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Public Policy

ENERGY REGULATORY PRACTICES

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ACADEMIC CONTENT OF THE COURSE

1.D ROLE AND FUNCTIONS OF THE REGULATOR

by Dr. Vidmantas Jankauskas, Chairman, National Control for Prices and Energy, Lithuania;

Electricity and gas sectors have traditionally been accepted as natural monopolies, therefore heavily regulated by the state imposing rules and regulations, setting strong regulatory agencies for private companies (as it was in the U.S.) or nationalising the energy enterprises and regulating them through the ownership (as in majority of the other countries). With the liberalisation and privatisation of the energy sector in Europe, Latin America and elsewhere regulation has become an issue in many countries.

The regulator has two main goals: to protect consumers from the monopolies abuse of their power as also to ensure financial viability of the service provider. With the market liberalisation regulator is more and more involved in a new task: promotion of competition. When the energy sector was state owned the role of regulator usually played the Ministry responsible for the energy sector. It set prices and technical standards and used ownership as a control mechanism. With the liberalisation and, especially, with the

privatisation of the sector a need for an independent regulator arises in order to give a non-discriminatory treatment of the different ownership companies. Therefore, the first independent (separate from the sectorial ministry) regulatory agency was established in the U. K. in early 90's when the electricity sector was restructured and privatised. The British approach was less bureaucratic than the American one, required less resources, but some functions were left with the Ministry. Later in Europe regulatory agencies were established using American and British examples and taking into account different historic background and traditions. Countries, having long history of state owned monopolies, usually established stronger regulators with a broad mandate. On the other hand, Germany, Scandinavian countries had a different background with a much more decentralised industry structure, less state ownership and tradition of self regulation; therefore regulatory agencies in these countries developed gradually from the existing institutions.

The main requirements to a new regulator are: independence, transparency and accountability. Independence is necessary to give credible commitments to consumers and investors as regulators are better protected from political pressures. Independence means that the regulator may take independent decisions (without ministerial approval) on tariff methodologies and tariff levels, on licensing and disputes settling.

When analyzing the regulatory agencies in the ERRA countries one may find that in most cases there are Commissions, consisting from 3 to 9 members, regulating mostly electricity, gas and district heating, responsible for price setting (almost all), issuing licenses and monitoring behaviour of the licensees (except of Russia and Kazakhstan), dealing with consumer complaints and disputes between market players.

1.E THEORY AND PRINCIPLES OF REGULATION

by Dr. Peter Kaderjak, Director, Regional Center for Energy Policy Research, Hungary

Dr. Kaderjak presented the following economic definitions and principles related to energy regulation: conditions for effective markets, market failures, market concentration (origins of concentration), external costs (origins of externalities), regulation, major regulatory options, environment of regulators, regulatory institutions, typical areas for regulatory actions. Finally, he briefly introduced the following select issues facing regulators: pricing, effect of subsidies, effect of asymmetric information, liberalization.

1.F ENERGY SECTOR LIBERALIZATION AND MARKET REFORM – GLOBAL TRENDS AND DEVELOPMENT IN EU COUNTRIES

by Dr. Vidmantas Jankauskas, Chairman, National Control for Prices and Energy, Lithuania;

Until the last decade of the 20th century almost everywhere in the world electricity sector was a vertically integrated monopoly, in majority cases, state owned (except of the U.S. and some other countries) and heavily regulated by the Government. Liberalization of the sector started with understanding that the grid (transmission and distribution) is natural monopoly and should be regulated (though less rigid, incentive regulation principles may be applied), but generation and supply are potentially competitive activities and could be regulated by the market forces. Similar assumptions could be applied to the gas sector also. Electricity liberalization in Europe has started as a part of the famous Margaret Thatcher liberalization and privatization programme in the 80's and 90's. After the successful British experience and some examples in the U.S., South America, the European Commission (EC) decided to introduce Directives to open up the European electricity and gas markets. The Electricity Directive was passed in 1996 and the Gas Directive in 1998. Though the Electricity Directive, required only partial liberalization of the markets, did not prescribe clear market rules (besides the regulated, negotiated third party access was allowed and even the single buyer model was not excluded) several EU member countries went further with the reforms accomplishing successful results: lower prices due to increased competition. Consequently, EC in 2003 introduced two new Directives envisaging full liberalization of the electricity and gas markets with much stronger requirements for the unbundling, third party access and independent regulation.

When analyzing electricity and gas markets in the Central – Eastern European (CEE) countries, one can find specific reasons why there is market not functioning still or functioning not sufficiently competitively. The main reasons in the electricity markets: dominant generators and long term power purchase

agreements. In the gas sector almost all the CEE countries have no indigenous sources and only one external supplier is Russian Gazprom. Diversification of gas supplies by finding some other routes or sources is rather expensive and will not happen soon.

Blackouts in the U. S., Italy and elsewhere has happened in 2004, they caused a discussion about security of supply in liberalized electricity markets. EC has drafted a new Directive on the electricity security of supply trying to tackle this issue. The Directive may be passed soon. At the same time EC is planning to assess efficiency of the electricity market until January 2006 in order to find the real situation in the member countries.

Example, how the market opening has happened in Lithuania and what problems where met, is added.

2.A BASICS ON THE LEGAL ASPECTS OF REGULATORY WORK

by Mr. Wolfgang Urbantschitsch, Head of Legal Department, E-Control, Austria

Mr. Urbantschitsch started his presentation with the basic principles of liberalization considering the competitive (generation, trading, supply) and regulated (transmission and distribution) fields of the industry. The intervention of regulator is unavoidable due to characteristics of the power market: grid bound transportation being a natural monopoly, non-storability and the importance of the daily security of supply, as well as planning and construction of power plants to ensure long-term security of supply. The following key requirements of an efficient market were mentioned: sufficient number of buyers and sellers for each product, no restrictions on choosing an alternative supplier, non discriminatory access to the grid, competition across different market segments, transparency across all market segments. Then a short overview was given on the historical background commencing with the Coal and Steel Community (ECSC Treaty 1951, expired 2002), and ending with the Gas SOS Directive 2004/67. Later articles No. 28, 29, 31, 81, 82, 86 of the EC Treaty were introduced guaranteeing the principles of non discrimination and competition between the member states. It was mentioned that the European Commission is in charge of the Competition Law which is applicable in the energy industry, some articles such as: 81 and 82 were presented regulating agreements between companies and abuse of dominant position. Then Mr. Urbantschitsch began to discuss in chronological order the main internal directives in electricity: Electricity directive 1996/92/EC set common rules for generation, transmission and distribution, other participants of the sector, for access to the market, for criteria and procedures applicable to calls for tender, for granting authorization, for the system operation, full liberalization of the generation market. It enabled access to be transmitted from generators to „eligible“ customers, network access to be provided by the system owners and operators, allowed to all electricity producers and suppliers to supply their own premises, subsidiaries and eligible customers via direct line, unbundling of accounts for DSOs, public service obligations, reciprocity, stranded costs. The main provisions of the next Electricity directive 2003/54/EC were: public service obligations (security regularity, quality and price of supplies, environmental protection, customer protection, price transparency, supplier of last resort), unbundling of TSO and DSO (legal, functional and of accounts), right of access to the grid (regulated TPA, full market opening until July 1st 2007), regulatory authority and monitoring competences, transparency provisions for TSO and DSO, interconnections, grid usage and capacity allocation, effective unbundling of accounts, terms, conditions and tariffs for connecting new producers of electricity, duties of TSO and DSO (non-discrimination etc.), level of transparency and competition. The same chronological overview was made with regard to the Gas Directives. The Directive 98/30/EC opened the internal natural gas market for eligible customers such as gas fired power generators irrespective of their annual consumption level and final customers consuming less than 25 M m³/year. The second Gas Directive 2003/55/EC fully opened the internal natural gas market for the eligible customers as defined by Directive 98/30/EC, for all non-household final customers by 1.7.2004 and for all final customers by 1.7.2007. Main provisions of which were: TPA to Distribution and Transmission Grid, Possible Exemption for New Infrastructure, Access to Storage Facilities, Unbundling, Monitoring SoS to be provided by national authority, Technical safety and interoperability, Advanced responsibilities for regulators. Later Mr. Urbantschitsch highlighted and gave a detailed explanation on the importance of legal, functional unbundling and unbundling of accounts for the TSO and DSO, how they have to be carried out and where derogations are allowed. Then it was discussed the importance of legal regulation in the cross border trade due to the natural monopoly character of transmission and distribution, limited grid capacity, existence of long-term reservation contracts and

mentioned Regulation 1228/2003/EC setting rules for this activity. Later an overview on renewable was delivered mentioning the main legal steps taken in this respect: EU Electricity Common Market Rules (July 15, 2003, Article 3 No. 6), EC Renewable Directive 21/77/EC, EU Emission Trading Directive October, 2003, EU Water Framework December, 2000, EU Co-generation Directive February, 2004. Among the reasons to increase the renewable sources climate change process and security of supply were mentioned. The countries leading the list in use of green energy are: Austria, Portugal and Sweden. Different support schemes were introduced in the EU: such as tenders for construction of wind-mills (Ireland, France), introduction of green prices (feed-in tariff) for the supply (Germany, Austria, Spain, Portugal, Greece, Finland, France, the Netherlands, Denmark), or price support for the demand (the Netherlands) etc. Finally, among possible new challenges: full implementation of the directives, 3rd generation of internal market directives, full application of competition rules and Regional Electricity market in South East Europe were mentioned.

2.B PUBLIC INVOLVEMENT AND DISPUTE RESOLUTION TECHNIQUES

by Mr. Valerii Tsaplin, Head of Strategic Planning Department, National Electricity Regulatory Commission of Ukraine

Public involvement: Energy regulation is a difficult task including economic, legal and technical aspects demanding balance of interests of the parties involved such as of consumers, industry and state. Public involvement in the regulatory process:

- Helps to obtain full range of information with regard to the issue under review
- Assists in taking of a balanced decision reckoning with interests of the parties involved
- Helps the public to perceive the decisions taken by regulator and consider them as fair and legitimate
- Is a mechanism guaranteeing the responsibility of the regulator before the parties involved

The importance of public involvement in the regulatory decision making process defines the regulatory examining and decision making procedure. In the USA and many other countries traditionally formal approach is applied by regulator in cases involving interests of a smaller group and specifies application of a quasi-legal procedure in the regulatory decision making. According to this procedure the regulated company and other parties involved act as in a legal investigation. They can participate in examining of the issue, ask for additional information, raise questions, give their opinion (together with evidences) during the hearings.

They can appeal against the decision taken by regulator at a competent authority if they consider the decision does not correspond to the law or not grounded by information and number of evidences presented during the investigation. Formal investigation of issues can take longer, than other procedures but it enables a close study. For investigation of issues related to the whole industry or a part of it (tariff methodology choice, introduction of open access to the grids, setting of service quality standards etc.) less formal procedure is applied based on materials presented in written form. Investigation of an issue begins with publication of discussion papers by regulator and arrival of feed-backs from the parties involved. Depending on importance of the issue under review several rounds of discussion papers, remarks and disputes can take place before making the final decision.

There are cases when representatives of consumers and other parties involved are included in the composition of regulator with a right to vote in the process of the regulatory decision making. However, the international practice shows that such an approach fraught with a number of problems and the decisions are usually less transparent and legitimate.

In the Central and Eastern European countries existence of consumer organizations has no tradition therefore the regulators have to do their best to involve the consumers in the process of regulatory decision making. The biggest problem here occurs with involvement of small and middle-size consumers in the regulatory decision making process, they show low interest and thus makes them passive and weakly organized. They need further assistance to ensure that their interests are represented. Involvement of

consumers in the regulatory decision making process should begin with providing information clarifying their rights and obligations within the frame of a valid regulatory system and the role of a regulator.

In Ukraine the main methods of public involvement in the regulatory decision making process are:

- formal investigation of an issues on public sessions and hearings of NERC in a form of quasi-legal procedures on which representatives of the industry, mass media, local and central administration, other involved parties such as lawyers and physical persons are invited
- compulsory publication of the projects of regulatory acts and their placement on the web-site to obtain recommendations, remarks from the parties involved.
- promotional and explanatory campaigns by means of web-site, mass media, and the NERC Newsletter etc.

Dispute settling methods: Each decision taken in the issue of licensing, prices, service quality, rules for the participants and customers' complaint favours interests of one side of the regulatory process and hurts interests of the other therefore the disputes between the participants are unavoidable. The main aim of dispute settling process is to guarantee conditions for investigation and consideration of all points of view at a minimum time and financial expenditure and allow public involvement to the extent sufficient to prove interests of the parties involved are considered and decision taken is fair enough. Efficient dispute settling rules between consumers and energy companies and other market participants are important for guaranteeing efficiency and predictability of the regulatory system.

Dispute settling may take more time and attention than required from regulator distracting his attention from more important issues. Therefore the regulator has to avoid involvement in a wide range of commercial and other disputes not belonging to his main tasks.

In accordance to the general regulatory decision making procedure beside formal dispute settling methods there is a wide range of informal methods such as mediation and arbitration tribunal. These procedures are usually shorter and cheaper than formal ones and the parties involved confide in them better. The regulator should have specialists prepared for carrying out of such procedures.

In accordance with the EC Directives between 1996 and 2003 dispute settlement is one of the main functions of energy regulator. The majority of regulators in the EC countries either function as a mediator in case of informal procedure or investigate the case in point of fact and take decisions subject to execution in case of formal procedure. Appeal against decision is possible at a competent court of national jurisdiction.

NERC Ukraine in its practice favors informal methods (negotiations, mediation, arbitration tribunal). If the parties fail to agree the dispute is settled according the formal procedure on the public session of the Commission.

2.C EU ENERGY AND COMPETITION LAW

by Mr. Wolfgang Urbantschitsch, Head of Legal Department, E-Control, Austria

In his presentation Mr. Urbantschitsch gave an introduction to the European Community Law, its institutional structure such as the European Parliament, the Council, the European Council, the European Commission, the European Court of Justice and Court of First Instance their headquarters, composition, main functions etc. Then Mr. Urbantschitsch was discussing in details the European Community law, its direct effect and supremacy as well as the importance of the Treaty provisions (such as EU "constitution", EC, ECSC, Euratom) and secondary law (Regulations, Directives, Decisions, Recommendations etc.). It became clear that regulations are directly applicable in all member states, whereas in case of the directives the member states can choose on the method of transposition into the national law but at the same time he stated that they are binding as to the result to be achieved. In addition he also drew the attention to the possible direct effects caused by implementation of the directives and to the liability of the government. It was also mentioned that in individual cases individual decision has to be made and followed. Later a case study was presented on cross-border trade and long-term contracts. The question of refusal to access to the grid and the EC Competition Law was discussed in details with respect to the provisions of the Electricity Law in Austria. Then Mr. Urbantschitsch mentioned the principles of treatment of long-term contracts in the light of Article 81 of EC, relevant EEC decisions and Regulation 1/2003/EC specifying coordination between the EC Commission and the national court. Later a recent EC case law on priority

access rights was presented and a conclusion on application of articles 81 and 82 EC as an option to guarantee third party access on equal terms was made.

2.D BENCHMARKING OF REGULATORY COMMISSIONS

by Mr. Valerii Tsaplin, Head of Strategic Planning Department, National Electricity Regulatory Commission of Ukraine

The importance of benchmarking (benchmarking of organizations) for management especially strategic is growing in the past few years when results of the best organization are compared to the indices of similar organizations. Such a comparison allows to estimate the potential for improvement of operating indices, plan and execute measures for their improvement.

In the context of energy regulation the benchmarking is used:

- by regulators to evaluate the efficiency of the regulated companies in comparison with more effective companies of the industry in order to define aims increasing the companies' efficiency;
- for examining conformity of the regulators with the standards (criteria) of effective regulation and defining aims for improvement of their efficiency.

The main objective of benchmarking is a selection of indices for comparison. The benchmarking of energy regulators is usually based on criteria of good regulation. According to Baldwin and Cave (1999) for efficiency evaluation of an energy regulator is necessary to find out accomplishment of the following criteria of good regulation:

- Whether the authority is provided to the regulator by law for accomplishment of his tasks?
- Whether means guaranteeing responsibility of the regulator are provided?
- Whether the regulatory procedures are fair, accessible and public?
- Whether the level of competency of the regulatory staff is sufficient for accomplishment of the targeted goals?
- Whether the regulator operates efficiently?

In accordance with Berg (2000) 3 factors define the efficiency of regulator:

1. authorities provided by legislation;
2. value and principles observed by the regulatory staff;
3. necessary resources.

If the Baldwin and Cave's criteria of good regulation include all factors with those defining efficiency of regulator (Structure - Conduct - Performance), the principles of efficient regulation recommended by Better Regulation Task Force under the Cabinet of Ministers of Great Britain are:

- Proportionality;
- Responsibility;
- Consistency;
- Transparency;
- Purposefulness

these are mainly apply to conduct of a regulator:

Benchmarking could be internal (within a country) and external (international benchmarking). Internal benchmarking can be used only in countries where sufficient number of regulators is present. Both types of benchmarking are useful as their results are mutually complementary.

Benchmarking could be single for comparison of efficiency indices of companies (organizations) at an actual moment or permanent for comparison of dynamism of changes in the efficiency indices with time.

An analysis of regulator's efficiency in the infrastructure industries of Great Britain performed in 2001 and commissioned by the Ministry of Finances of Great Britain together with WS Atkins Management Consultants and OXERA could be a sample of a complex benchmarking analysis. The aim of the analysis was not an evaluation of the regulation efficiency in the appropriate industries but a benchmarking analysis of regulatory procedures, processes and resources. The participants of the analysis were regulators of the infrastructure industry: Ofgem (electricity and gas sector), Oftel (telecommunication), Ofwat (water supply and sewerage system), ORR (railway transportation).

The infrastructure regulators were compared between each other and to 8 different authorities of the executive power of Great Britain and to 7 regulatory authorities in other countries. The benchmarking detected in particular excessively high level of general expenditures and of energy regulatory staff at Ofgem. On basis of results of the research it was targeted at Ofgem to cut the expenditures and the

number of staff. In 2003 the general expenditures at Ofgem decreased to £38 million compared to £62.8 million in 2001 and the number of staff from 555 to 302. Many ERRA members took part in the benchmarking of energy regulators participating in the Regional Energy Market of South-Eastern Europe performed by Task Force of CEER. The Task Force has recommended regulatory standards with regard to which a comparison of regional regulators is being in process: independence; authority; organizational structure, resources and capability to perform functions; basic regulatory procedures; fulfillment of regulatory decisions; responsibility.

First level standards (or essential minimum) are compulsory to guarantee essential conditions for an adequate regulatory control, second level standards (or preferable practice) and their achievement is recommended at least on long term.

Generally, the results of benchmarking show that absolute majority of regional energy regulators has gone through organizational phase of its development and currently have at least an essential legal basis and resources to be a sustainable participant of the energy market. In general, the regional group of regulators meets the requirements of the EC Directives and Athens Memorandums with regard to structure, activity and authority. At the same time the regulatory benchmarking has detected issues requiring special attention such as:

- Secondary legislation as well as continuous amendments to the primarily legislation;
- Public participation in the regulatory process and responsibility of regulator;
- Institutional strengthening of regulator.

3.A FINANCIAL ANALYSIS OF ENERGY COMPANIES

by Mr. Adrian Borotea, Vice President, Electricity and Heat Regulatory Authority of Romania

Within 'Financial Management' some important issues such as operational finance, analysis, diagnosis and forecast are discussed in this presentation.

While trying to understand the business itself, we have to take into consideration some typical questions regarding the sales and customers, operations and product, as well as the management and strategy.

The income statement analysis examines the growth of sales and the profitability ratios (e.g.: Gross margin ratio, ROS, ROE). It also helps to decide whether the company is profitable or not.

By the help of a balance sheet and several examples, the types of assets (current and fixed), and the types of liabilities (spontaneous funds negotiated funds, long term debt, and equity) are represented. The Working Capital Requirements are funds required to finance the company operations: $Cash + Receivables + Inventory - Payables - Tax - Other\ spontaneous\ funds$. The working capitals are long-term funds, which can finance the Working Capital Requirements: $Equity + Long\ Term\ Debt - Fixed\ Assets\ net$.

The operational ratios are discussed in four major steps:

- Receivables in days or Collection period
- Stocks in days or Inventory period
- Payables in days or Payment period
- Days of cash

If a company is in financial distress, it can be only for two reasons:

1. Economic problems, or problems related to income statement
2. Financial problems, or problems related to balance sheet (operational or structural problems)

As a consequence of the analysis, an action plan is necessary to be done. Last but not least, one has to look at the consequences of the decision in the financial statements of the company, through financial forecasts.

3.C RATE OF RETURN AND INCENTIVE BASED PRICE REGULATIONS, AND THE ROLE FOR BENCHMARKING

by Mr. Laszlo Varro, Lead Economist, MOL Ltd.

There are some lessons from history, for instance: the railroads in England 19th century, electricity until 1920, natural monopoly characteristics, etc, which can serve as examples.

Subadditivity:

- one firm is more cost efficient than any other combination
- Connecting to an existing network is cheaper than the unit costs of a new one
- Significant proportion of costs is network related

The consensus on electricity networks:

- The network is a natural monopoly
- nTPA does not work
- Regulatory oversight of access and tariffs is essential
- Some challenges to established wisdom: LMP and distributed generation

Some further complications can appear such as: sunk costs, lack of secondary asset markets, and interaction with competitive markets.

For the traditional method of cost + regulation there are lessons - two scandals - from Hungary: The Eastern Railroad, 1873, The Southern Motorway, 2004. They prove that cost plus regulation in infrastructure creates some very bad incentives and likely to fail.

There are other examples for the failures of cost + regulation: The Averch Johnson effect (1962), Goldplating: „The great electricity conspiracy”, Cost efficiency, soft budget constraint.

As a next step, price caps are presented from the following points of views: Pre announced price path (CPI – X), Transparency and credibility, Sharing efficiency gains, Trade off between incentives and flexibility. Also, their advantages and the problems with them were discussed.

The importance of the benchmarking in regulation is beyond all dispute. One dimensional and multidimensional methods as well as the regulatory applications and pitfalls of benchmarking are explained by the help of some examples in Mr. Varro’s presentation as a final step.

3.D TARIFF DESIGN FOR NETWORKS AND END-USERS

by Mr. Adrian Borotea, Vice President, Electricity and Heat Regulatory Authority of Romania

Regulation aims at balancing various stakeholders’ interests. The aims of rate regulation is to establish a straightforward rate-setting mechanism that ensures fairness to all stakeholders and promotes system-wide efficiency. The goal is to set out the parameters by which incentives will be incorporated into the tariffs for the electric distribution companies.

There are important guiding principles, approaches and considerations that have to be taken into consideration while creating tariffs. The so called incentive formulae is to reflect:

- Customer Growth
- Inflation
- Productivity Factor

Limited to Distribution Tariffs for Services are Delivered To:

- Captive Customers
- Eligible Customers (Right to Choose)
- Others, for Use of Transit of Electricity
- Others, for Use to Supply Own Load

The methodology of Tariff Setting is a two phase process. As a next stage, in Mr. Borotea’s presentation the cases of revenue excess and shortfall are demonstrated, as well as the case of revenue requirement and its components.

Depreciation versus amortization is also presented, together with their definitions elements and methods of their determining. The question of techniques, formulae and calculation of depreciation expense are raised, too.

The Rate Base – Rate of Return Concept is the following issue: especially the measurement, components of rate base and the criteria of fair rate of return determination.

Regarding the capital structure, short-term debt, long-term debt and weighted debt cost are presented. The common equity and WACC determination are important components of the presentation, demonstrated through several examples for better understanding.

Finally, the following issues are explained:

- The incentive mechanisms
- the earnings price mechanism
- additional incentive linkages
- the incentive formula and its application
- the Service Quality Indicators (SQI's)
- Trigger Mechanisms For Off-Ramps

4.A REGULATION OF UNBUNDLED NETWORKS IN ELECTRICITY: ACCESS RULES, INVESTMENTS AND ACCESS PRICING, SYSTEM OPERATION

by Mr. Marko Sencar, Energy Regulatory Agency of Slovenia

In the presentation basics of regulation of network activities in electricity are presented, the principles of unbundling are clarified and discussed. Access to networks and the correspondent rules are explained on the basis of the actors model, i.e. model of market actors (participants) together with the main relations between them. The difference between the relations in physical terms and in contractual terms is discussed and clarified. It is explained how the rules develop after market introduction, when the physical flows are separated from the contractual flows and when new participants enter the market.

System operation is discussed and explained both in physical and financial terms on the basis of the roles, the market participants play, to sustain operation. Importance of the understanding and distinguishing these roles is underlined, since distortions in them may lead to market distortions and irregularities. These roles have changed since the market introduction and have become more complex. The regulator has to take consideration of these roles in order to regulate the network industries and to monitor market.

Access pricing is, beside access dispute resolution, the core business of the regulatory authority. The presentation explains the fundamentals of incentive based regulation, the regulatory options in its policy and its approach to define network prices. It contains setting network price level and tariff structure, i.e. network pricing, as well as their development over time, i.e. price regulation. Through network pricing it is defined how much revenue is necessary for the network operator and how the customer groups are charged. The cost reflectivity principle has to be followed, but the regulator has to find a balance between the appropriate charge to each customer group on one side, and the right incentives for efficiency as well as for investments, at the other. Network pricing is a set of systematic and well coordinated activities ranging from data collection to setting of targets, calculating revenue requirements and allowed revenues. Price regulation then projects the allowed revenue over a regulatory period, smoothes the sudden effects like investments and takes into consideration required efficiency improvements through x-factor. This is the so called building block approach. Transparent, stable and reliable regulatory framework for a regulatory period creates investor's trust and reflects in the price of investments.

To sustain secure and reliable supplies by permanent demand growth, despite some measures to enhance efficient use of energy, continuous investments into generation plants and networks are necessary. Investments are directly linked to quality of supply: lack of investments and maintenance leads to quality decrease in a few years. Therefore quality of supplies gains increasing importance. Since macroeconomic parameters, particularly industry structure and growth, are bound to high quality of supply in terms of voltage quality, service quality and especially continuity of supplies, the investments are needed to satisfy

the requirements and will have to be undertaken. The investment costs, however, may differ significantly between networks and the regulator must create the right incentive as well as trust for the investments to occur.

At the end an example of the regulator's activities in network regulation in Slovenian case is presented. The experience collected throughout the first regulatory period, 2003 – 2005, will be integrated into the next regulatory period, for which at present an appropriate regulatory framework is being developed.

4.B SERVICE QUALITY REGULATION IN THE NETWORK INDUSTRY

by Mr. Luca di Schiavo, Deputy Director, Autorità per l'energia elettrica e il gas, Italy

Quality in electricity is by nature multidimensional, including at least four aspects:

- Customer service issues;
- Commercial quality;
- Continuity of supply;
- Voltage quality.

Having to address multiple aspects, quality regulation cannot be simple: there are at least four different approaches that a regulator can follow in quality regulation:

- Make information available: set reliable measurement rules and publish data on performance;
- Protect worst-served customers, using guaranteed quality standards (individual compensations);
- Promote quality improvement with the introduction of overall standards and making companies revenues dependant on quality performance (for instance introducing a quality-tariff link);
- Favour and test market mechanism, where quality and price are negotiated between customers and companies.

The first instrument should be regarded as a prerequisite for regulation, the second and third are part of an incentive regulation scheme, and the last one is a form to introduce competition in some aspects of quality even if it is strictly correlated with network monopolies.

Mr. Lo Schiavo's contribution is based on the representation of quality regulation in the form of a “map” of different regulatory tools for quality. The “map” has the four main quality aspects as rows, and the four main regulatory approaches as columns. Filling the map will give a complete picture of the actions a regulator can take for addressing the various issues posed by quality.

Two main examples are showed in more detail. The simplest regulatory action is the introduction of Guaranteed Standards (GS) and Overall Standards (OS) for Commercial quality. GS/OS are widely used in the European Union, with small differences in the services under regulation and the amount of the compensations. A second, more complex action is the promotion of improvements in continuity of supply, with incentive/penalty schemes. Such schemes can vary significantly across Europe, nevertheless, a relative small number of features are sufficient to characterise them and allow a first comparison. On the Italian incentive scheme many details are given. For each of the two action, the main implementation problems are discussed as well.

4.C QUALITY ADJUSTED NETWORK PRICING

by Mr. Gyorgy Bekes, Deputy Head, Price Preparation Department, Hungarian Energy Office

In creating a network pricing system, one should be aware of the consumers' demands and their preferences. It's important the find a balancing point between price and quality. Suitable quality indicators should be defined to measure changes.

One-sided approaches have to be avoided. Since the aims of the price regulation are very complex, quality regulation should use different instruments, not only pricing ones. This multidimensional task can be handled by a harmonized system of prohibitions, penalties, pricing incentives and other fine-tuning instruments.

4.D LICENSING: REGULATING ENTRY, SUPERVISION AND ENFORCEMENT

by Dr. Gabor Szorenyi, Director, Hungarian Energy Office

In each regulatory approach there should be a balance between Commitments of Fair Regulatory Process and Constitutional Protection against Over-regulation. Generally 3 basic regulatory approaches are exercised: 1./ US-style: Public Utility Commission (PUC) (no detailed legislation, strong & autonomous PUCs, transparent decision making process), 2./ South-American style: Extremely Detailed Legislation (Presidential System: Regulatory processes set in Legislation, Safe Stable System for Investors, Lack of flexibility for Regulator), 3./ Regulation through Licenses (Parliamentary Democracy, Case Law: No detailed Legislation). Later the role and concept of Licensing was defined as follows:

- set parameters and criteria pursuant to which an enterprise may carry out a regulated activity such as generation, transmission, distribution and supply for example of electricity;
- guarantee an objective, transparent and non-discriminatory environment;
- serve as a tool for Regulator to carry out its responsibilities (the right to issue and revoke the license ensures compliance with applicable energy laws and regulations; licensing in a competitive supply market might be easy but where competitive markets do not exist the licensing process could be more complex);
- provide certain control of government and regulator over entities of strategic industries that are not fully competitive;
- allow monitoring of activities of electricity companies and enforcement of compliance with energy, environmental and other laws and regulations;
- allow control over construction of new generating capacities (Regulator may determine capacity needs, tendering procedure etc.)

Licensing of electricity sector may also serve other purposes such as:

- to ensure that electricity companies have adopted the appropriate corporate form and have demonstrated adequate financial resources and technical ability;
- to include procedures for revoking and modifying licenses;
- to impose requirements for accounting practices (review and audit of company's books and records);
- to submit and make available information on company's operations to develop long-term national energy policy;
- to comply with national and international technical and safety codes;
- to improve performance and reduce pollution.

Licenses allow the licensee to carry out generation, transmission, distribution and supply of electricity. Generation licenses are given to specific equipment that forms a generation unit/s. Transmission, distribution and regulated supply licenses are given to geographic service areas. Among special licenses the following were mentioned:

- Cross border trade (not case by case but for activity);
- TSO, ISO, DSO, MO;
- Gas storage;
- New Power Plants (in majority countries);

The licensing standards (practice) may vary from country to country depending on the level of freedom of regulator: e.g. Latvia: strict rules set by Government on licensing process and conditions; e.g. Hungary, Kosovo: guiding principles as to licensing process, more freedom for Regulator in setting of license conditions).

The application process has to involve procedures ensuring that licensing decisions are conducted in a fair and objective manner. Public hearings could serve as a measurement of the public opinion. Consultations with applicant/s, involvement of lawyers, audit of the applicant/s could be useful.

Among lessons to be learned in the Licensing Procedure the following were mentioned:

Similar conditions for all license holders at the same activity; important issues: consumer & investor confidence, stability, continuity & predictability in decisions, fairness, public responsibility for actions; Involvement of lawyers; Clear requirements; Consultations (with Regulatory Bodies on regulatory

methods, with Licensee on reality and with Customers on expectations), Clear responsibilities, Involvement of internal and external experts, Clear definitions, terminology in the license, Obligations are to be limited to the licensed activity, Future guidance for license holders in Regulation Guidelines, General Technical Rules has to be set in a Grid Code, Codes and Business Conduct Rules has to include frequently changing rules; Responsibility of license holders as to metering and data management has to be clear, Amendment of license condition should the circumstances under which the License was issued change, Submission of annual report on licensed activity.

Among main issues of the New Generation Licensing the following were mentioned: main data & information on power plant; main data of applicant; selection of location; feasibility study (technical, environmental protection, financial, quality assurance, operational staff); environmental license; PPA; fuel supply; business plan. Then a market model without free customer choice and the procedure of establishing a new generation capacity in Hungary before 2002 were presented.

Later Monitoring was presented in details. Different spheres could be monitored such as compliance with license conditions; quality of service; customer expectations; data supply & management; security of supply; barriers for new entrants; developments in different market segments; market power & potential abuse of it. The purpose of Monitoring is to realize the real procedures, license practices, tendencies, customer/investor/licensee expectations and regulatory failures and to compile a comprehensive database on basis of information received for further development, consultations with stakeholders, analysis, interactions (such as change of elements of regulatory framework, modification of licensees' practice, penalties, modification of license conditions or even withdrawal of licenses). Later the issue of License Enforcement was discussed stating that recall of a license has to be the last course of action. To prevent such a situation more importance has to be given to:

- monitoring of licensee activity, behavior;
- clear, transparent requirements;
- detected violations;
- regular reports of licensed activity;
- performance based tariff setting;
- License Enforcement Policy (benchmarking, positive incentives, warnings, fines, sanctions, tariff reduction).

5.A RESTRUCTURING OF THE GAS INDUSTRY: BASIC ELEMENTS AND MODELS

by Mr. Jacques de Jong, Clingendale Institute, the Netherlands

As an introduction Mr. Jacques de Jong gave an overview of old and new gas industry structures and presented the current Dutch Gas Market Model. Then he explained the following broad tendencies related to the natural gas industry: natural gas demand, fuel price developments, uncertainties around demand development, supply outlook, gas pipes, Russian gas outlook, potential gas supply outlooks for South East Europe and the issues of LNG. Finally, he touched upon the challenge facing Energy Regulators, such as: the Madrid Forum, Guidelines on good practices, cross border issues, Energy policy and EU fuel mix, Energy policy and environment.

5.B RESTRUCTURING OF THE ELECTRICITY INDUSTRY: BASIC ELEMENTS AND MODELS

by Dr. Gabor Szorenyi, Director, Hungarian Energy Office

As an introduction, Dr. Szorenyi outlined the development of market structures and introduced 4 market models in detail: monopoly markets, purchasing agency, wholesale competition, retail competition. He gave another type of classification of market models: single buyer model, mandatory pool, voluntary pool, hybrid model. Then he looked at various aspects determining the schedule of events regarding restructuring, privatization and the introduction of competition. He listed the conditions for effective competition and showed some basic data for EU countries regarding market opening. Finally, he presented a case study on the development of the Hungarian electricity market.

5.C REGIONAL ENERGY MARKET INITIATIVES

by Mr. Jacques de Jong, Clingendale Institute, the Netherlands

Regional Energy Market is needed when there is/are:

- Interconnection capacity:
 - Sufficient
 - Available
- No local market distortions
- Appropriate legal/regulatory framework
- Cooperation: TSO's; regulators

In Mr. De Jong's presentation, the EU Electricity Strategy paper 2004 is presented as a next step.

In connection with the intermediate approaches there have been regional actions:

- Nordpool, since
- Benelux/France: MoU's 2005
- BETTA, April 2005
- MIBEL: 01.07.2005??
- ECSEE Treaty, autumn 2005?
- All Island El. Market; July 2007
 - Sufficient

As an example, the Scandinavian market and the Nordic Power Market is demonstrated, as well as the significant cross border trade within the Northwest European market. The price on Northwest European electricity exchanges shows significant convergence to one price since beginning 2004. What is more, analysis of recent years shows that price dynamics in the NW-EU market are increasingly similar.

The issues of Improved Congestion Management and Future developments in continental Europe are explained furthermore, we can have a better understanding about:

- the single GB electricity market
- BETTA
- MIBEL: The Iberian Market
- MIBEL: market model
- MIBEL-implementation
- The ECSEE area and the neighbours

Regarding the Regional Market support activities, the Issues & Challenges are mentioned such as: Cross Border Trade in SEE, Affordability, and New entries & Competition.

ERGEG Consultation 2005 created a discussion paper on the creation of regional electricity markets, where was also a consultation on:

- Key market design features
- Overarching regional framework
- Role of regulators & governments

The EU Agenda, US RTOs, US setting and USA RTO present situation and the differences between EU-US, also EU-US joint issues and SIEPAC in Central America, together with National Electricity Market in Australia- all serve as examples in Mr. De Jong's presentation.

5.D EU GAS REGULATION AND GAS RELEASE PROGRAMS

by Mr. Hasan Ozkoc, Exper, Natural Gas Implementation Department,

Energy Market Regulatory Authority, Turkey

The main objective of the Directives is to establish a single natural gas market in order to achieve a fully operational internal natural gas market in EU members in terms of efficiency gains, price reductions, higher standards of service and increased competitiveness. In addition, it is necessary to transform the state dominated and monopolistic structure of the natural gas sector and turn it into a competitive market,

and to encourage enterprises to function in the different segments of the natural gas market in order to create a fully operational competitive natural gas market.

Within this framework, Directive establishes common rules for the transmission, distribution, supply and storage of natural gas. It lays down the main rules relating to the organisation and functioning of the natural gas sector, establishment of independent regulatory authority, eligible customers and market opening, unbundling of market activities, monitoring of security of supply, public service obligations and customer protection, new infrastructures & exemption, emergent and isolated markets, access to the network (TPA), the criteria and procedures applicable to the granting of authorisations for transmission, distribution, supply and storage of natural gas and the operation of systems.

The directives require that “member states shall designate one or more competent bodies with the function of regulatory authorities. As a fundamental governance issue, the directive specifies that the regulatory authorities must be wholly independent of the interests in the energy sector. In addition it is stated that in order to complete the internal gas market, non-discriminatory access to the network of the transmission and distribution system operators is of paramount importance.

However, significant shortcomings for improving the functioning of the market remain. Notably concrete provisions are needed to ensure a level playing field and to reduce the risks of market dominance and predatory behaviour. Non-discriminatory transmission and distribution tariffs, through access to the network on the basis of tariffs published prior to their entry into force, and ensuring that the rights of small and vulnerable

Natural Gas infrastructures (long-distance transportation) require significant investment (billion dollars). Long-term Take-or-Pay contracts played a very important role for the build-up and development of the European gas market. In particular, in the past, investment in the gas supply industry had usually been underpinned by the conclusion of long-term contracts by European gas companies.

However;

It is important that the existence of take-or-pay contracts should not distort competition. It is utmost important that take-or-pay contracts adapt to the new gas market environment including the development of gas-to-gas competition. This will require the creation of conditions for real supply-side competition and the availability of multiple gas suppliers. Within this framework; to establish a competitive market in gas supply, new entrants need to have fair and economic access to customers, delivery networks, gas supplies and flexibility services.

Freely traded gas markets, with diverse supply routes and many producers, are unlikely to require any form of release programme. On the other hand, there might be few supply routes or deliveries might be under the control of an incumbent through long-term contracts (with no secondary trading). In such a case, it would be unlikely that a competitive market could be developed until some form of release programme provided new entrants with initial access to energy and/or delivery capacity. An effective gas-to-gas competition in Europe may be hampered by the extent of long-term contracts.

Gas Release programmes (of which there can be various types) can be designed to overcome the problem of inadequate access to supplies or capacity, particularly in the early stages of market opening and therefore can have an important ‘catalytic’ role in the context of developing sustainable competition in gas markets.

The existence of multiple gas suppliers and real supply-side gas-to-gas competition is essential for real benefits to consumers. Dominant market positions exist across Europe, which still appear to hamper real competition to emerge. Improved access regimes therefore appear necessary in order to ensure non-discrimination. Gas release programmes implemented at national level may further help alleviate this situation.

6.A TARIFF SOLUTIONS FOR LOW INCOME CONSUMERS

by Mr. Gyorgy Bekes, Deputy Head, Price Preparation Department, Hungarian Energy Office

„Social” tariff is only the „second best” solution for helping the poor. A tariff system can easily become distorted. „Socially” better solutions are usually more expensive and more complicated. The aim is to find the balancing point between the first and the second type defect of a subsidy method and at the same time to keep (not damage further) the transparency of the tariff system.

6.B PRICING ELECTRICITY FROM RENEWABLE SOURCES AND CONGENERATION

by Dr. Peter Kaderjak, Director, Regional Center for Energy Policy Research, Hungary

The price of electricity should reflect the total cost of electricity consumption, including direct and external costs. External costs mean such costs, which are present at another user or producer, a third party. The presence of such costs means a market failure, as prices do not reflect all the social costs. This problem can be solved by creating new markets, defining property rights or adequate regulation.

In his presentation Dr. Kaderjak introduces two solutions: energy taxes and emissions trading and gives different examples for both solutions. Later he presents the green energy regulation practices of some CEE countries and lists the future challenges of these countries.

6.C SOME CONSEQUENCES OF PRIVATE PARTICIPATION IN THE ENERGY SECTOR

by Dr. Peter Kaderjak, Director, Regional Center for Energy Policy Research, Hungary

In Mr. Kaderjak’s presentations the following issue is discussed: Private participation – in connection with forms, motives and extent.

There are regulatory challenges such as:

- Getting the prices right
- State guaranteed long-term Power Purchase Agreements
- The price / quality trade-off
- Being equal in power

The ownership structure is demonstrated together with the installed capacity. The state owned enterprises are presented in comparison with the private ones, mentioning their motivation, budget constraint, pricing, investment, and financial efficiency.

In the case of distorted prices, the conclusion is the following: major reform is needed in order to get the prices right. As next steps of the lecture, the reason and method of getting the prices right are underlined, together with the result, which is increasing energy prices.

The right prices are discussed from another point of view, too: as the sources of political problems.

The state guaranteed long-term Power Purchase Agreements are presented by the help of the Hungarian experience. The Power Purchase Agreements are present in transition economies, as well as an overview is given about their potential benefits and potential drawbacks.

The price/ quality trade –off is another issue, which can be understood through some observations. Furthermore, some regulatory actions are shown, which can be used in the situation when private players are willing to trade off dividends and service quality. Last but not least, some final advice is given in the presentation regarding the above mentioned issue.

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