Hungarian cross border network-capacity at all borders (physical possibility of 30-40% export, import)
- Administrative congestion at the Slovakian side (north) → limited import
- Internal congestions in Austria (west) → limited import, export
- Administrative limitations (UCTE) at the Ukraine side (east) → limited import
- Shortage of capacity in the SEE region → limited import + export on high energy price (could result SoS problems in Hungary)

Lesson learned during the preparation of full market opening

- Politicians accept the need for legal harmonisation with the EU Directives
- Politicians support the concept of national/regional/European market conditions
- Politicians frightened (scared) of limited influence on end-user (especially household) prices
- Without political support, without clear picture of politicians the effective competition (and the benefit on the large/small end-user side) could be very limited
- Clear, transparent, stable TPA (Third Party Access) rules;
 - Reduces the potential of political influence,
 - Increase the possibility of new investment,
 - Increase the importance of regional approach (instead of national)
- Without the fulfilment of necessary conditions of efficient competition (number of player, market size, supply market, TPA rules, adequate price signals, willingness of customers) the result could be very questionable

Thank you for your attention!

Market Structures and Models

BACKGROUND INFORMATION:

Data of Hungarian Energy System (2006)

Characteristic Data on Capacities of the Hungarian Electricity System (MW):

- Installed capacity: 8620
- Usable capacity: 6984
- Import-Export balance: 1002
- Peak load (annual weekday): 5531
- Maximum peak load: 6432

Generation Capacity of Electricity by Energy Sources Being Used (MW):

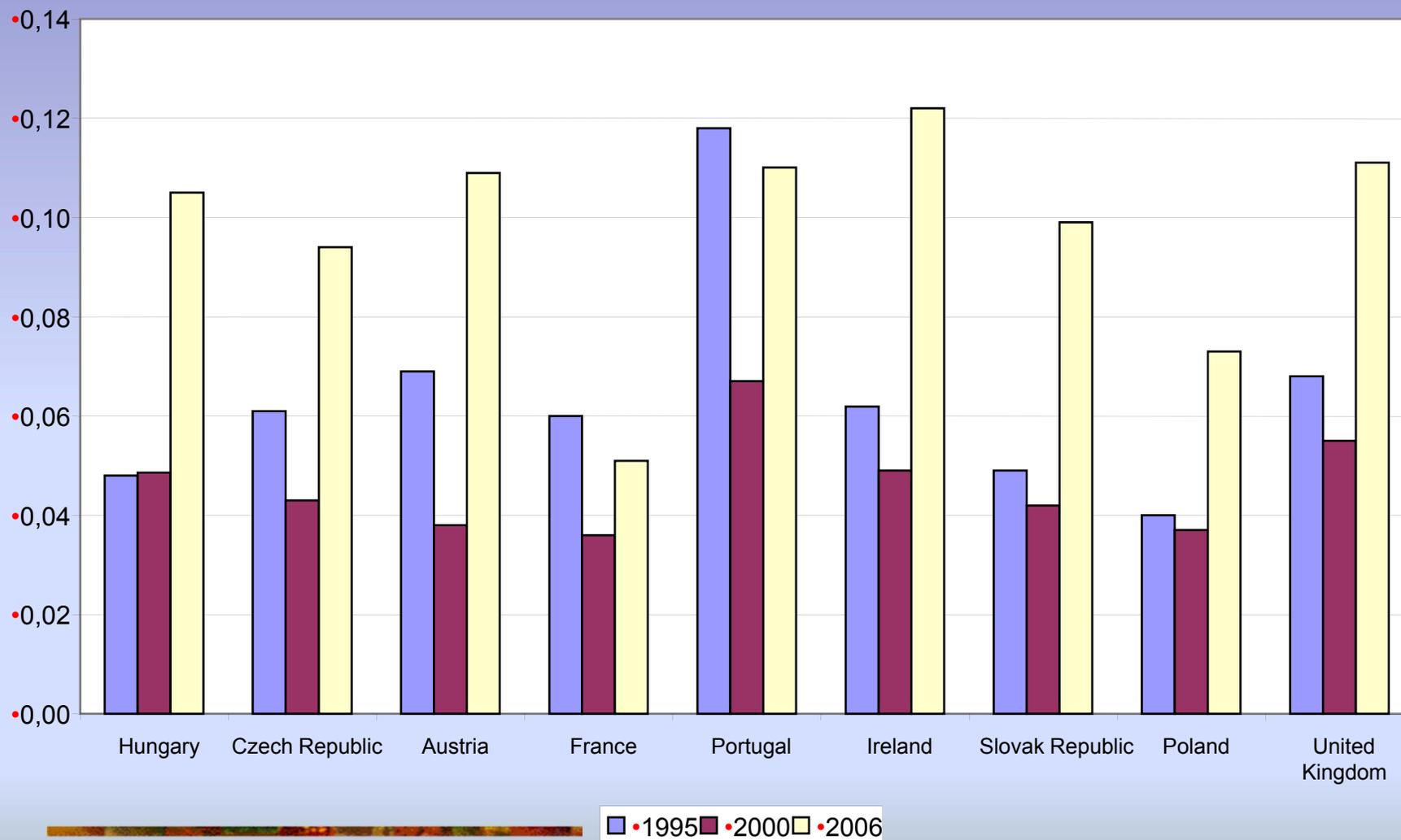
- Coal: 1123,3
- Carbon-hydrogen: 4903,6
 - Of which: gas engines: 499,9
- Nuclear power: 1866
- Hydro-power: 51,2
- Wind power: 28,3
- Renewable energy resources and Waste: 675,7
- Total: 8619,8 MWh

Power Generation by Energy Sources (GWh):

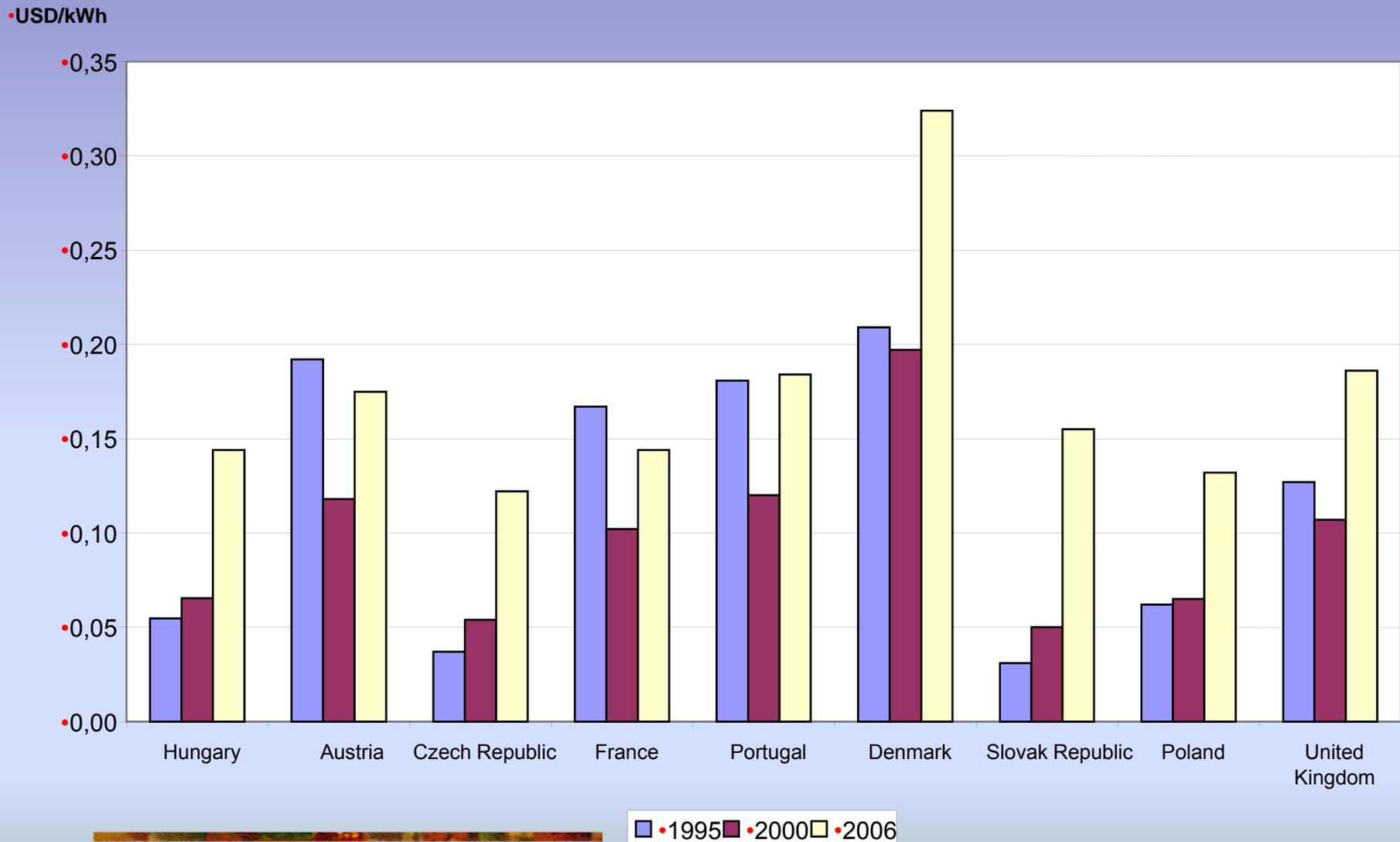
- Coal: 7029
- Fluid fuel: 534
- Natural Gas: 12978
 - Of which: gas engines: 2627
- Nuclear power: 13461
- Hydro-power: 186
- Wind power: 43
- Renewable energy resources and Waste: 1627
- Total: 35859 GWh

Industrial electricity end-user prices in some EU countries

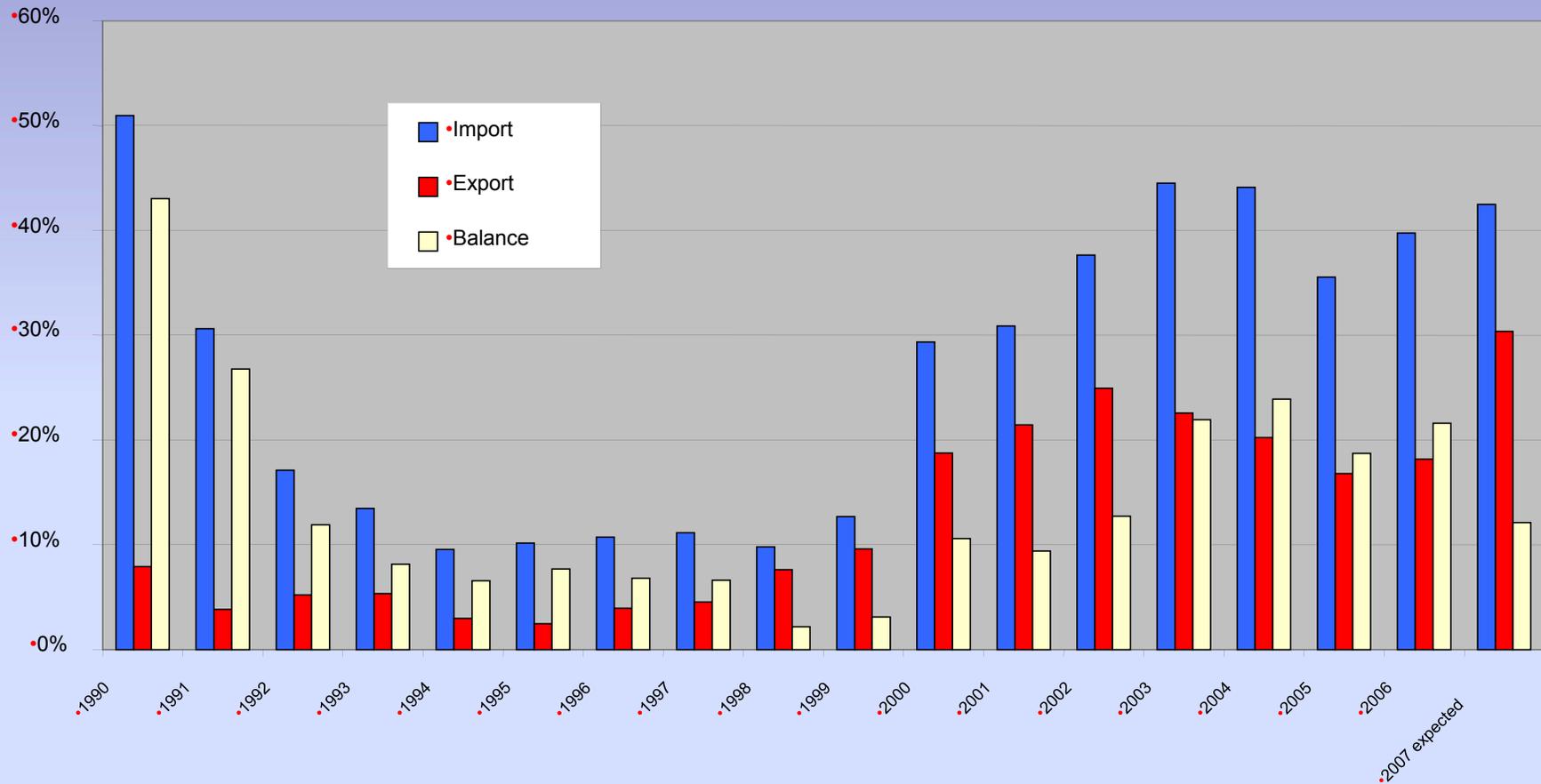
•USD/kWh



Household electricity end-user prices in some EU countries



The Hungarian electricity import, export and the balance as ratio of the local generation (1990-2007)



Average prices on the Hungarian wholesale market and at the borders

