Preliminary communication
UDC: 330.101.541 : 536.7

Macroeconomic context of economic reforms in electricity sector of transition countries*[1]

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Abstract

The paper addresses the question of macroeconomic environment and its impact on economic reforms in electricity sector of CEE countries that have become new EU Member States and SEE countries. The research is based on the thesis that macroeconomic drivers and macroeconomic context of the economic reforms in electricity sector considerably differ between developed and transition countries. The analysis aimed to test the broadly accepted assumption that regulatory reforms and liberalized environment should generally result in cost reflective prices and better quality of services. Our analysis shows that the reform results in CEE and SEE transition countries have been significantly different. Most of new EU Member States have recorded high increase in electricity prices as the result of cost reflective tariffs level and gradual phase-out of direct and indirect electricity price subsidies. Though these cost-based tariffs have had a positive impact on efficiency improvements, they have also harmed social welfare and competitiveness in CEECs. On the other hand, most of the SEECs (except Croatia) are faced with low collection rates and still have low tariffs that do not reflect costs of supply. The other objective of the reform - quality of services has been perceived high in all CEECs, while in most SEE countries the quality of the electricity is still the obstacle to business environment.

Key words: *economic reforms, electricity sector, liberalization, transition countries*

JEL classification: *E 60, L16, L94, Q43*

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* Received: 06-06-2007; accepted: 04-12-2007

[1] This article is the result of the scientific projects "Economic impacts of regulatory reforms in electricity sector" nº 081-0361557-1455 and "Adaptation of Croatian business entities to EU competition" nº 081-1151212-1453 financed by Croatian Ministry of Science, Education and Sports.

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1. Introduction

During the 90s all transition countries started with economic reforms in infrastructure services, changed the centralized organization of monopolistic infrastructure utilities and introduced market-oriented structures and public regulation. Electricity sector is specific because of its high macroeconomic significance that arises from its substantial contribution to GDP, which directly employs important amounts of capital, labour and other resources, and indirectly impacts the efficiency and competitiveness of most firms and economy as a whole through the quality and price of the electricity. It is a general consensus among economists that efficient and accessible electricity services promote economic growth.

The main preoccupation of the economic policy is to provide cost-effective supply for the consumers, the protection of consumers against abuse by monopoly suppliers and investment incentives in electricity sector. Still, there are no conclusive evidence on how these economic reforms should be achieved in practice because of the variability of macroeconomic and sectoral characteristics in different countries, for example market structure, factor endowments and sector performance. The paper is based on the hypothesis that macroeconomic drivers and macroeconomic context of the economic reforms in electricity sector considerably differ between developed and transition countries and therefore the dynamics of the reforms and their results differ widely among these two groups of countries. Electricity reforms in transition countries were implemented as the part of the much wider transition processes and structural adjustment reforms with the goal of achieving higher level of economic and social development. The aim of the paper is to analyse the macroeconomic context of the electricity reforms, as well as European regulatory framework that have considerably shaped the reform steps and sequencing. Multilateral regulatory framework within WTO and GATS is also considered.

The analysis concentrates on two groups of transition countries: Central and East European that have already become EU members and Southeast European that are on the way to EU.

The paper consists of six parts. After the introductory remarks, the second part reviews briefly the theoretical aspects of natural monopoly since transmission and distribution networks have a natural monopoly characteristics and regulation as a way of intervention in the network business and market to ensure that the pursuit of profit does not conflict with social welfare. The third part deals with macroeconomic driving forces for the economic reforms, especially regarding the electricity sector. The fourth part analyses the macroeconomic framework of the reforms, particularly the liberalization and regulation process in European electricity market which has strongly influenced the changes in transition countries. The fifth part deals with multilateral regulatory framework within WTO and particularly GATS that have partly shaped the reform processes. The sixth part provides the analysis of the economic

reforms in transition countries' electricity sector, the explanation of key reforms steps that have strongly depended on their level of development and the economic implications of these changes.

2. Theoretical framework for the electricity sector analysis

The empirical analysis of the electricity sector in this paper is based on theories of monopoly market structure since this sector/industry is one with characteristics of natural monopoly. Natural monopoly exists when there is great scope for economies of scale to be exploited over large range of output and when only one seller emerges in an industry. Economic literature agrees that in situation when increasing returns to scale cause monopoly to form, regulation may be the adequate government policy. Therefore the paper gives a short overview of the important issues in regulation theories.

2.1. Imperfect market structures

According to neoclassical economic thought that represents the mainstream micro-economic theory applied today, deviations from perfectly competitive behaviour of markets are the result of market failures. Market failures are related to situations when a market fails to work efficiently to produce goods or services in a way that optimizes benefits to society. There are several market failures well known in economic literature with imperfect market structures as the most important. Utility markets like electricity market are extreme cases of imperfect market structures or so called natural monopolies with only one utility that controls the whole sector. In the case of natural monopoly, the long-run average cost of production declines throughout the entire market. As a result, a single firm can supply the entire market demand at a lower cost than two or more smaller firms. (Tucker, 1997:250) On the contrast to a competitive market where there is a clear relationship between price and the quantity supplied, the monopolistic market has no supply curve. The output decision of the monopolistic firm depends not only on marginal cost, but on the shape of the demand curve as well.

From the viewpoint of society, monopoly leads to effects that are less desirable than those resulting from economic competition. Generally, monopoly results in a smaller output of goods or services and higher prices than those in competitive industries. Another practice associated with monopoly is price discrimination that involves charging different prices for the same goods or services to different segments of the same market, as it is usual in the case of electricity.

Monopoly market structure is characterized by a single seller, a unique product and impossible entry into the market. In the case of natural monopoly such is electricity,

there are extremely high barriers for new firms to enter the market that are related to economies of scale. Standard market theory considers that the competition should imply a number of producers and suppliers in the different levels of the value chain, under the hypothesis that the structure determines the players' conducts and the efficiency of the markets (Newberry, 2001). In electricity industry it means that generation and supply should be horizontally de-integrated among a number of market players. On the other hand, the concurrent model of virtual competition proposed by the theory of contestable markets (Baumol et. al., 1982) argues that the main goal of competition could be simply reached by suppressing the legal and technical barriers to entries. Therefore, the industrial structure may be preserved with productive and allocative efficiency. In the case of electricity it means that it would be sufficient to have "credible threat exerted under these conditions by the foreign competitors, which are themselves incumbents in the adjacent national markets". (Glachant and Finon, 2004:133)

High entry barriers in electricity market are also related to the technology used in electricity sector. Still, the technological development, namely the development of combined-cycle generating technology has lowered the entry costs, especially in electricity generation.

2.2. Economic regulation

Governments often use economic regulation to modify market behaviour when market failures cause markets to behave less efficiently than in the case of perfect competition. According to the theory, in a competitive market, price equals marginal cost, while monopoly power implies that price exceeds marginal cost. (Pindyck, Rubinfeld, 1998:354) Because of its social costs, government regulation prevents natural monopolies to accumulate excessive amounts of monopoly power. In fact, regulators induce firms in noncompetitive markets to act in a way that is compatible with social goals. Regulatory mechanisms must be established in order to induce firms to produce the optimal output with the optimal inputs. The economic regulation enables regulatory agencies to control prices or at least the methodologies underlying their calculation, production, entry and exit terms in regulated sectors like public services.

Price regulation is very important element of regulatory practice because it can eliminate the deadweight loss that results from monopoly power. Ideally, the regulatory agency would like to push the firm's price down and to set it at the level where average cost and average revenue intersect. In such situation the firm earns no monopoly profit and output is as large as it can be without driving the firm out of business. However, it is difficult to determine these prices adequately in practice and therefore the regulation of a natural monopoly can be based on the rate of return that it earns on its capital. This is called "rate of return" regulation and it means that maximum price

allowed is based on the (expected) rate of return that the firm will earn. (Pindyck, Rubinfeld, 1998:357-358)

The traditional textbook theories of optimal pricing for regulated firms have been focused on second-best pricing and not on incentives to minimize costs or to improve service quality. During the 90s in many countries the important part of the reforms in electricity sector has included the introduction of "incentive regulation" mechanisms for the regulated segments as an alternative to traditional "cost of service" or "rate of return" regulation. This view is based on the assumption that incentive regulation would provide stronger incentives for regulated firms to reduce costs, improve service quality and stimulate efficient investments in the sector.

An important element of the regulation theories considers the imperfect and asymmetric information problems for the regulators. In other words, regulators should be fully informed about technology, costs and consumer demand attributes, but this perfect situation does not exist in reality. Regulators have imperfect information on regulated firm and moreover, the regulated firm generally has more information than does the regulator or third parties. It means that regulated firm may use its information advantage in order to increase its profits at the cost of consumers, which gives the regulated firm a strategic advantage. Most of the literature assumes that the regulator's objective is to maximize a social welfare function and limiting the rent that is transferring from consumers/taxpayers to the firm's owners and managers.

For the last 30 years many economists have argued that process of regulation has in fact created monopolistic power and market concentration, instead of impeded them. Following the neoclassical analysis of regulation and positive results of deregulation in other industries[3], policymakers in developed countries have pursued deregulation. Concept of "deregulation" has been often used in economic literature for describing the process of introducing competition to the electricity market, although the term is partly misleading. Deregulation means a reduction of government intervention in economic and social systems and therefore a decrease in regulatory activities, which is not the case. In fact, process described as "deregulation" is in most countries often accompanied by an increase in regulation, so the term "re-regulation" would be more appropriate.

During the last decade processes of liberalisation and globalisation in electricity sector have modified regulatory framework in all countries, developed as well as transition ones. The latter have been faced with the inherited inefficiency and losses in electricity and electricity firms' claims to increase the prices in order to reflect the costs of service, while the regulators tried to set prices on a lower level.

[3] It is especially so for telecommunications that has also shown naturally monopolistic characteristics. (Op.a.)

Over the years the neoclassical economic thought has been expanded and incorporated new ideas of the nature of the firm. New institutional economics has been developed and provided with new evidence of the role of institutions in market economies. This literature places considerable weight on institutional quality as a major determinant of long-term growth. In particular, Rodrik argues that there is a requirement for a "cumulative process of institution building to ensure that growth does not run out of steam and that the economy remains resilient to shocks." (Rodrik, 2003:25) It especially goes for utility service industries like electricity where an effective institutional framework is crucial for sustainable growth in output and efficiency. The standard institutional solution to handle these infrastructure industry issues is to introduce an independent regulatory agency, operating within a clearly defined legal framework. The agency is intended to provide the high-quality institution that permits and fosters sustained growth in capacity and efficiency in the utility service industries, particularly the network elements. (Cubbin, Stern, 2006:115)

3. Macroeconomic drivers for the reforms

Transition countries have faced similar macroeconomic disequilibria during the 90s characterised by sharp decline in industrial production and GDP, high unemployment, public and current account deficits. Macroeconomic crisis known as transition depression has been especially deep for the Southeast European countries (SEECs) during the 90s but the year 2000 was the turning point for the economic development in these economies and much more favourable macroeconomic environment. Table 1 shows fiscal and external position of transition countries in the mid 1990s when most of them needed to consolidate public finances and 10 years later.

Generally, overall macroeconomic situation has improved in all transition countries and most of them have succeeded in stabilizing government balance and government debt. In 2005 only Hungary, Croatia and Albania still had government deficits that exceed 3 per cent of their GDP. All countries succeeded in decreasing government debt up to 60 per cent of GDP, but most experienced strong external imbalances. The growing demand has resulted in high increase in imports and current account deficit in most countries. According to the high ratios of external debt in GDP of almost all SEECs, it seems that these external imbalances have become the main challenge to macroeconomic stabilization and sustainable growth in SEE countries. The high external imbalances also mean that access to external finance, from FDI or international capital markets, should be sustained in order to reduce current account deficits and overall debt burdens. Such a macroeconomic situation with increasing debt burden and deterioration of the quality of public services have created the need for economy-wide structural adjustment programs with the main aim to reduce public spending and increase private capital flows into the economy.

Table 1: Fiscal and external position of CEE and SEE transition countries in 1995 and 2005

(in per cent of GDP)

Country	Government balance		Government debt		Current account		External debt	
CEECs	*1995*	*2005*	*1995*	*2005*	*1995*	*2005*	*1995*	*2005*
The Czech Republic	-1,4	-2,6	15,3	30,3	-2,6	-2,1	31,8	36,8
Estonia	-0,6	1,6	7,6*	4,8	-4,4	-10,3	17,5	86,7
Hungary	-6,7	-6,1	86,4	58,4	-5,6	-7,4	70,9	75,5
Latvia	-3,9	0,2	16,1	11,9	-0,4	-12,5	34,6	101,1
Lithuania	-4,5	-0,5	22,8**	18,7	-10,2	-7	22,8	47,7
Poland	-3,1	-2,4	57,9	42	4,5	-1,5	38,0	43,3
The Slovak Republic	0,4	-2,9	24,6	34,5	2,1	-8,6	30,9	57
Slovenia	-0,3	-1,1	18,8	28,8	-0,5	-1,1	15,8	67,2
SEECs								
Albania	-10,1	-3,6	68,9	54,8	-7,2	-6,6	27,6	20
Bosnia and Herzegovina	-0,3	0,7	na	na	10,3	-17,3	180,0	28,1
Bulgaria	-5,7	3,1	111,1	31,9	-1,5	-11,8	77,4	67,2
Croatia	-1,4	-4,1	19,3	44,2	-7,7	-6,6	20,2	78,5
Macedonia, FYR	-1,0	0,3	na	47,6	-5,0	-1,3	23,8	39,5
Romania	-2,5	-0,8	17,6	19	-5,0	-8,8	18,3	33
Serbia and Montenegro	-4,3	0,9	na	na	-11,6*	-10	79,4*	63,8

* Year 1997
** Year 1998
Source: EBRD, 2000 and 2006

The infrastructure sector was in a particularly difficult position with state-owned and highly bundled monopoly that was strongly subsidised from the state budget. The artificially low prices for the electricity and other infrastructure services were legacy of the former non-market economy and represented the crucial problem. In order to test the hypothesis that electricity prices that are not cost reflective and poor payment discipline as the consequence induced the inability to meet the need for future investments in the electricity sector, the following analysis shows the extend of under-pricing in CEE and SEE countries.

Table 2: Electricity tariffs and average collection rate* in CEE and SEE transition countries, 1999-2005

CEE COUNTRIES	1999	2000	2001	2002	2003	2004	2005
The Czech Republic							
Residential electricity tariffs (in US$c / kWh)	5,1	5,7	7,3	9,0	8,4	10,3	11,4
Average collection rate,electricity (in per cent)	100	100	100	100	100	100	100
Estonia							
Residential electricity tariffs (in US$c / kWh)	na	4,3	4,4	5,7	6,5	8,1	9,2
Average collection rate, electricity (in per cent)	na	97	97	98	99	99	99
Hungary							
Residential electricity tariffs (in US$c / kWh)	5,9	6,2	7,0	8,7	11,4	13,5	14,7
Average collection rate, electricity (in per cent)	na	na	na	90	99	99	na
Latvia							
Residential electricity tariffs (in US$c / kWh)	na	6,3	6,3	6,5	7,1	8,2	8,1
Average collection rate, electricity (in per cent)	na	na	99	100	100	na	na
Lithuania							
Residential electricity tariffs (in US$c / kWh)	na	6,3	6,3	7,9	9,4	9,7	10,2
Average collection rate, electricity (in per cent)	90	na	91	90	91	97	na
Poland							
Residential electricity tariffs (in US$c / kWh)	5,5	5,4	6,5	7,0	7,7	8,5	9,9
Average collection rate, electricity (in per cent)	na	na	na	90	na	na	na
The Slovak Republic							
Residential electricity tariffs (in US$c / kWh)	3,5	4,9	5,7	7,1	10,9	13,7	14,9
Average collection rate, electricity (in per cent)	na	na	102**	95	na	na	na
Slovenia							
Residential electricity tariffs (in US$c / kWh)	10	8,9	8,7	9,3	11,5	12,9	13,1

Average collection rate, electricity (in per cent)	99	na	na	97	93	na	90
SEE countries							
Albania	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*
Residential electricity tariffs (in US$c / kWh)	na	3,3	3,4	4,2	5,1	6,2	6,7
Average collection rate, electricity (in per cent)	58	60	76	93	92	76	74
Bosnia and Herzegovina							
Residential electricity tariffs (in US$c / kWh)	5,7	4,9	5,7	6,0	7,1	6,7	6,9
Average collection rate, electricity (in per cent)	94	75	95	86	na	na	96
Bulgaria							
Residential electricity tariffs (in US$c / kWh)	na	3,5	3,8	5,2	5,2	6,0	8,4
Average collection rate, electricity (in per cent)	112	na	85	95	92	92	93
Croatia							
Residential electricity tariffs (in US$c / kWh)	5,5	5,1	6,1	6,5	8,2	9,1	9,4
Average collection rate, electricity (in per cent)	na	93	95	94	95	96	na
Macedonia, FYR							
Residential electricity tariffs (in US$c / kWh)	na	na	na	4,1	5,1	5,5	5,5
Average collection rate, electricity (in per cent)	87	60	80	75	na	na	na
Montenegro[****]							
Residential electricity tariffs (in US$c / kWh)	na	na	na	na	na	6,0	5,9
Average collection rate, electricity (in per cent)	na	na	na	na	na	na	na
Romania							
Residential electricity tariffs (in US$c / kWh)	4,1	5,5	5,7	7,0	8,1	8,6	11,3
Average collection rate, electricity (in per cent)	na	45	62	96	98	100	99
Serbia and Montenegro[***]							
Residential electricity tariffs (in US$c / kWh)	4,0	1,1	2,0	3,6	5,2	na	na

Average collection rate, electricity (in per cent)	na	na	74	84	87	94	na
Serbia[****]							
Residential electricity tariffs (in US$c / kWh)	na	1,1	1,9	3,5	4,7	5,3	5,1
Average collection rate, electricity (in per cent)	na	79	92	88	90	94	94

Notes:
[*]Average tariff paid by residential consumers; where data on residential tariffs is not available, average retail tariff.
Collection rate is defined as the ratio of total electricity payments received in cash and total electricity charges.
[**]Numbers greater than 100 per cent reflect collection of several years worth of payments.
[***]Currently there are three separate Contracting Parties to the Treaty establishing the Energy Community: Montenegro, Serbia and UNMIK. Data according to source data of Transition Report 2006.
[***] Data according to web link *http://www.ebrd.com/country/sector/econo/stats/sci.xls* (19.11.2007.)

Source: EBRD, 2006

According to the data, new EU Member States have recorded considerable increase in electricity prices, especially Slovak Republic, Hungary, Slovenia and Czech Republic. Such heavy electricity price increases and high collection rates, together with growing GDP have played an important role in efficiency improvement in these countries. On the other hand, the high share of energy expenses of households and companies have lowered their welfare and competitiveness. According to Mercados' report (Mercados, 2007:61), cost reflective tariffs have resulted in restrictions of comfort, inadequate heating in households and high share of income spent on energy bills in new EU Member States. Situation in SEE countries have been quite different since most Southeast European countries with low wages like Bosnia and Herzegovina, Bulgaria, Serbia and Montenegro, Macedonia and Albania still have very low tariffs that are not cost-based. Prices in Croatia have been increasing substantially, reaching a level comparable or higher with those found in the new EU Member States. The existence of tariffs that are not cost reflective in most Southeast European countries have become more acute by the payments arrears and very low collection rates, especially in Macedonia, Bosnia and Herzegovina, Bulgaria and Serbia and Montenegro. The newest data show that Albania, Macedonia, Montenegro and Kosovo under UNMIK still have difficulties with the low level of collection rates, while Bulgaria, Bosnia and Herzegovina and Serbia (without Kosovo under UNMIK) succeeded to solve these problems in the past two years.

Electricity reforms in the SEE countries have been also motivated by the aim of establishing regional energy market. In 2002 the European Commission started to en-

courage these countries in the frame of the Stability Pact to open their national electricity markets and integrate them with the EU Internal Electricity Market. The most important milestone was achieved in October 2005 when the Treaty establishing the Energy Community was signed as the only legally binding document. The Parties being the European Union from one side and the then 9 Contracting Parties from the other (Albania, Bulgaria, Bosnia and Herzegovina, Croatia, Macedonia FYR, Montenegro, Romania, Serbia and UNMIK) decided to create the Energy Community. Relating to the electricity, the Parties agreed to implement the EU Electricity Directive 2003/54/EC and the Regulation EC 1228/2003 within one year from the entry into force of the Treaty. The Treaty has also arranged for cooperation and establishment of common regulatory frame for electricity trade across the whole EU and within the SEE region under the same rules from the applicable EU *Acquis Communautaire* on energy. Final economic goal of such regional cooperation is creation of larger and more stable market, which will be more competitive and more interesting for foreign investors. Regarding SEE countries, it seems that the regional cooperation within the electricity sector would be a way to avoid "prisoner's dilemma". It means if countries deal with regional public goods individually, without internalizing the effect on other countries in the region, it may result in what has been called "the tragedy of the commons" or "prisoner's dilemma". (Schiff, 2002:11) Everyone loses due to a lack of cooperation because costs of providing public goods individually can be large.

Further research within this project will test the hypothesis that the benefits of regional electricity markets are greater than the costs, especially because observed countries peak loads do not coincide, and the possibilities of mutual trade increase considering existed capacities. In such integrated system costs of huge reserves, which are necessary for each country in situation of unplanned increased consumption, or sudden falling out of some producers from system, are decreasing. This especially refers to importers such are Albania, Croatia, Macedonia, Montenegro and UNMIK, while Bulgaria, Bosnia and Herzegovina, Romania and UNMIK are electricity exporters. Serbia has neutralised its balance.

4. Liberalisation of the European electricity market

From the early phases of the European integration process, electricity has been the important issue for the European authorities and the creation of a single electricity market is still one of the most important economic and political objectives.

Economic reforms that have been undertaken by transition countries during the 90s and after 2000 were fundamentally different from liberalisation process in the electricity sector in old EU Member States. The new EU Member States have entered the European electricity market and already took the first steps towards the European model that requires regulated third party access to networks for large custom-

ers and reduction of barriers to cross-border electricity trade. Still, reforms in new EU Member States have been driven by different motives, mostly by the need for consolidation of public finances and introduction of private investments, as we have concluded in the previous section. On the other hand, the most important driving force in developed EU Member States was the need for optimizing economic performance in already well-developed sector.

According to the Mercados' report (Mercados, 2007:38-39), the 2004 EU enlargement process involved several processes regarding the implementation of internal electricity market that have converged the electricity market and regulatory model in old and new Member States:

- The technical and operational integration of electricity infrastructures of old and new Member States.
- Business level integration of companies in old and new Member States.
- Legal and institutional harmonisation, including the implementation of the *aquis communautaire* in the field of energy.

Regarding sector and market conditions, the most of new Member States have still retained the distorted price structure, which is the legacy of a system in which domestic consumption of electricity was subsidised at the expense of industrial and commercial consumption. Some countries still have tariffs that do not allow producers to recover their costs. (Green et.al., 2006)

It seems that the European internal market for electricity is neither unified nor uniform, as said by Glachant (Glachant, 2004:139) and there is no real convergence towards a single model. The following analysis will assess the European legislation framework for electricity liberalisation.

The real first step towards the liberalisation of the European energy markets was made in 1989, but it was only in June 1996 that the European ministers passed the Directive 96/92 which gave incentive to the liberalisation of the electricity sector in the Member States. (Genoud and Finger, 2004:32-33) The key European legislation to establish the Internal Market of Electricity is the EU Electricity Directive 2003/54/EC. The directive was implemented by the Member states by 1 July 2004 and the European Commission was required to carry out a review of their operation by 2006. Though this EU Electricity Directive is the key legislation act, there are others that set rules in electricity sector:

- Regulation on cross-border trade in electricity 1228/2003/EEC that regulates transmission of electricity between Member States,
- Directive 2005/89/EC of the European Parliament and of the Council that concerns measures to safeguard security of electricity supply and infrastructure investment.

In November 2005 the Directorate General for Energy and Transport (DG TREN) of the Commission published its report on progress in creating the internal electricity market (European Commission, 2005) and it found that the most important problem on the internal electricity market is the insufficient integration of national markets. The key indicators they had used were the absence of price convergence across the EU and the low level of cross-border trade. This is generally due to the existence of barriers to entry, inadequate use of existing infrastructure, insufficient interconnection between Member States and a high degree of concentration in the industry that impeding the development of real competition. According to Thomas (Thomas, 2006:5-6), here are nine topics the Commission was required to report with the short conclusions:

• Non-discriminatory access

Network access conditions are still not non-discriminatory and fair across all Member States because there is at least one aspect of network access in all countries that is unacceptable.

• Regulation

The report concludes that the regulators do not have enough power, they are not independent of government and their actions are both harmonised across the EU.

• Interconnection infrastructure

The Commission finds that the availability of electricity network capacity for cross border transactions is not satisfactory either in terms of new investment or in the way the existing capacity is allocated.

• Security of supply

This element of the survey is positively marked and the Commission concludes that the supply demand balance position is developing favourably in most EU Member States.

• Benefits for small users and households

It is clearly assumed that a high level of switching[4] indicates that consumers are benefiting from the reforms. Regarding this indicator, it seems that switching is still often perceived as risky for the small users and households, although the rates of large electricity customers' switching continue to rise.

• Market openness and price development

The Commission concludes that some benefits have been achieved, especially the 10-20 per cent lower electricity prices due to the electricity liberalisation. Still, there

[4] Switching means changing suppliers of the electricity. (op.a.)

have been some different opinions regarding this issue. For example the Hall's study (Hall, 2006) argues that this report has failed to support the benefits of liberalisation.

• Independence of system operators

According to the Report, unbundling is currently not being implemented in a sufficiently robust manner across all EU Member States. It lists six criteria for independence of system operators and in only 13 out of 27 Member States all criteria have been met, which means that there is a sufficient level of unbundling called as the ownership unbundling.

In the newest DG TREN report (European Commission, 2007) it is stated that there are still problems in implementing internal electricity market that are not just the result of incomplete implementation of the existing 2003 Directives, but also the result of built-in structural and regulatory problems not yet addressed. Even in Member States where the current legislation is being fully implemented, problems remain to be solved. The Commission's main objective is to have a complete internal energy market with open competition and effective regulation in place by January 2009. The measures needed to achieve these objectives include: new rules to avoid discrimination, the establishment of the European wide regulation functioning, transparency and new legislation.

5. Electricity sector liberalisation within WTO and GATS

Economic reforms in electricity sector seem to be marginally driven by multilateral trading rules and General Agreement on Trade in Services (GATS). Relatively few commitments for energy services have been made during the Uruguay Round, mainly due to the characteristics of energy, particularly electricity sector that is dominated by state-owned, vertically integrated monopolies. Still, during the past decade most of the electricity markets in developed and developing countries have been restructured and liberalised. The current Doha Round of negotiations accepts that no service sector should be excluded from negotiations and a number of countries have begun to make requests around trade in energy services. (Eberhard, 2003:5)

The limited impact of the GATS and its obligations for the WTO member countries is closely related to the problems of the sectoral classification. The classification of electricity and whether it is a good or a service has been a problematic issue for a long time. The industry is divided into four main sectors: generation, transmission that covers the high voltage network, distribution that covers the low voltage network and supply that includes the sale of electricity to final consumers. Although it seems obvious that the electricity generation has the character of a product and other three activities are kind of services, it was a problem to define a whole industry.

Until the last decade a single monopolistic company in most countries supplied the electricity and therefore it was not easily divisible. During the Uruguay Round the electricity was classified as a service because it was not storable, though the World Custom Organisation (WCO) in Harmonised Commodity Description and Coding system (HS) classifies electricity as a product. It should be noted that the members of WCO are not required to classify electricity as a commodity for tariff purposes.

However, since the Uruguay Round most of the countries have been performed economic reforms in electricity sector that have included unbundling, i.e. separating of the networks operation from the competitive activities. This process was the precondition for the possibility that some parts of the electricity industry (namely, last three) be classified as a service and therefore subject to GATS, while the first one could be classified as a product subject to GATT. Foreign direct investment in the production of energy goods is not the object of the comprehensive multilateral trade rules. (Eberhard, 2003: 6)

The GATS agreement is not restricted to any list of services and there is no agreed definition of the term "energy services". (WTO, 2005:15) Liberalisation of energy services is closely linked to the liberalisation of trade in energy goods and in many regions there are significant potential for cross-border trade. Market access and national treatment restrictions to trade energy services are similar to other service providers. It mostly refers to the discriminatory treatment between foreign and domestic service providers, but the ensuring the national treatment commitments are often not sufficient to enable the liberalisation of energy services.

It is worth mentioning that GATS does not require the privatisation or deregulation of any service, but there is the intense pressure from the international financial institutions, especially the World Bank, to connect the loans essential for the local economy with the privatisation process. (Thomas and Hall, 2006:17) The liberalisation in whole economy, as well in the electricity sector, was also preferred policy by the World Bank and IMF during the 80s and 90s in developing and transition countries and this neoliberal doctrine has been known as "Washington Consensus". The problem was that the view of Washington Consensus focused too much on structural measures aimed at improving efficiency at a microeconomic level and on the belief that liberalized markets automatically create competitiveness and growth. In many countries it turned out that improved microeconomic efficiency can even go together with low growth or recession. During the 90s the role of institutions has been introduced and many economists argue that Washington Consensus doctrine does not involve enough social dimensions of development. Speaking of electricity sector, in many countries it also turned out that the liberalisation and breaking the monopoly was not a practical option.

To conclude on multilateral framework for regulation in electricity trade, it seems that this separation between trade rules for goods and trade rules for services is

not the optimal framework for enhancing and liberalising the electricity trade and it would be more efficient to apply a single and coherent set of trade rules to liberalisation in the electricity sector.

6. Economic reforms in transition countries' electricity sector

6.1. Key reforms steps and sequence of reform

Although there are different models in different countries due to the country and sector characteristics and macroeconomic conditions, the so-called "standard prescription" (Hunt, 2002:15) in developed countries has been transmitted to transition and other non-OECD economies. There is a variability in individual reform speed and sequencing that depend on different country and sector characteristics and achieved level of development. However, these reform steps generally involve the following:

• Corporatisation of state-owned companies

Corporatisation is the first step and it means the separation of the utility from the Ministry that involves at least the creation of clear accounting framework and separation of accounts for different parts of the business. Separation of accounts has been achieved in most transition countries, but in some countries (Croatia, Serbia) governments have retained the final authority to set prices.

• Enactment of an electricity reform law (Energy law)

Electricity or energy law is generally recognised as a formal precondition for regulatory reforms and establishment of a formally independent regulatory agency. It has been adopted in all CEE and SEE countries.

• Implementation of regulatory reforms

Regulatory reforms are often considered as the most important element of the economic reforms in electricity sector. In developed countries it is widely agreed that the effective regulatory practice requires the independent regulator whose regulatory function is clear and removed from the Ministry. It should set tariffs for those parts of the industry that remain a monopoly. However, the governments in most transition countries still play the important role and have the most important influence on final price setting. Results of the survey (EBRD, 2004:56) suggest that only Poland's regulatory agency achieved full independence without interference with Ministry.

• Restructuring

Restructuring involves the unbundling of network operation from the competitive activities. Profitable parts may be separated for sale to private investors (generation and supply), where competitive elements exist, from those parts that are natural monopolies

(transmission and distribution). It is obvious that the need for regulation is significantly greater for separated (unbundled) utilities than for traditional monopoly utilities.

• Establishment of a competitive wholesale generation market

The breaking of the monopoly in generation involves some form of competition so the generators have to compete with each other to sell their electricity. This experience seemed to show that independent generators could often provide power more cheaply than traditional utilities and seemed to show benefits in breaking the absolute generation monopoly of traditional generation utilities. (Thomas and Hall, 2006:18)

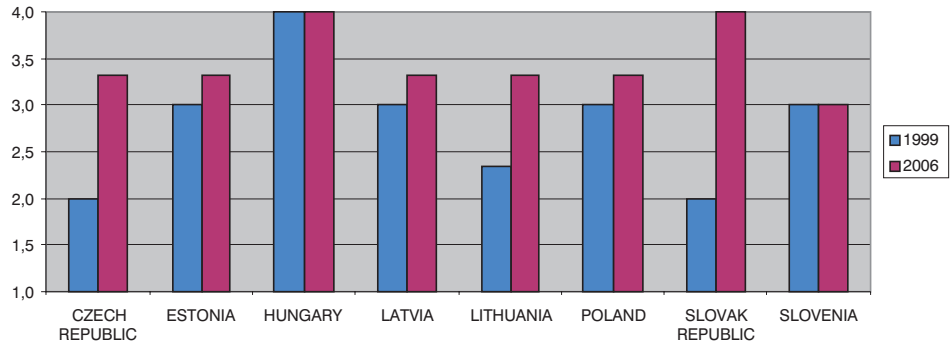
• Privatisation

Privatisation of state owned utility is final, although the least common step of electricity reforms. Privatisation has no necessary connection to liberalisation process, though the international financial institutions, mostly the World Bank and IMF, have made the pressure on developing economies during the 90s to conduct privatisation in electricity sector. It has become more clear over the years that changes in ownership may not be sufficient to improve sector performance. Moreover, privatizing loss-making state-owned enterprise may improve microeconomic efficiency but may result in output losses and increased unemployment.

6.2. Progress in reforms

In order to evaluate the progress in electricity reforms achieved by transition countries, we use the reform indexes made by European Bank for Reconstruction and Development (EBRD). Generally, Southeast European countries (SEECs) have made a progress in the infrastructure reforms, but comparing with more advanced Central and East European countries (CEECs) that have already become the EU Member States, small countries in the Southeast Europe face significant constraints to infrastructure regulatory reforms that are related to their limited market size and capacity. (Chart 1 and 2)

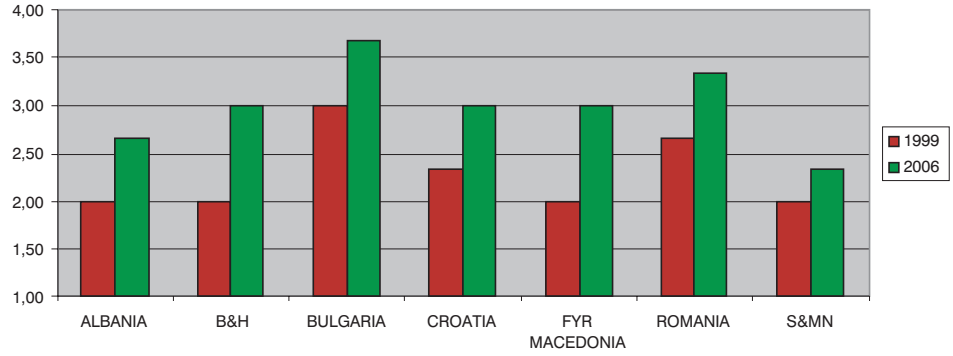
Chart 1: Indexes of economic reforms in electricity sector in Central and East European countries



Source: http://www.ebrd.com/country/sector/econo/stats/tis.xls (19.11.2007.)

These transition indicators cover issues as commercialization, tariff reform, quality of the regulatory framework and involvement of the private sector and range from 1 do 4+, with 1 representing little or no change from a rigid centrally planned economy and 4+ representing the standards of an industrialized market economy. Most of the CEE countries have made improvement in implementing economic reforms in electricity sector, especially Hungary and the Slovak Republic, reaching the standards of developed market economies. Only Estonia and Slovenia have made no improvements in 2005 in comparison with 1999, although their transition indicators in 1999 have been already graded with 3.

Chart 2: Indexes of economic reforms in electricity sector in Southeast European countries*



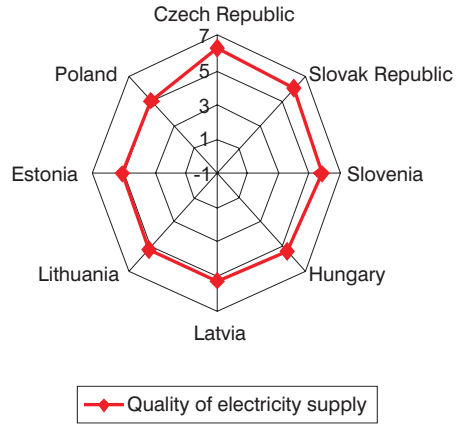
* Note: Data in 2006 still refer to Serbia and Montenegro as one country.

Source: http://www.ebrd.com/country/sector/econo/stats/tis.xls (19.11.2007.)

SEE countries have been less successful in implementing electricity reforms and it seems that progress in electricity reforms has lagged behind other areas of transition. Economic environment in most SEE countries has been burden with serious problems and impediments that have slowed down the pace of reforms in electricity sector and chances for the success. Also, until 2006 only Croatia and Macedonia have signed the Stabilization and Association Agreement. As we have already stated, it is widely accepted in mainstream literature that reforms in infrastructure sector, regulatory reforms and partial introduction of the private sector in well-regulated and liberalized environment should generally result in cost reflective prices and better quality of services. The following analysis will show that the cost reflective prices in the case of CEE and especially SEE countries mean the increased prices in order to reflect the costs of service.

One of the legacies of former centrally planned economy refers to the price distortion for households and residential tariffs. Industrial consumers received electricity at higher prices than justified according to their relative cost of supply. During the 90s in most transition countries industrial tariffs used to be higher than or equal to residential tariffs. This situation contrasts sharply with that in Western Europe where industrial tariffs are on average two-third of the price charged to households, reflecting the relative costs of supplying these two customer categories. (Broadman et.al., 2004: 171) According to Vagliasindi and Chirmiciu (Vagliasindi and Chirmiciu, 2004), about the half of the transition countries had major cross-subsidies between residential and industrial consumers. However, this situation has been significantly changed in new EU Member States.

Chart 3: Quality of electricity supply in CEECs in 2005

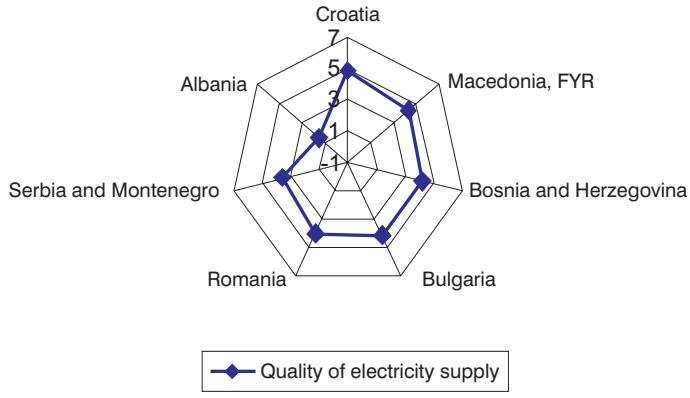


Source: World Economic Forum, 2005, p. 544.

One of the reform goals is the improvement in the electricity supply as the important factor of business environment since the access to competitively priced and high-quality services determine the competitiveness in the real sector. Successfully implemented reforms in electricity sector are supposed to increase the quality of supply and charts 4 and 5 test that assumption.

According to data, the quality of electricity supply in all CEECs is perceived high, especially in the Czech Republic, although its success in electricity reforms has been graded with 3.3. It seems that cost recovery and cost reflective prices are much more correlated with the quality of electricity supply than the success of implemented reforms. It is the result of the fact that one of the most important objectives of the reform in transition countries is related to necessity to increase prices and tariffs to cost reflective levels to enable sufficient maintenance and investments in the system. Slovak Republic, Hungary, Slovenia and the Czech Republic are four CEE countries with highest tariffs, highest quality of electricity and, at the same time, the highest collection rate.

Chart 4: Quality of electricity supply in SEECs in 2005



Source: World Economic Forum, 2005, p. 544.

In most Southeast European countries the quality of the electricity is perceived as the obstacle to business environment, with the exception of Croatia. The lowest electricity quality is in Albania since this country has been especially affected by the electricity crisis since 2000. (Broadman et.al., 2004:175) This crisis has been the result of the chronic failure to decrease illegal use of electricity, the severe extend of arrears and deteriorating hydrological conditions on the predominantly hydropower-based system. Kosovo under UNMIK is in similar situation and Macedonia as well sends signals that the situation might have similar developments within a year or two.

7. Concluding remarks

Macroeconomic situation in transition countries during the 90s with increasing debt burden and deterioration of the quality of public services have created the need for economy-wide structural adjustment programs with the main aim to reduce public spending and increase private capital flows into the economy. Electricity sector liberalisation is part of the wider trend toward liberalisation in infrastructure industries. Infrastructure sector in transition countries was in a particularly difficult position with state-owned and highly bundled monopoly that was strongly subsidised from the state budget. The artificially low prices of electricity and other infrastructure services that have not been cost-based induced the inability to meet the need for future investments in the electricity sector.

According to the empirical analysis, SEE countries have made progress in the infrastructure reforms, but comparing with more advanced CEE countries that have already become the EU Member States, small countries in the Southeast Europe face significant constraints to infrastructure regulatory reforms that are related to their limited market size and capacity. Corporatisation as the first step of the reforms and the separation of the utility from the Ministry has been achieved in all transition countries. In all CEE and SEE countries the autonomous regulatory institutions have been established and they mostly fix the tariffs independently. In some SEECs like Croatia and Serbia governments have retained the final authority to set prices. Unbundling of vertically integrated utilities into networks operation and competitive activities has been also done.

Reforms in infrastructure sector and well-regulated environment should generally result in prices on cost reflective levels and better quality of services. Our analysis shows that the reform results in CEE and SEE transition countries have been considerably different. This is the consequence of different development level as well as different institutional arrangements with the EU.

Most of new EU Member States have recorded considerable increase in electricity prices as the result of cost reflective tariffs level and gradual phase-out of direct and indirect electricity price subsidies. Though these cost-based tariffs have had an important impact of efficiency improvements, they have also harmed social welfare and competitiveness of firms in CEE countries. On the other hand, most of the SEE countries (with the exception of Croatia) still have low tariffs that do not reflect costs of supply. Fiscal situation has become more acute by the payments arrears and very low collection rates, especially in Macedonia, Bosnia and Herzegovina, Bulgaria and Serbia and Montenegro. The newest data show that Albania, Macedonia, Montenegro and Kosovo under UNMIK still have difficulties with the low level of collection rates, while Bulgaria, Bosnia and Herzegovina and Serbia (without Kosovo under UNMIK) succeeded to solve these problems in the past two years. These situations reinforce the belief that the social impact of tariff reform should also be the concern for policy-makers. The other objective of the reform - quality of services has been

perceived high in all CEECs, while in most SEE countries the quality of the electricity is still the obstacle to business environment, with the exception of Croatia.

The important difference between CEE and SEE countries also considers the timetable when they have to implement the electricity *acquis*. Future accessions will happen against more mature internal energy markets and new accession countries will be required to fully implement existing rules before joining the EU. Although only Croatia and Macedonia among transition countries have become candidate countries, all SEECs have agreed to open their national electricity markets in accordance with provisions from the Treaty establishing the Energy Community. It seems that cooperation and establishment of common regulatory frame for electricity trade within the region could result in creation of larger and more stable market, which would be more attractive for future investors.

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Makroekonomski kontekst ekonomskih reformi elektroenergetskog sektora u tranzicijskim zemljama[1]

Nela Vlahinić-Dizdarević[2], Tomislav Galović[3]

Sažetak

Rad istražuje ulogu i učinke makroekonomskog okruženja na ekonomske reforme u elektroenergetskom sektoru zemalja srednje i istočne Europe koje su 2004. godine postale članice EU te zemalja jugoistočne Europe. Istraživanje polazi od hipoteze o bitno različitom makroekonomskom kontekstu i makroekonomskim činiteljima u razvijenim i tranzicijskim zemljama koji su utjecali na tijek reformi u elektroenergetskom sektoru. U tranzicijskim zemljama makroekonomski i fiskalni uvjeti imali su najvažniju ulogu u pokretanju reformi u ovom sektoru. ***Cilj je ovog istraživanja*** *testirati široko prihvaćenu tezu o pozitivnim učincima regulatornih reformi i liberaliziranog okruženja na razinu cijena koja odražava troškove te na kvalitetu usluga u elektroenergetskom sektoru. Analiza u ovom radu pokazala je da su rezultati poduzetih reformi značajno različiti u zemljama srednje i istočne te jugoistočne Europe. U većini novih EU članica cijene električne energije značajno su porasle kao rezultat troškovnog pristupa formiranju cijena te postupnog smanjivanja i ukidanja direktnih i indirektnih subvencija u cijeni električne energije. Iako su više cijene rezultirale unaprjeđenjem efikasnosti, one su istovremeno smanjile društveno blagostanje i konkurentnost zemalja srednje i istočne Europe. S druge strane, većina zemalja jugoistočne Europe (s izuzetkom Hrvatske) još uvijek ima nisku naplatu te niske cijene električne energije koje ne odražavaju troškove. Kvaliteta usluge kao drugi važan cilj poduzetih reformi, ocijenjena je visoko u svim zemljama srednje i istočne Europe te u Hrvatskoj, dok u većini zemalja jugoistočne Europe predstavlja ograničenje u poslovnom okruženju.*

Ključne riječi: *ekonomske reforme, elektroenergetski sektor, liberalizacija, tranzicijske zemlje*

JEL klasifikacija: *E 60, L16, L94, Q43*

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[1] Prikazani rezultati proizašli su iz znanstvenih projekata "Ekonomski učinci regulatornih reformi elektroenergetskog sektora" br. 081-0361557-1455 i "Poslovna prilagodba hrvatskih gospodarskih subjekata tržišnom natjecanju u EU" br. 081-1151212-1453, provođenih uz potporu Ministarstva znanosti, obrazovanja i športa Republike Hrvatske.

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