2001

Licensing/Competition Committee

Issue papers

Electricity Market Development and Market Contractual Agreements in the USA, in the EU Members and in the Member Countries of ERRA

Unbundling of Electric Sector Services to Structurally Separate Monopoly and Competitive Activities

Monitoring, Measuring and Assuring the Competitiveness of Energy Markets

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Dear Colleague:

As Chairman of the Licensing/Competition Committee for the fourth consecutive year, it is my pleasure to present to you a new series of issue papers and working group papers prepared during 2001, and finalized for the 5th Annual Energy Regulatory Conference for Central/Eastern Europe and Eurasia. The Licensing/Competition Committee was set up to discuss and analyze various regulatory issues with the aim of encouraging information sharing between newly established energy regulatory commissions in the region. As one can see from our past, the Committee members have been more and more active over the years, and as a result, the Committee has produced more extensive and far-reaching working group papers.

The Committee had two meetings in 2001 and analyzed three major issues: 1. *Electricity Market Development and Market Contractual Agreements in the USA, among EU Members and in the Member Countries of ERRA* 2. *Unbundling of Electric Sector Services to Structurally Separate Monopoly and Competitive Activities.* 3. *Measuring and Assuring the Competitiveness of Energy Markets*. The novelty of these papers is that we tried to reach out of the Region and incorporate experiences of fellow regulators from the European Union and the United States. Another uniqueness of the enclosed studies is that some of the discussed aspects do not cover the current activities or experiences of many of the ERRA member regulators, thus we had to rely very much on the Committee Advisor's examples being integrated into the papers.

In addition to the issues described above, the Licensing/Competition Committee has expanded into two other key areas of regulation: Monitoring and Regional Trade. These issues have been elaborated by the two Working Groups of the Committee during the year and their major findings have been summarized in issue papers: 1. *Mechanism of Monitoring/Enforcing the Licensed Activities* 2. *Regional Markets.*

I strongly believe that the Licensing/Competition Committee has become a sound and productive working team over the past years, where opinions and views are freely expressed and shared. Most of the issue papers above are the result of the dedicated work by the Committee members.

These documents would have never become a reality without the continuous support of USAID, the Committee Advisor, the Commissioners and Staff Person of the United States National Association of Regulatory Utility Commissioners and some Regulators of EU Member countries. I truly hope that we can continue our work with the same enthusiasm and dedication in the future.

Sincerely,

Dr. Gábor Szörényi
Deputy Director, Hungarian Energy Office
and Chair of the Licensing/Competition Committee

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More detailed information about Committee activities can be found on the Internet: http://www.erranet.org/committees/licensing/index.htm

Issue Paper # 1: Electricity Market Development and Market Contractual Agreements in the USA, in the EU Members and in the Member Countries of ERRA (with attention to the Role of the Regulator)

1. Preface

1.1 The establishment of competitive markets for the provision of electric service is a priority for governments around the World. This effort is based upon the belief that markets and competition will lead to increased efficiency and reduced cost of service in the electric sector, benefiting a Country's citizens and its competitiveness in World markets for manufactured goods and services. The creation of competitive markets in electricity is being actively pursued in a number of CEE/Eurasia countries.

1.2 Last year, the Committee prepared a Paper entitled "Developing Competition in Electricity and Natural Gas Wholesale and Retail Markets - The Changing Roles, Tasks and Responsibilities of the Regulator". That Paper focused broadly on market approaches and mechanisms and on the process of transiting from a government owned and/or regulated private monopoly service provider to an industry structure and regulation that will support competitive service provision. The instant Paper builds on the information presented in that Paper and examines more closely the mechanics of market operation and the contractual agreements that provide the legal basis for such operation, with a further discussion of the role of the regulator in the specifics of the design and functioning of competitive electricity markets. Additional Papers produced by the Committee this year will examine methods for the effective separation of energy sector monopoly and competitive activities (Issue Paper # 2) and methods for monitoring and assuring the competitiveness of electricity markets (Issue Paper # 3)including the role of the regulator in such activities.

1.3 This Paper begins with a description of the development of competitive markets for the provision of electric service in CEE/Eurasia Countries (Section 2). More detailed information on these developments by Region and Country is then provided in Section 3 and Appendix A description of Market Contractual Agreements presently employed in CEE/Eurasian countries and in the United States and Western Europe is presented in Section 4. In Section 5, a discussion of significant developmental problems which are being overcome to advance market development in the Region is presented. Finally, in Section 6, the developing role of the CEE/Eurasia Regulator in market design and operations is further discussed in broad, general terms. A fuller description of United States and Western European Regulator experience and roles, as reviewed by the Committee, is set forth in Appendix B, and a Glossary of terms is provided in Appendix C. Appendix A provides specific and detailed information on CEE/Eurasia market design and operation provided by Committee Members, as well as specific regulatory actions to further or support market design and operation.[1]

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[1] This Paper has been drafted by the Committee's Advisor to address subjects and specific matters of interest to the Committee. It sets forth principally information provided by the Committee and has been reviewed and commented upon by Committee members. However, it is not intended that the Paper's contents set forth a formal position of ERRA or of any Committee Member.

2. Competitive Electricity Market Development in Central/Eastern Europe and Eurasia

2.1 Actions Required for Competitive Electricity Market Development: There follows a description of major activities completed or substantially in progress in CEE/Eurasia to design and implement competitive electricity markets:

(a) Laws , Secondary Legislation, Market Rules and Grid Codes must be adopted which provide a structure within which stable market operation may predictably occur. Many countries in CEE/Eurasia have adopted governmental decisions or in some cases legislation and regulations which encourage energy market development. For example, Lithuania adopted a new Law on Electricity in July 2000. That Law provides that among other matters, an objective of the state is the "development of a legal framework for the functioning of a competition based electricity market and establishment of fair competition between producers and suppliers". The Law further states that the market "shall be organized on the basis of bilateral contracts between producers, suppliers and eligible customers", and explicitly authorizes "third party access" to the transmission and distribution system for transportation of the purchased electricity. [2] A similar statement is contained in the Armenia Energy Law adopted in April 2001. Moreover, specific guidance, whose necessity is further described below, is provided for Regulator structuring of the transition process from the current to the new competitive market structure, including authorization for Regulator involvement in market rules development and licensing of market operators. [3] An objective of market development, referenced in most CEE/Eurasia Laws, is the attraction of international investment capital to rehabilitate and expand quality electric service for the benefit of the national economy and consumers. Additional description of CEE/Eurasia Country Laws and Government Decrees respecting electricity market creation and operation is set forth in Appendix A.

(b) An Industry Structure must be adopted which facilitates competition and market processes. For example, it is generally considered critical that the dispatch and transmission operation function be separated from generation and distribution/supply to prevent creating incentives for favoritism of an affiliated generation or retail supply business by a monopoly transmission or dispatch operator. Access rules by which market participants may employ available capacity in the transmission and distribution system must also be developed and enforced. A thorough discussion of these matters is presented in Issue Paper # 2. Finally, the extent to which common ownership will be permitted of generation and distribution/supply must be considered, as such ownership reduces both the number of competitors and outlets for competitive sales in the sector. However, such common ownership may reduce investment and market risks in a manner beneficial to privatization and capital attraction objectives and is often permitted in countries with functioning energy markets.

(c) Market Structure and Organizations, Data Acquisition and Processing Systems, Generation Interconnection and Other Rules must be adopted that permit and provide incentives for competitive behavior, as well as which permit monitoring of potential

[2] Republic of Lithuania, Law on Electricity, adopted July 20, 2000, Articles 3, 7, 9 & 29.
[3] Energy Law of the Republic of Armenia, adopted April 11, 2001, Articles 5,10, 53 & 58.

abuse of market power and assurance that rates reflect such behavior and are just and reasonable.

(d) A system of accurate measurement of energy transfers between market members, billing, collections and payment security needs to be established. Steps must be taken to assure adequate cash collections and liquidity throughout the market.

2.2 Electricity Market Structure and Organizations under Development in CEE/Eurasia Countries: Although there is much diversity in the details, the following summarizes the principal market structures and organizations adopted or under development in CEE/Eurasia Countries.

(a) A number of Countries are developing or considering the development of parallel competitive and regulated markets. Under this concept, deregulated and regulated markets operate in parallel. A customer size and/or characteristic criteria is defined as a basis for customer eligibility to participate in the competitive market, which criteria may permit participation to both wholesale and retail customers. Customers matching this criterion are considered eligible and are permitted to select their supplier from competing generators, importers or suppliers/traders. The terms of that service and its price are established by negotiation between the eligible customer and the supplier. Energy Prices and terms of service are not established by the Regulator in the case of free trade. Remaining customers and those of the eligible class who prefer regulated pricing receive service at prices and with terms and conditions established or recommended to the government by the Regulator. Regulated services (i.e. both retail and wholesale) are provided either by contract or under tariffs, while competitive services are provided under bilateral negotiated contracts or in auction markets. Balancing and ancillary services are provided by the regulated market to customers eligible for competition at an allocated cost. A Single Buyer may operate in the Regulated Market or that function may be given to several distribution service providers. Market structures under consideration in the region include a bilateral contract market, a day ahead spot market and a balancing market operated by separate System and Market Operators. A Transmission Operator (in some cases the Independent System Operator) operates the Transmission Grid and enforces third party access rights. Financial Markets and instruments may be added as the Market matures and becomes more competitive. The transition from primarily regulated to primarily competitive occurs by decreasing the size and expanding the characteristics of customers allowed to purchase in the competitive market. CEE/Eurasia Countries which have adopted or are exploring this concept include Poland, Romania, Hungary, Moldova, Kazakhstan and the Baltic States. Between 15 and 30% of existing load has presently been opened to competition in those countries who have already implemented this model.

(b) A second market form which has been adopted or is being considered in several countries is the establishment of a mandatory Central Electricity Pool with a formal Pool Agreement pursuant to which service is provided to all customers. Such Pools have been established in Ukraine and Georgia, and is being considered in Armenia. The Pool structures adopted differ between the countries (see Section 3). In each mandatory pool, the Market Operator serves as a mandatory single buyer except where an eligible customer agrees to pay fully for supply and market services in cash and is thus permitted to obtain supply through negotiated bilateral contracts. Both Ukraine and Georgia have adopted "transit account" procedures in an effort to improve collections and liquidity in the market. The Market Operator or the Regulator allocates low cost hydro and nuclear power so as not to

permit its purchase by a single user group. In Armenia, electricity supply contracts are proposed to also be permitted, but must be registered with the Regulator and their price and other terms are subject to its approval. They must also be in accord with the terms of the Central Pooling Agreement.

(c) Many CEE/Eurasia Countries have established System and Market Operators to support competition and several have adopted specific auction market and physical or financial contract structures. For example, Romania is permitting negotiated, physical bilateral contracts supplemented by a day ahead auction market. Ancillary services are provided presently through direct purchase by the System Operator with costs allocated to market users, but it is intended that these services be obtained in the future from market auctions where possible. In Poland, a Market Operator was established in December 1999. Bilateral long and short term contracts are permitted, and a day ahead market is operated by the Polish Power Exchange in which Discos/large customers bid the price at which they will buy and generators/wholesalers bid the price at which they will sell supply. The price for all purchasers and sellers is then established at the clearing price at which the supply and demand curves intersect for each hour of the subsequent day. An hour ahead balancing market is also planned to be operated by the Polish Grid Company (i.e. the Transmission System Operator), and a Futures Market is planned to be implemented and operated by the Power Exchange . As described fully in Appendix A (at pp. 3, 8 & 14), Kazakhstan has also developed and now operates a substantial market structure with separate System and Market Operators, a bilateral contract and day ahead auction market. Additional details on each country's market structure either as proposed or under consideration is summarized in Section 3 below and further provided in Appendix A.

(d) As noted above, many CEE/Eurasia Countries have established several Operators to perform functions necessary and specific to market operations. The three principal such entities are the System Operator, Market Operator and the Transmission Operator. The development of these entities in a number of countries are still in their early stages with much further refinement planned for the future. The functions assigned to these entities, while differing somewhat between countries (see fuller description in Appendix A), are typically as follows :

(i) System Operator –assure non-discriminatory, merit-order dispatch at the transmission level for all market participants (i.e. including reflection of the real time balancing market and transmission congestion management charges) while maintaining prescribed reliability of service, acquire ancillary services, enforce non-discriminatory third party system access rules, schedule import/export transactions on Interconnectors and publish the availability of transmission capacity for use in market transactions, evaluate the technical merits of requests to connect to the grid and manage transmission congestion. The System Operator in certain countries has also been assigned both capacity and transmission system planning, market competitiveness monitoring and dispute resolution functions.

(ii) Market Operator-receive and process offers for electricity and ancillary service purchase or sale, determine generator order dispatch based on the bilateral contract and day ahead markets (but not the balancing market and transmission congestion), define payment rights and obligations (i.e. metering, billing & settlements), establish collateral requirements to improve market payment discipline, monitor the competitiveness of market operation,

collect and publish market information, market related dispute resolution and suspend the market if requested to do so by the System Operator.

(iii) Transmission Operator- administer, operate, maintain and expand the national transmission system subject to direction from the System Operator in areas of its responsibility and for the sale of grid related services.

(e) A number of documents are required to support transparent market operation including the following: (i) Market Rules, (ii) Trading and Settlement Code; (iii) Commercial Code, (iv) Grid Code; (v) Customer Standard Code, and (vi) Distribution/Metering Code. The functions of the major Codes are described in the Glossary in Appendix C. Several CEE/Eurasia Countries have already prepared these documents and a number of others are in the process of doing so. The documents are being prepared to provide a transparent and clear basis for market operation which will be applied equally to all market participants.

(f) The role which the Regulator plays or is anticipated to play in Market development and administration varies between countries. At minimum, the Regulator must continue to regulate monopoly transmission and distribution activities, both establishing the terms upon which service will be provided and price levels. The Regulator also licenses market participants, such as generators, distributors, various system and service operators (i.e. System and Market Operator), wholesale suppliers and the Transmission Operator. The Regulator also typically participates in the development of or reviews the Market Rules, Commercial or Trading Code and the several technical codes (i.e. Grid Code, Distribution Code, Metering Code). The Regulator will further review settlements and funds flow matters within the Market where these are not effected through direct bilateral contracts, including reviewing transit account balances and establishing formulae for distribution of such balances to supply and service providers. The Regulator is also likely to be active in educating customers on how to obtain service successfully under competitive market conditions, in resolving market related disputes between market participants and in evaluating and intervening in market operations to prevent the improper exercise of market power. Finally, the Regulator may be required to play a more active role in market dispute resolution and in customer protection, for example by establishing bid or price caps and enforcing behavioral standards of conduct, during a transition period until market organizations and operation has matured. Further discussion of the Regulator's role in market design and operation is set forth in Section 6 below, and for specific CEE/Eurasia Countries is described in Appendix A.

3. Summary of CEE/Eurasia Regional and Country Specific Electricity Market Developments. Additional information is provided in Appendix A.

3.1 Six **Balkan Countries** (Greece, Bulgaria, Macedonia, Albania, Romania and Bosnia/Herzegovina) signed a Memorandum of Understanding and issued the Thessalonika Declaration to create a common Balkan Electricity Market by 2006. The stated objectives for this Market are to increase member country electric system reliability, electricity trade and exchanges between the signatory nations and to increase the attractiveness of power infrastructure investments in said countries by international Strategic Investors. International Donors are assisting the Project through both technical assistance and proposals to finance significant improvements in the Balkan Transmission Grid to enhance regional electricity trade and exchanges. A joint Committee to guide the preparations for Market creation has been established.

Albania and Bulgaria Regulators have in recent months prepared for market development and operation by assisting in sector restructuring activities, licensing market participants and in developing cost-based tariff methodologies. Programs have also been implemented to improve billing and collections, reduce theft and prepare for privatization. Bulgaria has separated its vertically integrated, state-owned electric supplier into 7 generation companies, 7 distribution companies and a transmission company. Bulgaria plans to initiate competitive market opening in 2002 once enabling legislation and detailed secondary legislation have been adopted.

Romania has restructured and unbundled its electric system, adopted a proposed market structure and opened 15% of its electric market to competition. A competitive energy market is already in place and an ancillary services market is planned for the future. A market structure with parallel regulated and competitive markets has been established with the intention that the regulated market will gradually diminish and the competitive market grow in coming years. The present 15% degree of market opening consists of 19 eligible, large industrial customers having at least 100 GWH/year consumption, a stable and healthy financial situation and no debt to existing suppliers. In February 2001, five bilateral contracts covering 7% of actual load were negotiated and signed by members of this eligible customer group with competitive electric suppliers, and more are expected to be signed in future months. The magnitude of contracts signed has to date been limited by ANRE's decision to maintain proportional allocation of low-cost power (i.e. hydro and nuclear) between the regulated and competitive markets. This, as well as the lack of cross-subsidies (thermo-hydro) raising rates above average cost levels of generation for these customers and continued collections/cash flow difficulties to generators, restricts the ability of state-owned generators (who also serve the regulated market) from offering competitive rates which are below regulated rates. Nevertheless, Romania is seeking to match the EU Directive required 35% market opening in 2003.

The competitive market consists of negotiated, physical bilateral contracts and an imbalance pricing auction based on day-ahead bids. Dispatch is on the basis of generator provided bids but adjusted to provide priority for necessary hydro and nuclear generation to meet minimum water flow and nuclear plant operation requirements. Ancillary Services are planned to be obtained where possible through a market auction, but are presently purchased by the System Operator based on an annual contract . Prices are approved by ANRE. A, Market Operator (OPCOM) have been established as 100% state-owned subsidiaries of the transmission asset-owner, Transelectrica , who has Transmission System Operator role. ANRE is responsible for monitoring market operations and intervening to enhance competition where required, including the enforcement of generator bids, settlement procedures, ancillary service contracts, enforcement of third-party access and regulation of prices and terms of service for remaining monopoly transmission, distribution, dispatch and market administration services. ANRE has adopted secondary legislation which establishes an electricity market framework designed to accomplish (i) a market oriented attitude on the part of market participants, (ii) fair market relationships and (iii) lowest reasonable prices for end-users. Transmission rates are set on a zonal basis to reflect differing congestion costs at different points on the system. When a Regional Financial Exchange is formed, Romania will be ready to join.

3.2 In April 1999, the Prime Ministers of the three **Baltic States** signed a Memorandum of Understanding providing for the development and establishment of a

Common Baltic Electricity Market with a present objective that it begin operation in 2002. This objective has been reaffirmed on several occasions since, most recently on July 9 when the three Prime Ministers issued a resolution reaffirming support and calling for the creation of Transmission Service Operators in each country which are separate legal entities from each country's integrated service provider. A Joint Regional Working Group is preparing joint Market Rules and a Grid Code. A number of meetings have been held between Baltic Regulators and TSOs, including DC Baltija - the Baltics Regional System Operator responsible for cross border power flows and system security, to discuss increased coordination in national system operation and the development of a regional electricity market. A number of decisions on market model and related matters, however, still need to be made, though a recent EU funded Consultant's Study has recommended adoption of parallel regulated and competitive markets as described in Section 2(a) and (c) above. Separate Transmission System and Market Operators have been established in each Baltic country, but as a separate accounting and managerial division of the state-owned integrated service provider. **Estonia and Latvia** have, and **Lithuania** will shortly, permit defined eligible, large customers to negotiate their supply contracts on a competitive basis. In Estonia, a customer must have demand of 8 MW and annual kwh consumption of over 40 GWH/year and be an industrial or CHP plant to qualify to obtain its supply through negotiated bilateral contracts. The total load thus served equals 20% of total Estonian load (10 different customers).

Very substantial cross-border power flows exist in the Baltic Region, both because of Latvia's status as a net importer and the substantial exports of power from Estonia (Narva) and Lithuania (Ignalina) to Russia, Belarus and Kallininingrad. In early 2000, there was discussion (not presently being continued) of merging the Estonian and Latvian integrated electric providers, and two major transmission projects between Poland and Lithuania and Estonia and Finland are being discussed along with the possibility of the Baltics joining Nordpool in the 2003 to 2005 time frame. Within the past year, Estonia completed the privatization of its largest generation plant, the Narva oil-shale power plant, and two small distribution and CHP plants to a single buyer. Due to the significant required environmental and rehabilitation investments required, a 15 year Power Purchase Agreement under which Eest Energi is to purchase Narva electric generation was signed as a part of this transaction. The recently adopted Lithuanian Law on Electricity and Regulator adopted Secondary Legislation is consistent with the adoption of the market form described above.

3.3 The **Caucasus States, Armenia** and **Georgia**, are considering or have adopted Central Pools with formal underlying Agreements. While the majority of supply flows through the Georgia Wholesale Electricity Market (GWEM), Georgia permits bilateral contracts and 15% of supply is acquired through this mechanism by 21 different customers. A request is presently pending by the owner of Georgia's one privatized distributor that it be permitted direct bilateral contracts for all of its wholesale electricity purchases. In Armenia, it is proposed that prices and terms of service for supply as well as monopoly transmission and distribution will be set by the Regulator. Both the Georgia and Armenia markets will include transit account mechanisms (i.e. regulated accounts in commercial banks) to improve collections and funds collected will be allocated to market participants either based on a formula established by the Regulator (Armenia) or by the Market Operator (Georgia). The GWEM, moreover, is a legal person in the form of a Union (Association) of market participants (i.e. licensees and eligible customers) and is required under the Electricity and Natural Gas Law to operate independently of any specific market participant or group and in compliance with its Market rules and Technical Code. All sector licensees and direct serve

customers are required to be members of the GWEM and it is the only permitted electricity market in Georgia. GNERC has the authority to disapprove direct contracts for wholesale electricity sale or purchase, whether domestic or for import/export. Ancillary services are obtained through direct contract or by the Market on a fee basis. GWEM provides all energy imbalance and settlements functions for the market.

The Armenia Energy Regulatory Commission has noticed a rulemaking proceeding to develop a market structure to implement Armenia's new law authorizing a competitive electricity market . The structure being considered is a Central Pooling Agreement which provides for merit order economic dispatch, the mandatory pooling of resources and resource needs and the placement of liabilities directly on market members. All supply and transmission service transactions are proposed to take place in accordance with the terms of this Pooling Agreement. Armenergo, the dispatch licensee, will also hold three licenses for the provision of central contracting, dispatch and settlement services. A market banker is proposed to be selected to organize a series of transit accounts to enhance collections and to properly allocate funds flow within the sector will be established. These accounts will be effected with a commercial bank. Financial guarantees will be required from purchasers (and especially export purchasers) to assure that payments for supplies and services provided through the market are received. No other supply or service agreements are proposed to exist outside of the Central Pooling Agreement for at least five years.. Specifics as to load to be served annually and monthly will be filed with the AERC under the Agreement and are added to service tariffs as attachments. Such matters may include required Supplier peak load and energy requirements and limitations on Generator supply availability. The Market Contracting Center will employ this information to define the proposed sales transactions by month and year which are then reported to the AERC and affected under the adopted tariffs. Prices will not be set by competition, but rather by the Regulator. The Market Dispatch Center will then evaluate this information to develop a proposed merit dispatch order and to ensure short and long-term system reliability. Ancillary services will be bundled with energy, capacity or transmission purchases from generators or the transmission network. .

3.4 Hungary's Parliament is presently considering legislation to authorize and establish principles governing an Electricity Market . This legislation is part of a package of thirty bills or amendments necessary to bring Hungarian Law into compliance with EU accession requirements. The Model being considered is the "Parallel Competitive/Regulated " Model, similar to the Baltics and Romania. The specialty of the Hungarian model is the Public Service Wholesaler as a non by-passable one for the Public Suppliers. The selling price of the Public Service Wholesaler and the Public Suppliers remain regulated for those who are captive consumers or for those "who choose not to choose" another supplier (trader), but remain at Public Supplier. Under this Model, criteria will be adopted to define customers eligible for competition in supply choices, these customers will be permitted to negotiate prices and other terms with suppliers and the remaining customers will continue to be served under regulated rates and terms of service. Approximately 200 large customers (i.e. usage of more than 6.5 GWH per year and approximately 30% of the market) are planned to be permitted competitive service in the first step toward full market opening, and are required by the legislation to purchase at least 50% of their electricity from local suppliers until Hungary joins the European Union. The Market is anticipated to begin operation in January 2003. A separate System Operator (MAVIR) has been established as a wholly owned subsidiary of MVM (the GOH owned transmission company with wholesale function and with generation companies) . Ownership of MAVIR will be transferred in February 2002 to the Ministry of Economic Affairs to separate it from the Government's owned generation

assets. MAVIR will be responsible for both grid administration and balancing system supply and demand. The Ministry expects to invite market participants to form an Advisory Committee which will have input into market related decision-making. Hungary has some high cost PPA's which could cause stranded cost and increase the difficulty of moving to a competitive market. Simplified licensing procedures are being adopted to encourage and speed up generation construction. It is planned that the Regulator will be empowered to issue import and export licenses, to invite tenders for the construction of new power stations when it determines that a need for such exists, will be strengthened in autonomy and will be authorized to set minimum quality standards.

3.5 Poland first adopted a plan for the establishment of an Electricity Market in April 1999 (i.e. by three Ministries - Treasury, Economy & Finance). In December 2000, a detailed blueprint of the Market was created in a document entitled "Operational Rules for the Polish Electricity Market in the Year 2000 and Beyond". In July, 1999, the government issued a tender for an entity or consortium to establish and operate the Power Exchange and a consortium headed by Elektrim SA was selected. The Polish Market Operator is owned 27% by the State, 10% by the Polish Grid Company (i.e. the Transmission System Operator) and between 1 and 10% by other market participants. It is planned that the State will divest its shares gradually over time in a manner to preserve a balanced participant ownership of the Market. Bilateral long and short term contracts are permitted. In addition, a day ahead market is operated by the Polish Power Exchange (i.e. Gielda Energii SA) and a single clearing price is established based on the supply and demand bids submitted for each hour of the day. An hour ahead market is also planned and will be operated by the Polish Grid Company (the Transmission System Operator). A futures market is planned for implementation by the end of this year, also to be operated by the Power Exchange. To date, the Power Exchange, which began operation in July 2000, has handled transactions equaling on a daily basis up to 3% of total national demand. Customers with an annual usage in excess of 40 GWH/year are permitted to participate in the Market. Although these customers amount to 40% of Poland's electric demand, no contracts have yet been signed due to the time required to resolve the PPA difficulties affecting 70% of generated electricity. The Polish Energy Grid will continue to serve as single buyer as well as transmission operator for customers who are not eligible or do not purchase electricity in the Market.

Participation in the Market is permitted only to Regulator licensed sector entities who have signed a Participant Agreement and thereby agreed to abide by the Standard Terms of Participation, have met market collateral requirements and paid an annual fee. Implementation of System Oplat Kompensacyjnych (SOK – see Committee 2001 paper presented by Polish Representative) has been delayed by the complexity of this compensation scheme and the size of the financial stakes in the Polish generation sector affected by its adoption. Long-term Power Purchase Agreements signed to obtain capital to be used in environmental remediation and plant rehabilitation contain prices which are 10 to 25% above actual Polish market prices, and such agreements cover 70% of Polish generated electricity. Implementation of SOK requires that generators and their lending banks agree to accept compensation from a State established fund financed by a non-bypassable charge on electric usage. A total of 36 PPA contracts must be reformed through three party negotiations before the system is fully implemented, and the timing and success of this effort remains uncertain.

Poland has had an active privatization program over the past year. Minority stakes in two distribution companies (25 to 35% with a market share of 12%), three CHP plants and

the Nation's second largest coal fired generation plant have been privatized. Poland is now seeking to privatize a minority interest in its largest coal fired plant and in the G-8 northern regional discos who have a 16% share of the distribution market. Cross-ownership of generation and distribution is being permitted. Plans exist for construction of a new 833 MW coal-fired generation plant and for the privatization of an additional six distribution companies combined with a smaller generation plant.

3.6 In the **Central Asian Republics, Kazakhstan** has established separate state owned Transmission System(KEGOC) and Market Operators (KOREM) and operates a market based upon bilateral contracts and a separate market for reserve power. Legal authority for these markets was enhanced with the passage of Republic of Kazakhstan Law No. 144-11 of January 19, 2001, "On Competition and the Restriction of Monopolistic Activity" and by the adoption of regulations and directives on market operation, system/market operator formation and procedures of operation, all as more fully described in Appendix A.

KOREM uses market-based mechanisms to (i) manage the commercial dispatching of electric generation in the wholesale market employing daily prepared 24-hour schedules based on orders from wholesale market participants; (ii) monitors market participant compliance with the established daily schedules and assures that scheduled supply and consumption are balanced; (iii) measures individual participant sales and consumption and prepares settlement documents; and (iv) arranges centralized trading sessions for spot electricity and capacity and operates the ancillary services market. Ancillary services obtained through bilateral contracts include reserve and regulating capacity. KEGOC operates the 220 KV and above interregional power grid, transmitting electricity between and within regions based on transmission service contracts and is responsible for assuring reliable system operation. Both KOREM and KEGOC are closed joint stock companies incorporated and fully owned by the Government.

Third party access is required to be provided through the transmission and distribution systems, and independent wholesale suppliers s are permitted to participate in the Market. Draft Electricity Grid Regulations which further define grid access rules and procedures are presently under consideration for adoption. Bilateral forward contracts between generators/independent wholesale suppliers and wholesale customers are permitted for a period not exceeding one year. The cost of electricity provided by generators has fallen as a result of competition on the wholesale electric market. The cost of power transmission and distribution services set by the Regulator has stabilized, and the Regulator also establishes retail electric supply prices, dispatch service prices and prices for the services provided by the Market Operator (KOREM). A more detailed description of these tariff or contract prices and their determination is set forth in Appendix A. Payment discipline on the part of wholesale market participants has improved. More than 100 participants are presently active in the wholesale electricity market. The Regulator studies the markets and the degree of competition in them and formulates measures to enhance competitive activity and to prevent or regulate monopolistic activity including preventing unfair competition.

Experience with the markets has indicated the need for a day ahead and a real-time balancing market whose establishment is now being considered. These markets will provide for centralized electronic trading and are planned to begin operation late in 2001 . A financial contracts market is also planned. Non-payment and barter payment for supply and services has been a significant problem for successful market operation. To address this

problem, market participants are required to pay a "guarantee fee" to participate in market trading activities. The guarantee fee provides collateral as protection against non-payment of market purchases and related charges. As described above, improvements have been achieved recently in payment discipline. Both a Grid Code and Market Rules have been approved and are in operation.

In a recently proposed natural gas industry Strategic Plan, the Kazakh Ministry for Energy and Mineral Resources has proposed greater use of state-of-the art natural gas turbine stations to generate electricity in regions where surplus gas supply is located and existing generation is inadequate, and further distribution asset privatization is planned.

Kyrgyz Republic has recently adopted legislation to restructure and privatize portions of its electric sector assets. By September 2001, the energy system was completely unbundled. Five distribution companies (including a heat distribution company), a generation company and a national transmission company (which also performs dispatcher functions) were formed . The Government owns 93% of the stock of the newly formed companies. According to the Directive of the Kyrgyz Government, work is underway to attract investors, and the distribution companies will be up for sale in the near future. The generation company (substantial majority hydro powered) and the national transmission system will remain in government ownership.

In support of the industry restructuring and future privatization, the Grid Code for the National Transmission System and the Financial Model for Cash Flows from the User to the Producer of Electricity and Heat have been developed. Changes have been proposed to the National Program for the Development of the Kyrgyz Power Industry for the 2000-2005 period. A draft of this program is being reviewed by the Government and is subject to its approval. The Republic is a major exporter of electricity produced from hydroelectric facilities. Licenses must be obtained from the Regulator to export or import electricity. Both wholesale and retail electricity and district heat sales are effected on the basis of standard service contracts developed and approved by the Regulator. Contract price levels are established by the Regulator, but certain contract terms may be varied by the parties if approved by the Regulator.

3.7 Moldova has established a wholly state-owned System Operator who is licensed by ANRE and is responsible for transport and dispatching of the electric power system. Wholesale supply is obtained through bilateral contracts which are not subject to ANRE review but which are filed with ANRE. Retail supply and services remain subject to ANRE regulation. . Third party access to the transmission and distribution network is permissible under the law but is subject to ANRE approval. Thus far ANRE has not allowed retail direct access. . ANRE Staff and other energy sector participants have developed transitional Power Market Rules that have been recently approved. The rules provide guidelines for bilateral transactions, ancillary services, settlements and market behavior. No license is required to engage in export and import transactions. Ancillary services, as respects the obtaining of reserves required for reliable system operation, are currently the obligation of the supplier and are built into the power purchase agreement. Reserve power may also be separately contracted for by the distribution system. Other ancillary services are provided by the System Operator. Their costs are charged to the participants through transmission tariffs.

3.8 Russia has implemented a federal (national) wholesale power market (FOREM) through which power is bought and sold between Regional Electric Companies with surplus or who are short. As much as 30% of Russian electric production has flowed through the

FOREM Market in a given month. Article 3 of Federal Law No. 41-FZ of April 14, 1995 "On Government Regulation of Rates for Electric Power and Heat in the Russian Federation" establishes the following objectives for that market and competition in the electric sector generally: "[F]ostering a competitive environment in the power sector to increase its functional efficiency and minimize rates" and "ensuring that the producers of electric power have equal access to the federal (national) wholesale electric power (capacity) market regardless of their organizational or legal form." Several large industrial customers (i.e. aluminum smelters) have recently sought to obtain direct access to this market. The Federal Energy Commission and RAO-UES cooperated in the drafting of trading regulations for this market which began operation in mid-2001. Prices are capped by the Regulator and only registered members are permitted to trade.

Russia has also adopted a plan to restructure integrated electric utility RAO-UES. The plan includes the creation of a wholly state-owned Federal Transmission Company later this year to own all transmission assets (i.e. those presently owned by RAO-UES and by Regional Companies) and the spinning off of its thermal and hydro generation into five to seven generation companies. The Federal Transmission Company will initially be a 100% owned subsidiary of UES, but will be separated upon UES functional unbundling over the next several years. Prior to June 2002, this new Company is expected to take over all UES grid assets, to provide all grid operation services and planning functions and to develop grid access and use tariffs for approval by the Regulator. Nuclear generation owned by RosenergoAtom would, under this plan, be divided into two companies. A System Operator will also be created by merging the RAO-UES Central Dispatch Unit and Regional Company Dispatch Centers. A Committee of prospective market participants has been formed to assist in drafting the Charter and operating rules of the System Operator (i.e. to be called the Administrator of Trade System). A draft Law will be presented to the Duma later this year to authorize these and other actions described above . It is anticipated that developing the necessary approvals of the legal and regulatory structure to permit these actions and the creation of the market will require up to three years. At the end of that process, a competitive electricity market will be created and generation and distribution assets will be privatized over a several year additional period. The competitive electricity market is expected to begin operation in 2004 upon completion of the restructuring described above.

3.9 Article 15 of the Act of **Ukraine** on Electricity Sector establishes the wholesale electricity market, authorizes third party access for the transmission and distribution systems and requires the Market to serve as the single buyer of all generated or imported electricity. The operation of other wholesale electricity markets in Ukraine is prohibited. The Market is to be created on the basis of an Agreement between the market participants (i.e. generators, distributors, the dispatch operator, transmission service provider and electric suppliers). This Agreement, which was subject to approval by NERC and the Anti-Monopoly Committee of Ukraine, specifies the manner of market operation, the relationships of participants and the rules respecting governance and price determination. Only licensed electric providers who sign the Agreement may participate in the Market. The Wholesale Market Operator, Energorynok, a wholly owned government company, manages the single buyer function, and arranges the necessary transmission services. NERC is authorized to establish GOU policy respecting the Market, including enforcing compliance with Market procedures and transmission access requirements, and sets nuclear, CHP and hydro prices. Such units are "must run" in the dispatch order and their low-cost supplies are effectively allocated between market participants . Thermal units are priced at competitive levels on an hourly basis, though NERC has and exercises the authority to restrict offered bid levels. Ancillary

services are not presently provided on a market basis, though plans exist for such a market and for the development of a power exchange to trade futures contracts. Electricity import and export is not presently licensed , but price levels are regulated by NERC.

In June 2000, Article 15 was amended to establish the "transit account system", through which customer payments are made to a specially designated account in a local bank. Payments are then made from this account to various service providers and to retail electricity suppliers on the basis of an algorithm established by NERC. These latter in turn make payment to specially designated accounts of wholesale electric suppliers, and the funds thus collected are distributed to generators again in conformance to an algorithm adopted by NERC. By this means, customer payments are flowed through the electricity sector in a manner which reflects service or supply provision or costs incurred. There have, however, been criticisms that the algorithm process can permit political factors to influence sector cash flow allocations. Market participants who pay 100% of their market obligations in cash, and agree to also repay their past sector debts, are proposed to be permitted to purchase electricity supply and services under direct bilateral contracts and to pay their suppliers directly without use of the transit account mechanism. Allowance of full bilateral contracting is not presently anticipated before 2005.

NERC directly monitors electricity market operation to assure competitiveness and ratepayer protection through receipt of daily reports from the Market Operator including the following data: 24 hour operating data of the Unified Power System of Ukraine, asking prices of the power generation units of the thermal power plants, data on the amount of electricity generated by power generators, total power supplied by power suppliers, as well as total payments owed to power generators and the payments owed by power suppliers, data on wholesale prices for purchasing power from thermal generation units and data on the calculation of wholesale market prices for electric power.

4. Contracts employed in the furnishing of Energy Services in CEE/Eurasia

4.1 Contracts play a very much expanded role in competitive as compared to regulated markets. Contracts may form the basis of formation and prescribe the terms for formal market organizations and transmission or market operators, as well as specify the manner of market operation. Contracts may also form the basis for transfer of energy between market participants (i.e. bilateral supply contracts) or for hedging or other financial transactions. Finally, contracts may form the basis upon which supply and wires services are provided to individual customers. Appendix B sets forth a description of the uses of Contracts in energy markets in Western Europe and the United States. United States Regulators require registration and will approve the terms of contracts affecting directly their jurisdiction. For example, all tariffs or contracts which underlie regulated service must be presented to the Regulator for approval. Competitive market contracts, on the other hand, such as supply contracts in a deregulated market, are not subject to regulatory approval though there filing with the Regulator may be required. Contracts which underlie the formation of markets and market organizations, however, such as the PJM Agreements described in Appendix B, are generally subject to Regulator approval since these contracts have a direct effect upon whether the consumer protection and other objectives of the Laws which the Regulator must enforce are achieved. Thus, unless the Market's operating procedures and other terms are appropriate for their purpose, just and reasonable rates, an objective of the Law which the Regulator must enforce, will not be achieved. Accordingly,

the Regulator reviews and approves these Agreements to assure that their workings will achieve the Law's objective.

4.2 Section 3 and Appendix A provide descriptions of the use of contracts in CEE/Eurasia Countries. As described elsewhere in this paper, negotiated bilateral contracts for electricity supply (i.e. physical delivery contracts) are permitted or proposed in a number of countries. Such contracts, of course, form the basis of the bilateral contract market, but also of all other markets including any balancing and ancillary services markets. Contracts, or Tariffs, a regulatory form of contract, are employed in providing electric supply and services to customers in both the regulated wholesale and retail markets. A Central Market Agreement or other similar agreements are or may in the future be employed as the basis for establishing market governance, operations procedures and the relationship between market participants in competitive electricity markets in a number of countries . Specific market related services will also be obtained under specialized contracts with either market or regulated pricing. In regulated markets (i.e. transmission and distribution services; regulated supply), Regulators participate in drafting and approve the contracts employed, including price levels and terms of service. In competitive markets, Regulators may participate in drafting model contracts which participants may revise based on their negotiations, such contracts may also be subject to Regulator approval for specific purposes (for example, allocation of low cost, limited quantity electricity supply) and such model (pro-forma) contracts typically must be registered with the Regulator before they can become effective. Regulator involvement in the preparation of these model contracts for small user service is significantly greater than for large users with more sophisticated abilities. Finally, a number of CEE/Eurasia Regulators retain the authority to review and approve prices and other terms of service even in competitive markets, at least to a much greater degree than do United states Regulators.

5. Approaches to and Difficulties in Competitive Electricity Market Implementation in CEE/Eurasia Countries

5.1 As described in Appendix B, the implementation of competitive markets in the United States and Western Europe is occurring gradually and a number of problems have been experienced. Some have been resolved and others are still being addressed. In this Section, difficulties in market implementation are discussed. The purpose is to identify the more significant decisions required and difficulties being or likely to be experienced in market implementation in the Region and alternative approaches to their resolution.

5.2 Concurrent Privatization and Competitive Market Development: Many CEE/Eurasia Countries are seeking to privatize significant portions of their electric systems and attract substantial investment capital to rehabilitate those systems at the same time that they are seeking to design and open competitive markets. This is a difficult, but not impossible task. Moreover, it is a common problem faced by all countries in the region and by developed countries who are creating such markets as well. Are there any adjustments in market design or regulatory approach that permit greater ease in achieving each objective - i.e. market opening and substantial immediate capital attraction?

One approach that is being employed in the Region is to involve potential Strategic Investors in the market design process. By that it is meant that the views of those investors

on market structure, the need for gradualism, identifying any unintended barriers to achieving needed sector investment and other matters significant to recovery of the investments they are asked to make be sought before the structure is finalized. Second, careful attention needs to be given to the transition from current to market operations, including consideration of what transition and ultimate market structures will best support the objectives of the privatization - i.e. capital attraction to benefit the economy and customers. It must be remembered that markets can impose risk as compared to integrated, monopoly operations if they are poorly crafted or their design and operations are not clearly understood. The principal risk imposed is that capital investments will not be recovered. As described in Section 2.1(a) above, obtaining such investments to rehabilitate and improve the electric system is one of the several principal purposes of privatization and of market development. Market structures may need to be established or adjusted during a transition period to provide reasonable assurance that privatization related investments will be recovered or the investments will not be made. A balance which most serves the public interest must be achieved between the needs to attract investment for plant rehabilitation and expansion, rate payer service and price protection and implementing market principles intended to promote economic efficiency. This issue most often comes up with respect to rehabilitation or environmental expenditures at generation plant and whether a long-term Power Purchase Agreement is needed to enable the making of such investments. or whether exclusive service rights for distributors at the retail level is required to encourage distribution system rehabilitation investments. Finally, risk is reduced and the likelihood of investment attraction maximized by achieving the greatest transparency and clarity of market structure and planned operations possible, and particularly clarity as to the rules affecting investment recovery, prior to the privatization bid due date, and by giving precedence to privatization related agreements at least during a transition period .

5.3 Treatment of Above Market Costs and Related Stranded Investments: A number of CEE/Eurasia Countries have successfully attracted private investment to rehabilitate existing generation and distribution plant and have supported those investments with Power Purchase Agreements or License terms necessary for recovery of such investments. Such PPAs or License terms may, however, restrict the flexibility to select certain market structures or even to adopt the competitive market form. Perhaps the most severe example of this, Poland's Purchase Power Agreements covering 70% of its generation whose terms mandate specific pricing which is 10 to 30% above market levels, is explained in the Polish representative's paper presented to the Committee entitled "Case Study of the Polish Compensation Fee System". This fee system, as with the recovery of nuclear plant capital investments and PURPA contract costs as stranded costs in the United States and Western Europe, imposes a non-bypassable charge upon electricity users whether served through the regulated or competitive markets and regardless of supplier. Funds collected from the application of this charge are employed to pay the amounts owed under the PPA's which exceed market prices. Clearly, the creation of new stranded costs through additional privatizations or PPA's is not desirable immediately prior to market formation, but the needs of each Country's electric system and the uncertainties related to whether costs will be stranded must be individually evaluated to determine what is the best course of action.

5.4 Establishing a Market of Sufficient Size to achieve National Objectives: The ability of a Market to reduce customer costs or to offer innovative and desirable products is increased where the size of the Market is increased at least until a certain "threshold" size is reached. Present competitive electricity markets in the United States range in size from 25,000 MW to 55,000 MW , as compared to the size of several of the national markets

described in Section 3 which range from 2,000 MW to 10,000 MW. Several of these Markets have at most three to five generators, several of which are hydro plants with constrained capacity, and an equal or lesser number of distributors. As explained in Issue Paper # 3, market power concerns arise in markets with this few market participants. Thus, it would appear desirable for several of these "National Markets" to consider combining into Regional Markets or to at least create strong trading relationships between themselves and their neighbors in order to increase the diversity of suppliers and purchasers in the market place. As noted in Section 3 , several proposals for Regional markets (i.e. the Balkans and Baltics) are under active development, and both in the United States and, of course, in the European Union, the development of electricity markets which span state or national boundaries is either a reality or under active discussion.

5.5 Cross Border Trade in Electricity offers significant cost and other potential advantages to CEE/Eurasia countries including improved electric system reliability, security of supply and perhaps reduced environmental effects of power production. An electric system with reliable interconnections to surrounding systems is not required to maintain as large a capacity reserve to achieve the same level of supply reliability (a significant capacity cost saving), and may achieve operating cost reductions from exchanges of energy with systems having different peak production or usage periods or generation fuel sources than its own system. To achieve these cost savings and other benefits, it is necessary that the transmission and generation capacity available for such transactions be identified and publicized to market participants, that the opportunity to achieve savings from such transactions be investigated and that a legal and regulatory structure supporting such transactions be adopted. This latter structure should include transparent rules for obtaining entitlement to cross border interconnectors and internal country transmission capacity, appropriate tariffs for the export, import or transit of electricity through each involved nation's transmission facilities and a process for purchasing/selling power (including its pricing) and obtaining permission for its export or import. Import/export trade also requires decisions respecting how the benefits or cost of such trade are to be shared with internal ratepayers and what magnitude of load reliance or additional generation is to be constructed to permit such trade.

Substantial cross border trade already exists in CEE/NIS Countries as described in Appendix A. The development of approval processes and technical codes to assure that Export/Import transactions are mutually beneficial to the countries involved, that their benefits are properly shared between investors and customers while still providing sufficiently strong incentives for companies to undertake such transactions, assuring that the transactions do not threaten local or regional service reliability and that approval processes are not so burdensome as to unreasonably discourage such transactions is of great importance to CEE/Eurasian Countries. License or other justification requirements are imposed on such transactions by at least half of these Countries, and several are presently evaluating the appropriate tariff and technical requirements which should be present to support transaction approval. As guidance for this process, Appendix B sets forth a summary of United States and European standards applicable to this matter, including the recently proposed EU transitional tariff and capacity auctioning procedure.

5.6 Establishing a Market where there are Substantial Differences in Generation Cost: A further difficulty in market structuring in the CEE/Eurasia region is the differential in generation costs. This difficulty exists in the United States and Western

Europe also, but its nature is somewhat different and the alternatives for resolution are , therefore, also somewhat different. In the CEE/Eurasian region, certain national systems have substantial hydro generation (20% of energy produced or above) and substantial nuclear generation (also 20% of energy produced or above). This generation, because capital costs have already been recovered or were not fully recorded and recovery sought under former accounting standards, is substantially less expensive than most countries marginal generation source, natural gas fired combined cycle production. If bilateral contracts are permitted in the market mechanism, and especially in a region where domestic customer nonpayment is a significant problem, this lower cost energy would be diverted from current availability to all customers to those with the best resources to pay cash for it. Electric costs for other customers would increase. Alternatively, if certain Central Pool market structures which set the clearing price at the bid for system marginal energy, were to be adopted, energy cost to all customers could increase as these generators would be entitled to receive the higher cost bid necessarily bid by natural gas fired generators because of the latter's higher cost to generate. To prevent either of these occurrences, these lower cost resources can be allocated or averaged between regulated and competitive markets and even between customer classes and their rates can remain regulated. This is in fact practiced or proposed in the Central Pool Markets adopted in the region, i.e. Ukraine and Georgia. In Romania, which is adopting a parallel market structure with both regulated and competitive markets, hydro resources are allocated proportionately between the two markets, while nuclear resources are at present reserved entirely for the regulated market. As noted below, this practice has resulted in lesser cost savings available to competitive market participants and thus reduced the competitive market's activity level.

5.7 How Generation is Dispatched in Competitive Markets: In a regulated market, generation units are typically dispatched with the objective to achieve the lowest production cost for the total electricity that must be supplied. This means that lower operating cost units are typically operated before higher cost units are brought into production. In addition, certain units require longer or shorter to increase or decrease production and must be run or are most economical if run at a certain production level. All of these matters are factored into the "merit order" dispatch (i.e. the sequence of generation unit dispatch) in a regulated market. However, as Appendix B explains, certain market forms select generation to operate, not based upon its actual cost, but rather upon what its owner/operator has bid as a sales price into the market. While such bids should be reflective of cost, they are not necessarily identical. Where bids are used to determine what generation will run, the Market or System Operator must develop a "bid based dispatch" to be communicated to the dispatch center. This dispatch must, moreover, be adjusted to reflect unit physical operating restrictions (i.e. requirement that a unit be operated at a certain production level or that production be increased or decreased at a specified rate) and transmission congestion which may prevent certain desired unit operation or increase its cost to make it economically undesirable. Various mechanisms exist for alleviating transmission system congestion (i.e. for example, by operating units in the geographic area of the load rather than the selected lower cost units), but these have costs that may render a proposed market transaction uneconomic. In addition, various locational or zonal transmission pricing methods could be adopted to discourage certain transactions that increase congestion. Finally, there are market structures which do not alter the traditional cost based dispatch order, either because the market itself is based upon cost or is entirely financial and not physical in its operation. Thus, there are choices to be made respecting how dispatch will be performed, at least during a transition period to full market implementation. Fully developed markets typically employ a bid based dispatch.

5.8 The Need for Tariffs to be based upon Cost of Service: If tariff rates for large customers (i.e. non-domestic customers) exceed the actual cost of their service, such customers will be easily attracted by competitive service providers (i.e. will leave the former monopoly service provider). While this could be both expected and desirable, it may raise issues of the effect of such defections upon the rates of other customers and upon privatization agreements with the former supplier (i.e. likely a Distributor). In a number of CEE/Eurasia Countries, industrial or other large customer rates under regulation exceed a reasonable calculation of their costs (including a proper allocation of joint costs under a class cost of service allocation). Implementation of a competitive market under these conditions, threatens rate increases to domestic customers or financial losses to their suppliers as the subsidy from large customers is lost when they transfer their service to the competitive market. It is best that such subsidies and other non-cost based rate discounts not funded by the State be avoided prior to initiating market operations.

5.9 The Need for Improved Cash Flow & Funds Allocations Between Sector Members: Collections from end-users in some CEE/Eurasia Countries historically did not exceed 50% of the cost of providing service, and generation companies would receive payments which were less than 30% of their costs to produce power. Attraction of sufficient competitors to comprise a market and of necessary capital for plant rehabilitation will be difficult in such an environment. Markets require liquidity and the opportunity for a reasonable return upon capital investment to attract participants and to operate. Markets do not by themselves correct nonpayment problems though they can make a contribution to doing so. For example, both in the United States and in certain developed CEE/Eurasia Markets, credit standards have been adopted which market members must satisfy. These standards require that, as a condition for membership or participation in the market, each member must provide financial data, including annual and quarterly financial statements, rating agency evaluations or other relevant data. Based on this data, a limit is placed upon the magnitude of "credit" (i.e. non-cash transactions) that the proposed member may engage in. This "credit level" is limited to that which it is felt the market member is likely to be able to pay back given its financial resources and the risks of its operations. The member is required to advise the Market Operator if events adverse to its financial condition occur after the evaluation and may also increase its "credit limit" by providing collateral or a payment guarantee (i.e. a letter of credit, surety bond, etc) The risk of non-payment is also a matter addressed and mitigated in standard market contracts as discussed in Appendix B (at pp. 13 & 15).

On the other hand, it does not appear that wholesale markets can effectively employ service disconnection, other than to large non-domestic customers, to enhance collections experience. Service disconnection at the wholesale level disconnects both paying and non-paying customers and may be politically infeasible in many countries. Thus, privatization or the use of transit account procedures operated by intermediaries independent of sector companies or the Government should remain a priority along with market creation. Markets, however, can contribute to improvements in collections experience where the market is able and does adopt reasonable collateral or financial strength criteria applicable to market participants. Several CEE/Eurasia Markets have adopted such requirements (See Appendix A).

5.10 Assurance of Supply, Service Quality and Operating Reliability: In designing market oversight organizations, it is necessary to specifically charge one

organization with assuring operational reliability of the transmission grid and perhaps one or different organizations with achieving long-term supply reliability. Transparent rules and processes for achieving these objectives which do not discriminate between competitors must also be adopted. In the United States, the System Operator is responsible for operational reliability of the transmission grid, including the instantaneous balancing of supply and demand and for transmission system congestion management. [4] Retail and wholesale suppliers are generally required under ISO Rules to be responsible for assuring that they have sufficient supplies in the near term to meet their loads including necessary generation reliability reserves. Various cost penalties (i.e. deficiency charges) are assessed in the event that the supplier fails to maintain contractual entitlement to the required reserves. ISO Rules seek to create incentives as well as establishing mandatory standards for Load Serving Entities (LSE's) which require them to purchase reserves and other services needed to assure reliability in order to avoid penalty charges. The ISO, State Regulators and the Department of Energy monitor the adequacy of long-term supplies, which essentially means the rate in increase in load and the construction of new generation capacity. Increasing market prices due to shortage as LSE's seek to purchase reserves needed for reliability is relied upon, at least in part, to provide the necessary incentive to encourage needed new construction and thus a continuously adequate supply of reserves. Government intervention remains a possibility in the event that the studies noted above show that reserves are becoming inadequate despite these market incentives. As described more fully in the Committee's 2000 Issue Paper entitled "Measuring Electric and Natural Gas Supply/Service Quality and Providing Incentives for Improvement", Regulator's should also consider establishing service quality programs for regulated and standards for supply services to prevent undesired deterioration in service quality while competitive markets are being established. Otherwise, supply and service provider attention to competitive issues may lead to reduced investment and attention to maintaining particularly regulated service quality.

5.11 Assurance of Customer Protection through Market Competition and during any period of Market Immaturity: Under regulation, customers are provided price and service term protection through the Regulator's establishment of economically justified and reasonable prices and terms of service, and are further entitled to adequate and safe service which the Regulator will order upon Complaint. When a Competitive Market is established, the customer achieves both price and service protection from his ability to alter suppliers (i.e. competition) if he is dissatisfied with either price or service of his existing supplier. To what degree, if at all, should the Regulator, nevertheless, maintain a service or rate complaint procedure or monitoring to correct any deficiencies in market performance? In the United States, the Federal Energy Regulatory Commission has jurisdiction over complaints against service provided through the wholesale market. Such Complaints could raise issues of market power exercise or other market deficiency, of other improper conduct by market participants or the ISO or could challenge market procedures as inconsistent with governing Laws or Market Rules. State Regulators have jurisdiction to hear complaints respecting retail service and particularly fraudulent or deceptive advertising or actions, violation of rules adopted to govern retail competitive activities or of licenses issued to permit participation in the State Market. Both federal and state authorities may seek enforcement of antitrust laws should improper actions result in their violation. A further description of these processes is provided in Issue Paper # 3.

[4] Operational and long and short term supply reliability rules are also defined in the United States by the North American Electric Reliability Organization. All System Operators are required to be members of this organization and other market participants are permitted to join. NAERO's entire purpose is the identification of rules and standards to assure short and long-term, reliable system operation.

Moreover, there may be a period of immaturity following market implementation before the Market can be relied upon to fully perform its customer protection functions. Also, markets operate on the basis of supply and demand. If either substantially grows or shrinks in an unexpectedly short period of time, the effect upon market performance could be unsettling. For example, a partial cause of the California market price rise and volatility last summer were natural gas price increases due to demand/supply imbalances from an unusually cold winter and also hydro production shortages due to drought in the Pacific Northwest. Similar high cost and price variability difficulties are presently being experienced in the New Zealand market due to drought and were experienced in the Alberta market last year due to the natural gas price run-up . What alternatives are available to Regulators, and with what costs to the competitive model, to enhance market protections during a period of immaturity or related supply market disruption? In the United States, System and Market Operators and Regulators monitor market performance and may assess penalties for improper conduct. Moreover, both Market Operators and Regulators can impose (and have) price cap, bid limitations or other restrictions where a market is believed to be insufficiently competitive, although there is a reluctance to apply such remedies as they detract from and may interfere with market price signals. These Regulator programs will be described more fully in Issue Paper # 3.

5.12 Achieving Customer Demand Response: In Western Europe and the United States, many observers assert that markets will not be fully effective in achieving reasonable prices until customers are provided with appropriate price signals and respond with reduced consumption in the face of unreasonably high supplier bid prices. What is required and what difficulties may exist in implementing this concept in CEE/Eurasia? The concept has been successfully implemented on a pilot basis in the United States, but typically predominately as to loads having non-grid connected generation or with other large industrial processes which may be temporarily shut down. Certain CEE/Eurasia Countries may not have significant levels of such loads resulting in greater difficulty in implementing this concept. However, the mechanics of its implementation in market structures should pose no greater challenge for CEE/Eurasia than other countries. (See Appendix B, pp. 21-23)

5.13 Obtaining and Compensating Ancillary Services Needed for Market Operation: Proper operation of electric supply and transmission systems requires the availability or use of a number of services in addition to simply electric energy. For example, the system must have black start capability, sufficient reactive power, a voltage balancing and regulating capability and both spinning and non-spinning reserves. Most of these services are provided by generation and some can be provided through auction market mechanisms. Those that are not provided through auction market mechanisms are generally purchased by the System Operator in the United States and have their costs allocated to market participants on an equitable basis. It should be noted that the ability to provide an auction market for these services is improved if a balancing market operated by the System or Transmission Operator is employed in the market structure. This occurs because generation which participated in the balancing auction but is not selected to operate can then be considered (i.e. based on separate bids) to be used and compensated as spinning or non-spinning reserves.

5.14 Adopting Practices or Forms that enhance Market Competition: Unites States and Western Europe adopt wherever possible in their market structures “market” or “competition” rather than “administrative” based methods of operations or problem resolution. An “administrative” based method is for a Ministry or a Regulator to decide an

issue based on political factors or after an evidentiary hearing. A "market" or "competition" based method of decision is, for example, an auction which permits the private party who most values a right or license to acquire it, rather than imposing a result based upon a mandated decision. A specific example of this would be the issue, being addressed by European Regulators and TSOs, of who should be permitted to employ constrained national interconnector transmission capacity to engage in export or import sales. One alternative is for the Regulator or Ministry to decide based on its evaluation of who is most deserving or in need of the service , while an alternative is to auction this right to bidder's whose highest price bid reflects there assessment of their need for the service. . Additional issues being addressed in the United States and Europe are whether to permit customers to "aggregate", i.e. form buying groups to improve their bargaining position in the bilateral contracts marketplace as against large suppliers. This is being allowed in the United States under several different mechanisms. Also, similar to the constrained interconnector capacity allocation, many American States, after initially requiring that the Default or Supplier of Last Resort be the former integrated monopoly supplier, now auction this commercial opportunity to the lowest bidder (i.e. that company that will charge customers the lowest price). Again, a market based means of resolving a matter is being put in place of an administrative based decision. No reason exists why similar approaches to sector issues cannot be adopted in CEE/Eurasia Countries.

6. Regulator Involvement in Electricity Market Design and Operations

6.1 The role of United States and European Regulators in Electricity Market Operations and Market Contracts is still being developed, but is not one of direct regulation. In the United States, the Federal Energy Regulatory Commission (FERC) is responsible for assuring that the price of wholesale electricity sold in interstate commerce is just and reasonable. FERC also assures that the price, access terms and adequacy of transmission service is reasonable and adequate for the protection of customers. FERC is permitted, under US law, to rely upon market mechanisms in establishing price and providing service in the wholesale and transmission networks. Where market rules directly impact upon price and adequacy of service which it is empowered to regulate, FERC may review and require that its approval of adopted market rules and procedures be obtained. FERC has been a primary driver in establishing third party access rules and independence requirements for transmission and dispatch service providers. However, FERC has generally relied upon System and Market Operators to develop market operating and monitoring mechanisms, subject to its authority to resolve disputes and to investigate and resolve questions of the existence of market power and its effects upon rates. State Commissions retain authority over service adequacy and generally may have a role within their state in examining market performance and the existence of market power. State Commissions typically consult with Market and Grid Operators on issues which remain within their jurisdiction.

Approximately one half of US States have taken substantial measures to adopt competitive markets at the retail level and FERC has required third party access and permitted competition in wholesale markets since the early 1990s. Retail and wholesale competition employing formal market mechanisms exists in three markets in the Northeastern United States (PJM, NYISO & NEISO), in California (who recently suspended its retail market) and will shortly exist in Texas (wholesale competition already exists and retail competition began on a pilot basis in July). With encouragement from FERC, Regional

Transmission Organizations to enforce transmission third party access and to provide formal markets for wholesale transactions are under development throughout the United States, including two which should begin operation by the end of 2002 and cover the north central portion of the United States (Midwest ISO & Alliance).

Appendix B provides details on market developments in the United States, including particularly the effort to address "seams" issues between existing markets and FERC's initiative to require larger, regional markets. "Seams" issues refers to the effort, also very active in the European Union as described in Section 3, to increase electricity trade across national (in the case of the EU) and integrated electric system borders (i.e. the old power pools in the United States). In the United States, increasing this trade is expected to produce benefits in lower cost energy and savings of reserve capacity costs. Resolution of these issues is in part related to the need to construct additional transmission capacity, but also a matter of developing operating procedures, software and a database on how and when increased transactions across "seams" can reduce costs. For example, early ISO software did not always permit transactions across ISO interfaces, required burdensome scheduling or imposed other economic penalties which discouraged such transactions. Moreover, past operations have been "in-region" focused, i.e. designed to achieve balanced and economical operation within the region, without fully evaluating how inter-regional flows could be increased and produce lower costs through reduced dispatch of in-region generators. In recent Orders (see Appendix B, at pp. 4-6), FERC appears to have concluded that these and other "seams" issues can best be resolved by forming RTO/ISO organizations with the responsibility to support markets and manage transmission systems in a much larger "regional" market.

In the European Union (EU), the European Commission (EC) provides guidance on market design matters and upon matters affecting cross border trade. At present, 8% of electricity transactions involve cross border trade. National Regulators consult with the EC on Regional Market Design Issues (i.e. through the Florence and Madrid Forums) and with their National Government on matters affecting their internal marketplaces. All Nations but Germany have a national electricity Regulator. In April's Stockholm Summit, the European Commission proposed amending Directives 96/92/EC and 98/30/EC on electricity and natural gas market liberalization to require liberalized markets for all EU business customers by the end of 2003 in electricity and by the end of 2004 for natural gas and by 2005 for all customers for each energy source. This proposal was not adopted at the Summit, but will be considered again at the European Council Meeting in Spring 2002. The Council further endorsed the objective of rapid market opening Finally, the EC is strongly urging creation of an electricity Regulator by all member states as it has found that such entities "play a pivotal role in ensuring non-discriminatory access to the network, as they have the power to fix or approve transmission and distribution tariffs prior to their entry into force." National Regulators are also playing a strong role in developing the legal and regulatory structure needed for cross border trade within the EU.

6.2 The Regulator's Role in CEE/Eurasia Market Development: In summary, in the United States, the Regulator has a statutory mandate and responsibility, to assure safe and adequate service and reasonable prices, which mandate can be performed (and in some states is required to be performed in the generation function) through market and competition mechanisms. Indeed, in certain states where retail supply competition has been adopted, State Regulators are expressly restricted to a support role in the implementation of legislatively directed market and competitive mechanisms. In other words, it is not the

Regulator's choice whether market or administrative decision making methods are employed, that decision having been made by the Legislature. In either case, the Regulator reviews the market mechanisms being developed to determine whether they will achieve the legislative objectives which the Regulator is directed to enforce.

However, the Regulator must recognize that its function is not the same as administrative decision making, both because of the nature of a "market" and because regulators are not more experienced in all market related matters than Market or System Operators. Markets are voluntary organizations and, absent a good reason to the contrary, should be organized both to be effective for their legislative purpose but also to achieve the objectives of their participants where not in conflict with that purpose. Thus, the Regulator is to monitor, both design and operation, to assure that the legislative objectives remain primary, but is not to "direct" market formation or operation as it thinks best and in conflict with market participant proposals absent a demonstrated need to intervene to achieve the legislative objectives. The Regulator also provides a dispute resolution forum where the Operator and participants or various classes of participants who fail to agree on necessary market design or operating matters can obtain a final decision, and monitors market operation to enforce third party access rules and the prohibition on exercise of market power. The Regulator, of course, continues direct regulation of remaining sector monopoly operations (i.e. transmission, distribution and dispatch). Under United States Law and that of many States, especially the market related functions are shared with the System and Market Operator (who is the prime implementer and designer of market activities but subject to Regulator oversight) and also with competition (i.e. antitrust) authorities at least as to major structural matters bearing on market design.

European Regulators have an essentially similar role, with the exception that the adoption, implementation and design of market mechanisms arises even more from external legislation (i.e. the EU Directives) and is, moreover, more actively shaped and implemented by an external agency, the European Commission, than is the case in the United States.

The role of the Regulator in market development and operation in CEE/Eurasia Countries varies between countries and the specific market forms adopted. This role can best be understood on a country by country basis and after reviewing the information provided in Appendix A. In many aspects, it is similar to that of United States and European Regulators. Sector monopoly functions remain subject to licensing and price regulation. As described in Appendix A, the Regulator participates actively in market development matters that affect its responsibility - i.e. the quality of service and reasonable price levels. Where competitive markets are now operating, the Regulator monitors those operations to assure that affected statutory objectives and standards are met. The Regulator, however, is not the hands-on manager of the market, that function falling to System and Market Operators. Finally, as CEE/Eurasia Markets are changing and evolving, so is the Regulator's role in relation to them.

Appendix A to Issue Paper # 1
Electricity Market Developments in Central/Eastern Europe and Eurasia

This Appendix discusses laws, secondary legislation or decrees which authorize and establish standards for Regulators or competitive electricity markets; describes established and proposed market organizations and operation procedures, implementation processes and cross-border trade, settlements and collections procedures and discusses other recent actions taken by Central/Eastern Europe and Eurasian Governments which further the creation or operation of competitive electricity markets. These matters are set forth below and are discussed by the major categories of activity stated above :

1. Adoption/Modification of Statutes, Secondary Legislation, Market Rules & Grid Codes to authorize or facilitate Competitive Electricity Market Operation.

Albania

The Operators' activity in the field of electricity is based mainly on the following laws: "For the electrical energy", "For privatisation of electrical energy sector", "For the regulation of electrical energy sector". These laws define rules and relations among the operators involved in the electricity market. The above laws also define the responsibilities and tasks of the Regulator in relation to the license process and standards. According to the legislation, the Albania Energy Regulator (ERE) is responsible for the approval of the tariffs and prices of the electricity, always taking into consideration the Government approved price cap (ceiling price).

Government has played the oversight role in electricity market because, so far, this market has been monopoly and not competitive. This situation has forced ERE to initiate gradual changes towards creation of the new conditions for a competitive market.

In order to initiate movement towards a competitive electricity market, ERE has asked the Albanian Power Company (APC) to separate/unbundle its activity taking into consideration economical aspects, especially in three main branches; generation, transmission and distribution, which will help in cost calculation for respective activity, and at the same time it also will help in the computing process for tariffs and prices. This process will create conditions for the economic stabilization of APC and will prepare conditions for privatization and liberalization of the electricity market.

Armenia

The new Energy Law was passed by the Parliament of the Republic of Armenia on 22.03.01. It encourages the development of and authorizes competitive markets in electricity and natural gas. The Law contains significant guidance as to how the new markets will work and states a proposed transition regime. A rule making is presently in process before the Armenia Energy Regulatory Commission to implement the new Law and to define market structure. Market Rules and a Grid Code are under preparation. The Law also establishes the Regulator (Armenia Energy Regulatory Commission) and provides guidance for its rate setting and licensing activities, including its participation in the drafting of model supply and service contracts.

Bulgaria

The Government of Bulgaria has proposed amendments to its existing energy laws to initiate the process of market development. Initial market opening was scheduled to occur in 2002. However, it is unclear when these amendments will pass and thus when market opening will occur . Secondary legislation respecting market opening will be adopted by the Regulator following passage of needed authorising legislation. The 1999 Law creates the Regulator (State Energy Regulatory Commission) and provides standards for its exercise of licensing and rate setting authority. Existing regulated companies have all received licenses and the Regulator is preparing to initiate rate regulation beginning January 1, 2002

Estonia

Existing laws regulate electricity and natural gas markets in Estonia today:

- Energy Act; passed on 11 June 1997
- Amendment Law to existing Energy Act, passed on 11 April 2001, to initiate the process of market development.
- Competition Act , passed on 11 March 1998.

Chapter 4 defines the enterprises dominating the market as any entity which accounts for at least 40 % of sales/turnover in the market or whose economic position enables the entity to operate in the market independently of competitors, suppliers and buyers. Chapter 5 defines an entity as a natural monopoly if it owns, possesses or operates a network, which gives it dominant position in the market. The Regulator (Estonia Market Inspectorate) enforces three separate Acts for electricity, for liquid fuels and for natural gas, as all these sectors are quite specific and it is difficult to regulate them with one law. The Regulator is authorized to license energy providers, to enforce license conditions and to set prices for regulated services. A partial opening of the electricity market has already occurred.

Georgia

The Law on Electric Power and Natural Gas was adopted on April 30, 1999 by Georgia's Parliament and went into effect on May 14, 1999. That Law authorizes wholesale market operation, establishes the Regulator (Georgia National Energy Regulatory Commission) and provides guidance and standards for its licensing and rate setting authority. Market Rules and Grid Codes have been drafted and are in force.

Hungary

New Laws authorizing competition in electricity and natural gas markets are under preparation. The Electricity Act is anticipated to be revised with some kind of conventional and new elements of the secondary legislation, such as governmental orders, orders of the minister, licenses, code of conduct, grid code, distribution code and market rules. The draft of the Electricity Law is not yet accepted as a new legal framework. The approval of the draft bill has been planned by the legislation for the Fall of 2001. (Coming into force at the beginning of 2003). Monitoring of competitive markets and regulation of monopoly energy sector activities (including licensing and recommendations respecting pricing) is performed by the Hungarian Energy Office.

Kazakhstan

Identified below is Kazakhstan's legislation establishing and providing guidance to its Regulator (Republic of Kazakhstan Agency for Regulation of Natural Monopolies) and authorizing competitive market operations in electricity, including the establishment of

Market and System Operators. Secondary legislation adopted to further guide competitive market operation is also identified:

1. Republic of Kazakhstan Law No. 144-11 of January 19, 2001, "On Competition and the Restriction of Monopolistic Activity";

2. The Republic of Kazakhstan Law "On the Electric Power Industry" of July 16, 1999;

3. Republic of Kazakhstan Government Resolution No. 606 of April 20, 2000, "On Additional Measures to Improve the Efficiency of the Republic of Kazakhstan Wholesale Electric Power and Capacity Market" (which approved guidelines for improving the wholesale electric power and capacity market in the Republic of Kazakhstan and created the Kazakhstan Electric Power and Capacity Market Operator closed joint-stock company, or KOREM);

4. A package of regulations on the organization and operation of the Republic of Kazakhstan wholesale electric power and capacity market was confirmed by Ministry of Energy, Industry and Trade Directive No. 38 of November 15, 2000, which was registered in the established procedure on January 19, 2001, Government Registration No. 1366 including the following:

1) Regulations on the Organization and Operation of the Republic of Kazakhstan Wholesale Electric Power and Capacity Market;
2) Regulations on Services Provided by the Technical Operator of the Republic of Kazakhstan Integrated Power System;
3) Regulations on Services Provided by the Market Operator of the Republic of Kazakhstan Wholesale Electric Power and Capacity Market.
4). Regulations on Centralized One-Day-Forward Electricity Trading Sessions in the Balancing Wholesale Electric Power and Capacity Market, confirmed by Republic of Kazakhstan Ministry of Energy and Mineral Resources Directive No. 240 of October 8, 2001.

The Republic of Kazakhstan Government is currently reviewing a set of draft Electricity Grid Regulations. Pursuant to Republic of Kazakhstan Law No. 144-11 of January 19, 2001, "On Competition and the Restriction of Monopolistic Activity," the Republic of Kazakhstan Agency for Natural Monopoly Regulation, the Protection of Competition, and Small Business Support takes measures to prevent, restrict and put a stop to monopolistic activity, the abuse of dominant (monopoly) positions in commodity markets and unfair competition.

The agency maintains the government registry of market participants that occupy dominant positions in various commodity markets and that carry on entrepreneurial activity in a competitive environment.

The agency studies the commodity markets and the degree of competition in them and formulates measures to support entrepreneurship and to prevent, stop, restrict and regulate monopolistic activity.

Kyrgyz Republic

Providers of Electric Service are regulated by the State Energy Agency pursuant to the laws *On the Power Sector*, *On the Electric Power Industry*, the *Regulation on Licensing Businesses in the Power Industry on the Territory of the Kyrgyz Republic*, and the *Rules for Electric Power Use*. A change in Kyrgyz Republic *Law On Licensing*, on January 18, 2001, reduced the cost of licenses by a factor of eight in order to increase business activity.

Latvia Regulations "On eligible electricity consumers" has been accepted by Cabinet of Ministers on 21-st of September 1999; Grid Code has been accepted by the Energy Regulation Council on 30 May 2000. Licensing and price setting for monopoly activities is performed by the Latvia Energy Regulatory Council under the Energy Law.

Lithuania

Lithuania adopted in 2000 new laws applicable to electricity and natural gas which authorize and encourage the development of competitive markets. The Prime Ministers of the three Baltic countries have reaffirmed their intent to establish a common electricity market in their three countries, TSOs have been established and several studies and a certain amount of technical market design has been done. Lithuania has adopted laws applicable to electricity and natural gas to authorise and encourage the development of competitive markets as follows:

- Law on Electricity (20 July, 2000, No. VIII - 1881). In force from 01.01.2002
- Law on Natural Gas (10 October, 2000, No. VIII - 1973). In force from 01.07.2001

Licensing and price setting for monopoly activities is performed by the National Control Commission for Prices and Energy, which will also perform certain market monitoring activities. Required secondary legislation for market operation will be approved by the Government or by the Regulator later this year . At the present time, drafts have been completed of some of the necessary documents and their approval is actively being considered . For example, a draft of Licensing rules in the gas sector are already approved by different reviewing institutions and should be adopted shortly. Draft of Standard conditions of gas transmission, distribution and supply contracts also have been prepared. In the electricity field, there are also some drafts of secondary legislation prepared, for example the draft of the Market Rules.

Stated below is the list of secondary legislation that is expected to be adopted in the near future in the electricity field: Trading and settlement code, Market rules, Grid code, Customer standard code, Distribution code, Metering code, Order of the breaking off of the electricity supply to consumers, Order of the issuing electricity import permits, Rules of the electricity activity licensing, Rules of the power plants and networks technical exploitation, Order of the issuing of the permits for the new electricity generation capacity, Rules of the electricity consumption, Rules of the use of the electricity network, Methodology of the connection to the electricity network charges calculation, Regulations of the energy equipment, accidents and disturbances investigation and registration and Rules of the electricity equipment installation and safe exploitation. Similar rules and orders will be adopted the natural gas sector.

Moldova

There are in force the Law on Electric Power and the Law on Gas (both passed in 1998).

Poland

General rules of activities of the competitive market in electricity and gas are contained in the Energy Law. Secondary legislation is contained in ordinances of the Ministry of Economy- relating to tariffs, connections, and unconventional energy sources. The Electricity Regulatory Authority is authorized under the laws to license and set prices for monopoly activities.

Romania

The electricity sector in Romania is under a process of transition from a monopolist structure to a competitive energy and ancillary services market in order to ensure:

- safety/ reliability in electricity supply,
- quality of electricity supply,
- efficient use of resources,
- direct market relations between producers, network services providers and/ or customers.

The legal and regulatory framework is conceived so as to introduce, directly or through regulated contracts and tariffs increased competition in the electricity and heat sector. The primary legislation, governing the electricity industry is as follows:

- Government Emergency Ordinance (GEO) 29/98, approved by Law 99/2000 on the setting up, organization and operation of the Romanian Electricity & Heat Regulatory Authority - ANRE. ANRE is set up in order to create and implement a national-wide regulatory system to ensure an efficient, transparent and stable functioning of the electricity and heat sector while protecting the interests of consumers and investors.
- GEO 63/98 on electricity and heat (Electricity Act);
- GD 627/2000 concerning the Restructuring of National Power Company-SA (CONEL SA);
- GD 982/2000 concerning the establishing of the electricity market initial degree of opening toward competition. The threshold for market opening for eligible customers was established to 15%. It is possible to reach the EU Directive 96/92/EEC requirement (of 35%) in 2003. Nineteen industrial consumers became eligible so far. In February 2001, five contracts were signed between producers and eligible customers. Physical bilateral contracts signed at this date accounts for over 7% of the final consumption.
- GD 567/99 concerning the approval of the Regulation for granting licenses and authorizations in the electricity and heat sector.

Competition-oriented components were implemented on the electricity wholesale market from the very beginning, by introducing dispatch based on producers bid, and by organizing the market as follows:

- a regulated market, principally through portfolio/vesting contracts covering about 85% of the electricity consumption;
- a competitive market, formed by negotiated bilateral contracts and spot/imbalances market, covering in total about 15% of the electricity consumption.

Direct producer-supplier energy contracts and distinct contracts for transmission, distribution and ancillary services helped in shaping the market behavior of all participants. The weight of the regulated market will gradually diminish in the coming years so that the economic agents in the sector are not exposed to unacceptable risks and the energy and ancillary markets mature. Prospectively, a fully competitive market will be created for producers and suppliers while natural monopoly activities will remain regulated. Each market participant, holder of a license, including qualified eligible customers, is entitled to a free regulated access to the transmission and distribution grids.

In order to grant licenses, ANRE concentrates its analyses on elements that play a key role in ensuring good quality services, such as: appropriate in-house organization to develop quality services, technical endowment, financial creditworthiness. Separate bookkeeping for activities that are subject of the license, the cross-subsidies removal as well as other specific obligations are regulated through these licenses in order to protect the consumers and provide a normal competitive environment. So far 35 licenses were granted for electricity generation, transport, dispatching, distribution and supply, based on the provisions of GD 567/99 concerning the approval of the Regulation for granting licenses and authorizations in the electricity and heat sector.

Russia

The main law is RF Law No. 948-I of March 22, 1991, "On competition and restraints on monopolistic activity on commercial markets" (as amended on June 24, 1992, May 26, 1995, May 6, 1998, and January 2, 2000). The main provisions of *Russian Federation Government Concepts on Reforming the Power Industry* have been also approved. A draft Law will be presented to the Duma later this year to authorize a planned restructuring of Russia's integrated electric supplier RAO-UES and the operation of a competitive electricity supply market. It is anticipated that developing the necessary approvals of the legal and regulatory structure to permit full restructuring, privatization and competitive market creation will require up to three years. Licensing and price setting for regulated activities has been performed for the last several years by the Federal Energy Commission. In September, the Government created a new price setting regulatory authority with responsibilities expanded beyond the energy sector (i.e. to include telecommunications, transportation and other matters) which is based upon and incorporates the existing FEC.

Ukraine

The fundamental principles underlying wholesale electric power market operations were mandated in the Ukrainian law "On Electric Power," which was passed in 1997. This Law also establishes and empowers the National Energy Regulatory Commission to issue licenses and regulate prices for certain monopoly sector activities. The amendments to the law "On Electric Power" that were adopted on June 22, 2000 were an important step toward reforming relationships in the wholesale electric power market. These amendments legislatively defined the accounting procedures to be used in the wholesale market operations, including a system of clearing accounts and bilateral agreements among market participants etc. At the present time, the Ukrainian gas market is regulated by annual government resolutions. The procedure for supplying the industries of the national economy and the general public with natural gas in 2001 approved on November 12, 2000 by Order No. 1800 of the Ukrainian Cabinet of Ministers, introduced a system in which natural gas is supplied to the public, government-funded institutions and organisations, and businesses providing residential heating services, and boiler works from the resources of the Ukrainian Neftegas Company while other industrial users of gas are supplied gas through contracting with gas generation businesses that are not part of the Neftegas or the Chernomorneftegas, and independent suppliers, who obtain gas through cross-border contracting. Because relationships in the natural gas market are not regulated and there has still been no legislative resolution of issues involving gas market regulation and gas supply, a draft Ukrainian law "On the principles of functioning of the natural gas market" has been drafted.

2. Creation of an Independent Dispatch and Transmission Grid Operator separate from Generation and Distribution Operations.

Albania

The main operator of the electricity sector is the Albanian Power Corporation (APC). It is a vertically integrated company where the state possesses 100% of the shares. APC is the only operator that generates and transmits electricity and at the same time has the authority for the import-export of the electricity. There are three other electricity distributor operators which are organized in such a way that the state through APC owns 70% of the shares and private entities own 30% of the shares. Their task is the distribution and supply with electricity to the consumers in their respective areas. A separate System or Market Operator has not been established.

Armenia

The market model applied in Armenia is the single-buyer . The transmission owning utility Armenergo is charged with the operation of the transmission network system and dispatching activity. Transmission ownership and operation is separated from that of generation and distribution assets (i.e. into separate government owned joint stock companies). Four distribution companies have been organized and four generation companies, including separate nuclear, thermal and hydro companies. All companies have received licenses from the Regulator. The new Energy Law provides for the licensing of Market and System Operators upon establishment of the market and guarantees third party access to the transmission and distribution network after a transition period.

Bulgaria

System and Market Operators have not yet been established pending legal authorization of market operations. A separate government owned transmission owner and operator, separate from government owned generation and distribution asset owning joint stock companies, has been established.

Estonia

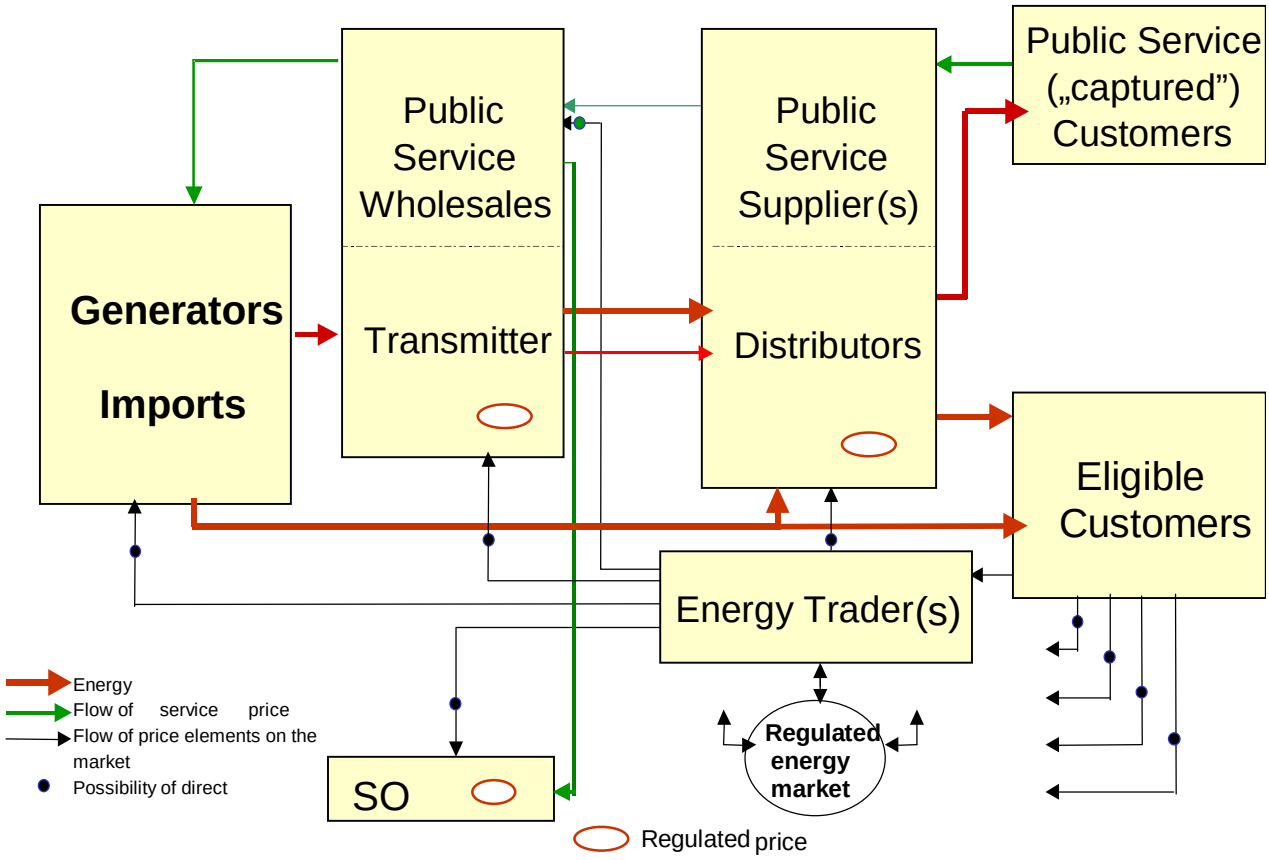
There is no independent transmission system operator. The TSO is part of the structure of Eesti Energia Ltd, a 100 % state owned company and the integrated electric service provider. Regulators and TSO`s of three Baltic countries have stated the firm intention to establish a common electricity market. As Eesti Energia Ltd is the single service provider dominating the market, it shall in accordance with the Energy Act keep separate accounts for production, transmission, distribution and sale of energy. Ancillary services (black start, spinning reserves, balancing services) are provided by TSO.

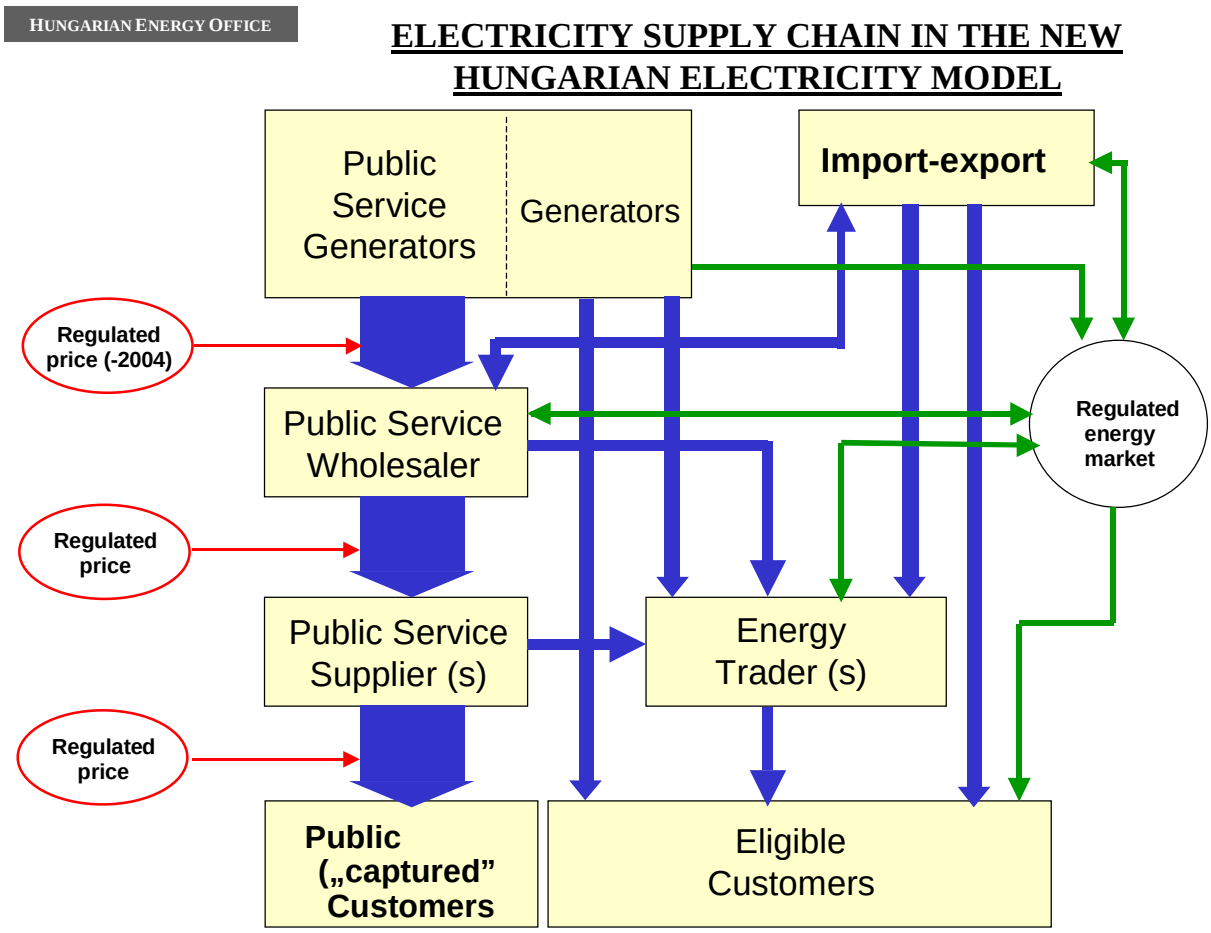
Hungary

System Operator (SO) has already been established as a separate legal entity. The transmission system is independent from the SO, but they have the same owner which is the actual single buyer and future (Public) Utility Wholesaler (UW). The planned future owner of the SO is the state. The SO buys the Ancillary Services and the Balancing Services from the generators. It will be possible to establish Power Exchange (PX) or with other words: Regulated Energy Market by the Act. The PX will be a license holder whose license is to be issued by the Hungarian Energy Office which is the regulator. The form and functions of the market governance is under preparation. The present Distributor/Supply Companies will be the Public Service Suppliers . There will be two parallel supply systems: one for the Public Service Customers supplied by the Public Service Suppliers (PSS). The other supply chain is planned for the Eligible Customers (EC). ECs can buy electricity from the Energy Traders (ET), from the Generators, from import, on the PX. The network access is non-discriminatory and the network charge is regulated.

The planned structure and operation of this model can be seen on the diagram below.

PLAYERS IN THE NEW HUNGARIAN ELECTRICITY (ENERGY FLOW, MONEY FLOW)





Georgia

The merging of two energy organizations: Elektroperedacha Joint Stock Association, and Elektrodispetcherizatsiya-2000, pursuant to Georgian presidential decree No. 740 of July 22, 2001, established a new transmission owner and operator, whose name and legal form are currently under discussion. Separate government owned joint stock companies own and operate distribution and generation assets.

Kazakhstan

The following are the System and Market Operators established in Kazakhstan and their characteristics:

1. The Kazakhstan Electric Power and Capacity Market Operator (the KOREM closed joint-stock company) is the Market Operator.

The company is a legal entity with 100% government participation in its authorized capital. The company was incorporated by the Republic of Kazakhstan Ministry of Finance's Government Property and Privatization Committee. KOREM's governing authority is its Board of Directors, which sets priorities for the company's operation.

The Market Operator of the wholesale electric power and capacity is an organization that uses market-based mechanisms to manage the commercial dispatching of electricity production and consumption modes in the wholesale electric power and capacity market, including:

a) the daily preparation of 24-hour schedules for the production, supply, transmission and consumption of electric power, based on orders from wholesale electric power and capacity market participants;
b) monitoring of wholesale electric power and capacity market participants' compliance with the electricity supply and consumption modes set out in the daily schedule;
c) calculation of the actual electricity supply and consumption balance at the end of each settlement period (month);
d) commercial balancing of electricity supply and consumption modes in the wholesale electric power and capacity market.
KOREM is responsible for arranging centralized trading sessions for spot electric power and capacity, as well as for organizing the auxiliary services market.

By directive of the Regulator, KOREM has been included in the government registry of economic entities that occupy dominant positions in the organization of centralized "one-day-forward" electric power and capacity trading sessions.

2. The Republic of Kazakhstan Integrated Power System Technical Operator (the KEGOC open joint-stock company) is the national power transmission organization that manages the 1150-, 500- and 220-kilovolt interregional power grids, transmits electricity between regions, manages electric power and capacity transmission modes on the basis of power and capacity transmission contracts, implements electric power and capacity production and consumption schedules, and ensures compliance with criteria for the reliable operation of the Kazakh Integrated Power System and with other technical requirements that have a bearing on providing uninterrupted power supplies to consumers.

Pursuant to Article 4 of the Republic of Kazakhstan Law "On Natural Monopolies," the KEGOC open joint-stock company has been included in the government registry of natural monopolies.

In accordance with Republic of Kazakhstan legislation, government regulation of the tariffs that natural monopolies in the electric power sector charge for their services is the responsibility of the government regulatory authority—the Republic of Kazakhstan Agency for Natural Monopoly Regulation, the Protection of Competition, and Small Business Support (i.e. the Regulator).

Kyrgyz Republic

On April 1, 2001 a resolution was adopted to divide the integrated Kyrgyzenergo Stock Company into six companies: Kyrgyzenergo – a company for generating and transmitting electric power and for export (National Electric Power grid), 4 distribution companies for electricity and one distribution company for thermal energy. The ownership structure of Kyrgyzenergo is 90% state owned, is an open stock association and is managed by a corporation council. There are also some commercial companies involved in wholesale sale and purchase of electric power (export). In Kyrgyzstan, there were also developed and adopted: rules for using the National Electric Power Grid, a standard contract for the sale and purchase of electric power between Kyrgyzenergo and distribution companies, a standard contract for the sale and purchase of heat between Kyrgyzenergo and distribution companies, division boundaries between Kyrgyzenergo and distribution companies, which takes into account the technical losses.

Latvia

The Transmission System Operator (TSO) is established and after the reorganization of Latvenergo, the High Voltage Network subsidiary will be fully independent from generation

and distribution activities and the TSO will become independent at least in management terms from other activities not relating to the transmission system. According to the Law on Energy, Article 15, electrical energy transmission system operator shall have a duty to provide for the following:

- to require system users or applicants to provide information which is necessary to develop terms for system connection and use;
- to give justified refusal to system user or applicant in case when submitted information is not sufficient for development of terms, or when it is not possible to comply with the system use requirements based on the submitted information;
- System operators shall not have the right to engage in such activities that are not directly related to their operation and may disturb or prevent fulfillment of their duties;
- System operators shall not be authorized to disclose commercial information that they have obtained in the course of carrying out their system operator's duties. Commercial and confidential information shall be defined by energy supply utilities and approved by the Regulator.

Lithuania

In order to implement the new electricity law, a legal person owning transmission networks shall be a transmission system operator. It shall be responsible for operation, maintenance, management and development of the transmission system in the territory of Lithuania and its interconnections to other systems, by eliminating bottlenecks of the transmissions networks in accordance with its customers needs. Parties connected to the Transmission Network will be obliged to abide by the Grid Code. This will include transmission-connected generators and customers and the distribution businesses. The Transmission System Operator will maintain this code and its contents will cover technical regulations governing the standards and operation of equipment connected to the transmission system. Similarly, the distribution companies will maintain a distribution Code governing the standards and operation of equipment connected to the distribution code. Generators, transmission-connected customers, suppliers and distributors will be obliged to abide by a Metering Code. This code will be maintained by the Transmission System Operator and will contain details of the technical standards and accuracy of meters required for effici8ent and transparent operation of the market. All licensed suppliers, importers and exporters will be obliged, under their licenses or permits, to sign Transmission Use of System Agreements with the Transmission System Operator. These Use of System Agreements oblige the market participants to pay use of system charges to the TSO for the electricity delivered over the transmission network. The Commission will regulate the terms and conditions and levels of payments raised in the Transmission Connection and Use of System Agreements. Similar Distribution Connection Agreements, establishing the terms for connection and use of the distribution system, including an obligation to abide by the Distribution Code, will be required.

Moldova

The government-owned system operator is responsible for transport and dispatching for the electric power system. The system operator holds a license to transport electric power and for dispatcher functions, which is issued by the regulation agency (ANRE).

Poland

Polish Power Grid Company operates as Transmission System Operator. In accordance with its statutory obligations, the primary activities of PSE are focused on the following areas:

- power dispatching and the operation of the national power system;
- power transmission through the super high voltage system;

- generation of electricity in pumped-storage power stations;
- trading in electricity and energy system services on the domestic and international markets;
- developing the national electric energy system through planning and scientific research;
- involvement in national security tasks as prescribed by the Minister responsible for such activities;
- offering other services related to the above activities

The Company is also involved in the following related activities:

- construction and operation of transmission grids and pumped-storage power stations;
- technical and organizational work aimed at facilitating the co-operation between Polish and other national power systems;
- financing and running the power sector data base;
- taking measures to maintain fuel reserves in power stations;
- protecting the natural environment against any adverse impact of the power transmission grid.

Additionally, to further the effectiveness of its primary activities, the Company also:

- constructs and operates telecommunications systems and provides telecommunications services;
- trades in specialized equipment, materials and goods as well as financial instruments.

Russia

The Russian joint stock power and electrification company RAO "UES OF RUSSIA" was established by Russian federation presidential decree no.923 of August 15 1992 as a sector-wide holding company with extensive functions in ensuring a reliable supply of electricity and heat energy to the various sectors of the economy and the general public, the centralized management of the unified energy system of Russia, the implementation of investment programs in the electric power sector. RAO "UES OF RUSSIA" operates in structural terms as a company, a holding company and a group. One of the main areas of RAO "UES OF RUSSIA" business activity is also rendering of services in the organization of the functioning and development of the UES of Russia, provided on the Federal Wholesale Electricity (Power) Market - FOREM. As a part of its planned restructuring of RAO-UES, the Government intends to establish a separate Federal Transmission Company later this year which, by mid-2002, will provide the transmission system operator function. It will operate first as a subsidiary of RAO-UES, but ultimately will be separated as an independent company.

Ukraine

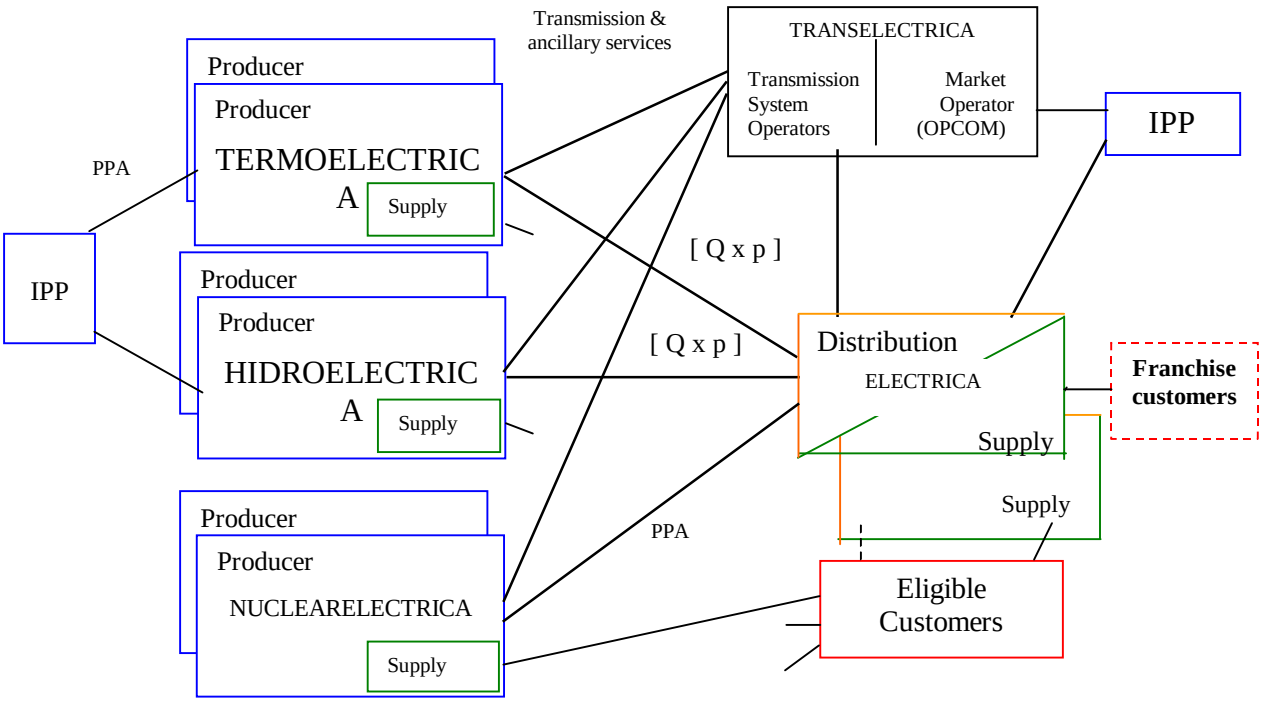
NEC Ukrenergo is the state enterprise founded in May 1998 to replace the state company "Ukrelectroperedacha" (responsible for operation of a high voltage lines and interstate transmission of electricity) and the National Dispatch Center - NDC (responsible for dispatch and control of the integrated energy system). Ukrenergo has eight regional divisions and until recently included as a separate division the State Enterprise "Energorynok", which provided electricity market operation functions. Ukrenergo operates the national grid with a voltage of more than 220 kV and the interstate power networks, with all relevant infrastructures, including automation, control and communications systems, etc. It's activities are completely separately from generation and distribution. Also, the following NERC regulations and standards regulate third party access to transmission or distribution systems: i) Article 15 of Ukrainian Law “on Electric Power” and ii) Conditions and Guidelines for engaging in business to transmit electric power using local electric grids, approved by NERC edict No. 15 paragraph 3.9.6 of 6/09/96.

Romania

To support a competitive electricity market, besides splitting the vertical integrated monopoly, Romania grid company, TRANSELECTRICA, operates as:

- Transmission Operator, to administer , maintain, repair, modernize and develop the National Transmission System (NTS).
- System Operator, to assure non-discriminatory dispatching services for all participants in the wholesale electricity market, in conformity with reliability standards, concluded contracts and dispatch schedule and merit order; also it analyses and endorses the fulfillment of the technical conditions for connection of the users to grid.
- Market Operator- OPCOM.

To support a competitive electricity market, the transmission license conditions underline the independence of the Transport and System Operator as separate legal entities from generating and distribution companies and large customers. Players on Romanian electricity market are presented in the following figure.



3. Establishment of Market Organizations and Rules to facilitate power exchanges; bilateral, forward or futures contracts in electricity.

Albania

The contracts that are used in electricity market are bilateral contracts between supplier and consumers or end users. There are used different contracts for wholesale (generator's operator – distribution operator) and retail (distribution operator – consumers). Those contracts are unique and are approved by ERE. The contracts foresee technical and legal obligations for both parties.

Armenia

The single buyer and seller model is applied in Armenia. The property structure in power sector is mainly governmental in the form of stock companies. Only small hydro power

stations have been privatized. There are five large generation companies on the energy market. One Company, Armenergo, is responsible for transmission, dispatch and wholesale supply and four other companies are responsible for the provision of distribution service. The latter may be consolidated into one company to facilitate privatization. All the above mentioned companies have been licensed by the Energy Regulatory Commission (ERC) for the appropriate activities . Forward or futures agreements are not presently allowed on the energy market. The new Energy Law authorizes the Commission to participate in drafting and approving model contracts and, after a transition period, permits the use of bilateral contracts for energy supply and wires services once a competitive market is established. All such contracts must be registered with the ERC. Separate contracts will be employed for retail service.

Bulgaria

The State Energy Regulatory Commission has adopted general terms for model contracts for electricity, natural gas and district heating.

Estonia

There is no independent market operator. New market player is trade division Energiakaubandus established by Eesti Energia Ltd in their system with the task to sell electricity to large users and abroad. An energy trader dominating the market shall submit its audited annual report to Energy Market Inspectorate (EMI). Power Exchange is not established in Estonia yet and for this reason there are no future contracts. Bilateral contracts are between Estonia, Latvia and Lithuania. Electricity market is opened for large users or qualified customers (annual consumption over 40 GWh) and for users of gas who use gas in industry or in a district heating power stations (CHP). Estonia has opened 20 % of its electricity market.

Georgia

In Georgia, energy market operations, aside from buying and selling on the wholesale market, also employ bilateral contracts between holders of licenses to produce, transmit, import and export electric power. Each contract undergoes expert assessment and goes into effect only after the Commission has made a decision about it and the contract has been coordinated with other sector needs and supply uses. Both bilateral and forward contracts are permitted in the electric power industry. All ancillary services, including spinning and non-spinning reserves, reactive power, and other system balancing services are acquired by the Market and Transmission System Operator only after bilateral contracts for such services have been executed.

Hungary

According to the new draft Act, bilateral contracts between generators, suppliers, traders and eligible customers are permitted. The future market participants, like eligible customers and energy traders will be able to employ different contracts, such as forward or future contracts as well. The planned date of the market opening is the beginning of 2003, so until this time there is no possibility to sign such contracts.

Kazakhstan

The main segment of the competitive wholesale market in Kazakhstan operates on the basis of bilateral forward contracts for wholesale purchases and sales of electricity entered into by market participants, with physical supply of the electricity to customers via the power grids

of the KEGOC company for a period not exceeding one year. Wholesale electricity buyers have been given the freedom to enter into contracts with power-generating organizations for the purchase and sale of electricity transmitted through the national power grid, with centralized management of production modes; in other words, buyers have the right to chose which organizations they will buy from.

The cost of electricity provided by power-generating organizations and electricity exporters has fallen as a result of the free formation of prices in a competitive wholesale market. The cost of power transmission services using the grids of the national company and of distribution companies is regulated by the Antimonopoly Agency and has stabilized. Payment discipline on the part of wholesale market participants has improved. More than 100 participants in the wholesale electric power and capacity market are currently operating in the market.

The following operations are carried out in the wholesale electricity market:

a) bilateral forward trading in electric power and capacity (the forward wholesale electric power and capacity market), which is conducted on the basis of direct forward contracts between power-generating organizations and wholesale buyers of electricity and capacity;

b) trading in reserve electric power capacity needed by participants in the Electric Power Capacity Market Pool to cover emergency shortages of capacity relative to their contractual obligations;

c) trading in electricity transmission services, which is based on electricity transmission contracts between the national power transmission organization (the KEGOC open joint-stock company) and wholesale buyers of electricity and capacity;

d) trading in technical dispatching services, which is conducted by KEGOC on the basis of bilateral dispatching contracts between the Technical Operator and all power-generating organizations in the Republic of Kazakhstan, as well as individual customers that use imported electricity;

e) trading in commercial dispatching services, which is carried on by the KOREM closed joint-stock company on the basis of three-way contracts on joint operations in the wholesale electric power and capacity market among market participants, the Market Operator and the Technical Operator; these contracts serve simultaneously as contracts between electric power capacity and/or electricity buyers or sellers and the Market Operator for billable services provided by the latter;

f) trading in services relating to the buying and selling of regulating capacity to participants in the Republic of Kazakhstan wholesale electric power and capacity market is conducted by KEGOC on the basis of bilateral contracts for capacity regulation services.

In order to improve the wholesale electric power and capacity market in Kazakhstan, plans call for:

1) organizing and holding one-day-forward trading sessions for electricity in the spot market in late 2001, and thereafter as the one-day-forward trading system is equipped with hardware and software; 2) organizing real-time trading in electric power and capacity; 3) establishing a financial contracts market.

The auxiliary services market is currently underdeveloped. At present, the Electric Power Capacity Market Pool of the Republic of Kazakhstan Integrated Power System operates in the auxiliary services market. It is a noncommercial organization founded on a voluntary basis by power plants and individual wholesale customers in order to ensure the necessary volume, structure and positioning of reserve electric power capacity and thus to maintain an uninterrupted power supply to customers in the event of any unforeseen failure of generators or transmission lines. The KEGOC open joint-stock company provides services relating to

the purchase and sale of regulating capacity to participants in the Republic of Kazakhstan wholesale electric power and capacity market.

When necessary, the Market Operator may arrange trading in such auxiliary services as: 1) reactive power; 2) the carrying capacity of individual power transmission lines when the lines become overloaded; 3) reserve capacity;
4) others.

Kyrgyz Republic

Bilateral long-term contracts are permitted in Kyrgyzstan. Contracts such as those for supply of electric power to Kazakhstan, Uzbekistan, Tajikistan, and China are long-term contracts. They contain provisions of the timeline, amounts and delivery conditions for the calendar year. The price is generally fixed and rarely changes during the year. Within the country, there are used standard contracts for retail and wholesale supply and services and the prices are regulated by the State Energy Agency.

Latvia

The 3rd item of Grid Code foresees an electricity market which will be in force on 1st January 2002. The agreements employed will be within the competence of the market participants to determine .

Lithuania

According to Law on Electricity, a market operator shall be granted a license by the Government or a body authorized by it to perform such functions shall be selected by means of a tendering procedure. The electricity market shall be organized on the basis of bilateral contracts between producers, suppliers and eligible customers as well as in other ways laid down in the rules of trade in electricity, by using a regulated third party access for transportation of the purchased electricity. There are no restrictions concerning contracts.

Generators, suppliers and importers and exporters will be obliged, as a condition of their license, to abide by the Trading and Settlement Code (T&SC). The Market Operator will maintain this code as a condition of the Market Operator License. This code will govern the rules by which the balancing market operator and balancing market participants will operate in respect of trading electricity through this market. The code will also govern the commercial arrangements for the mandatory settlement of payments for imbalance energy. The majority of electricity traded in the Lithuanian Wholesale Electricity Market will be through bilaterally negotiated PPAs or forward contracts (Bilateral Contracts). Market participants will ultimately come together as willing buyers and sellers to agree upon the terms and conditions of PPAs or, for more standard contracts, the volume and price for each contract. However, a number of PPAs will be in place at the start of the Market, as part of the restructuring process, in order to ensure a stable initial trading position. Only the parties to these PPAs will know the details of these contracts with respect to the terms, conditions and the price (except where the Commission may demand disclosure under its regulatory powers). Both parties will be obliged, under their compliance with the T&SC, to notify the Market Operator, within a defined timetable, of the agreed contracted volumes. These contractual notifications are reconciled by the Market Operator and summed to produce a net position for each Market participant. This Initial Contract Notification (ICN) is passed on to the Dispatch Operator. All market participants are exposed to imbalance prices for

uninstructed deviations from their ICNs. Payment for imbalances under this mechanism is compulsory for all market members. The Settlement function of the Market Operator will provide all Market Participants with timely reports detailing their imbalances and the resulting payments due to or by them. Appropriate funds will flow between the Market Participants and the Settlements function acting as a financial clearinghouse for the market.

Moldova

There is no market operator. Only bilateral contracts for electric power purchase are used.
The distribution networks and the system operator sign bilateral contracts for provision of services to transport electric power and for dispatching by the system operator.

Poland

Outstanding long term supply contracts between power generators and the national grid company, PSE, need to be resolved before free market pricing can take effect. Currently, 70% of electricity produced in Poland is sold to PSE. Poland has designed and implemented as of last July a Power Exchange upon which 2 to 3% of electricity is presently bought and sold. This is less than the desired level but that is due to delays in final approval and implementation of the Polish Compensation Fee System to permit termination of long-term PPAs. The Power Exchange is a join stock company with significant shares owned by the State Treasury. The Power Exchange was established without specific legislative measures. The regulator does not approve Power Exchange prices They are excluded from obligatory approval by the President of the Energy Regulatory Authority.

Romania

The market operator is an affiliate of Transelectrica. His main competencies and tasks are:

- to determine and publish the hourly system demand forecast for the next 2 days,
- to ensure the receipt and process of offers for electricity sale and ancillary services and to determine the dispatch schedule and merit order for the next day, as well as the day-ahead spot market prices,
- to define the hourly/ monthly payment rights and obligations,
- to collect and publish market information,
- to suspend the market upon the System Operator request.

To recover the costs they incur, each entity proposes tariffs for the services it caries, in accordance with the Methodologies approved by ANRE. Romania is actively exploring the cost and configuration of software to support market operations, and must have established third party access rules. The TSO will also operate two markets – a spot and ancillary services market.

Russia

Russia has established a market mechanism (i.e. FOREM) for transferring power between Regional Companies (i.e. from those with surplus to those with shortage). A further and more truly competitive market is proposed to be established as a part of the process of restructuring the Russian electric sector over the next 3 to 5 years.

Ukraine

Ukraine has an integrated Wholesale Electric Power Market. Article 15 of the Ukrainian Law "On the Electric Power Industry" forbids other wholesale markets for electric power. There is no electric power exchange operating in Ukraine. The Operator of the Wholesale Market for Electric Power is the Energorynok Government Company (GPE), which is government-owned, and reports to the Ukrainian Cabinet of Ministers. The functional responsibilities of GPE are listed below:

1. to purchase electric power from generators, whose power or amount and output do not exceed stipulated limits (except for electric power produced by cogeneration plants that provide power for use in the same territory where it is generated), as well as companies that own electric power generated from customer-supplied materials;
2. to purchase electric power obtained through import contracts from members of the Wholesale Market;
3. to provide wholesale supply of electric power;
4. to draft agreements on transmission of electric power from businesses with a transmission license for mainline and cross-border electric power grids, and ensure that they are complied with;
5. to perform the functions of manager of the Wholesale Market's system of accounting and resources and of secretary of the market's Council.

GPE is the licensee for wholesale supply of electric power, which obtained its license from NERC; funding of GPE is based on budgetary estimates approved by NERC. Bilateral forward or futures contacts (between power suppliers or users and power generation companies) are not used.

The market for ancillary services in Ukraine is still very poorly developed. A licensee that transmits electric power along mainline grids lists all his expenses for balancing the power system as operating expenses, which are taken into account when the wholesale prices for electric power are determined.

According to the Ukrainian Law entitled "on the electric power industry", purchase of all electric power produced by power plants the power or amount of which exceeds maximum indicators, and also any wind-operated power plant regardless of the amount of installed power or power output (aside from electric power produced by cogeneration plants for use in territories where the licensed generation operation takes place) and all wholesale sales shall take place on the Ukrainian Wholesale Electric Power Market. The Ukrainian Wholesale Power market was created pursuant to an agreement. Parties to the agreement were businesses associated with:

-central dispatching for the Ukrainian integrated power system;
-generation of electric power by electric power stations;
-transmission of electric power along main line and cross-border electrical grids;
-delivery of electric power on local electric power grids.

This agreement was approved by the central executive agencies that are responsible for management of the electric power industry, the Ukrainian NERC and the Antitrust Commission of the Ukraine. All participants in the wholesale electric power market sign sale and purchase agreements for power with businesses that provide wholesale delivery of electric power in accordance with the agreement establishing the wholesale electric power market.

NERC performs oversight and control functions over compliance with license conditions and the relevant laws on the part of licensees who do business on the competitive electric power market to generate and supply electric power on a rate schedule that is not regulated.

In particular, NERC monitors compliance by independent electric power suppliers with standards for sufficient assets set by NERC in order to limit the risk level of operations on the electric power market (approved by NERC resolution No. 983 of 7/29/99 with amendments introduced by resolution No. 1096 of 10/31/2000), and their compliance with the procedures for doing business on the Wholesale Market in accordance with an Agreement between

Wholesale Market members, and also compliance with these procedures on the part of suppliers of electric power and their creation of a level playing field in the Wholesale Market for independent electric power suppliers. The NERC also performs oversight over the suppliers and transmitters (transporters) of electric power with respect top their provision of free access to their power grids and in order to insure they do not abuse their monopolistic position. With regard to electric power generators, NERC monitors compliance with NERC pricing policy for electric generation and to ensure that their use of the revenues they obtain from the fee components for generating power are in accordance with the rate schedule approved by NERC, and also to prevent cross-subsidization of other forms of business (if so stipulated in their licenses).

4. Developments in establishing a legal and regulatory structure which facilitates Cross Border Trade in electricity and natural gas.

Albania

State owned company APC controls all cross-border electricity transactions. ERE has no role to play at all. For the Regulator to exercise authority over such transactions there is a need for a change in current law to authorize approval or other action respecting such transactions.

Armenia

The "Energy Law" allows the third party access to the distribution networks (for example transit). The "Energy Law" and the Energy Regulatory Commission of the Republic of Armenia regulates all the questions regarding electricity export and import. Last year the Commission distributed the licenses for electricity export and so Armenia began supplying some of its surplus electricity to Georgia. Iran and Armenia also have linked their electric grids, allowing power sales in both directions, driven by seasonal differences in demand between the two countries.

Bulgaria

Bulgaria is transiting natural gas into Turkey based on agreements with the Turkish government. Bulgaria engages in the cross border trade in electricity through its transmission company.

Estonia

Cross – border electricity transactions are regulated by Energy Act as follows: the financial reliability of traders and national economic policy interests are taken into account when issuing market licenses to traders for import of energy or network gas.

Bilateral contracts are between Estonia, Latvia and Lithuania. Energy Market Inspectorate (EMI) supervise trade of electricity by issuing market licenses for export, import and sale of electric power and approves transmission and distribution tariffs. Estonia established a third party access to transmission and distribution systems. Estonian legislation provides legal basis for rights of system users to access to transmission and distribution network. Today third party access is regulated by Energy Act

Georgia

Wholesale electric power transactions (with the exception of transactions based on direct contracts) may only take place on the electric power market in accordance with the following rules:

- The power producer license holder may supply power to the energy market or sell it in using a direct contract either to the distribution license holder, and/or the export license holder it, or to the end user.
- The power producer license holder may buy electric power in the power market and/or from the producer license holder and/or to the import license holder and then sell it to users.
- The import license holder may buy electric power outside Georgia and offer it in the power marker or sell it to the distribution license holder and/or the export license holder and/or the end users.
- The export license holder may buy electric power in the power market and/or from the production license holder and sell it outside Georgia.

In 2000, 344.4 million kilowatt hours of electric power were imported into Georgia.

Hungary

Under the new draft Electricity Act, Traders, the Public Utility Wholesaler, Producers and Eligible customers will be allowed to import or export electricity. The Regulator will issue trading and export/import licenses (not case by case permits). Based on these licenses, and other regulations, registration and transaction rules will be set up for cross-border trading, including the way of the allocation and using of the cross-border transmission capacities, allocated by System Operator based on transparent rules. Till the cross–border capacities are not congested, the only restriction is the planned 50% share of import in the consuming of certain eligible customers which will remain in effect until Hungary becomes a member of the EU. The main reason of this planned arrangement is to assure the system stability in the peak-of night period. The rigid Hungarian system is based on only nuclear and thermal power plants . So it is not allowed to reduce the production under a minimum stabile producing level. Hungary also has transit trade in natural gas with neighboring countries.

Kazakhstan

The parties have entered into the following agreements and contracts in the field of coordinating the power systems of the member countries of the Commonwealth of Independent States:

1) the Agreement on Power Systems Cooperation Between the Member States of the Treaty on Deepening Integration in the Economic and Humanitarian Fields of March 29, 1996 (Moscow, November 24, 1998);

2) the Treaty on Parallel Operation of the Electric Power Systems of the CIS Member States (signed in the Council of CIS Heads of Government on November 25, 1998);

3) the Resolution on Implementing the Treaty on Parallel Operation of the Electric Power Systems of the CIS Member States (of November 25, 1998);

4) the Plan of Measures to Implement the Treaty on Parallel Operation of the Electric Power Systems of the CIS Member States, signed on November 25, 1998 (the plan was adopted as a basis at the 16th session of the CIS Electric Power Industry Council on June 10, 1999);

5) the Agreement on Electric Power and Capacity Transit in the CIS Member States (signed in the Council of CIS Heads of Government on January 25, 2000);

6) the draft Agreement on Mutual Assistance in the Event of Accidents, Natural Disasters and Other Emergencies in the Electric Power Sector in the CIS Member States;

7) the draft Agreement on the Establishment of Supplies and Commodities for Responding to Accidents and Emergencies (the agreement was drawn up in 2001 and is to be signed in the second quarter of 2002).

The parties to these agreements are connecting their power systems with existing and newly constructed power transmission lines, thereby forming an integrated set of power systems that operate in parallel and cooperate on the basis of equal rights, mutual assistance and benefit, respect for state sovereignty and sovereign rights to power installations and resources, and compliance with laws.

By mutual agreement, the Commonwealth states whose electric power systems and electricity companies share common power grids, in order to manage their parallel operation, set up essential international and regional operational and dispatching centers, determine their functions, rights, responsibilities and structures, and maintain these centers on a shared basis.

The administrative authority responsible for these centers is the CIS Electric Power Industry Council, which consists of authorized representatives of the agencies that oversee the relevant countries' electric power industries. The working body of the CIS Electric Power Industry Council is the Executive Committee.

The CIS Electric Power Industry Council is currently working to harmonize the regulations and laws governing the countries' electric power systems.

Planning of parallel operation modes is based on bilateral and/or multilateral contracts and agreements on the supply and transit of electric power and capacity.

The contracts can take a variety of forms: long-term, short-term, operational, in-kind exchanges, and so on.

Regulations on the Customs Clearance of Commodities Transported Across the Republic of Kazakhstan Customs Frontier by Pipeline and Power Transmission Lines will take effect at a later date (the regulations were confirmed by Directive No. 51 of the Republic of Kazakhstan Ministry of Government Revenue's Customs Committee of February 15, 2001).

Customs laws require that exporters and importers obtain customs clearance from the customs authority within whose area of responsibility the exporter or importer is registered.

The stated value of electricity includes the cost of the foreign trade purchase-and-sale transaction.

Electricity has to be transmitted across the Republic of Kazakhstan customs frontier within 90 days, according to a schedule provided by the carrier.

Kyrgyz Republic

Article 19 of Kyrgyz Republic Law, *On the Electric Power Industry*, requires that businesses obtain a license for export and import of electric power from the State Energy Agency. The main operations involved in transmission of electric power were and currently are performed in accordance with intergovernmental agreements, specifically with Kazakhstan, Uzbekistan, and Tajikistan. It also should be noted that the Kyrgyz Republic is a member of the World Trade Organizations and is subject to the requirements of that organization.

Latvia

For cross-border trade, the provisions of Energy Charter are in force. Latvia has to import up to 30% of its domestic demand. At the same time, Estonia imports inexpensive hydropower-generated electricity from Latvia from March till May.

Lithuania

All electricity market participants shall be granted a regulated third party access for transport of electricity. This right shall be exercised by concluding electricity delivery agreements based on the Grid Code approved by the Government or a body authorized by it. The same in

a Gas sector. Import and Export Permit Holders will be obliged to abide by any international codes or agreements necessary to carry out their functions in importing, exporting or transiting electricity. The Dispatch Operator issues dispatch instructions to generators and co-ordinates with the grid control centers of neighboring systems to organize imports, exports and transit of electricity. Imports and exports will be treated as generation and consumption at the border, respectively. These must be matched with appropriate Initial Contract Notifications to the Market Operator. Transit of electricity is treated as a simultaneous import and export of electricity.

Moldova

The legislation in force does not contain restrictions on import or export of electric power if the electricity transmission grid can accommodate it.

Poland

The Energy Law guarantees TPA for all energy generators producing on the Polish territory, however energy from abroad has no such guarantee. This rule probably will be change to meet the requirements of the European Union. The Energy Regulatory Authority is preparing now transmission tariffs for the Polish Power Grid and distribution companies. These tariffs will be applied on the competitive market. The Polish electrical grid is part of the CENTREL system, which links the Czech Republic, Slovakia and Hungary. In 1995, the CENTREL system was connected with Western Europe's system. Poland also has connections with Ukraine and Belarus. Currently, both north-south and east-west connections are being expanded, as part of the EU's Trans-European Energy Network project. Lithuania could be linked to Poland via a new transmission line in the next two years.

Romania

To engage and be sure of hourly execution of a cross- border transaction an incumbent company must first offer sufficient power to satisfy the internal consumption; there are no explicit capacity payments because we have excess capacity and prices in portfolio contracts and for non- spinning reserves cover fix costs associated with internal consumption. A new independent company has no prohibition to export as long as it has a license to operate in the Romania market, and pays normal due charges (transmission, ancillary services, market fees etc).

Russia

The Russian Government defines issues related to government regulation of rates for electric power and heat supplied by commercial companies outside the territory of constituent members of the Russian Federation, electric power (capacity) supplied by commercial companies to the federal (national) wholesale electric power (capacity) market, electric power supplied by the federal (national) wholesale electric power (capacity) market and its members, including exported power.

Ukraine

In Ukraine, relationships involving import and export of electric power are regulated by standards in general law, i.e., constitutional standards, standards in the Ukrainian Civil Code, and Ukrainian laws such as “On Foreign Trade,” “On Customs Policies in the Ukrainian Republic,” “On Foreign Investments,” “On Operations on Commission with Raw Materials in Foreign Trade,” Decrees of the Ukrainian Cabinet of Ministers “On Setting Quotas and Licensing Export of Goods (Work, Services),” and the Agreement of the Power Industry Charter ratified on 02/06/98. The Ukrainian law “On the Electric Power Industry” is the legal

foundation for the wholesale electric power market in Ukraine; it mandates that all electric power would be sold and purchased exclusively on this wholesale electric power market; however, the issue of export and import of electric power is not regulated. Nor does the Ukrainian law entitled "On licensing of various types of economic activity" stipulate the licensing of electric power export and import.
Paragraph 22 of Ukrainian Cabinet of Ministers resolution No. 2043 "On approval of the Temporary conditions regulating the functioning of the wholesale electric power market" of 11/05/2001 mandated that imported or exported electric power must be sold exclusively on the wholesale market. The prices for imported and exported electric power are to be determined by the government regulation agency for the electric power industry based on economic considerations and the price levels for electric power in foreign markets.

5. Developments in procedures for accurate measurement, billing, collections and payment flow for energy transfers in support of Market Operations.

Albania
The situation according to bill payment and debts is in classical conformity with not liberalized market and today all difficulties in the way of reform of energy sector are as consequence of the non payment and debts from the consumers part. Currently there is an improvement about stabilization on late payments or debts. That recent situation has come as a result of some strong steps taken, mainly through the decisions of the Government, which has given to the bills a legal status. Another important step is creation of the electrical police through a separated law whose main target is to fight against illegal links (stealing of electricity). New investments are done on the supplying to the consumers with meters and in the cases where it is not possible to offer meters it is approved a fixed amount of kWh per family. Actually there is a significant increase of payments for the energy consumed. APC, currently, is working in a new concept of the billing and cash flow process.

Armenia
Based on the "Energy Law", the Commission elaborates standard agreements which are used in electricity market operations. All the licensed organizations, after signing the agreements must introduce them for registration to the Commission. The previous "Energy Law" which was in force since 1997 regulated that financial flows should be evenly distributed among participants of the electricity market in connection with the proportion of payments. The new Law does not provide for this, thus the Commission shall elaborate a new system for disbursement which foresees 100 % disburse irrespective of financial collections.

Bulgaria
The State Energy Regulatory Commission, along with licensed company management, develops the procedures and required actions for measurement, billing, payment and collections of electricity and natural gas charges.

Georgia

All settlement, billing, and cash flow operations for electric power are conducted through commercial banks subject to Market and Regulator oversight.

Hungary

These procedures will be based on the secondary legislation issued after the approval of the new market authorizing Law. In September 2001, the System Operator, in close cooperation with the Regulator, started to prepare the new Commercial Code, which describes the rules for metering, wholesale billing, settlements, balancing market rules, prices of ancillary services, etc.

Kazakhstan

1. The KOREM closed joint-stock company, the market operator, provides commercial dispatching services with respect to the production, transmission, supply and consumption of electricity in the wholesale electric power and capacity market, as well as information services and auxiliary services.

The Market Operator bills for its commercial dispatching services on the basis of a tariff approved by the duly empowered agency. The cost of commercial dispatching services is calculated as the product of the tariff and the volume of electricity purchased (or sold) in the wholesale electric power and capacity market (or transmitted via the KEGOC company's networks) by a wholesale market participant, as determined on the basis of daily supply and consumption schedules. The participant's exact bill is calculated subsequently from the actual balance for the billing month.

Wholesale market participants pay for services provided by the Market Operator in two stages:

1) for the actual volume calculated from summary data for the first half of the billing period, payment is made within three banking days, without receiving an invoice from the Market Operator;

2) final settlement for the billing month is made within five banking days on the basis of an invoice presented by the Market Operator and calculated from the actual electricity supply and consumption balance compiled by the Market Operator for the billing month. The amount due on the invoice is adjusted for the amount paid on the basis of the summary data.

2. The KEGOC open joint-stock company, the Technical Operator, provides electricity transmission services and technical dispatching services.

Billing and payment for electricity transmission services are based on bilateral electricity transmission contracts with wholesale customers and the tariff approved by the regulatory authority. Electricity transmission costs are calculated from the contractual volume of electricity provided. They are subsequently recalculated by the 10th of the month following the billing month on the basis of the actual amount of electricity transmitted.

Customers prepay for electricity transmission services in the amount of 100% of the transmission cost of the contracted amount of electricity.

Final settlement with wholesale market participants for services provided under their contracts is based on the actual amount of electricity transmitted through the transmission company's grids and on reconciliation reports for the amounts of electricity transmitted between the KEGOC open joint-stock company and its customers; these reports, in turn, are based on the actual balance for the billing period.

2) The Technical Operator provides technical dispatching services on the basis of contracts with all power-generating organizations in the Republic of Kazakhstan and with electricity importers. Billing and payment for the Technical Operator's technical dispatching services are based on a tariff approved by the regulatory authority.

Arrangements for the provision of technical dispatching services by the Technical Operator and the terms of payment are spelled out in the contract.

The contract also sets forth terms regarding customers' operating modes, specifies the quality of the electric power to be provided, and establishes reliable

arrangements for the transfer of electric power capacity and/or electricity. In addition, the document establishes procedures for imposing restrictions in the event of late payment for services and sets forth the parties' liability for noncompliance with the contract's terms.

Kyrgyz Republic

Kyrgyzenergo supplies electric power:

- to wholesale purchasers on a prepayment basis for money or barter
- to the public and other end users on the basis of amount used.

Power supplied is accounted for as follows:

- for wholesale users by meters at the divide interface (the transfer substation must be indicated). The total amount of electric power supplied is determined by the Energiya United Dispatching Center in Tashkent (for other nations of Central Asia), and by the Central Dispatching Service of Kyrgyzenergo for Kyrgyzstan;
- for the public and other end users with the help of meters installed at the user's facility. Inspectors of the sales divisions of the distribution companies read the meters monthly. Computation and issuance of bills is handled by the power sale division of the distribution companies. The bills are delivered to the users by the inspectors. For purposes of payment, heat is billed on the basis of the area being heated.

Lithuania

The Transmission System Operator and generators provide meter readings to the balancing market operator to allow calculation and settlement of electricity provided through the balancing market. Metered quantities of exported and imported electricity are also provided to the balancing market operator to allow calculation and settlement of imbalances. Licensed distributors arrange for the meter readings of customers in their territory and provide these readings to the customers' suppliers. The Supplier invoices the customer for energy consumed. The meter readings are in turn passed to the appropriate distribution business and the Transmission system Operator to calculate use of system charges, which are in turn invoiced to the supply businesses.

Generators receive payments for electricity supplied, under the terms of their PPAs, from Suppliers, the market operator and international licensed traders. Licensed Suppliers also pay the Transmission System Operator for the delivery of electricity through the HV network. In a similar manner, they pay the Distribution system Operator for the delivery of electricity to customers through the LV networks. Eligible customers pay Suppliers for electricity supplied under the terms of their supply contracts. Franchise customers pay for their electricity under the terms of their designated tariff. Further payments are also made for connection charges, through the balancing market and to recover Market Operator and Dispatch Operator costs.

The Settlement function of the Market Operator will provide all Market Participants with timely reports detailing their imbalances and the resulting payments due to or by them. Appropriate funds will flow between the Market Participants and the Settlements function as a financial clearinghouse for the market.

Moldova

The system operator computes the amount of electric power provided to the distribution networks and divides it up among the suppliers. The suppliers submit a bill based on the amount of power supplied and the distribution network pays it in accordance with the stipulations of the bilateral contract. The system operator submits a bill to the distribution networks for services to transport and exercise dispatch regulation of the power computed in accordance with rates approved by ANRE.

Poland

The Transmission System Operator (Polish Power Grid Company) plays a significant role in the metering activities because almost all metering is now within the hands of the Polish Power Grid Company, however invoices sometimes circulate between marker players.

Romania

For settlements the Market Operator has the primary function of determining and communicating the flux of money (prices and quantities) for the hourly imbalance portion of market transaction. The billing and cash flow process is directly between market participants, based on Market Operator's identified quantities and market clearing price communications. ANRE supervises the process. To counteract the effects of underpayments and chain recovery of necessary revenues and to give the retailer incentives for achieving a reasonable rate of collection, for the captive consumption it is a procedure which allocates all daily collections to each market participant. Monthly reconciliation is necessary but participants' cash flows improved. For the wholesale market a metering code is in force. A metering code for the retail market is in preparation..

Ukraine

Users, who buy electric power from power suppliers, who are in the business of supplying electric power in an assigned territory, send payments for the power they have received exclusively to the clearing account of the energy supplier in an authorized bank.

The funds from the clearing accounts of the power suppliers that are in the business of supplying electric power to assigned territories are transferred without payment orders in accordance with an algorithm set by the Ukrainian NERC to:

- The clearing account of the wholesale supplier of electric power
- The current account of the business that transmitted the electric power on local power grids.
- The current account of the power supplier.

The independent supplier that buys electric power on the Ukrainian Wholesale Power Market transfers funds to the clearing account of the wholesale electric power supplier in accordance with a bilateral agreement between the wholesale electric power supplier and the independent supplier.

The funds from the clearing account of the wholesale electric power supplier are distributed according to an algorithm approved by the Council of the Ukrainian Wholesale Electric Power Market and approved by the Ukrainian NERC among:

- The electric power generating companies and other business that sell electric power to the wholesale electric power supplier.
- The business that provides central dispatching to the integrated power system and those that transmit electric power on mainline electric grids.
- The current account of the wholesale supplier of electric power.

Other parties that have the right to obtain funds from the investment component of the wholesale rate for electric power, including for joint funding of nontraditional sources of electric power.

Appendix B to Issue Paper # 1
Electricity Market Developments
in North America and the European Union

This Appendix discusses approaches in North America and the European Union on the specific topics associated with competitive electricity market creation which the Committee has chosen to examine this year. Principal topics examined include market operation and design , structural separation to reduce incentives for discriminatory transmission access , contractual agreements which underlie market organizations and market transactions, and transmission and distribution grid access rules .

1. Design and Operation of Competitive Electricity Markets; US & European Market Developments Update

a. United States Market Design and Developments Update

Five competitive electricity markets operate in the United States (PJM, NYISO, NEISO, Texas & California) with two additional scheduled to open during 2002 covering the entire North Central United States (Alliance & Midwest ISO). [5] These markets, in addition to permitting negotiated bilateral contracts between private parties (i.e. forward contracts), typically operate a day-ahead and real time balancing market (i.e. a multi-settlement market system). Bids from both suppliers and load serving entities are typically received, matched and a dispatch order and financial settlements documents are developed. The day-ahead market permits purchases of energy required where there is a known inadequacy of previously contracted bilateral or owned supplies, while the real time market permits corrections for unanticipated weather or other load variations. A multi-settlement market is also viewed as less susceptible to gaming than a single settlement market. With the exception of California, the magnitude of load purchased through the formal auction markets is typically low (i.e. not more than 20%). The substantial majority of energy would be expected to be obtained from owned generation or from bilateral contracts. Futures markets for hedging transactions related to the purchase of energy are operated by major Commodity Exchanges in connection with several of the major markets.

[5] In its RTO Order, FERC has required jurisdictional transmission utilities to propose the formation of Regional Transmission Organizations (RTOs) meeting specified standards for independence and regional scope of operation, such entities to begin operation following FERC approval on December 15, 2001. See Regional Transmission Organization, 65 Fed. Reg. 810 (January 6, 2000). In compliance with this Order, existing integrated, utility service providers are developing RTO proposals and the creation of wholesale markets throughout the United States for FERC consideration. Central elements of these proposals are summarized below. The specific standards which RTOs are required to satisfy were discussed in an Appendix to Issue Paper # 2 (at pp. 19-22) prepared as a part of the Committee's 2000 Program Papers. As part of its investigations to collect data and to formulate positions to guide the industry in RTO formation, FERC has recently prepared and published on its web-site its "Strategic Plan 2001-2005 – Making Markets Work" in which it summarizes its objectives for competitive energy market improvement and the principles upon which it expects to achieve such improvements. This document is available for download at http://www.ferc.fed.us/previousnews.htm. Similarly, on October 15-19, FERC held a five day Workshop on Electricity Market Design and Structure which reviews and elaborates upon many of the market structures and related US practices discussed in this Appendix. A Staff Summary and the daily transcript of the Workshop Sessions are available at http://www.ferc.fed.us/Electric/RTO/workshops.htm.

The five operating markets in the United States began operation generally in the period 1997-1999. In a presentation by Chairman Welch of the Maine Public Utilities Commission, the Committee has been advised of sustained high prices, price volatility and supply shortages in the California market as well as the causes of these conditions. [6] While other United States Markets have experienced some price volatility attributable to immaturity and have adopted temporary measures to mitigate that volatility as discussed below, prices have generally remained comparable to historic levels after adjustment for recent increases in natural gas and other important input prices. For example, prices in the PJM Market since its inception have cleared at below $100 per MWH 99% of the time, and below $30 per MWH 70% of the time. For the year 2000, average monthly prices in the New York ISO Market were approximately $60 or less each month except June when an outage and weather caused price spike on a single day caused a monthly average cost of just short of $80 per MWH. In the New England ISO, again with the exception of the month of May, in which an outage and weather caused price spike occurred, average monthly prices in 2000 averaged about $50 per MWH. Recent price levels in all US Markets have significantly declined in response to substantial declines in natural gas prices.

The market mechanism and related descriptions provided below are based primarily upon a review of the present Northeast US Markets (i.e. PJM, NYISO, NE-ISO) supplemented where appropriate with information from the ERCOT (Texas) Market. Although each Market differs both for historic reasons (i.e. the nature and form of the Power Pool existing prior to competitive market creation) and because of location or technical choice differences, the central market structure in each of the Northeast US Markets is very similar. Market members in each Market at present approximate or exceed 150, including approximately 10 transmission owning companies and as many as 70 load aggregators and 100 electricity traders. Each Regional Market has multiple energy, capacity and ancillary service markets (i.e. approximating 6). These markets include a multi-settlement energy market, i.e. with both a day-ahead bid auction and a real-time market operating at the time of physical delivery. The majority of sales occur under bi-lateral contracts in each market, with the day ahead and real time markets not accounting for more than 20% of sales. The precise mechanics of the "spot energy" markets differ in each Regional Market, but their functions are roughly the same. The day ahead market permits purchase or sales of energy known to be required to supplement longer term bilateral contracts or self-generation, while the real time market permits needed adjustments to match anticipated with actual load that will vary with unanticipated weather changes and for other reasons.

Other markets may include those for capacity, ancillary services and transmission related congestion rights. Where employed, these markets operate in an "auction" manner similar to the spot energy markets described above. Only the NE-ISO presently employs a capacity market (i.e. the ICAP Market). Each Northeastern Market imposes a capacity reserve requirement employing methods similar to that described below in connection with the PJM Reliability Assurance Agreement. Ancillary services that are acquired in the Northeast United States through an auction market include spinning and short-term capacity reserves and regulation. Transmission congestion rights (i.e. in PJM - Fixed Transmission

[6] The California PUC has ended for the foreseeable future retail competition in California. Moreover, a number of Western, Southwestern and Southern States with present or anticipated capacity shortage conditions such as exist in California have delayed by two years or more their planned development of competitive retail markets. Actual customers switching in US retail markets has varied from several percent to 25% in individual markets.

Rights (FTR)) are the right to transmit electricity through a congested transmission line without paying congestion related or re-dispatch charges, and without the possibility that the transactions cannot be scheduled or will be interrupted due to insufficient transport capacity. Each FTR constitutes a defined portion of the transmission capacity of the congested line.

FERC has included a number of measures to provide price protection to consumers in addition to competition in particularly the NYISO and NE-ISO Markets during their initial periods of operation. FERC has noted four factors which necessitate these additional protections including the following: i) existing generation capacity shortages which have not yet been corrected by market entry; ii) the present unavailability in a Market of a Demand Size Response capability (i.e. the ability of end-users to reduce load in response to price); iii) software problems which make market operation erratic and pricing levels unpredictable and volatile; and iv) chronic generation capacity breakdowns which have not yet been corrected by market entry. Each of these "protections", which constitute an intrusion into and a replacement of normal market processes in price setting, is established only for a limited period while the condition necessitating its adoption continues in effect. These measures include "hard" and "soft" price caps, circuit breakers, temporary mitigation procedures and pricing screens which necessitate price or bid justification where exceeded.

Hard price caps are generally set high ($1000 per MWH where actual prices normally do not exceed $100 per MWH) and cannot be exceeded where the high price is caused by the specified condition. Soft price caps, screens, TMP and circuit breakers are generally set low (i.e. $150 to $250 per MWH) and typically require justification if a higher price or bid is established. If justified, the price may not be permitted to set the "clearing" price for the energy market. In other words, the participant who has justified the price based upon its costs receives it, but the remainder of the market which has presented no justification does not. If not justified, the ISO is authorized to mitigate the price either by requesting revision to the bid or by adopting a recent historic actual price from a period in which the offending condition at which the mitigation was directed is not present. FERC has also approved several ISO or market participant requests to impose tightened capacity reserve requirements and higher deficiency charges in light of the supply shortages being experienced in the western United States. These protections and their manner of operation are further described in Issue Paper # 3 and in the October presentation prepared by Commissioner Kelley of Connecticut.

An important feature of each market is its "OASIS", i.e. "its "Open Access Same-Time Information System". An OASIS site is an internet-based electronic communication and reservation system through which information about the availability and cost of transmission service is made available to potential users of the system and through which reservations for service may be made. The key concept which underlies "OASIS" is that all entities interested in obtaining transmission service should have equal knowledge of its availability and cost, and therefore an equal opportunity to engage in market transactions. OASIS facilitates this ability by conveniently and speedily making transmission related data available to such users at minimum cost. Oasis sites, in addition to Grid Access Rules, discussed below, are a key component to assuring "non-discriminatory" or "comparable" service to all transmission or distribution system users.

In addition to the above operating or approved markets, as required by FERC Order 2000, [7] transmission-owning utilities throughout the United States (including existing market operators) are developing and have preliminarily proposed "Regional Transmission Organizations" and wholesale market structures for the remaining areas of the United States . Under Order 2000, these organizations are to be established after FERC approval prior to December 15, 2001, though actual market operation may not have begun by that date. These filings propose a variety of market structures, including a "transco" concept pursuant to which existing transmission owning utilities may divest their transmission plant to a new for-profit corporation which becomes responsible for the system's operation, maintenance and expansion. The new company's structure may be designed such that it facilitates ultimate separation of transmission system ownership from the former integrated electricity service provider (i.e. particularly from generation service).

Proposed "transcos" presented in RTO filings take different forms with the form ultimately to be adopted still largely under discussion. Nine RTO filings were made last year by proposed new RTOs with four additional filings made by the existing, operating markets (i.e. Texas/ERCOT is not subject to FERC jurisdiction). [8] Presently proposed Transcos are typically limited liability companies which are proposed either to own and fully operate the transmission system in their region of operation (i.e. including System Operator duties such as enforcing third party system access and operating balancing markets) or to own and administer such systems subject to the direction of an ISO also proposed to be created as the result of the filing. Where an ISO is not being created, such as particularly the Alliance filing, it is proposed that a Strategic Investor with both financial strength and grid operating experience be attracted to manage and invest in the LLC. For example, Alliance proposes that an American subsidiary of the National Grid Company (NG) be permitted to operate and invest in the proposed transco, acquiring an ownership interest of up to 20% of the transmission facilities to be transferred.

NG has agreed to perform this function, but its recent acquisition of New England Electric System and Niagara Mohawk Power Corporation has resulted in its ownership of generation plant in New York, a national power marketer, a substantial end-use supplier and concentrated distribution facilities in western New York. This has led FERC to question whether NG is fully independent from or whether it itself is not a market participant in the proposed Alliance service territory (i.e. Ohio and points west and south) and thus may not serve as a System Operator. NG has recently responded that it will divest or contract to independent entities all generation and end-use supply operations, and will contract supply acquisition for its distribution operations also from an independent company in an effort to persuade FERC that it as eliminated all commercial interest that it might have in Alliance operations and thus should be approved to operate as the Alliance System Operator. FERC has yet to rule upon this proposal. NG's role it should be noted is interim in nature in the view of the Alliance organizers (i.e. a seven year contract subject to two year extensions), as they expect the new Alliance LLC to grow in operating experience and financial strength and to raise sufficient capital to significantly buy-out their interests in the existing transmission

[7] See, e.g., Regional Transmission Organizations, 65 Fed. Reg. 810 (2000). Also see description in Licensing & Competition Committee 2000 Issue Paper # 2, at pp. 19-21.

[8] See, e.g., Re Alliance Companies, et al., 96 FERC ❶ 61,052 (July 2001); Re Avista Corporation, et al., 95 FERC ❶ 61,114 (April 2001); RE Grid South, LLC, et al., Docket RTO!-74-002 & RT01-74-003 (July 2001); Grid Florida LLC, et al., Docket No. RT)!-67-000 & RT01-67-001 (March 2001); New York Independent System Operator Inc., Docket No. RT01-95-000 (July 2001); PJM Interconnection LLC, et al., Docket No. RTO1-2-000(July 2001).

investment and to then operate the system as a for-profit, stand-alone transmission service provider. [9]

Regardless of whether an ISO is proposed as a formal part of a "transco" structure, a Stakeholder Advisory Council to permit generators, distributors, power marketers and Regulators to have input into RTO decision making is provided and operates similar to stakeholder committees in an ISO. FERC, however, strictly limits such committees to the providing of advice and has rejected proposals that stakeholder (i.e. market participants) committees be allowed to make decisions on matters which are required functions of the RTO (such as reliability and though this structure was permitted under the former ISO rules). FERC has also denied requests to decide major structural issues respecting the RTO's governance structure or public obligations prior to its formation and the constitution of its independent governing board in order to prevent the former integrated utilities from adopting positions or structures which support their commercial interests rather than providing fairness and impartiality to all market participants. Additional major issues being decided in RTO filings, in addition to whether the proposed RTO satisfies Order 2000 fundamental requirements, include the governance structure, transmission rate and congestion management structures, the adequacy of market monitoring programs, the adequacy of transmission system and reliability planning structures and methods for the acquisition of ancillary services.

As with the European Commission which has been urging the development of market structures and organizations which will facilitate the development of a single, internal European market, FERC has been urging that existing or proposed US markets and market organizations be combined into larger units. In its RTO Filing Orders, FERC has put this policy into effect by urging RTO Organizers to combine their proposed RTOs into larger regional units with the objective that there will ultimately be only four RTOs (i.e. separate markets) in the United States. On July 12, 2001, FERC issued two Orders directing that four proposed Northeast US RTOs and 2 or 3 Southeast RTOs be combined into separate single regional markets. FERC stated that such combinations are necessary in order "to successfully address seams issues among the three existing Northeast/ Southeast ISOs and establish efficient markets in the Northeast/Southeast". [10] FERC has long urged that larger markets permit greater competition and commercial/ operational flexibility, which produces lower prices and greater reliability for customers. Although it favors single markets in the American Midwest and West as well, FERC has not yet ordered their creation. In the Midwest, a recent Settlement Agreement between the existing ISO and provisional RTO promises (i) a single rate for all transmission service across the entire territory of both Operator (and perhaps PJM as well) and (ii) provides for specified coordination and cooperation between the two Operators to address seams and market/software standardization

[9] The development of independent Transcos in Europe and a description of this concept as applied in Europe was presented by Mr. Jon Sagen of the Norwegian Water Resources and Energy Directorate during the October Joint Committee Session. See ISO-TSO Some General Considerations. Mr. Sagen further provided a discussion of several of the pros and cons of the ISO and TSO models.

[10] See Regional Transmission Organization, Docket Nos. RT01-99-000 & RT-01-100-000 (July 12, 2001). Three State Commissions have requested and FERC has allowed rehearing of the Northeast RTO combination Order, and appeals questioning FERC's authority to issue the directive to form Regional RTOs have been filed with Federal Appellate Courts. There is ongoing to be concluded shortly by FERC Order mediation proceedings in which FERC seeks to assist the organizers and other interested parties of the several RTO proposals to negotiate the formation of the desired Regional RTOs .

issues that may increase the ability of market participants to operate across the entire "super region". [11]

FERC and the Northeast ISOs have been evaluating and developing solutions to "seams" issues for the past several years. "Seams" issues refer to the identification of impediments (i.e. such as pancaked transmission rate charges or dispatch/transaction software interface limitations) to increased beneficial trade in electricity between separate ISO Markets. PJM, NYISO and NE-ISO signed a Memorandum of Understanding to identify and, where possible, resolve such issues. Issues that have been identified and worked upon include (i) scheduling to reduce interregional transmission congestion; (ii) develop software and schedule compatibility for inter-ISO transactions; (iii) develop cost-reducing reserve sharing protocols; (iv) develop uniform standards for generator interconnections; (v) develop a specific, market-based mechanism to facilitate energy transfers between existing Northeast ISOs; (vi) develop uniform reliability rules; and (vii) develop alternatives to existing transmission loading and load dump procedures. FERC has also been giving some consideration to the creation of an Industry Standards Board, similar to that which exists in United States competitive wholesale natural gas markets, to develop industry wide solutions to these problems, as well as to suggest market code of conduct rules for competitive electric services.

An additional formal task of a regional ISO is the preparation of a Regional Transmission Expansion Plan for its operating area. In the case of PJM, preparations to prepare this Plan are originated with the ISO Professional Staff and it is prepared in accordance with the requirements of a Protocol attached as Schedule 6 to the PJM Operating Agreement. The Plan is required to set forth the enhancements and expansions of transmission facilities required to meet the demands for firm transmission service in the PJM Control area anticipated over the following ten years. A Transmission Expansion Advisory Committee of Market Participants and including representatives of the regional transmission owners provides input to the completion of the Plan. The Plan is required to meet the area's firm transmission service requirements in "an economic and environmentally acceptable manner." The Plan must also designate which existing transmission owner will construct and finance the required new transmission capacity, and subject to the ability to attract the needed capital and obtain required governmental approvals, the designated owner is obligated to construct the needed line.

The final Plan, after input from the Advisory Committee, must be reviewed and approved by the PJM Managing Board. ISO Professional Staff will also conduct other studies of importance to ISO operations or reliability. For example, with natural gas fired generation predominating in planned new capacity additions, the New England ISO recently completed a study of the natural gas supply and transport system available to its operating region, noting the importance of adequate natural gas supplies and transport capability to assuring adequate electricity supplies and reasonable price levels in its region. Professional Staff also conduct continuous analyses of load forecasts, transmission line loading, reliability standards and the adequacy of rules and incentives to assure reliability, the operation of the market rules themselves and other similar matters. An additional significant area of ISO activity, market monitoring and enforcement activities is described in Issue Paper # 3.

[11] See Illinois Power Company, 95 FERC ❶ 61,183 (May 2001).

A number of markets in Canada and the United States have or will shortly initiate operation. These include the Texas retail market, the Ontario wholesale market and the Midwest ISO wholesale market. Each of these markets is initiating actual operation with a carefully planned pilot program involving approximately 5% of market transactions. The pilot project provides time to test new computer software used in market operations, System and Market Operator performance, the adequacy of market rules respecting bidding procedures and dispatch formation and other similar matters. The public attention focused on the pilot project and the time required for its completion also both assists and permits time for educating customers on how to successfully function in the market. These Pilot Projects are very carefully planned. For example, the Ontario Independent Electricity Market Operator has prepared an "Electricity Market Readiness Plan" detailing five test stages which correspond to a phased transition from existing to planned full marked operations over a 10 month period. (See http://www.imo.com)

b. <u>European Market Design and Developments Update</u>

On March 27, 2001, after extensive testing, Great Britain initiated operation of the New energy Trading Arrangements (NETA) to replace the centralized Power Pool that had operated since privatization in 1990. NETA does not change the physical operation of the UK power system, but exchanges the existing with a new method of price determination. The Pool was a centralized and rigid trading system built upon the preexisting generator dispatch rules. It has been replaced because experience has shown that it was subject to manipulation, did not provide for demand side bidding and failed to result in significantly lower prices though electricity input costs have been decreasing in Great Britain. [12] Under NETA, with the exception of the balancing mechanisms, generators are self-dispatched to meet their contractual obligations.

The new trading arrangements are stated to be more market based, being based principally upon bilateral trading between generators, suppliers and customers. In addition to an informal bilateral contracts market (i.e. the OTC Market), three power exchanges operate for trading of both forward and futures contracts. Forward contracts permit the sale of electricity for a several year period into the future, to as little as an hour ahead in order to balance contract positions with last minute supply or demand charges. National Grid Company (NGC), who owns the transmission grid, is licensed to operate as System Operator. It operates under an incentive rate structure which establishes a cost target for the provision of its services and permits it to retain a portion of any savings from that target that it achieves, but permits recovery of only a portion of any additional costs incurred.

A separate balancing mechanism which to date has accounted for the trade of not more than 3% of electricity demand is run by a Market Operator. The cost of electricity obtained through the balancing mechanism is more expensive than bilaterally contracted electricity (including that purchased on power exchanges) because it is acquired at the last minute from generators with fast response times whose costs tend to be higher. Demand resources (i.e. the willingness to reduce load) may be bid into the balancing mechanism. Also, prices in the balancing mechanism are highly volatile. A Balancing and Settlements Code to govern the balancing mechanism has been put into effect and all participants in the mechanism are required to sign the BSC Framework Agreement. The BSC Code is drafted

[12] OFGEM, The New Electricity Trading Arrangements, A Review of the First Three Months (August 2001).

and modifications may be proposed by balancing mechanism participants, subject to approval by the English Regulator (OFGEM) under prescribed legal standards.

Based on its review of the initial three months of operation, OFGEM has concluded that NETA is "working well" and has contributed to a 20 to 25% reduction in wholesale supply costs. Market liquidity has also increased with a three fold increase in the volume of trades.

Development of integrated continental European markets has also advanced over the past year. Third party access rules have been adopted and are in force in all major European Countries, and significant load has switched from the incumbent to new suppliers. As in the United States, a significant number of cross -border acquisitions and mergers have been occurring. Several countries have recently adopted or threatened to adopt reciprocity requirements blocking further acquisition of recently privatized companies by large state-owned concerns whose markets are opening somewhat more slowly than other nations and have adopted requirements of ownership of generation within the country to back up cross-border electric transactions.

In summarizing the status of European electricity market development, the Commission of the European Communities stated as follows in its "Communication to the Council and the European Parliament" in support of its proposal for a Regulation on "Conditions for access to the Network for Cross-Border Exchanges in Electricity": [13]

> "Exclusive rights to import and export gas and electricity and to build and operate gas and electricity facilities have been abolished following the implementation of the Directives. With regard to electricity, the construction of new generating capacity has also been fully opened up to competition. . . . [A]access to the network is a key issue, in particular taking into account that it is likely to remain a natural monopoly. . . . It is thus vital that market players can get fair access to the transmission and distribution grids including all the necessary ancillary facilities ("third party access" or TPA). The achievement of this is more likely if the operation of the transmission and distribution systems . . . are functionally separated from the other commercial interests, in particular generation/production and supply.
>
> The directives offered Member States the choice between a third party access system based on published tariffs applicable to all customers ("Regulated third party access") and a system based on negotiations between the parties, with published main commercial conditions ("Negotiated third party access"). With respect to unbundling, integrated companies are obliged to unbundle their different business activities by separating their accounts and preserving the confidentiality of commercially sensitive information through "Chinese Walls". Moreover, the Electricity Directive requires that an independent (at least in management terms) transmission system operator ("TSO") is designated to ensure non-discrimination in system use between

[13] See Communication from the Commission to the Council and the European Parliament, Completing the Internal Energy Market, Proposal for a Directive of the European Parliament and of the Council, amending Directives 96/92 EC and 98/30/EC concerning common rules for the Internal Market in Electricity and Natural Gas, On Conditions for Access to the Network for Cross-Border Exchanges in Electricity, Issued March 13, 2001. (COM(2001) 125 provisional version.

> the incumbent and new entrants. In order to ensure non-discrimination, Member States are furthermore obliged to designate a competent and independent "dispute settlement" authority.
>
> All Member States have now adopted national legislation implementing the provisions of the Directive concerning common rules for the internal market in electricity. . . . Furthermore, a clear majority of member States have chosen structural measures accompanying market opening most likely to promote effective competition. In fact, most Member States have opted for regulated third party access, the authorization procedure for new generation capacity, full legal unbundling of transmission system operators and the creation of independent regulatory authorities. . . . . [A]n overwhelming majority of Member States currently expect to liberalize all electricity customers by 2007 . . . ." (at pp. 4-6)

The Report estimates that between 5 and 20% of customers have switched suppliers in different EU national markets, with the higher numbers in Scandinavia and Great Britain where competitive supply has been available the longest. (at p. 10) The market form employing bilateral contracts and a balancing market, as well as the contracts and other forms described above, largely originated in European markets (i.e. particularly NordPool), and are presently the exclusive form employed.

In May 2000, the Florence Forum of European Regulators and TSOs agreed upon an interim tariff and interconnector capacity allocation procedure for use in cross-border electricity transmission. However, prior to implementation, in Fall 2000, differences in implementation respecting the proposed tariff charge and how its cost recovery would be reflected in national tariff structures resulted in a determination that it not be implemented at that time on even an interim basis. Certain Countries internal tariff systems would dictate assessing the charge against only export generators, while others would assess it generally against all customers. This was viewed as disruptive to transparent, equal competitive opportunity market development and further discussions and evaluation was determined to be appropriate prior to implementation.

The Council of European Energy Regulators and the European Transmission Service Operators have developed a revised proposal which was published on the ETSO website in early September (http://www.etso.com). The proposal is very similar to that of May 2000, i.e. a substantial fund is created through a charge allocated to each EU nation and a mechanism for use by national TSOs to identify cost and make inter-TSO payments relative to cross border trade is provided. A permanent tariff and capacity allocation protocol, when developed, is intended to be non-transaction based, is to seek to provide efficient location cost signals for generation sitting and is to result in charges mainly upon loads rather than generation. A proposal for the management of transmission congestion in cross-border transactions has also been presented by ETSO. CEER has urged that, following further discussions on the reflection of the interim mechanism in national tariff structures, that it be implemented by the end of this year and that a further permanent tariffication and congestion management system be developed for implementation by September 1 of next year. An important feature of the proposal is

that TSO's be independent of other market participants to assure that discretion in funds allocation is exercised impartially.

Finally, Mr. Jon Sagen of the Norwegian Water Resources and Energy Directorate, in his presentation entitled "What characterizes an effective market?" described major European market structures and organizations which are in many aspects similar to those being developed in the United States.

c. Market Developments in Latin America

Latin America also has significant development of competitive electricity markets and began that development process with many of the same difficulties experienced in recent years by some CEE/Eurasia Countries. For example, the electric system was largely state-owned, in poor financial condition and suffering decapitalization because of non-collection of billed revenues and discounted rates. Unserved energy in some countries ran as high as 20% of national demand. A number of countries in the early 1990s initiated a reform strategy of competitive electricity market development and concurrent privatization to correct this situation. Although the timing and the content of these reforms differ, the Government's role in the sector, by legislation, was typically limited to establishing policy and regulation through an autonomous Regulator. System Operators were established, initially owned by the Government, but in Argentina ultimately with ownership (as a private non-profit corporation) divided equally (i.e. 20% share) between the Government, Generators, Distributors, Transmitters and Large Consumers.

The generation market is fully open to new entrants, but distributors generally maintain exclusive service territories and have a duty to provide service to customers not eligible to be served competitively. The Market operates on the basis of bilateral contracts and a spot balancing market, except for Chile and Columbia who have to date maintained a mandatory Central Power Pool. Again with the exception of Columbia, dispatch and spot market prices are based on marginal costs and not generator bids. Thus, several Latin American Markets are cost-based and not bid-based and therefore fully competitive driven. The spot market is for balancing purposes as described above. Daily wholesale market prices are not typically flowed through rates to end-users, but rather are averaged over a three month or longer period before reflected in retail rates. Transmission pricing is done on a zonal basis reflecting congestion. Financial contracts for hedging purposes are permitted. Electricity exports and imports are freely permitted subject to supply and transmission system reliability concerns. Larger customers are required to contract for at least 50% of their supply through the Bilateral Contracts market, with smaller customers subject to a higher requirement (up to 100%) in order to reduce reliance and thus price volatility arising from the spot market. Several countries in Latin America are presently considering further liberalization of their electricity markets, including the adoption of a bid based market system similar to that employed in Europe and North America, with the express purpose of increasing the attractiveness of particularly their generation market to international investment capital.

2. Contractual Agreements which underlie Market Organizations and Transactions

a. Agreements Authorizing the Formation and Operation of Independent System Operators

The legal structure, governance, authorities and market organizations of the existing Independent System Operators and their associated markets operating in the United States are based upon a series of contract agreements among market participants which have been approved by FERC. Whether and to what extent the Agreements and procedures described below will change as the result of FERC's RTO Orders described in the prior Section, is presently unknown. Clearly, the form of these Agreements will change. However, it is likely that a significant measure of the activities described below will continue to be performed though perhaps by a somewhat differently structured entity.

ISO and RTO Contracts are formed prior to formal operation through a collaborative process amongst market participants (i.e. generators, end-use suppliers, transmission owners, distributors and customers), led by existing integrated utility service provider or power pool (i.e. pre-ISO) Professional Staff and with the participation and oversight of Regulators and Consumer Advocates. Concepts for operations and rules for the proposed market are developed, rules and draft agreements are prepared and circulated, comments are solicited and received, revisions made and ultimately a final set of documents prepared. Once substantial agreement upon the proposed ISO and Market has been achieved, the founding documents are filed with FERC for approval. Under the Federal Power Act, FERC's approval is required to permit transfer of operating control of the transmission facilities from the integrated utility to the ISO and for the ISO and generators operating in the market to charge "market-based rates" as opposed to cost of service based rates. [14]

The PJM Interconnection employs as the basis for its operations an Operating Agreement, a Transmission Owners Agreement and a Reliability Assurance Agreement.[15] The Operating Agreement establishes the PJM Board of Managers with final responsibility and authority to manage PJM and its market/transmission operations. The PJM Board of Managers consists of 7 individuals serving three year terms and with no financial or other association during the prior five year period with any market participant. Although selection processes vary by ISO, a current favored process is for selection of a pool of candidates by an independent Professional Search Firm, which either alone or with input from either a Market Participant or Transmission Owner Committee then selects the final Board from the previously selected pool. Board Members selected after the constitution of the initial Board are selected by the existing Board. At least one Board Member may be required to have specified expertise, for example, in law, transmission operations, corporate management,

[14] PJM and other ISO operated markets in the United States initiated operations on the basis of cost of service rates. Only following a demonstration of the absence of market power and of workable competition in the ISO operated markets, as approved by FERC, may prices determined upon the basis of competition be charged (i.e. market based rates). This necessary analysis and its meaningfulness is discussed further in Issue Paper # 3.

[15] The NYISO and NE-ISO have similar agreements though structured somewhat differently. The NYISO's Agreements include the ISO Agreement, the New York Power Exchange Agreement, the New York State Reliability Council Agreement, the ISO-NYRC-Agreement and the ISO-Transmission Provider Agreement. As described above for PJM, these Agreements address the following issues: i) creation of the ISO and authorization of it to operate and enforce grid access rules for the transmission system; ii) creation of a power exchange and authorization of the ISO to operate it; and iii) definition of the specific procedures, data filing requirements, capacity acquisition commitments and sanctions to assure that short term operating and long-term supply reliability is preserved. While the NYISO has prepared a separate Agreement for each of these major functions, the NE-ISO addresses each matter within a single Agreement (i.e. the Restated NEPOOL Agreement).

finance, accounting or other matters. The President or Chief Executive Officer of the ISO typically serves as a non-voting member of the Board.

The PJM Managing Board is responsible for assuring that the PJM Professional Staff perform the functions of the ISO "in a manner consistent with A) the safe and reliable operation of the Interconnection, B) the creation and operation of a robust, competitive and non-discriminatory electric power market in the PJM Control Area and C) the principal that a member or group of members shall not have undue influence over the operation of the Interconnection." Indeed, the Board is charged with broadly assuring that all structures and activities of PJM ISO are in furtherance of these objectives, and are to raise issues or actions taken by Stakeholder groups with FERC that are not in furtherance of these objectives. The Board approves major final work products of the ISO, such as the Regional Transmission Expansion Plan, reliability plans and resolves disputes if requested by members of the Reliability Assurance Committee (assuring that the action taken is "consistent with the creation and operation of a robust, competitive and non-discriminatory electric power market" and "the need to preserve the reliability of electric service in the PJM Control Area."). The Managing Board may also serve as the final arbiter of disputes between the Professional Staff and Stakeholder Committees (subject to the right of Stakeholders to appeal to FERC) and may propose Amendments to PJM's foundation agreements for consideration by Stakeholder Committees or FERC. The Managing Board oversees the work of the PJM Professional Staff (i.e. the Office of Interconnection) which performs the many technical tasks necessary for market operation, such as computation of "available transmission capacity", location marginal prices, maintenance of the PJM OASIS, compliance with MAAC and NERC reliability standards, technical support for stakeholder committees performing their specified reliability, settlements and collections or other functions, etc.

In addition to the Managing Board and PJM Professional Staff, PJM is structured to obtain input for technical decisions through Stakeholder Committees. The principal of these with the broadest area of responsibility is the Members Committee. This Committee, both at PJM and other ISOs, is organized and votes by "sectors", i.e. generation owners, power marketers, transmission owners, electric distributors and end-use customers. Each PJM Member (i.e. Market Participant) may nominate a representative to vote in one of the sectors of the Members Committee. FERC, State Commissions and Office of Consumer Advocates may nominate a member to participate in Committee Meetings as a non-voting member. Voting is by sector with each sector having 1.0 vote to be divided between a positive or negative vote for a proposal based on individual sector member votes. A total affirmative vote of .667 multiplied by the number of sectors voting is required to pass a proposal to assure that such adopted proposals have substantial and diverse member support. Additional Stakeholder Standing Committees which may adopt positions for consideration by the Members Committee include an Operations Committee, a Planning Committee and an Energy Market Committee. Matters adopted by the Members Committee must also be approved by the Managing Board to become effective if significant to PJM operations. The Members Committee may pursue disagreements with the Board to FERC.

Attached to the Operating Agreement are a number of Schedules which set forth rules which govern PJM's central operations. For example, Schedule 1 defines the operation of the PJM Interchange Energy Market and rules governing Member participation in that Market as well as the methods for calculating location marginal prices. Schedule 4 is the agreement which must be signed to become a Member of PJM. Schedule 5 sets forth the PJM Dispute Resolution Procedure which applies to disputes between Members or with the Managing

Board which cannot be resolved informally. Finally, Schedule 6 sets forth the Regional Transmission Expansion Planning Protocol, pursuant to which the Regional Transmission Expansion Plan to strengthen the regional transmission network and reduce or eliminate congestion has been developed. The "Credit Policy" or solvency requirements for participation in the market as imposed by the ISO may be stated as an Attachment or authorized for separate adoption in the Agreement. That policy, as described further in Paragraph 5.8 of Issue Paper # 1, protects the liquidity of the market by stating how much power a member can buy on credit based upon the strength or weakness of its financial condition.

The second major Agreement signed by all Members of a US ISO relates to the establishment of rules and procedures for assuring principally long and short-term supply reliability. In PJM, this Agreement is called the Reliability Assurance Agreement. [16] It codifies procedures employed by PJM to assure supply reliability for many years when PJM was an association of integrated companies, as well as adding a number of new procedures required by wholesale and retail competition. Reliability standards and rules are established in the United States by an organization known as the North American Electric Reliability Organization (NAERO) which has existed for many years and well before the initiation of competitive markets. At present, NAERO is a voluntary organization without authority to require that its rules be adopted and enforced. However, market opening State Legislation, State Commissions and the ISOs themselves provide the mandate for enforcement of NAERO standards.

The PJM Reliability Assurance Agreement is made between "Load Serving Entities" within the PJM Control Area. A Load Serving Entity (LSE) is any entity "(i) serving end-users within the PJM Control Area, and (ii) that has been granted the authority or has an obligation pursuant to state or local law, regulation or franchise to sell electric energy to end-users", and may include aggregators and power marketers. Under the Agreement, each LSE commits to share its generation or contract capacity resources with other LSEs and to provide mutual assistance during emergencies to reduce overall PJM "reserve requirements". Each LSE also agrees to coordinate their capacity resource planning to satisfy Reliability Principles and Standards specified in the Agreement. The Agreement is managed by a Stakeholder Reliability Committee, though major calculations, data collection and retention and other specific activities are by the Agreement made the responsibility of the Office of Interconnection. The Reliability Committee, subject to the overall authority of the PJM Board, is responsible to establish the Forecast Pool Requirement for Capacity Resources, to establish criteria for the use of such resources during emergencies and to carry out planning, analyses or such other actions as are necessary to satisfy the Agreement's specified Reliability Principles and Standards.

Under the Agreement, LSE's are required to provide forecast load, generation or capacity entitlement or other data required to analyze the risks of generation outage and the need for reserve levels to the Office of Interconnection. The PJM Forecast Pool Requirement is determined to ensure the availability of sufficient capacity to meet the forecast load plus

[16] As noted, the counterpart agreements in New York are the New York State Reliability Council Agreement and the ISO-NYSRC Agreement. These Agreements authorize the NYSRC to establish supply reliability standards under the authority of the New York Public Service Commission as supply reliability is not within FERC jurisdiction and all operations of the NY ISO are within the state of New York. In both New York and New England, ISO reliability related procedures and authority will differ from that discussed above for PJM due to historic practices followed prior to the advent of competition.

reserves needed should capacity be unavailable due to planned or unplanned outages or due to load forecasting uncertainty. The method for determining this Forecast Pool Requirement is set forth in a Schedule 4 attached to the Agreement, as is the method for allocating that requirement among PJM LSEs (i.e. Schedule 5). The allocation method between individual companies allocates the Pool Requirement based upon the several factors identified above which have contributed to its size. Each LSE is required to install or contract for sufficient capacity resources to satisfy its requirement or it must pay a capacity penalty set at that amount necessary to recover the annual carrying cost of sufficient combustion turbine capacity to satisfy the requirement. LSE's are also required to acquire all needed reactive capacity and voltage control facilities. All capacity resources identified to meet this requirement must be designated as Network Resources under the PJM Transmission Tariff (which thereby imposes a transmission usage charge) to assure their availability to meet reliability needs. The Reliability Committee is authorized to direct audits to determine Member compliance with these requirements.

Finally, the Transmission Owners Agreement establishes PJM's right to direct the operation and the Owners responsibility to operate and maintain the transmission plant which remains owned by an affiliate or subsidiary of the former integrated monopoly service providers, unless transferred or divested to an independent Transco as described above . A principal purpose of this Agreement is also to establish responsibility and rights applicable to tariff filings related to both rates and third party access rules. FERC requires that these filings be solely within the prerogative of the ISO, but Transmission Owners are given the right to initiate their own filings upon rate adequacy matters. The Agreement also authorizes the ISO to prepare periodic Transmission Expansion Plans and obligates the existing transmission system owners to construct properly approved and necessary new transmission capacity as called for in that Plan.

b. Model Contracts for Competitive Market Transactions; Contracts for Regulated Service and End-User Supply Transactions

In North America, under regulation, bundled electric service is provided pursuant to tariffs filed and approved by the Regulator. After unbundling, competitive services are provided pursuant to negotiated or standardized contracts. As its name implies, supply purchased in the "Bilateral Contracts Market" is purchased under negotiated, customized contracts. The parties are free to specify the terms of these contracts to achieve maximum economic benefits. Principal terms that may be varied include the quantity purchased, the time duration of the purchase, the price, interuptibility or seasonality of delivery, contingencies and damages for non-delivery. Shorter term supplies purchased upon the Day Ahead or Balancing Market are also purchased through Contracts, but generally contracts with standardized terms are used such as the EEI Master Agreement in the United States or the EFET Master Agreement in Europe.

Standardized Term Agreements reduce transaction costs as they can be reused in many transactions, are well understood by the traders and businesses involved and thus both reduce legal interpretation risk and permit speed in completing the contract, are available immediately for use in oral and other fast moving transactions and have been drafted to permit flexibility in the application of specific term alternatives based upon the nature of the transaction negotiated. Major terms which must be specified include the characteristics of the energy purchased (i.e. interuptibility), the principal contingencies affecting performance under the transaction (i.e. the availability of supply and transmission), the assurances of

credit-worthiness of each party required by the other, the events and remedies of default and other matters. As respects the characteristics of the energy purchased and contingencies permitted, electricity can be sold under these Master Agreements on a "firm" basis with no contingency of non-delivery allowed, "firm" from a particular seller's resources or a particular generating unit with no penalty if the resources or unit are not available, contingent on the availability of firm or interruptible transmission, etc. Price will vary depending upon the quality and characteristics of the supply provided. Assurances of credit worthiness can include the sharing of financial information (i.e. annual and quarterly audited financial statements), the requirement of collateral (asset security interests; performance bonds) or third party guarantees (i.e. letters of credit).

An issue of significance both for regulation and the contracting parties is what filing requirements with Regulators will apply to such contracts and particularly their commercially sensitive terms. The concept of a competitive supply market is one of negotiation and different price levels for different customers based upon those negotiations. However, if all price and term information is public because filed with the Regulator (and not held in confidence), then the flexibility of sellers to negotiate customized transactions will be reduced. FERC has required that existing regulated suppliers file all contracts for a term that is longer than a year. Shorter term transactions must be effected pursuant to an "umbrella agreement", such as the EEI Master Agreement, which has been filed with FERC, but specific price and other term information is not required to be filed contemporaneous with formation of the transaction. Quarterly reports of transactions completed must also be filed. New, non-regulated suppliers (i.e. marketers) are required only to report quarterly on transactions completed regardless of their term. Monopoly services, such as transmission and distribution, continue to be provided under tariffs, though those tariffs may contain form agreements required to be signed to record the characteristics (i.e. interuptibility) and magnitude of the service. Competitive end-user supply services to small customers are provided under standardized "mini-contracts" specified in state Commission regulations.

3. Transmission and Distribution Grid Access Rules

a. Open Access Transmission Tariff

FERC requires that each transmission owning utility file an Open Access Transmission Tariff ("OATT") and that in an ISO the tariff be filed and maintained exclusively by the ISO independent Managing Board. An OATT offers three forms of service: i) network service, ii) firm point to point service and iii) non-firm point to point service. At the initial filing of the Tariff, the transmission owner is permitted to reserve sufficient transmission capacity to serve its "native retail load", i.e. its legally obligated franchise load and a reasonable excess for anticipated near-term growth. Any capacity so-reserved must be made available to interested purchasers of non-firm (i.e. interruptible) service until needed. Network service is service directly comparable to the service a monopoly integrated transmission owner (i.e. prior to any unbundling) provides to itself. The integrated utility provides service to its customers from whatever owned generation source is most economical for it to employ. Thus, it may on day 1 serve customers from plant 1 and in day two employ plant 2 if plant 1 is out of service or its generation is required for another load. Generation may serve different customers at different times and on different days. Because of the flexibility of this service, its minimum term is one year and its cost is higher than other service options.

Point to point service, whether firm or non-firm, must occur from a defined, single generation station to a defined, single customer. Its minimum term is for one day for firm service and one hour for non-firm service. The maximum service duration that can be requested for non-firm service is one month, though service may be renewed for subsequent one month periods. A request to schedule such service must be received on the day prior to the initiation of service, and an application for a firm service contract must have been received sixty days before. Point to point service is the only service available over an "interface" between two control areas or ISO systems. [17] Firm service is the more expensive as it may not be interrupted to provide service to higher priority service customers (i.e. network service or service to native load). As its name implies non-firm service is subject to interruption whenever needed to provide service to higher priority customers.

Transmission owners or operators (i.e. presently PJM and other ISOs) are required to calculate and post on an internet web site and thereafter continuously update the amount of capacity available for sale for network, firm and non-firm service on its transmission system and that service proposed price. [18] The methodology for making this calculation is required to be included as an Attachment to the Tariff. They must also post any discounts in service price provided to both affiliated and non-affiliated customers. This information must be posted on the website and made available for non-affiliated customers at the same time that it is made available for use by affiliated companies. [19] A procedure is provided for selecting between service requests which exceed available capacity which essentially maximizes the revenue of the service provider and favors service to higher priority uses.

The price for transmission service typically reflects a postage stamp methodology - i.e. the price of service does not change with distance between generator and customer. A cost of service methodology is employed, with an allowed capital return level applied to the original cost of construction net of depreciation. This capital cost component is then added to the revenue requirement for operating and maintenance expense, depreciation and taxes and divided by anticipated sales to develop a cost per unit rate of service. Only a single charge is made for service through, from within to the outside or from one area within the ISO control area to another. Those charges, however, are typically permitted to vary on the bases of zones which equate to the service territories of the integrated monopoly utilities which joined the ISO. This is done in order that the cost of transmission service not be immediately increased or decreased within a preexisting rate zone upon a Company's entering an ISO. These zonal rates are to be phased out over a period of time (typically five years) to thereby permit a single uniform ISO rate for the entire control area. In its RTO and several other Orders, FERC has indicated a willingness to approve, if properly supported, "transmission incentive rates", i.e. rates which provide an incentive for the construction of needed, new transmission capacity for market development.

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[17] PJM is a single "control area". Load and generation is matched within that entire area. NYISO and NE-ISO are additional separate control areas. Transmission capability between these areas tends to be limited as energy was not routinely exchanged between the two areas during the period of monopoly integrated utilities, though such interfaces were important to increase reliability and to exchange interchange "economy" energy on a non-firm basis. Special scheduling rules for control area interfaces also exist in the NYISO, NE-ISO and Texas Tariffs.

[18] As a part of its RTO formation investigations, FERC is considering the initiation of a proceeding directed at designing a new more flexible transmission service to be provided across the larger regional areas operated by the new regional RTOs. Staff Summary of discussions, Electricity market Design and Structure, Docket No. RM01-12-000.

[19] See, e.g., Open Access Same Time Information and Standards of Conduct, 61 FR 21,540, Order 889 (1996).

The ISO is permitted to deny service where it has no capacity available or where to provide service would endanger its operations by overloading its lines. The ISO must be prepared to justify this action should the requester complain to FERC. The capability to provide transmission service over a specific transmission path or line, however, is not static. It depends upon the other demands being made upon the line and this can be changed by "redispatch" of generation units. An ISO will initially dispatch based on bi-lateral contracts and the winning bids from its market operations. However, it is possible to alter these for a cost (i.e. by dispatching or increasing the dispatch of a unit which reduces congestion on the line which the service requester proposes to use). This typically increases system energy costs and the tariff requires that the service requester agree to pay this cost in order to obtain its requested service. Finally, congestion can be eliminated by expanding the capacity of the line upon which service is requested or by building a new line. A procedure is provided for studying this alternative which may be selected by the service requester if it indicates a willingness to pay a fair proportion of the cost of the expansion or new line construction.

A typical ISO Tariff will also contain billing and collections procedures, creditworthiness standards and dispute resolution procedures. Any curtailment of service must be on a non-discriminatory basis and applied to service provided by affiliates of the transmission owner and operator as well as to third party requested service. The Tariff contains agreement forms that are to be signed by the service requester and provided to the ISO to apply for each kind of service. The service requester is also permitted to resell the service purchased to another qualified third party. Ancillary services to be provided under the Tariff include (in the case of PJM) i) Scheduling, System Control and Dispatch Service; ii) Reactive Supply and Voltage Control from Generation Sources Service; iii) Regulation and Frequency Response Service; iv) Energy Imbalance Service; v) Operating Reserve - Spinning Reserve Service; and vi) Operating Reserve - Supplemental Reserve Service. Ancillary services may, in certain instances, be self supplied by the customer, are provided by the ISO on a cost-of service basis or are provided through market mechanisms. The latter are discussed in the prior Section. Finally, in Attachments to the Tariff, the ISO spells out how transmission congestion charges will be calculated and assessed and how the Energy Exchange Market will operate. The ISO's Market Monitoring Plan, to be further discussed in Issue paper # 3, is also typically set forth as an attachment to the Tariff.

A key feature of FERC's required Open Access Transmission Tariff (OATT) and its mandated third party access rules is the principle of "comparability of service". Under this principle, adopted by FERC in 1993, transmission service provided to unaffiliated wholesale electricity suppliers by a transmission owner or operator must equal in quality and scope that provided by the transmission owning or operating entity to itself. Accordingly, both in terms of the nature of the service provided (i.e. whether point-to-point or network service) and in the many specifics which govern the flexibility and utility of that service (i.e. notice of available capacity, application procedures, curtailment rules, etc.) transmission service provided to third-party wholesale suppliers must be "comparable" or of equal quality to that provided the transmission owning entity or its affiliates. Resolving disputes over the availability and priority of requests for transmission service has been a major market related activity for FERC in recent years.

b. Open Access Distribution Tariff

As described in Committee Issue Paper # 2 (at pp. 5-6), the most recent fully developed United States electricity market program is that of the State of Texas. Texas retail

competition market is scheduled for full operation beginning January 1, 2002. An electricity wholesale market has operated in Texas (i.e. operated by ERCOT – an ISO) since 1995. In July, retail competition began for 5% of the customers throughout the state as a pilot project to test market and other processes needed for the new competition. In preparing for implementation of retail competition, Texas has carefully evaluated its generation capacity levels to assure that it will not experience the capacity shortages and related price effects occurring in California. It has also adopted the separations and Code of Conduct provisions described in Committee Issue Paper # 2. Finally, and where not in conflict with FERC jurisdiction, Texas has adopted third-party grid access rules applicable to both transmission and distribution delivery service. Essentially identical to FERC's OATT, these rules require the transmission or distribution service operator to provide service to all suppliers on a "non-discriminatory" (i.e. comparable) basis. In other words, the nature and conditions of service (i.e. firmness, curtailment incidence, application procedures, etc.) must be essentially the same and with no unreasonable differences from the service provided by the operator to itself and its affiliates. Texas Regulations also provide for incentive adjustment clauses to promote transmission expansion through automatic adjustment to transmission service rate levels each year to recover changed cost levels.

In its January 2001 Report to the 77th Texas Legislature, the Public Utility Commission of Texas states its view of the future role of Regulatory Commissions following the implementation of competitive markets. It defines its role as i) assurance of customer protection; ii) oversight of market definition and design; iii) assessing and controlling market power; iv) environmental protection; v) protection of public health, safety and aesthetics; and vi) continued economic regulation of remaining monopoly electric functions (i.e. transmission and distribution service). The Commission further noted that, to facilitate market development and end-user price reduction, it would order continuation of support for Demand Side Management programs (i.e. funded through regulated distribution rates) with a goal of achieving a 10% peak demand reduction by January 2004.

Three additional key features of the Texas and all US retail market systems is the "price to beat", the "provider of last resort" and the continuation of Regulator enforced Customer Protection Rules. During an interim period while full retail supply competition develops, affiliates of the transmission and distribution service provider are required to provide service to customers who do not select an alternative supplier at the "price to beat". This price level is equal to traditional cost of service pricing adjusted for actual fuel input costs. It is termed the "price to beat" since this service and its price is effectively a continuation of state mandated service (though provided as an unbundled and not integrated package service), and becomes a service option against which alternative retail suppliers must compete in terms of service quality, characteristics or price. The level of the "price to beat" is central to the extent to which alternative suppliers may obtain a share of retail load service and to avoidance of the financial problems experienced by former utilities in California. The end-user supply affiliate of the transmission and distribution service provider is required to provide "price to beat" service for three years or until 40% of the former utility retail customers have selected an alternative end-use supplier.

The second important feature of United States retail competitive markets is the provision of a "Provider of Last Resort" ("PLR"). The PLR provides service to those end-use customers who either do not select an alternate supplier, who are unable to satisfy credit-worthiness or other criteria to obtain competitive service or whose selected supplier ceases to provide service. The PLR is often initially an affiliate of the transmission and distribution

service provider (i.e. the former integrated monopoly provider) or may be selected on a price and terms of service basis by means of a competitive tender. [20] Prices charged by this supplier may be set administratively upon the basis of cost of service, or competitively on the basis of the price offered in a competitive tender.

Third, Texas and other US States continue to define and enforce a comprehensive set of customer protection rules upon behalf of residential and small commercial customers These rules contain limits upon permissible customer service interruptions; establish separate rules for supply and service delivery termination due to customer non-payment or misconduct; prohibit fraudulent, unfair and deceptive advertising or other customer contact; establishes protections for the privacy of customer usage and other data; requires specific authorization and verification procedures before a customer is switched from one competitive supplier to another; and places limitations upon telephone marketing of competitive services. All marketing scripts and advertisements for competitive suppliers must be provided to the Commission for review, and customers are given a three business day window during which they may cancel any competitive service contract they may have agreed to. Finally, mandatory procedures are provided for the switch of a customer with credit, bill payment or other problems resulting in his inability to maintain competitive service provision to the Provider of Last Resort.

Additional terms in the Texas Transmission and Distribution Service Tariff include customer credit worthiness requirements, standard commercial terms (i.e. billing and payment requirements), limitations upon liability in the event service is not provided due to service provider negligence (i.e. liability limited to the cost of damaged equipment and no liability for consequential damages) and terms for service provided to competitive retail suppliers. Competitive retail suppliers may be the entity who contracts for transmission and distribution service under the tariff on behalf of end-use customers or larger customers may themselves directly do so. Where service is provided to a competitive retail supplier, there is a need for extensive data interchange between the transmission and distribution service provider and the competitive retail supplier to permit scheduling of electricity flows needed for safe system operation and to permit customer billing. Provisions specifying the manner of this data exchange are also provided within the Tariff. A Registration Agent whose responsibility is to process and maintain records of end-use customer supplier transfer requests is also authorized. Finally, Commission Regulations permit the distribution service provider and customer to specify and agree upon special “discretionary” services whose availability and price must, however, be noted in the service provider’s Tariff. A standard term for the funding of line extensions is also provided.

As described above, aggregation is a concept employed in the United States to increase small consumer benefit from competitive electricity markets. Under aggregation, a commercial or governmental entity purchases electricity wholesale and resells it to smaller customers, such as residential or small commercial customers. By this means, smaller customers can “aggregate” their load and obtain the price discount or additional services advantages of a larger scale purchase. Regulators typically license aggregators, requiring

[20] Several states which initially charged an affiliate off the transmission and distribution service provider with PLR responsibilities have begun to select this provider under a competitive tender procedure in order to further encourage competitive supply in the marketplace.

them to demonstrate financial strength and energy market buying expertise. Their marketing practices are also generally more carefully reviewed to assure that all costs and limitations of their offers to smaller customers are fully disclosed. The fullest development of this concept is in Ohio, at least as respects government aggregation.

Governments (cities, towns, counties, townships) which may aggregate (i.e. form a buying group for their residents) are permitted to employ either "opt-in" or "opt-out" plans. Under an "opt-in" plan, residents are requested to review a program description (including price, quality of service, etc.) meeting requirements set by the Regulator and to indicate its interest in receiving service through the plan. In an "opt-out" plan, after an appropriate ordinance and election is held authorizing the municipality to negotiate the plan with a generator or other service provider, residents are given the option to indicate, after review of a plan description meeting Regulator prescribed requirements, that they choose not to participate, and unless they respond seeking exclusion, are automatically covered by the Plan. Three such governmental plans are under development in Ohio covering over 600,000 customers (15% of total eligible customers in the State), the largest of which will become fully effective within weeks. This group, called the Northeast Ohio Public Energy Council, has a membership of over 100 separate communities. Electricity supplied under the Group's six year agreement with its supplier is required to have 2% renewable energy and the rest must be from natural gas fired capacity to reduce environmental effects. The supplier is also committed to develop a 10 MW wind energy project and a solar project to provide energy under the Group's agreement, and to provide prices up to 3.5% less than current electricity prices in Ohio.

4. Technical Interconnection Requirements

FERC has recently issued an Advance Notice of Proposed Rulemaking seeking comments from Wholesale Market Participants on a proposed standard generator interconnection agreement and associated procedures. FERC has further indicated the intent to initiate a further rulemaking to address issues of cost-allocation between the generator and transmission system users of the cost of interconnection and transmission system improvements required to permit service to new generators.

In taking these actions, FERC stated that generator interconnection is "a critical aspect of open access transmission service." [21] Interconnection procedures are required that will, through their transparency and fairness to competitors to supply needed generation, will encourage investment in both needed generation and transmission infrastructure. Such procedures must prevent the transmission owner or operator from discriminating in favor of its own generation and must encourage efficient generator citing decisions. Moreover, standard interconnection procedures across all markets will render generator entry into each market easier as but a single set of rules will need to be learned and complied with. Interconnection rules and procedures include the terms, timing and methods by which studies of needed transmission system improvements are done to support the addition of new generation; the date upon which an application is considered received in order to give an applicant priority over other applicants for the completion of studies and actual interconnection work (a priority that is often dispositive of which of competing units will be

[21] Standardizing Generator Interconnection Agreements and Procedures, Advance Notice of Proposed Rulemaking, Docket No. RM02-1-000 (October 25, 2001).

built); events that may change that priority (i.e. redesign of the proposed plant); and other similar matters. Interconnection cost allocation rules can also critically effect a generation projects economics. FERC has recently adopted interim rules pending completion of its proposed rulemaking that allocate 100% of the cost of facilities necessary to physically interconnect the project and the cost of facilities needed to expand transmission system capacity to service the generator and installed only "but for" its connection to the grid. As with transmission access, resolving disputes over interconnection cost allocations and priorities have been a significant market related activity for FERC. [22]

5. Obtaining Demand Side Load Response

The opportunity for customers to engage in demand side response when prices become too high, and therefore to pressure suppliers to reduce the price, is considered by many to be important to the success of the competitive market mechanism. Consumer electricity demand has historically been viewed as highly inelastic, which if true, has the implication that suppliers can charge prices well above cost and continue to sell their product until the cost threshold for new competitor entry is exceeded. As expressed by FERC, demand side response is important to market operation for the following reasons:

> "Price-responsive demand is a key part of a well-functioning market that would mitigate price volatility and enhance reliability in the face of supply shortages. In a well-functioning, competitive electricity market, high prices are a signal for buyers to conserve and for sellers to expand output. The market would thus allocate scarce energy and capacity to those who valued it most and assure that the load was served at least cost. But, the market structure that has developed in PJM as in the rest of the nation does not communicate wholesale prices to retail customers in real time. Because efficient real time prices are not conveyed to retail customers, they have no incentive to reduce consumption voluntarily to alleviate power shortages.
>
> PJM's proposed Load Response Program, which consists of the Emergency Option and Economic Option, would, in part, address this market flaw. Absent implementation of PJM's Load Response Program, end users who do not already participate in an LSE's load reduction program may have little or no incentive voluntarily to curtail use at times of scarce supply, since they would receive little or no economic benefit from such curtailment. Under the Load Response Program, end users could choose to reduce demand, either when PJM faced emergency conditions or when they themselves decided that reducing load was in their economic interest. PJM's Load Response Program will enable end users (who are, after all, the ultimate beneficiaries of a well-functioning electricity market) to be aware of the prices and respond to them in an economically meaningful way." [23]

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[22] Re New York Independent System Operator, Inc., Docket No. ER01-2967-000 (October 26, 2001).

[23] See Re PJM Interconnection, LLC, Docket No. ER01-1671-000, at pp. 5-6 (May 2001); Re New York Independent System Operator, Inc., Docket Nos. ER01-1520 & 1740-000 (April/May 2001) . As noted in the above quote, State Commissions also authorize demand response programs in jurisdictions with retail competition. See, e.g., Order Requiring Filings and Reports on Utility Demand Side Response Programs, Case 00-E-2054 (2000); Order Directing the Major Electric Utilities to Implement the New York ISO's Incentives Day-Ahead Economic Load Curtailment Program, New York State Public Service Commission, Case No. 00-E-2054 (March 2001). .

All operating United States ISOs have implemented both "emergency" and "economic" demand response programs on a pilot basis. Under emergency programs, a payment at approximately the location marginal price present where the customer is located on the grid (a minimum payment of $500 per mwh is typically required) is made to the customer in response to its decision not to consume electricity either because of use of its own generation (i.e. which must not be synchronous or dedicated to the grid) or through conservation whenever the ISO declares a capacity reserve emergency at the most severe level (i.e. virtually no reliability reserve capacity remains for operation). To qualify for the program, the customer must demonstrate that it has discrete, sizable load (i.e. typically 100 KW in US programs) that it can remove from the system on one to two hours notice and keep removed during the system peak or near peak hours (typically from 8:00 AM to !0:00 PM). It also must have interval metering and must provide metering data within 10 days demonstrating the amount of load removed in response to the ISO's request. A minimum interruption and payment is established of two hours. As can be seen, under this program, demand side response is effectively acting as an ancillary service, i.e. short-term capacity reserves.

The "economic" demand response program has similar qualification and functioning requirements, but is structured to permit the customer to select to remove its load whenever its cost of doing so is less than the cost to the grid of generating additional energy to meet that load. The customer receives a payment which approximates the savings to the grid from not serving his load. The costs of each of these programs is allocated either to all customers or to customers in a discrete load zone who are benefited from the reduced load. This past summer, in the Northeastern United States, these programs were put strongly to the test when record heat and loads were experienced in the second week of August. Depending upon the size and magnitude of industry on the system, capacity savings in the amount of 50 MW to 400 MW were achieved under these two programs.

Finally, US ISOs are examining the software changes and program components required to permit "demand-side bidding" to become a standard part of day-ahead and real time market processes. Under these circumstances, end users or marketers submitting demand side bids would be permitted to specify that their bid should be filled only at a price below a specified level. The price reductive effect of demand-side elasticity would thus be input directly into the market process.

Appendix C to Issue Paper # 1
Glossary of Electricity Market Terms

Above Market Costs — That portion of the estimated future or actual operating and fixed costs of a generation plant which is expected or does exceed the estimated or actual market clearing price of electricity upon a competitive electricity market. These costs generally result from existing pre-market creation generation capital or operating costs, including the cost of environmental remediation or physical rehabilitation, as generation with above market costs will not be built or operated by market participants once the market is established. Above market costs for pre-market generation plant is permitted recovery through a non-bypassable electricity charge if reasonably incurred in the United States and Europe.

Affiliate or Affiliated Interest: A stock company or corporation which is in part owned by or in part owns the stock of another corporation. Unaffiliated corporations are those where neither corporation owns the stock of the other.

Aggregation of Load: A practice followed in the United States and Europe pursuant to which smaller loads combine and purchase electricity in the market place through an intermediary in order to obtain the price and other term benefits of bulk purchasing. In certain United States retail competition programs, this function is provided by either commercial entities or municipal governments.

Ancillary Services: Services which are needed for transmission system and or supply balancing. Such services are often but not always provided by generation. They may include black start capability, reactive power, voltage balancing and regulating, spinning and non-spinning reserves as well as other services. Certain of these services may be procured through a competitive bid procedure, but others must be supplied by the System Operator.

Antitrust/Competition Policy: A Government's policy toward the concentration of a specific business or economic activity in a limited or more expanded number of corporations and toward business practices which may enhance or reduce the effects of that concentration.

Available Transfer Capability (ATC): A measure of the transfer capability remaining in the physical transmission network for further commercial activity over and above already committed uses. ATC is typically calculated as the Total Transfer Capability

(TTC), less the Transmission Reliability Margin (TRM) less the sum of existing transmission commitments.

Balancing Market: A real-time or day-ahead hourly market in a competitive electricity market which permits the matching of electric supply and demand on an instantaneous basis when needed due to unforeseeable weather or demand increase/ reduction, equipment problems or other similar event.

Bilateral Contract: Any Contract respecting electric supply or ancillary services, whether long or short-term and whether financial or physical, between electricity generators or suppliers and wholesale or end-users negotiated outside of a centralized power pool or PoolCo. Bilateral contracts may be formed long-term outside of any organized market, or may be formed in the day ahead or real-time balancing markets.

Central Pooling Agreement: An Agreement developed by market participants to govern the operation of a mandatory Electric Supply Pool (i.e. PoolCo), including the relationships between market participants, the basis upon which electricity will be offered and sold in the Pool and related matters.

Commercial Code: The regulations governing trade relations in the electricity market, including rules respecting registration of participants, bidding procedures, settlements and payments, collateral and guarantees required to enforce payment and penalties for noncompliance.

Cost of Service Allocation: A methodology for determining the approximate cost of serving a particular large customer or a class of customers in which specific costs are assigned to that customer or class which causes incurrence of the cost and in which joint costs are allocated on a reasonable basis.

Customer Demand Response: Customer response to incentives provided by the System Administrator to reduce load during supply shortage or high cost periods.

Day Ahead Spot Market: A market operated by the Market Operator where electric supply and demand are bid and whose purpose is to permit correction of imbalances between previously contracted supply and anticipated demand which imbalances may be unforeseeable or foreseen. Such a Market is part of a “multi-settlement system” for matching supply and demand and experience has shown that such a system is less prone to market power exercise.

Direct Line: An electric line originating at a generator and providing

service directly to a single or group of customers which is not a part of the interconnected transmission and distribution network.

Disco — A provider of electric distribution service (i.e. "short for distributor").

Discrimination — Where a regulated service provider provides different quality of service or at different cost to separate customers for a regulated service without a cost of service or other reasonable basis for doing so.

Dispatch: — The order in which generation units on an electric system are operated. "Merit-order dispatch" typically refers to an ordering where the lowest cost plant is operated to its maximum capacity first, and then higher cost plants are operated from lowest to highest cost thereafter. In certain competitive markets, dispatch is performed on the basis of bids to provide service from generators or other suppliers, with the lowest bid supply dispatched first and higher bids in ascending order thereafter. A number of factors in addition to cost must be considered in establishing a dispatch order, including generator ramp-up time, minimum load requirements, possible transmission congestion and load shape.

Distribution/Metering Code: — One or several Codes which establish rules governing acceptable billing and other metering of active and reactive electricity quantities and respecting operation and maintenance of the distribution grid.

Eligible Customer: — A customer who, based upon criteria adopted by the Regulator or Ministry, is permitted to choose a supplier and obtain supply under negotiated, bilateral contracts.

End User Supply: — A potentially competitive service in which electricity is supplied to end-users. The supply may have different characteristics (i.e. such as firm vs. interruptible; renewable versus fossil based) and may vary in cost by time of day.

Forward Contract: — A contract for the physical supply of electricity to be delivered in the future. Such contracts are typically formed in the "bilateral contracts market" or the day ahead market.

Futures Contract/Options/ Swaps: — Standardized financial contracts used for hedging the spot price of electricity. Such contracts typically do not involve the physical delivery of electric supply.

Genco	A provider of electric generation services (i.e. short for "generator").
Grid Code:	A Code governing technical operation and maintenance of the Grid System including terms and conditions of access to transmission and distribution, networks dispatch rules, operation and maintenance codes, the provision of ancillary services, technical connection standards for generators and eligible customers, long-term planning and reliability assurance procedures and other matters.
Grid Services:	The provision of transmission and/or distribution service to a wholesale or end-use customer. Such services are monopoly in character (i.e. able to be provided only by one supplier) and remain regulated as to price and service terms.
Grid System:	The transmission and distribution system used in the transport and delivery of electric supply.
Hedging	Actions taken by a wholesale electric purchaser to protect itself from unanticipated high spot or other market costs due to weather, generation plant unavailability, natural gas or electric price spikes caused by unexpected and sudden shifts in demand or supply or other factors. These actions include the negotiation and signing of longer term contracts to avoid spot market price volatility, purchase of futures, swaps and options contracts exercisable at a certain price if adverse conditions arise and others. The central purpose of hedging is to buy the right to electricity or a financial right to a reduced cost for electricity to be used if adverse or unpredictable events increase physical electricity acquisition costs.
Herfindahl-Hirschman Index (HHI):	A widely-used index to measure market concentration in United States markets by antitrust enforcement authorities, including use for market concentration and market power analyses in electricity markets. The specific use and contents of this index is further explained in Issue Paper # 3.
Horizontal Market Power:	Market Power which derives from a single or few companies' ownership of a sufficiently large concentration of the productive capacity in a specific industry or service sector to permit such firm or companies to unilaterally influence the price or terms of service.
Parallel Regulated & Competitive Markets:	An approach to competitive electricity market creation where parallel competitive and regulated markets are operated, with the competitive market restricted to "eligible" large and predominately industrial or wholesale customers. A

gradual growth in the competitive market is achieved by expanding the eligible customers over time until all who can benefit from and desire competitive service are eligible to receive it.

Interconnectors: Bulk electric transmission lines which interconnect separate transmission and distribution networks, including the networks of separate nations.

Independent or Alternate Supplier: A generator or other supplier who provides competitive wholesale or end user services to eligible customers under negotiated, bilateral agreements.

Institutional & Legal Separation: One of several methods by which competitive (generation and end user supply) and monopoly (transmission, distribution and dispatch) electric services may be separated in compliance with European Commission requirements. Under this method, competitive and monopoly services are placed in separate corporations which, however, may be owned by the same parent corporation. See further explanation in Issue Paper # 2.

Location Marginal Pricing: A form of pricing transmission service to reflect the presence and cost of congestion on parts of the transmission system. The methodology requires calculation of busbar marginal costs at many points on the system where generation is located and load is served, and the determination of a charge reflecting such busbar costs for transmission between two such points. Other methods of reflecting congestion costs exist, including flow-based pricing and zonal pricing.

Managerial & Accounting Separation: One of several methods by which competitive (generation and end user supply) and monopoly (transmission, distribution and dispatch) functions of electric service may be separated in compliance with European Commission requirements. Under this method, competitive and monopoly electric services may be performed in the same Company so long as separate accounting records and managers are maintained up to the Senior Management level. See further explanation in Issue Paper # 2.

Market Code of Conduct: A set of rules adopted by Regulators to supplement structural separation measures (for example, by placement in separate corporate affiliates) of competitive and monopoly electric services to further enhance competition in the former services.

Market Operator: An entity which is independent of any one or one class of market participants and whose governance structure may include a Council composed of such participants. The

functions of the Market Operator may differ by location but may include design and administration of trading markets (i.e. bilateral contracts market; day ahead market); development and administration of rules to govern market participation; performance of settlements and funds administration.

Market Power: The ability of a market participant to unilaterally increase the price of a good or service above competitive levels due to its ownership of a high concentration of productive capacity or demand or for a similar reason.

Market Rules: Rules which establish eligible participants, governance organizations and procedures, operational procedures, collateral and financial guarantee requirements, bidding procedures and generation dispatch, settlements and billing and other matters respecting design and operation of competitive electricity markets.

Merchant Power Plant: A power plant built solely to provide energy to a competitive (and not a regulated) market.

Network User: An entity who uses transmission or distribution service through the wires network.

Power Marketers: Entities engaged in buying and selling electricity who do not own generation or grid system facilities. Power Marketers typically take ownership of the electricity bought and sold, as compared to Power Brokers who merely arrange transactions.

Public Supplier: A distributor or other supplier required by law to supply energy to customers desirous of such service within its assigned service territory.

Public Service Obligations: Mandatory obligations of market participants under the Law, including particularly transmission and distribution licensees. Such obligations can include the duty of distribution companies to provide end user supply services within their certificated territory to customers desiring such service, the duty to provide non-discriminatory transmission and distribution service including third party access and to connect new customers to the grid network.

Real Time Spot Market: A market operated by the System Operator where electric supply and demand are bid and whose purpose is to permit correction of unforeseeable and last minute imbalances in demand and supply caused by weather, other increases/decreases in demand, unexpected equipment unavailability or other similar reason.

Retail Electric Supply: Electric supply sold to end-use customers who use the

supply in their industrial, commercial and domestic processes and do not resell it.

Seams — A term used to characterize the transmission connections between separate power pools or control areas in the United States. Electricity transfers across these interconnections may be constrained by insufficient capacity or different market or operating procedures of the two pools or control areas.

Settlements & Funds Allocation: The process of determining who received and should be responsible for payment for electric service and of equitably distributing that payment to the service and supply providers who provided the services and supply that was sold.

Separations/Unbundling of Utility Functions: The requirement imposed in all Competitive Electricity Markets that some separation exist in the performance of competitive (generation and end-user supply) and monopoly (transmission, distribution and dispatch) electric services as a means of enhancing or preserving market competition.. See issue Paper # 2.

Single Buyer: An entity who purchases all generation and imported electricity and who sells all electricity purchased by distribution companies, exporters and other suppliers typically at a uniform bulk tariff.

Structural Separation of Electric Services: The provision of electric services through separate stock companies (either affiliated or unaffiliated) or divisions within the same stock company having separate management and accounting. Structural separation is adopted to separate the provision of monopoly (transmission, distribution and dispatch) from competitive (generation and end-user supply) services in order to reduce the incentive and opportunity for discrimination by monopoly service providers to affect customer competitive service provider choices. See Issue Paper 2 for detailed discussion.

Stranded Costs: Costs of providing service incurred and allowed recovery in regulated markets which exceed the cost of service under a competitive market system. Stranded costs are permitted recovery where approved as necessary by the Regulator through a non-bypassable charge.

Supplier of Last Resort/ Default Supplier: Where retail competition has been implemented in the United States, this designation is given to the entity with the duty to provide service to those customers unable for credit or other reasons to otherwise obtain service. Initially, this status was assigned to the former monopoly distributor but is increasingly being bid and assigned on a contract basis to the lowest bidder.

System Operator: An entity which is independent of any one or one class of market participants and whose governance structure may include a Council composed of such participants. The functions of the System Operator may differ by Market but principally relate to the operation and use of the transmission system. Specific functions performed may include administration of third party grid system access rules, calculation and publication of ATC and related data; development and administration of generation dispatch; design and administration of trading market rules and operation of one or more markets (i.e. real time market; day ahead market; ancillary services markets; etc.), planning for expansion of the grid system, assuring reliability of operation of the grid system and of short and long-term supply, resolution of transmission congestion, performance of settlements and funds administration functions and related matters.

System Utilities Supplier: A generator who supplies ancillary services to the grid and who must register to provide such services with the System Operator and provide notice of its intent to cease to do so.

Third Party Grid Access: The legal requirement and rules which permit third parties (i.e. non-ownership parties) to have access to transmission and distribution service in order to compete for the wholesale and retail supply of electricity. Third party access may be restricted to licensed and registered market participants including eligible customers.

Time of Use Metering/ Profiling: The ability to create electric service products which are time of use restricted is stated to be a benefit of competitive markets that offers the prospect of service cost reduction to consumers. Competitive suppliers are believed to have an incentive to create such products which is greater than a monopoly supplier. Profiling has been suggested as a means to permit smaller customers for whom time of use metering is not cost-effective to benefit from this innovative product.

Trading & Settlements Code: This Code is maintained by the Market Operator and establishes rules by which the balancing market operates and the commercial arrangements for the mandatory settlement of payment for electricity purchased through the market.

Transco: A for-profit transmission owning corporation created to separate transmission ownership and, in some cases, operation, from competitive sector functions such as generation and end user supply.

Transmission Operator: The entity which operates and maintains the transmission

system, and who may also perform expansion planning functions.

Transmission System Congestion: The occurrence of capacity constraints on the transmission system which prevent supply purchase and sales transactions proposed by market participants due to unavailability of needed transmission service. Congestion pricing refers to a pricing system designed to recover the costs of relieving transmission system congestion.

Wholesale Electric Supply: Electricity supply sold to a customer, such as a distributor or an Aggregator, who will resell the supply in the retail market.

Vertical Market Power: Market power which arises because of a market participant's ownership of consecutive elements of the production and delivery chain. For example, and as respects electricity service, ownership of natural gas supply and generation or generation and distribution can confer market power in one or both of the markets in which assets are owned. Vertical Market Power may also arise from long term contractual arrangements between participants in vertical markets and improper, anti-competitive collusion.

Issue Paper # 2 - Unbundling of Electric Sector Services to Structurally Separate Monopoly and Competitive Activities

1. Preface

1.1 Separation/unbundling of electric sector services refers to the "structural separation" (i.e. through separate ownership, separate corporate affiliates and/or separation of management/accounting) of the several functional activities (i.e. generation, transmission, distribution and end-use supply) required to produce, transport and sell electricity to the end-use customer. In other words, "structural separation" means, depending upon the extent of control or other separation desired, the separation of ownership, management or financial accounting of the above stated sector functions into unaffiliated corporations, affiliated corporations or into separate divisions of the same corporation but with separate accounting and divisional management. A schematic explanation of this concept is presented on Schedule 1 attached at the end of this paper.

The need for separation/unbundling of electric sector services and Regulator enforced third-party grid access rules is to achieve competition in the furnishing of generation and end-use supply. This need results from the monopoly characteristic of grid services (i.e. transmission, distribution and dispatch). This monopoly characteristic arises from the fact that only one dispatch order of system generation is possible at a specific time, and due to the high fixed capital cost of the transmission and distribution system, which renders competing systems inefficient and unsustainable.

The grid system service provider, due to its monopoly status and if it has the incentive and the opportunity, by varying the cost or nature (i.e. interuptibility, flexibility, etc.) of the grid services provided to competitive service providers, can influence the supplier selected by the wholesale or end-use customer for competitive generation and end-use supply services. Such an incentive would exist if the grid system service provider also provided competitive generation or end-use supply services through the same corporation or operational and financial management. The grid system manager would then be financially benefited if customers of its grid services selected its generation or end-use supply services. Moreover, permitting both generation and distribution/end-use supply services to be provided by one firm within the same market arguably limits the opportunity for sales by generators without such common operations and thereby may interfere with the development of full competition.

Separation/unbundling and Regulator enforced third-party grid access rules reduce both the incentive and the opportunity to vary the cost or nature of grid services to affect the outcome of competition in the provision of generation and end-use supply services.

1.2 Achieving an effective level of separation/unbundling of electric sector services which facilitates fair competition in generation and end-user services is complex and may require a flexible approach depending upon industry structure when market reforms begin and the objectives held for the sector (i.e. for example, the desire to attract substantial capital needed for system rehabilitation). There are four basic approaches which have been applied or proposed to separations/unbundling of electricity functions : (i) full ownership and

operational control separation of monopoly and competitive services into unaffiliated companies; (ii) separate operational control of the transmission and/or distribution services from ownership of competitive services in unaffiliated companies though monopoly and competitive function ownership is combined within a single company ; (iii) common ownership and operational control of monopoly and competitive sector services but through legally and institutionally separate though affiliated corporations ; and (iv) operation of transmission and distribution services by a managerially, accounting and perhaps physically separated unit within a single corporation also providing competitive sector services . These basic approaches are further explained on Schedule 1. The United States has adopted principally a combination of approaches (ii) and (iii) above though it may be moving to approach one as to transmission assets as the result of FERC's Order 2000, while countries in Western Europe have adopted all of the described approaches with a present emphasis in certain countries on only approach (iv). Both the United States and Western Europe employ Regulator enforced, transparent legal rules to mandate third-party open access to monopoly grid systems, which in the United States must be at "reasonable" rates and with "comparable" service.

In addition to discussion of the above basic approaches to structurally separating competition and monopoly services and third-party access rules, the purpose, contents and relationship to separations principles of the United States practice of Market Codes of Conduct is examined.

1.3 Separations principles and third party access rules adopted or under consideration in CEE/Eurasia are examined in Section 3 of this paper and Appendix A to Issue Paper 1. Due to substantial government ownership of electric sector assets prior to sector restructuring and market liberalization, United States and European separations rules may not have immediate application to the market reform process in CEE/Eurasia Countries. This is because United States and European rules were developed against the background of existing private ownership of the sector prior to functional unbundling, including combined ownership of assets used to perform both monopoly and competitive services . Constitutional and legal principles in the United States and Europe restrict the ability of government to force divestiture or lesser separation of existing privately owned sector assets without providing compensation. Many CEE/Eurasia Countries have already fully separated into discrete corporations assets which serve different electric sector services , though all or substantial portions of such assets remain owned by the government. As long as most or all assets remain in Government hands, the incentives to discriminate through monopoly services to benefit competitive services arguably don't arise, as all assets are owned by the same entity.

However, these rules and their underlying principles will become of increasing importance to CEE/Eurasia Countries as they privatize ownership of sector assets. Allowing cross-ownership of sector assets performing different sector functions, as is permitted by US and Western European separations rules where competition is not adversely affected, may offer benefits in the attraction of private investment capital.

Market and Transmission System Operators are at present largely owned by CEE/Eurasia Governments and often are but separate managerial and accounting divisions in government owned, integrated service providers. Even if a separate corporation, those Governments also own substantial generation and end-use suppliers who may be in competition with privatized entities. Where this is the case, arguably the same separations

concern arises as to the government owned entities (i.e. the government's monopoly service provider or System/Market Operator can discriminate in the provision of monopoly services to assist its competitive service provider). Improved independence of System and Market Operators from the government and competitive service providers (i.e. generation and end-use suppliers) is likely to be needed as asset privatization moves forward in the region. [1]

2. Separating Electric Sector Services

2.1 Separation of Monopoly Transmission and Dispatch Services from Competitive Generation and End-User Supply Services

(a) Where the provision of electric services is to be unbundled and provided by functionally specialized entities (i.e. generation, transmission and distribution) to facilitate the development of competition as to electric generation and end-use supply , opportunities may be created for monopoly service providers (transmission, distribution and dispatch) to improperly affect the outcome of generation or end-use supply competition. This can occur in many subtle and difficult to prevent ways, including principally price differentials, allocation of limited capacity, differentiating technical interconnection requirements and through transmission or distribution access qualification requirements. In legal terms in the United States, this is known as "discrimination" where not supported by cost or other reasonable considerations, and it is unlawful.

One approach to preventing this conduct is to eliminate or reduce the incentive or opportunity for its occurrence. This occurs when monopoly and competitive sector separable services are placed in separate ownership and/or operational control. Four separate approaches to achieving this result have been developed. In both Europe and the United States, full separation (i.e. ownership and operation of monopoly and competitive sector assets by non-affiliated companies) is generally not required. In the United States, transmission system operational management is typically placed in a separately owned corporation from the management of other sector functions though the transmission assets themselves may remain owned by the same entity owning and managing competitive services . In Europe, either "legal and institutional" or "managerial and accounting" separation is required. Legal and institutional separation requires separation of transmission and other sector services into separate corporations which, however, may be owned by a common parent. This permits much greater management and accounting separation and therefore transparency related to the separate business operations (i.e. transmission versus generation), and also typically results in much greater physical separation of employees with the result that they are less likely to share information and common objectives. This approach is also increasingly being adopted in the United States. [2] Managerial and accounting separation requires that transmission and generation be separately managed and that separate accounting records be maintained though the two services are provided from within the same company. However, since a single operational and financial corporate management continues to directly control all services and the accounting results from these services remain within a single

[1] This Paper has been drafted by the Committee's Advisor to address subjects and specific matters of interest to the Committee. As respects the CEE/Eurasia Regional discussion, it sets forth principally information provided by the Committee and has been reviewed and commented upon by Committee Members. However, it is not intended that the Paper's contents set forth a formal position of ERRA or of any Committee Member.

[2] See, e.g. Re American Transmission Company, LLC, 93 FERC ❶ 61,267 (2000); DTE Energy Company, et al., 91 FERC z 62,090 (2000). These proposals are structured to permit divestiture of transmission assets to companies unaffiliated with the former integrated monopoly service provider.

corporation, many observers believe that this last approach is a less effective method for separating services to facilitate fair competition.

(b) The separation of monopoly and competitive services operational control, as occurs in United States' markets with Independent System Operators (ISOs), both reduces the incentive and opportunity to discriminate as inflicting discrimination typically requires operational decisions and actions. The ISO, having no ownership or other financial interest in generation or other sector services other than transmission, has no incentive to discriminate as it does not improve its financial results by doing so. Moreover, the transparent operating procedures and separate accounting records of the ISO also reduces the opportunity to discriminate. The imposition of mandatory grid access rules, described further below and which the ISO is charged with enforcing, similarly limits the opportunity to discriminate by enforcing transparent procedures, establishing a right of grid access, reporting requirements and a dispute resolution process before the Regulator to enforce the right of access. Legal and institutional separation similarly increases transparency by placing sector functions in separate corporations, thereby adding to the separation of accounting and operational control of sector services .

Turning to specific United States separations/unbundling standards, as described in the Appendix Item 2 of the Committee's Issue Paper # 2 ("Unbundling of Electric Sector Services to Structurally Separate Monopoly and Competitive Activities") prepared last year (at pp. 19-21), the Federal Energy Regulatory Commission adopted a Final Rule strongly encouraging the creation of "Regional Transmission Organizations" (RTO). [3] For an organization to qualify as an RTO, it must be independent of other market participants and must have the authority to perform all significant transmission and dispatch functions, including obtaining ancillary services and scheduling over interconnections. To be independent, the RTO, its employees and directors must not have a financial interest in any market participant, its decisional process must not be subject to control by any market participant or single class of participants (i.e. generators, distributors, customers, etc.) and it must have the exclusive and independent authority to file changes in its transmission tariff with FERC. The latter effectively requires that the RTO fully control the price, terms and conditions of transmission service and facilities it operates, including third party access to transmission service, subject to FERC's regulatory jurisdiction. Active ownership interests in RTOs by market participants will only be permitted for a five year transitional period, though interests which are proven by periodic compliance audits to be passive (i.e. not affecting RTO decision making) will be permitted indefinitely. The predominate form of an RTO at present is the Independent System Operator (i.e. such as PJM, NE-ISO, NYISO etc.), though an alternative for profit corporate form (a Transco) is being developed for implementation in the near future. The principal governance structure of an ISO provides for an independent, self-perpetuating Board of Directors and a professional staff each of which have no financial or other current interest in any market participant. RTOs and ISOs achieve operational independence from generation and distribution owners, but common ownership of monopoly and competitive service assets may remain.

[3] See Regional Transmission Organizations, 65 Fed. Reg. 810 (January 6, 2000).

Turning to Grid access rules in the United States, FERC first required third party or open transmission access in wholesale markets in the United States in the early 1990s.[4] Such access is required to be "comparable" to that provided by the transmission operator to itself and must be provided pursuant to a Pro Forma Tariff whose terms were defined in the Rule by FERC. These terms include a definition of two different forms of service (i.e. network and point to point), the process by which service is to be requested, the conditions of full utilization of transmission capacity pursuant to which service may be denied and the priority afforded different forms of service in utilizing scarce capacity (particularly service provided to "native load", a former transmission utility's franchise customers). Under these procedures, it is recognized that service may often be provided over otherwise constrained transmission lines after system "redispatch" or if capacity enhancing improvements are made to the system. A procedure is provided to examine the cost of these options and allow the proposed service customer to determine if it wishes to bear a properly allocable portion of that cost in order for service to be provided. Transmission owning utilities and/or ISOs in the United States formally filed and FERC reviewed tariffs with the terms and conditions specified in the Pro Forma Tariff and containing rate terms to recover their costs of providing the required transmission service. Transmission operators are also required to maintain internet sites (i.e. called an OASIS Site) upon which the availability and terms of transmission service must be stated to permit all market participants to timely learn of the capacity available for purchase and its price.

A brief comment is appropriate respecting the Texas separations/unbundling rules. The Texas wholesale market began operation in 1995 and is not subject to FERC jurisdiction, but is rather fully regulated by the Texas Public Utility Commission. Retail competition is scheduled to begin in Texas statewide on January 1, 2002, following a pilot program which began in late July 2001 to assure no unexpected obstacles in maintaining reliable service while implementing retail competition. In designing its transmission/distribution access rules, transitional program to competition and its market mechanisms and rules, Texas carefully studied market experiences in other US States and in other countries. As respects mandated separations/unbundling of electric sector services , Texas requires legal and institutional separation (i.e. separate affiliated corporations) for (i) generation, (ii) transmission, dispatch and distribution and (iii) end-user supply. The regulated transmission, distribution and dispatch provider may not provide any competitive service (i.e. generation or end-user supply). Texas has also formed an independent Transmission System Operator (ERCOT) which has drafted and enforces the rules requiring third-party transmission system access. More specifically, ERCOT is responsible for (i) ensuring equal access to the transmission network, (ii) insuring the reliability of operation of that network, (iii) settling accounts in the wholesale market, and (iv) managing the registrations system by which customers switch suppliers. ERCOT is fully independent (i.e. a separate corporation with no affiliation) from other market participants, and fully satisfies the independence requirements described above as adopted by FERC. The Texas Market will permit suppliers and both wholesale and retail users to purchase electric supplies through negotiated, bilateral contracts as the principal mechanism through which power will be traded. ERCOT will be responsible for providing ancillary services (primarily regulation and reserves) whose cost will be borne proportionately by market participants, except that a portion of each participant's ancillary services may also be purchased through bilateral contracts.

[4] See Promoting Wholesale Competition Through Open Access Non-discriminatory Transmission Services by Public Utilities and Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, Order No. 888, 61 FR 21,540 (May 10, 1996).

(c) EC Directive 96/92 requires that a designated transmission system operator (TSO) be responsible for operation and maintenance of the transmission system, for the dispatching of generators, for ensuring the availability of ancillary services, and for decisions respecting the use of transmission interconnectors. The TSO must either be legally/institutionally separated and independent from generation and distribution asset owners, or must be independent "managerially" and in accounting terms. These latter requirements (i.e. managerial and accounting independence) mean that the TSO must have an independent Staff and budget from market organizations, and must preserve confidentiality of commercially sensitive information. Legal and institutional separation requires separation of services into separate though commonly owned corporations. A majority of European Governments have established institutionally and legally separate entities to serve as TSO (although the separation is only partial - an affiliated company - where the pre-Directive service was provided through private ownership), and though Germany and France employ a managerially separate division within the existing integrated utilities to perform this function.

In its proposal to amend EU Directive 96/92, the European Commission proposes that transmission and dispatch operations be carried out via a subsidiary company legally and institutionally separate from generation and end-use sales activities. It further proposes that minimum functional separation requirements be adopted to assure that transmission system managers are not participating in generation/supply function management, that transmission system operators have full control over transmission system operations and assets and that the transmission system operator have a compliance program to assure that discriminatory conduct does not occur. That program must be operated by a specific Compliance Officer reporting to the President/Chief Executive Officer of the Parent Company and an Annual Report of measures taken must be submitted to the National Regulatory Authority and published. The Commission further proposed that each Member State be required to create an independent national regulator and adopt third party access rules in published and regulated tariffs. At present, the EU Directives permit negotiated third party access enforced by competition authorities (i.e. which has been adopted by Germany for application to the electricity sector). Finally, the Commission proposes similar legal separation of distribution system assets for electric systems beginning in 2003. [5] These proposals were not adopted at the Stockholm Summit but will be considered again at the European Summit in Spring 2002.

(d) Although differences in form exist, EU and US separations/unbundling practices are moving in a consistent direction. Both in the EU and the US, partial ownership separation of transmission from generation and end-user supply into an affiliated company, which provides full accounting and managerial separation through the parent company level is being increasingly adopted. Regulator enforced third-party transmission and distribution access rules are also imposed or proposed for imposition. In addition, the United States employs in its present operating markets the Independent System Operator form which provides even greater operational and managerial separation of transmission functions (i.e. fully independent system operator with no corporate relationship to generation or distribution businesses), as well as greater resources and more transparency for implementation of the grid access rules.

[5] European Commission, Proposal for a Directive of the European Parliament and of the Council amending Directives 96/92/EC and 98/30/EC concerning Common Rules for the Internal Market in Electricity and Natural Gas Brussels (13.3.2001); Presidency Conclusions, Stockholm European Council (March 23 & 24, 2001).

2.2 Separation of Generation and Distribution Services

In the United States, Distribution System operations and End-use Supply falls under the jurisdiction of State Commissions. These Commissions have demonstrated concern that distribution/end-use supply and generation or a combination of assets in each category not be concentrated into the hands of a single or few companies, but have not adopted one specific approach. In most States, some level of common ownership of distribution/end-use supply and generation has been permitted and continues to exist However, that level of common ownership is either explicitly or implicitly limited to a level which it is believed will not prevent effective competition from developing. For example, in Texas, the same corporate system which owns significant transmission/distribution assets is permitted to own up to 20% of generation in the Texas market. Also in Texas, end-use supply functions must be placed into a separate corporation from transmission and distribution functions. In PJM, approximately 27% of sales are from generation owned by affiliates of PJM distribution companies, primarily to its affiliated distribution company. [6]

Existing EU Directives do not propose any specific measures for separation of Generation and Distribution/End-use Supply assets, though, as noted above, the European Commission has proposed legal and management function separation (i.e. a separate subsidiary) for electric distribution assets beginning in 2003 . The proposal was made because of concern over the ability of the distribution system operator to discriminate against non-affiliated suppliers if it were to have a strong incentive and a sufficient lack of transparency in its operations to permit it to do so. The Commission's requirements for regulated third party access pursuant to published tariff rates would also apply to this service once adopted. These proposals, as noted above, will be examined again for adoption by the European Council in Spring 2002.

Again, the EU and US approaches, while different in some particulars, are related and moving substantially in the same direction. However, several US jurisdictions place specific limitations upon combined generation and distribution/end-use supply operations, and both the EU and the US limit such combined ownership through competition or antitrust policy to be described further in Issue Paper # 3 ("Monitoring, Measuring and Assuring the Competitiveness of Energy Markets").

2.3 The Role of Market Codes of Conduct

United States regulation has two additional tools which are used to prevent discrimination through monopoly services to affect competitive services. First, NARUC approved the "NARUC Guidelines for Cost Allocations and Affiliate Transactions" (NARUC Guidelines) in July 1999. These Guidelines, along with additional rules adopted by the US Securities & Exchange Commission to apply to the allocation of cost of common services provided by a corporate system to all or several of its affiliates, are applied to prevent a

[6] Some US States, particularly in New England, initially required or encouraged full divestiture of generation and thus separation from distribution assets. However, this practice was pursued for reasons in addition to its benefits for increased competition, for example as a means of quantifying and reducing stranded costs. Moreover, the former integrated utility is not prohibited in most states from reentering the generation market with new investments following the initial separation.

regulated company with affiliates in competitive services from allocating the costs of those latter services to its regulated ratepayers. [7] In other words, under these guidelines, a regulated company is not permitted to recover costs experienced in its or an affiliate's competitive business from its regulated customers. This is considered to be both unfair and unlawful as to the regulated customer and its interest in paying only for the cost of its service, and competitors of the regulated company for the provision of market services who are not able to subsidize their competitive services from a legally established monopoly business. Most State Commissions in the US also have explicit authority in their enabling statutes to regulate "affiliate transactions", i.e. transactions between the regulated company and others (i.e. such as an affiliated generation or supply company) to assure that such transactions are fair to ratepayers.

In November 2000, NARUC issued its White Paper on Codes of Conduct entitled "Codes of Conduct Governing Competitive Market Developments in the Energy Industry: An Analysis of Regulatory Actions." The authors of the White Paper noted the following respecting the role of Codes of Conduct in "mitigating market power" and preventing discriminatory conduct as described above:

> "There are two primary approaches to handling market power: structural and behavioral. Structural remedies change the characteristics of the market by removing the utility's incentive and ability to abuse market power. In this way, the market structure is conducive to competition. Divestiture is one type of structural remedy. Structural changes carry with them legal and economic implications and may be time consuming and costly to carry out. Additionally, these remedies often result in a loss of economies of scope. However, once made, there is generally a reduction or limitation of the need for regulatory oversight.
>
> A behavioral approach involves the establishment of rules governing the relationship between the utilities and their marketing affiliates rather than changing the structure of the market. The incentive to discriminate, cross subsidize, or otherwise abuse market power is not changed. However, while they are easier to implement, behavioral remedies require ongoing oversight and enforcement to ensure compliance. Codes of Conduct are one of the most common type of behavioral remedy." (at p. 3)

An additional form of behavioral rules, as described above, are the third-party open access rules. Both third party open access rules and Market Codes of Conduct require enforcement by a Regulator.

Market Codes of Conduct, as with access rules, have as their purpose the prevention of preferential treatment, especially for regulated company affiliates, and to aid in the development of competitive markets. Unlike third party access rules which focus specifically upon the transmission and distribution system and equal treatment and fairness in its operation, Market Codes of Conduct focus on the regulated entity and its employees in a broader sense, prescribing matters which are related to structural separation, rates and service access. [8] As respects structural separation matters, a Market Code of Conduct may contain

[7] See, e.g., NARUC Guidelines for Cost Allocations and Affiliate Transactions" (1999).
[8] United States Market Codes of Conduct are generally limited in their application to regulated companies and their affiliates operating in related energy service markets because of the significant incentive for improper conduct in these circumstances. Affiliates operating in unrelated businesses do not pose the same level of concern.

prohibitions on the sharing between the regulated and affiliated Company of employees, officers and directors. computers, office space (i.e. requiring physical separation) and a requirement that employees act independently. Such requirements, as may be seen, reinforce any other imposed structural separation requirements, such as that regulated and competitive activities be conducted in separate , affiliated companies . By requiring physical separation, they reduce the likelihood that common objectives will form or that information will be improperly shared.

Additional matters may include a prohibition on joint marketing, the sharing of billing envelopes in mailing promotional materials of the marketing affiliate, the transfer of confidential information, advertising, recommending the Affiliate's service and upon advertising by a marketing affiliate employing the regulated company's name or logo. Joint marketing and advertising is generally prohibited in order that an expectation of preferential treatment from the monopoly service provider if competitive services are purchased from its affiliate is not created, and also to prevent the appearance to the customer that the two companies are the same, These activities may, however, be permitted if approved by the State Commission, if costs are properly allocated between the regulated and affiliate company and if any advertising or other marketing materials contain a disclosure that the regulated and marketing affiliate are different companies and no benefit accrues from purchasing service from the affiliate as compared to an independent company. These exceptions recognize that there can be cost and other advantages to customers from permitting these activities. These cost advantages are termed "economies of scope". Both access rules and codes of conduct may require the regulated company to maintain a log of all contacts and actions taken respecting affiliate and non-affiliate companies to permit Commission examination to assure that improper favoritism or other conduct is not occurring.

One of the more difficult questions dealt with in Market Codes of Conduct is the release of confidential competitor and customer information. Regulated companies often receive commercially valuable information from the competitors of their marketing affiliates. Such information must often be provided to schedule transmission shipments or for billing purposes. State Commission rules are generally clear that such information cannot be disclosed to marketing affiliates, and indeed no information generated from the regulated activity is to be disclosed to affiliates unless disclosed on the same basis to non-affiliate competitors and unless there exists an approved reason for the disclosure. A more difficult issue has been what information from the regulated business should be disclosed to competitors. Such information may often be important to permit marketing of service and the attraction of customers, but may be considered confidential by the customer. Generally, State rules do not permit such disclosures except where the customer has indicated a desire that the information be disclosed (i.e. by indicating a desire to be served by the competitor).

A final issue often addressed in the development of Market Codes of Conduct and in the structural separation issues discussed above is whether prohibition of shared facilities or activities will improperly deny customers the benefit of economies of scope which produce legitimate customer savings. Industry Spokesman in the United States have made this argument in opposing adoption of a number of proposed "separation" and Code of Conduct restrictions. Although it is generally recognized that such economies do exist in a number of situations, U.S. Commissions have adopted a priority of assuring fair and vigorous competition first. However, where not considered necessary to the development of such

competition, they have refused to impose restrictions upon the regulated service provider or its competitive affiliate. [9]

To support the separations requirements described above, the Texas Public Service Commission has adopted a Code of Conduct for use in its soon to operate retail market. That Code of Conduct imposes reporting requirements (annual and immediate Code violations report), prohibitions on specific conduct similar to that described above and the preparation of compliance plans by the regulated utility. The Code states three principal purposes for its standards and information reporting (as well as a Complaint process): i) preventing the transfer of confidential information from the utility to an affiliate, ii) preventing the creation of an opportunity for preferential treatment or unfair competitive advantage for an affiliate and iii) prevention of the creation of opportunities for cross-subsidization of competitive with regulated activities. In addition, regulated service providers (i.e. transmission and distribution companies) are required to procure all items costing more than $75,000 or $1 million in aggregate through competitive bidding (i.e. significantly limiting any opportunity for Affiliate abuse). The competitive generation affiliates of such companies, moreover, are required to sell 15% of their power to competitive end-use suppliers through an annual capacity auction.

2.4 Should Multiple Transmission Asset Owners be permitted within a National Electric System?

Prior to the development of competitive electricity markets in the United States, major transmission lines were typically built and operated by each monopoly integrated service provider within its service territory. Exceptions, however, did exist for certain major interconnector lines from distant low-cost generation to a power pool where the line would benefit the entire pool. Such lines were typically jointly owned by all or major members of the pool. With the development of competitive electricity markets, several proposals have been received to permit construction of transmission interconnector capacity on a merchant basis, i.e. where the fees for use of the facility will provide the necessary capital return and the line will be owned, maintained and operated by an entity not otherwise engaged in the local electricity market. Often these proposals involve lines with special cost causing factors such as submersion under water, long distances or substantially adverse terrain. FERC approves these lines typically with the requirement that their cost be borne by their shippers, and that these be identified through an “open season” auction in which bids or requests for capacity assignment are received. The concept of merchant transmission lines has also been employed in Latin America as a means to attract investor capital to resolve congestion and to obtain expansion in the transmission network.

[9] See, e.g., Re Transmission and Distribution Utilities and Affiliated Competitive Electricity Providers, Docket No. 98-457 (Maine 1998); Re Affiliated Activities, Promotional Practices and Codes of Conduct of Regulated Gas and Electric Companies, 202 P.U.R.4th 177 (Maryland 2000). The Maine Commission expressed the distinction made as follows : [N]othing in this rule is intended to prevent distribution utilities and their ACPs from benefiting from economies of scope, provided such economies are not a result of a company’s status (as distinct from size) as a utility. . . . It is the economies an ACP could achieve by its affiliation with a distribution utility that would provide an ACP with an unfair advantage over its competitors; these are the only economies the legislation and this rule are intended to prevent. In adopting strict separation requirements, the Legislature determined that the promotion of a fair and effective competitive market for electricity must be the priority, even though at the expense of legitimate economies that utilities and their affiliates might otherwise enjoy.”

3. Separation of Competitive and Monopoly Electric Sector Services in CEE/Eurasia

As described in Paragraph 1.3 above, most CEE/Eurasia Countries have functionally unbundled and restructured their electric sector assets such that generation, transmission and distribution assets and business functions are in separate wholly government owned corporations. Several Countries have also separated the dispatch function into a separate corporation, and those actively pursuing competitive market development have established System and Market Operators predominately as a wholly-owned division or subsidiary of the government owned transmission system owner/operator. Poland has, moreover, established a Market Operator which is predominately private owned. Similar ownership of System and Market Operators (i.e. in part by the government, with the majority by market participants) exists in South America. (See Issue Paper # 1 "Electricity Market Development and Market Contractual Agreements in the USA, in the EU Members and in the Member Countries of ERRA (with attention to the Role of the Regulator)", at p. 20 ; Appendix B, at p. 10)

Those CEE/Eurasia Countries which have established separate though wholly government owned transmission owner/operators with subsidiary System Operators have complied with at least the EU "managerial/accounting" separation minimum requirement, and also the EU and US adopted more stringent approach of institutional and legal separation. In other words, separate but affiliated companies with separate managements provide the competitive (i.e. generation and supply) as compared to the monopoly services (i.e. transmission, distribution and dispatch). However, with the exception of Poland, System and Market Operators are not yet fully independent in the sense of American ISOs or as proposed in the EC proposed amendment to EU Directive 96/92. Such entities remain government owned and the government remains the owner of significant generation and distribution assets. In Countries where there has been significant privatization, this level of government control over the System and Market Operators has been a source of criticism from private market participants. They assert that, as owner of the System and Market Operators, the government has access to important and sensitive commercial information about their businesses which can be used to their detriment to improve the position in competitive businesses of its owned generation and supply. Most governments actively pursuing privatization and market liberalization policies have indicated their intention to create independent stand-alone System and Market Operators once either privatization or market development justifies this action. The functions proposed for these system operators is described in Paragraph 2(d) of Issue Paper # 1 "Electricity Market Development and Market Contractual Agreements in the USA, in the EU Members and in the Member Countries of ERRA (with attention to the Role of the Regulator)".

Several CEE/Eurasia Regulators have also adopted positions on the extent of cross-ownership of generation and distribution that will be permitted. Poland, Hungary, Georgia and Ukraine have adopted positions permitting such cross-ownership, allowing distributors to own between 16 and as high as 30% of generation depending upon the country. Similar cross-ownership is allowed in a number of Latin American markets. As described above, cross-ownership of generation and distribution assets may reduce investment risk in that the cross-owner knows that he both has supply and a place to sell that supply. On the other hand, too great a percentage of cross-ownership clearly risks damaging competition in the market and should be avoided.

4. Additional Committee Comment upon Separation/Unbundling of Competitive and Monopoly Electric Sector Services

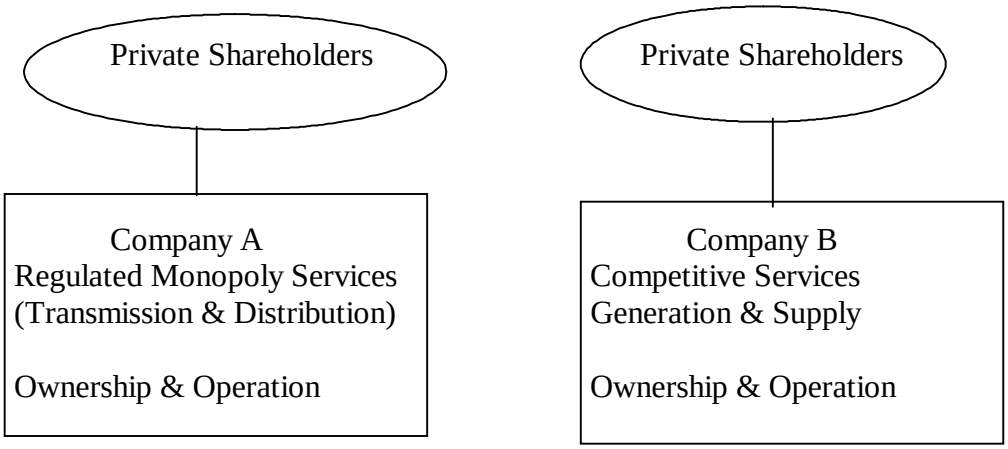
4.1 Factors which can influence Sector Structural Decisions: During discussion of the Issue Paper, several Committee Members noted that there can be factors in addition to maximization of competition that can influence Government decisions on the appropriate sector structure, including size and number of different services provided by sector companies. Larger concentrations of sector assets providing several different services (i.e. transmission, distribution, generation, end-user supply) in a single company can increase a Company's financial stability and reduce its investment risks due to both its size and diversity of activity. This can improve the sector's ability to attract needed investment capital for plant rehabilitation as well as reduce rate levels due to lower capital related costs. On the other hand, larger companies reduce the number of market competitors and thus the effectiveness of competition in reducing prices for competitive services. It also reduces benchmarking opportunities for Regulators in evaluating claimed regulatory cost levels and service quality, i.e. the ability to compare costs, service quality and operating/investment decisions of different managements in determining reasonable price levels. Very large companies, moreover, may achieve through their employment, control of service provision or through political contributions substantial and even undesirable influence over government decision makers.

4.2 Is distributed generation a "separations" concern? Committee Members also questioned whether "distributed generation" could pose a "separations" concern. Distributed generation is smaller generation from central heating and other plants typically fired with natural gas or renewable energy. Such generation is typically located in the immediate vicinity of large load concentrations such as a major industrial customer or residential neighborhood. For non-central heating plants, the generation will often be owned by the customer and used to satisfy primarily its electric demand with only small or no sales to the power grid. In this case, "separations" concern clearly does not apply as a monopoly service provider does not own or operate the generation. If such an owner does own such plant, then a separations concern could arise as the monopoly service provider could discriminate in the provision of its monopoly services in order to favor the sale of this generation supply. However, a number of factors operate to reduce that concern. First, the small size and possibly constrained operating capability of especially renewable energy sources and the location of such generation on the distribution system where its output can only be sold to a limited and nearby load, may persuade the Regulator, after a review of all the circumstances, that this concern does not warrant prohibiting or otherwise restricting investment in such generation by monopoly service providers who may have the greatest economic incentive to make such desirable investments. Further, it may be possible to adopt transparent operating or other rules which further limit this concern. Similar factors would apply to CHP Plants. These Plants, while often much larger than other distributed generation, are required principally to operate to provide district heating service. When operating for this purpose, their electric production must either be sold and used or the opportunity for that production is lost. Under cost allocation procedures for pricing of heat and electric service, their may be little need for "discrimination" to achieve the sale of plant electric output as it possesses a clear efficiency and cost advantage. Also the need to operate the plant primarily to serve non-electric, steam heating load might also limit both the incentive and ability to discriminate to favor sale of this generation. In fact, because of the social value attached to use of this electricity, market rules may treat CHP plants as "must run" units given a priority for sale of

their production at cost in the market. Thus, after full examination by the Regulator, it may be determined that there is little reason for "separations" concerns respecting such plants.

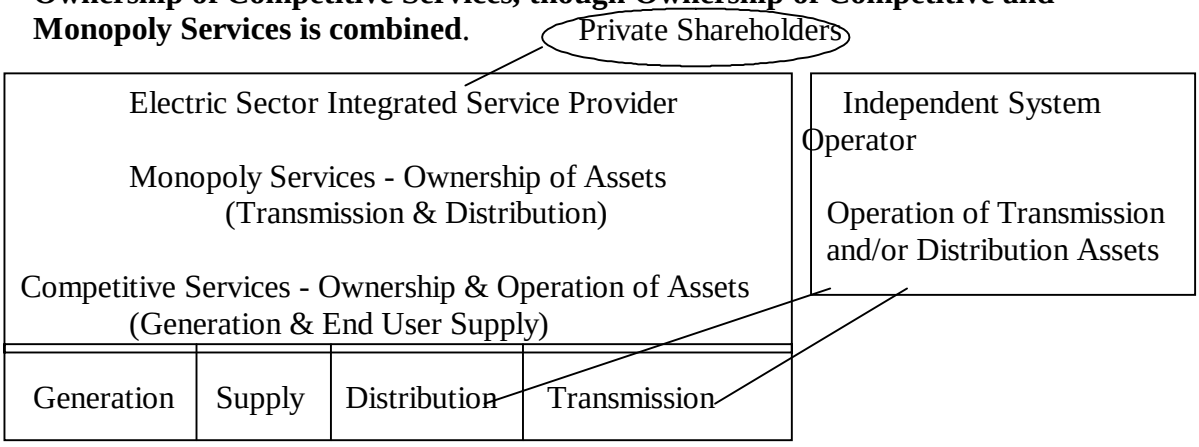
Issue Paper 2, Schedule 1
Schematic of Separation/Unbundling Basic Approaches

I. Full Ownership & Operational Control Separation of Monopoly and Competitive Electric Sector Services into Unaffiliated Companies



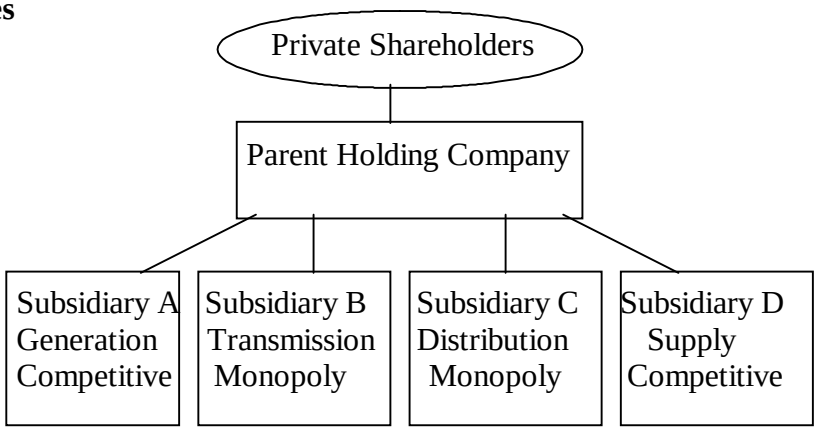
In this separations approach, monopoly and competitive functions are fully separated (i.e. management, accounting, other) in unaffiliated corporations.

II. Separate Operational Control of Monopoly Services from Operation/ Ownership of Competitive Services, though Ownership of Competitive and Monopoly Services is combined.



In this separations approach, ownership of monopoly and competitive services are combined in a single company or affiliated companies which company(s) will also operate the competitive-services, but operation of one or more monopoly services (transmission, distribution and/or dispatc is placed in an unaffiliated Company. This approach is that employed in the United States, limited to transmission and dispatch, in all existing markets except one. This approach is more generally used in the United States with the Parent Holding Company/ Affiliated Subsidiary Company corporate structure depicted in Section III below.

III. Common Ownership and Operation of Monopoly and Competitive Services but with "Legal and Institutional" Separation of Services into Affiliated Companies



In this separations approach, ownership and operation of monopoly and competitive services are separated in affiliated subsidiary companies with separate accounting and management. The affiliated companies, however, are owned by a single parent company with a single management.

IV. Common Ownership and Operation of Monopoly and Competitive Services within a Single Company but through separately Managed Divisions with Separate Accounting

In this separations approach, competitive and monopoly functions are operated and assets owned within the same company but in separately managed Divisions with separate accounting.

Issue Paper # 3: Monitoring, Measuring and Assuring the Competitiveness of Energy Markets

1. Preface

This paper describes evolving methods employed or proposed in the United States and Western Europe to monitor, measure, increase and maintain the competitiveness of electricity markets. Existing monitoring procedures of CEE/Eurasia Regulators and the jurisdiction and responsibility of Competition Offices are also briefly discussed.. Methods employed in United States Markets are discussed below in Section 2, followed by a discussion of EC Competition Law and Regulator authority in Section 3. Section 4 describes existing CEE/Eurasia Regulator market monitoring practices as well as the jurisdiction and responsibility of Competition Offices.[1]

2. Monitoring, Measuring and Assuring the Competitiveness of United States Energy Markets

2.1 The competitiveness of United States Energy Markets are continuously evaluated through four separate approaches: (i) by the Independent System Operator (ISO) through implementation of its Market Monitoring Plan which is filed as a schedule to its Transmission Tariff, which Plan is approved by FERC, and whose actions are reviewed and may be supplemented by FERC who is ultimately responsible for enforcement of statutorily mandated customer rate and service protections; (ii) by FERC in determining that there is an absence of market power and sufficient market competitiveness to support the grant of market based rate authority in lieu of requiring market participants to charge cost of service based rates in wholesale markets; (iii) by State Regulators who typically require the performance of Market Power or Competitiveness Studies prior to authorizing full retail competition and who monitor and raise complaints as needed with ISOs and/or FERC respecting the sufficiency of market competition; and (iv) by FERC in exercising its statutory authority to approve the merger or sales of assets involving regulated electric service providers. In addition, market determined prices may be reviewed after the fact and refunds ordered if such prices are found to be unjust and unreasonable, and where notice that such an investigation and refunds is contemplated has been previously given. A presentation on "Market Monitoring, Reporting and Market Power Mitigation" prepared by Commissioner Linda J. Kelley of the Connecticut Department of Public Utility Control was presented to the Committee. This presentation addresses a number of the matters discussed below and will be referenced where appropriate.

2.2 Market Power Defined: A key concept throughout this paper will be that of "market power". Markets are monitored to assure the absence of market power on the part of one or more market participants, which absence is a substantial indicator that the market is "workably competitive". Market Power is defined for U.S. antitrust law purposes as the "ability to profitably . . . maintain prices above competitive levels for a significant period of

[1] This Paper has been drafted by the Committee's Advisor to address subjects and specific matters of interest to the Committee. This Paper has been reviewed and commented upon by Committee Members, but it is not intended that the Paper's contents set forth a formal position of ERRA or of any Committee Member.

time." [2] Market Power is also typically considered to exist where one or several market participants jointly have the ability to control price or total output, or to exclude competitors from a relevant market.

2.3 System Operator Market Monitoring Plan Design and Implementation: The details of Market Monitoring Plans and the authority of ISO's to mitigate or penalize non-competitive or improper market conduct varies, but such plans have a core set of functions. [3] Each ISO adopts and implements such a Plan after consultation with an appropriate Committee of its market participants, and after that Plan's review and approval by FERC. As stated in the PJM Plan, the Plan's objectives are:

"to (1) monitor and report on issues relating to the operation of the PJM Market, including the determination of transmission congestion costs or the potential of any Market Participant(s) to exercise market power within the PJM Control Area; (2) evaluate the operation of both pool and bilateral markets to detect either design flaws in the PJM Market . . . or to detect structural problems in the PJM Market that may need to be addressed in future filings; (3) evaluate any proposed enforcement mechanisms that are necessary to assure compliance with pool rules; and (4) ensure that the monitoring program will be conducted in an independent and objective manner.

Monitoring is performed through the collection and evaluation of data as to loads, generation, supply costs, location marginal prices, transmission constraints, energy and ancillary service bids, market clearing prices, comparative prices and loads for surrounding power markets, fuel costs and similar data produced and/or collected by the ISO in the normal course of its business. Based upon a review of this data and indices it prepares, PJM's Market Monitoring Unit (MMU) monitors market bids and prices to identify unusual generation activity or unexpectedly high price levels that may indicate the exercise of market power. Where it identifies such an occurrence or in response to a complaint from a market participant, the MMU investigates (including perhaps requesting additional data from the market participant involved), then discusses the matter with the involved market participant and may request that any improper conduct cease through issuance of a demand letter to the participant. Where indicated as needed by its analysis, the MMU will recommend appropriate changes in PJM Agreements or procedures to prevent repetition of the occurrence and may recommend enforcement action to the PJM Board against a market participant. Where authorized by the PJM Board, the MMU will file appropriate reports and make recommendations to FERC and State Regulators particularly as respects enforcement actions as PJM is not presently authorized to impose sanctions on improper market conduct. Since PJM's inception as an ISO, the MMU has engaged in all of the above activities, and has suggested several significant modifications to PJM rules to enhance market competitiveness and to correct undesired market results.

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[2] Horizontal Merger Guidelines, U.S. Department of Justice and Federal Trade Commission, issued April 2, 1992, as revised April 6, 1997, Section 0.1.

[3] See, e.g., Re New York Independent System Operator, Inc., 89 FERC ❶ 61,196 (1999) & 90 FERC ❶ 61,317 (2000)(Order Accepting for Filing in Part and Rejecting in Part Market Monitoring and Mitigation Plan, Subject to Modifications & Order on Rehearing and on Compliance Filing); Re PJM Interconnection L.L.C., 86 FERC ❶s 61,247 & 61,248 (1999)(Order Approving Market Monitoring Plan as Modified & Order Approving PJM Supporting Companies' Request for Market-Based Pricing Authority); Re New England Power Pool, 85 FERC ❶ 61, 379 (1998)(Order Conditionally Accepting Market Rules, and Conditionally Approving Market-Based Rates).

Penalty and enforcement authority has not generally been delegated by FERC to ISOs. Exceptions, however, exist in both the New York ISO and New England ISO markets, particularly as respects market start-up or immaturity situations. Since its operation began, the NYISO has had the authority to employ a program of "Market Mitigation Measures" and more recently has been permitted to apply an "Automated Mitigation Procedure". [4] Under its AMP procedure, the NYISO, if various market screens [5] indicate that a participant bid is improper and likely reflects market power, is authorized to "mitigate" that bid by replacing it with a bid based on historic bids of that participant under similar market conditions (i.e. a reference bid) or actual service costs (the latter as to its spinning and non-spinning reserves markets). An opportunity is provided for the market participant to justify its bid before this action is finalized. NYISO implements other "Market Mitigation Measures" where its investigations uncover conduct which is "significantly inconsistent with competitive conduct" and which results in a "material change" in one or more market prices.

Mitigation measures may be applied to "physical or economic withholding" or "uneconomic production" of generation; and to mitigate the market effects of a rule, standard, procedure or design feature of a New York Electric Market that "allows a Market Party to manipulate market prices or otherwise impair the efficient operation of that market". Specific quantitative standards of what constitutes physical or economic withholding and uneconomic production of a generating unit or transmission is specified in the Plan, and was required by FERC as a condition of approval. These "bright line tests" provide clear signals to market participants of what is improper conduct which will be penalized. The mitigation action employed is to replace the submitted uneconomic bid, which is the basis of economic withholding, with a "default bid" based upon the assumption of "workable competition" and which cannot be below the participant's marginal cost. [6] A financial penalty may be imposed for uneconomic production or physical withholding based on the real time location price of energy times the amount of energy involved. This penalty is designed to require the guilty party to forfeit at least the full gains achieved from his improper conduct.

NYISO is also authorized to impose fines on a graduated scale where it discovers repeated anti-competitive conduct by a market participant. Where the NYISO determines that a Load Serving Entity is causing an imbalance in the day-ahead and real time markets which is adversely affecting the convergence of price in the two markets, by scheduling a disproportionate load in the latter, it may prevent this occurrence by requiring the LSE to schedule a specified percentage or all of its load in the day-ahead market. As described in Commissioner Kelley's presentation, the New England ISO possesses conceptually similar authority to mitigate and penalize economic and physical withholding and uneconomic production, though the specific triggering activities somewhat differ. Much of this authority has been granted by FERC due to a perception of current market immaturity.

In addition to the above, the three Northeast ISOs are authorized to and have imposed hard price caps upon their energy markets of $1000 per MW to prevent unreasonable prices resulting from market power exercise, and may and have imposed lesser hard price caps upon

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[4] See, e.g., Re New York Independent System Operator, Inc., 95 FERC P 61,471 (2001).

[5] A "market screen" is a data tool, such as a comparison of historic to current price bids, for the purpose of identifying through a deviation of the current from the expected value the possible exercise of market power.

[6] See, e.g., Re New York Independent System Operator, Inc., 90 FERC P 61,317 (2000). The technical meanings and anti-competitive significance of "physical" and "economic" withholding, each of which describe an improper action by a market participant intended to raise the market clearing price, is set forth in the presentation prepared by Commissioner Kelley.

certain of their ancillary service markets. Price caps are also permitted to be imposed upon "must-run generators", i.e. generators who serve local areas in the grid and are the only sources of power for system operation (i.e. switching) or where grid constraints prevent alternative generation supply. Finally, the ISOs are permitted to require commitment of generation located within their markets to those markets during summer peak periods through reserve capacity and unit commitment mandatory requirements. This authority prevents market participants from selling power to customers in markets outside of the ISO's Region during its peak supply need and cost period, which if permitted would raise its customer costs as the exported generation would normally be cheaper than that operated to make sales in its place.

Market Monitoring Plans were designed and are implemented in conjunction with a Market Advisor (a distinguished expert or panel of experts with substantial experience in market design and operations), performance under the Plan is subject to annual independent audit and to periodic reports filed with the ISO Independent Board. Each year, the Market Advisor or another independent markets expert, prepares an Annual Report assessing the competitiveness of the markets. Each of the Northeastern ISOs recently issued such a Report which concluded that their markets are, subject to certain concerns applicable primarily to the ancillary services markets, workably competitive.

Market Monitors are a significant part of recent United States Regional Transmission Organization (RTO) proposals but, especially where such proposals are based principally upon the formation and operation of a Transco rather than an ISO, are structured somewhat differently. Since the Transco is a for profit private company and that profit motive arguably could influence the impartiality of the MMU, the Market Monitor is not proposed to be a part of the Transco but rather is established as a separate limited liability company with its own independent Board of Directors. Otherwise, however, it is proposed to function very similar to that of an MMU within an ISO.

2.4 FERC Market Based Rate Determinations: In approving the formation and functioning of ISOs and in granting they and participants in their markets the right to charge market based rather than cost of service rates, FERC requires that the ISO present and it approve a Market Monitoring Plan. FERC will not approve market based rate authority for a wholesale supplier or generator unless it concludes on a proper evidentiary basis that the supplier or generator lacks market power and that the markets in which it operates are workably competitive. Applicants for market-based rate authority are required to file a market analysis, termed a "hub & spoke analysis", to satisfy this standard. Employing the hub & spoke analysis, FERC examines the market share of the supplier or generator requesting market-based rate authority in the appropriate electricity product and geographic market to assure that its size is not so large as to indicate that the entity likely would be able to exercise market power. Market shares are measured based upon "Herfindahl-Hirschman Index" values whose preparation and use is described further in Paragraph 2.6 below. Typically, the geographic market employed is limited to transmission or distribution systems which are interconnected with the system from which the supplier obtains its supply or where the generator is located. In the past , if the supplier or generator's market share was less than 20%, it was generally determined not to have market power and its request to charge market based rates I was granted. However, the "hub & spoke methodology" (named for the fact that the supplier or generator is at the hub and interconnected systems are the spokes) has recently been criticized by several FERC Commissioners as failing to properly consider all the factors that can cause market power. FERC has, therefore, recently announced several

modifications to render the analysis more effective. First, transmission constraints, which can reduce the effective size of a market and thereby increase a Seller's market share including the ability to exercise market power, will be considered in defining the size of the market. Second, more detailed analysis will be undertaken where a Seller's controlled generation exceeds the market's unused reserve since this indicates a condition where the Seller's generation must be run to meet load requirements. [7] Conceptually, the modified hub & spoke methodology is similar to the "Appendix A" analysis which FERC performs in determining whether a merger or asset transfer improperly increases market concentration and should be disapproved as not in the public interest, but is considerably less data intensive and is simpler to perform. Its major elements are the same as the Appendix A analysis and are described further in Paragraph 2.6 below. As with Appendix A, the analysis serves as a "screen" for determining whether more detailed analysis should be undertaken prior to a determination that market power exists, and desired market-based rates should be allowed.

FERC retains authority to withdraw its authorization to employ market-based rates and this action has been proposed for the California markets. Also, market-based rate authority must be renewed every three years and the grantee is further required to advise FERC of any changes in its operations or market conditions that alter the propriety of this authorization. Finally, as a result of the California market produced excessive costs, FERC now requires all recipients of market based rate authority to state in their tariffs that all such rates are subject to investigation and retroactive refund if found unjust or unreasonable (i.e. either not the result of a properly competitive market or the result of market power exercise).

2.5 State Regulator Market Competitiveness Studies for Retail Markets: A number of State Regulators or Legislatures, prior to or during the process of full retail market opening, have or are requiring that Market Competitiveness Studies be performed. The purpose of such studies is to establish that local markets are ready for competition either prior to full opening of the retail market or to the removal of interim price caps or other customer protections imposed during the early years of market development. It should be remembered that, in most states where retail competition has been authorized, interim rate caps were imposed for a several year period to protect retail consumers while market structures are developing and competitive suppliers are establishing their ability to function in the market. Many Laws or Regulator Orders require that a Market Competitiveness Study be performed before these caps are fully removed. These studies employ or propose to employ market evaluation techniques similar to those described below as a part of the FERC "Appendix A" evaluations.

2.6 FERC's Appendix A Analysis Prepared to Evaluate whether Proposed Mergers/Asset Sales between Electric Sector Companies are in the Public Interest: In December 1996, in Order 592, FERC issued its "Policy Statement Establishing Factors the Commission Will Consider in Evaluating whether a Proposed Merger is Consistent with the Public Interest". [8] Drawing principles and market concentration measurement criteria from antitrust law developed by the Department of Justice and the Federal Trade Commission, FERC established a substantially new standard (i.e. the first revision of this standard in 30 years) for evaluating whether mergers or asset sales involving jurisdictional electric and natural gas service providers met the Federal Power Act's "public interest" approval

[7] FERC has further indicated that it may in the near future initiate a rulemaking to examine further refinements or alternatives to the hub & spoke methodology.

[8] Inquiry Concerning the Commission's Merger Policy Under the Federal Power Act - Policy Statement, Docket No. RM96-6-000 (1996).

standard. In the five years since adoption of the Policy Statement, FERC has employed its standard to adjudicate numerous merger applications. In November 2000, based upon the experience gained in adjudicating those numerous and diverse cases, FERC issued a Final Rule refining its methodology and standards for issuing such approvals. [9]

In the Policy Statement, and continued in the Final Rule, FERC identifies three principal standards that must be met prior to approving a proposed merger or asset sale as in the public interest. First, and principally, the effect upon competition of the merger must be analyzed and determined to be acceptable in light of the merger's other effects. Next, the rate effect must be evaluated, which typically means that anticipated cost savings arising from greater scale economies or the ability to benefit from production/load diversity in the merged company must be properly shared with ratepayers in the form of rate reductions. Finally, the effect of the merger or asset sale upon regulation, and particularly FERC's jurisdiction, must be considered. Typically, these last two issues are not contentious as Applicants do not object to the sharing of savings with ratepayers and avoid structuring the merger to adversely impact FERC jurisdiction in order to avoid its rejection.

Approval of every FERC jurisdictional merger thus typically turns upon whether it produces an unacceptable effect upon competition. As most mergers have the effect of combining two potential sector competitors into one, the possibility of an adverse effect is readily apparent. FERC evaluates a proposed merger using an approach first defined in its Policy Statement, and particularly Appendix A to that Statement (i.e. thus its name). Appendix A outlines a "screen", a quantitative and qualitative analysis which an Applicant must apply to its situation and document the results in its approval application presented to FERC. If its proposed merger has effects which are less than the stated quantitative tests and certain specified qualitative factors are also not present, than the merger has acceptable effects upon competition and is approved without extensive evidentiary proceedings. If the quantitative and qualitative tests are not met, then it does not mean that the merger will not be approved, but only that a more thorough analysis and perhaps an evidentiary hearing will be required before a decision can be made. However, as mergers are typically time sensitive and evidentiary hearings are a slow process, failure to satisfy the screen criteria would normally preclude merger consummation.

The principal quantitative test applied is the Herfindahl Hirschman Index (HHI), the same standard applied under the "hub & spoke" analysis. As noted, this index measures market share of the company being examined. However, to measure market share, you must first define the market in which the company operates. Its share of that market then becomes the percentage of the total business transacted within that market which it conducts, as compared to other companies in that market. Markets consist of products and, for electricity, geographic areas. A market is defined as a commercial setting in which a single or several substitutable products are sold. The products sold in an electric market can consist of energy - annually, in a specific time period, sold over the balancing market and firm or non-firm sales, and ancillary services including capacity as a separate product. Analysis can be done of the total product produced (economic capacity) or only that not consumed by the regulated marketplace (available economic capacity), with the latter typically being a more severe standard for measuring market power. The geographic area is the area in which the entity being examined seeks to or has sold the product being examined over the past two years. Typically, this area is at least as large as all electric grids interconnected with the grid upon

[9] Final Rule - Order 642, 93 FERC ❶ 61,164 (2000).

which the entity whose market share is being examined is located, and may include those grids interconnected with the first tier grids. The guiding standard here and in identifying competing suppliers who can also serve the geographic and product markets being defined is known as the delivered price test. Identified suppliers must have generation or other supply which can be delivered to the defined market area for a price (based on variable production costs and including transmission charges) which is not greater than 5% above the pre-merger prevailing price in that market. Transmission constraints are considered when defining the market and identifying alternative suppliers, and market size may vary by time of day and product due to changing transmission constraints.

The market share of the entity being examined (i.e. the magnitude of each of the defined electricity products which it serves) can now be computed as compared to the total market size and the market shares of competing sellers. Once computed, that market share is then "squared" and compared to benchmark values in the HHI to determine whether the merger poses no significant, substantial or possible effects upon market competition. An HHI computation of squared market shares which is less than 1000 is generally accepted as having no significant effect on competition. A value between 1200 and 1800, and where the effect of the merger is to increase the computation value by 100, presents the possibility of adverse effect and further analyses are, therefore, required. A value of above 1800 and where the effect of the merger is to increase the value by 50, also presents the possibility of an adverse effect, with the result that further analyses are required. If the market share information when squared equals more than 2400 or a 100 point increase in index value results from the merger where the pre-merger HHI index exceeds 1800, than the market is highly concentrated and any merger activity would be considered damaging to competition. Applicants may propose mitigation measures to reduce competitive effect as a part of their Application, for example generation plant divestiture or transmission commitments to reduce congestion constraints upon market size. The effect of these measures must be demonstrated as a part of the HHI and qualitative analyses.

It must be remembered that the Appendix A analysis is but a screen to indicate the need for more careful evaluation if the screen standards are not satisfied. A number of qualitative factors are also typically considered which may increase or decrease the concern with the competitive effects of a merger. For example, not all products are of equal importance. A high market concentration during times of light load may not be a concern as the limited load and the ability of other generators to enter that product market should prices be significantly increased, substantially mitigate the effects of the apparent market concentration. Similarly, products focused upon available capacity and energy and which exclude sales to native load (i.e. regulated load) may be of limited importance if retail competition will begin in the market very shortly. Also, the specifics of generation, the mechanics of market bidding, the imminence of market entry by a competitor (which is required to occur within two years to be a factor in the analysis) and other factors all may mitigate the importance of market concentration statistics determined as the result of the quantitative analysis.

The above analysis applies to "horizontal mergers", i.e. the merger of companies operating primarily in the same product market - two generators as one example or two distribution companies as another. As described, the analysis is data intensive and requires a great amount of judgment. While specifying the major structural elements of the analysis, FERC has indicated a willingness to consider alternative approaches to the many judgments that must be made. Recently, FERC has received a number of merger applications which

constitute "vertical mergers" in which a major supplier to or customer of electric generation , i.e. principally a natural gas producer or wholesaler, seeks to acquire or be acquired by an electric generation company. In the United States, there have been several instances recently in which major generation companies active in the competitive electric market have acquired natural gas production assets in order to assure themselves of a supply of natural gas at a known price level to permit them to sign longer-term contracts in the bilateral contract market. Although similar analytical principles are employed in the analysis of these mergers, the specifics of the analysis is different as the possible competitive harm arises from different causes. The competitive concern in a vertical merger is that resources or customers needed for a vibrant market in either the upstream (i.e. natural gas market) or the down-stream (electric generation market) are being withdrawn from the market for the exclusive use of the merging parties (i.e. or through a long-term supply or consumption contract). The market concentration analysis typically seeks to determine whether the merged company will be able to raise its rivals costs particularly in the downstream market or deter through its presence in both markets market entry by new competitors in either market. Market concentration analyses, done on a basis similar to that described above for horizontal mergers, needs to be done separately for each market (i.e. the electric generation and natural gas supply markets). [10]

Additional significant concerns in vertical merger cases include assuring free access for downstream market competitors (i.e. unaffiliated electric generators) to the monopoly services of the upstream market participant (i.e. the natural gas supplier) and prevention of the sharing of commercially sensitive information about competitors within the merged concern. The latter could arise since the merged natural gas supplier will have knowledge of fuel requirements and operating practices of its downstream affiliate's electric generator competitors. The first of these concerns is typically resolved by commitments made by the merging companies to allocate natural gas supplies or transportation capacity between affiliated and unaffiliated customers (i.e. generators) through open tenders in which all may compete equally. The second is resolved by applying stringent Code of Conduct rules with strengthened provisions for protecting commercially sensitive information, such as those discussed in Issue Paper # 2 "Unbundling of Electric Sector Services to Structurally Separate Monopoly and Competitive Activities" (see Section 2.3), to all merged companies.

An example of the application of the Appendix A and "hub & spoke" type analyses is that presented by PJM in support of its request for authorization of market based rates to apply to its day ahead and balancing market. In support of that request (which FERC ultimately granted), PJM presented a market competitiveness analysis for power purchased through the two markets. It did not analyze separately (and FERC did not require it to analyze) power sold through the bilateral contract market (which it also administers) or its ancillary services markets though it requested market-based pricing for certain of these services as well. PJM argued and FERC accepted that these markets were fundamentally the same as its day-ahead and balancing market and thus need not be separately evaluated. PJM analyzed energy sold in seasonal, monthly and time of day periods (i.e. separate products) and in PJM as a whole and in separate areas defined by transmission constraints during specified daily peak time periods (i.e. separate geographic markets). In approving the request for market based rates, FERC noted that single company market shares generally equaled no more than 20% and HHI concentrations did not exceed 1800, except in certain off-peak

[10] A good example of market concentration analysis for a vertical merger and of the several conditions imposed by FERC as a requirement to approve such a merger is Re Dominion Resources, Inc. and Consolidated Natural Gas Company, 89 FERC P61,162 &91 FERC P61,140 (Docket No. EC99-81-001 1999/2000).

periods served substantially by nuclear capacity owned by a single generator (i.e. single company market share of 46.8% and HHI concentration of 2775). Because of the limited energy sold during these periods and the cause of the concentration statistics (i.e .mandatory minimum generation of base-load nuclear plant), FERC concluded that no mitigation or other action was required based upon these quantitative results. [11]

It should be emphasized that, while the above standards are properly applied to assure that a competitive market structure which prevents the exercise of market power is maintained, these rules are not used to unnecessarily prevent or interfere with beneficial business transactions. Mergers, long-term contracts and other business transactions subject to these rules often offer the prospect of significant savings for ratepayers. Where they nevertheless cause undue market concentration and raise the specter of market power exercise, it is often possible to avoid this outcome and the necessity to proscribe the transaction by conditioning its approval upon the divestiture of sufficient assets to reduce market share to within acceptable limits or to expand market size by transferring ownership or long-term use of transmission to a competitor. The application of this principal in merger analysis is further illustrated below in connection with the discussion of maintaining market competitiveness in the European Union.

2.7 Other Actions Available to Regulators to Enhance Market Competitiveness or Correct for its Absence: Regulators may initiate investigations to identify market structure improvements and require implementation of any improvements identified. FERC is presently pursuing several such investigations including a review of structural alternatives to assure that proper price incentives exist to encourage construction of sufficient capacity for service and reserve capacity requirements, and has further indicated that it may initiate a rulemaking in the near future to define a standard market structure for use in United States markets (see Appendix B in Issue Paper # 1 "Electricity Market Development and Market Contractual Agreements in the USA, in the EU Members and in the Member Countries of ERRA (with attention to the Role of the Regulator)," p.1, note 1).

Regulators may also have jurisdiction over matters which affect market performance or can assist in improving that performance though such matters are outside of the market itself. In the United States, the principal such matter affecting electricity markets is natural gas supply and transportation. Increasing natural gas prices, particularly in California, were a significant contributor to the market disruptions of 2000-2001 and affected markets throughout the US since natural gas is the incremental generation fuel in most electricity generation markets. FERC has jurisdiction over interstate natural gas transmission rates (though not supply production prices) and has begun several investigations to determine if it can alter its natural gas regulations in a way that will enhance electric market competitiveness. FERC also conducted a formal proceeding to determine if it could offer and what manner of rate incentives for the construction of electric transmission or natural gas infrastructure would be effective in enhancing market performance, and adopted several of the proposals examined.

Finally, the Federal Power Act continues to require that wholesale electric rates be just and reasonable. FERC has determined that, due to its dysfunction, the California wholesale markets of 2000-2001 did not produce just and reasonable rates. It is presently examining what refunds, if any, are appropriate to reduce actual charges in those markets to a

[11] See, e.g., Re Atlantic City Electric Company, et al., 86 FERC P61,248 (Docket No. ER97-3729-000 1999).

just and reasonable level. [12] FERC, however, has indicated that it is highly reluctant to order retroactive refunds from market transactions as by doing so it calls into question the finality of market transactions and prices. In developing market strategies, generation bids and new generator construction plans should FERC adopt this approach, market participants would need to consider the possibility that, months and even a year after a market transaction has concluded, FERC may adjust the price levels established by the Market and thus reduce revenue levels achieved. This could lead to reduced confidence in the markets and a reduced willingness to make needed investments.

3. Monitoring, Measuring and Assuring the Competitiveness of European Electricity Markets

European Union

Electricity Market Competition requirements are generally similar in substance to those of the United States though often different in form. Basic principles of Competition Law applicable to the electric sector and to business generally in the Community are set forth in Articles 81, 82 and 86-88 of the Treaty through which the Community was formed. The principles enunciated in these Articles are similar to those of antitrust law in the United States and prohibit unfair competition, anti-competitive conduct and agreements, abuse of a dominant position, undue market concentration from mergers and similar matters. Mergers of electric service providers having a "Community dimension" may be reviewed by the European Commission (who must be notified of the merger and has one month to initiate a formal inquiry) to determine if the merger is compatible with the European common market. [13] The Commission may, moreover, refer a merger back to the competent national authorities for examination where the effect on competition is primarily contained within the boundaries of that one state. The principle document establishing the rules for competitive electricity markets and their form is, of course, the Electricity Directive itself. .

An example of the application of European competition law principles to a liberalized electricity market is presented by the United Kingdom. Fair competition and market concentration (i.e. business mergers) are examined by Competition Authorities (i.e. the Ministry of Trade and Industry and the Competition Commission) under the Competition Act of 1998. That Act contains two principal prohibitions: (i) agreements, decisions or concerted practices which have the object or effect of preventing, restricting or distorting competition in the United Kingdom and (ii) abuse of a dominant economic position so as to adversely affect trade. Enforcement of the Act, as with antitrust laws in the United States, is concurrent as to specific aspects with both the Regulator (OFGEM) and the competition authorities where an electricity company is involved. Enforcement of the Act must be consistent with EU competition law and European Commission decisions though flexibility in applying those principles to particular fact circumstances is permitted by the principle of "subsidiary". [14]

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[12] See, e.g., San Diego Gas & Electric Company v. Sellers of Energy and Ancillary Services into Markets Operated by Cal ISO and Cal PX, et al., Docket Nos. EL0095-031, et al. (June 19,, 2001); Re Reporting of Natural Gas Sales to the California Market, Docket No. RM01-9-000 (May 18, 2001); Order Removing Obstacles to Increased Electric Generation and Natural Gas Supply in the Western United States, 94 FERC ❶ 61,271 (March 2001).

[13] See European Community Merger Regulation (Council Regulation 4064/89 as amended by Council Regulation 1310/97); Commission Decision of 7.2.2001, Electricity de France & Energie-Baden Wurttenberg AG. Case No. COMP/M.1853; Northern Electric plc's proposed acquisition of Innogy Holdings plc's Yorkshire Electricity Distribution Business (OFGEM Consultation Paper August 2001).

[14] See, e.g., OFGEM, The Competition Act of 1998 - The Application in the Energy Sector (OFT 428). OFGEM is empowered to impose financial penalties up to 10% of annual turnover (revenue) for a three year

Analyses of mergers and other improper activities are similar to that in the United States; requiring market definition, assessment of market power, focusing upon defined improper conduct such as pre-emptive pricing and abuse of a dominant market position.

OFGEM has further proposed, and is awaiting Ministerial approval to enforce, specific license conditions that mandate competitive conduct. The License Condition proposed is as follows: "The licensee shall not intentionally limit, without reasonable cause, generation or capacity availability in such a manner as materially to prejudice the interests of consumers." In addition to certain specific behavior such as physical withholding, OFGEM applies an "avoidable cost principle" in evaluating market participant conduct to determine if it violates the condition (i.e. participant conduct which is not profit maximizing when tested against avoidable cost, absent the presence of other circumstances, violates the condition). [15] In evaluating mergers, both the European Commission and OFGEM pursue the principal noted in the last paragraph of Section 2.6, i.e. beneficial mergers are approved where conditions such as divestiture or exclusive rights to transmission/generation can be transferred and thereby mitigate the potential anti-competitive effect of the transaction. [16] Both OFGEM and European Commission market concentration analyses employ approaches similar to that in the United States, including defining relevant product and geographic markets, evaluating market concentration and other factors that may give rise to market power.

It should be noted that regulators exist throughout the Community (i.e. with the exception of Germany) and enforce third party access and monitor the operation and competitiveness of developing national markets. Most European Countries also have Competition Agencies, similar to United States antitrust authorities, who analyze the competitive effect of mergers, asset sales and various forms of long-term agreements, and proscribe them if improperly harmful to competition. In Spring 2000, Angel Tradacete, Director of Cartels, Directorate General for Competition of the European Commission prepared a paper entitled "The Role of EC Competition Policy in the Liberalization of EU Energy Markets" which, as its name indicates, discusses the application of broader EU Competition Law to issues of energy market liberalization such as third party access structures, capacity tenders, etc." This paper describes the treatment under EU Competition Law of a number of the competition related issues (i.e. such as transmission access, etc.) which continuously arise in the operation of competitive markets.

4. Monitoring, Measuring and Assuring the Competitiveness of Electricity Markets in CEE/Eurasia

As described in Issue Paper # 1 "Electricity Market Development and Market Contractual Agreements in the USA, in the EU Members and in the Member Countries of ERRA (with attention to the Role of the Regulator)" and Appendix A, CEE/Eurasia Regulators have played an active role in the formation of national electricity markets within the Region. Regulators have contributed to the defining of market structures and have approved market foundation codes and other documents. A number of Regulators are also

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period in response to violations which it uncovers, and makes recommendations on the approval of electricity and natural gas mergers to competition authorities.

[15] OFGEM, Guidelines to Proposed Modifications to License Conditions (August 2001).

[16] Commission Decision of 7.2.2001, Electricity de France & Energie-Baden Wurttenberg AG. Case No. COMP/M.1853; Northern Electric plc's proposed acquisition of Innogy Holdings plc's Yorkshire Electricity Distribution Business (OFGEM Consultation Paper August 2001).

active in monitoring Market results as a part of their broader consumer protection functions. For example, the National Electricity Regulatory Commission of Ukraine (NERC) plays an important role in monitoring and acting to assure customer protection associated with the operation of the Ukraine Wholesale Electricity Market. Such activities include protection of the consumers interest in quality and reliability of electric supply, and the pursuit of transparent and fair market competition. As one of its major principles, the Ukrainian Wholesale Power Market requires the regulation of natural monopolies and monitoring of the operations of electricity suppliers and producers, activities in which the Commission plays an important role.

In accordance with its authority, NERC regulates only the participants in the Wholesale Power Market. Specifically, the Commission regulates tariffs for services, which are provided by natural monopolies, i.e. those companies who transmit electricity. In compliance with the procedures established by NERC with regards to monitoring the operations of the government-owned company Energorynok (GPE) in support of the Wholesale Market operations, GPE submits daily analysis of the operational data for the United Power System of Ukraine; bids by generator units of the cogeneration plants; production data from the generators, data on electricity delivered to suppliers, as well as the accrued payments due to the generators, and the payments due from the suppliers; wholesale purchase prices from generator units of the cogeneration plants, and data on wholesale market price setting for electricity. In order to prevent uncontrollable increase in retail tariffs for electricity in an environment where the competition among the generators is low, NERC also regulates tariffs for the production of electricity by the thermal power producers by limiting bids and decreasing fixed costs.

A number of statutes authorizing CEE/Eurasia electricity markets and defining Regulator responsibility with respect to those markets include as a national objective to be pursued by the Regulator the development of fair and effective competition as a means, supplemented by regulation of monopoly sector functions, to achieve maximum consumer and public benefit. Clearly, where a statute establishes this objective for a Regulator, monitoring of market activities will be a necessary function of the Regulator. Moreover, to achieve this objective, the Regulator will also need to be involved in decisions and enforcement actions respecting market structure and permissible competitive conduct. CEE/Eurasia Countries, however, also generally have Competition/ Antitrust Regulators whose statutory mandate also embraces these matters. For example, Hungary (and other CEE/Eurasia Countries) has adopted a Competition Act and established a Competition Office to enforce that Act. That Act regulates unfair market practices, unfair manipulation of consumer choice, anticompetitive agreements, abuse of a dominant position by private companies and issues of private company merger and market structure. [17] As discussed above, many of these issues are also addressed by Regulators in the United States and Western Europe who have concurrent jurisdiction with antitrust/competition authorities. As one Committee Member noted in discussion, CEE/Eurasia Regulators will need as competitive markets develop to establish their role and approaches to these issues.

[17] See Homepage of the Hungarian Competition Office (http://www.gvh.hu/angol/ineto6ca.htm)