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Requirements for Participating in the European Union Energy and Power Market

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and

The CENTREL Utilities

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1 Introduction

Poland, Hungary, and the Czech Republic, three of the four CENTREL countries, are in the first tier of countries under consideration for membership in the European Union. The fourth member of CENTREL – Slovakia – is also likely to join the European Union. The electric utilities in CENTREL have demonstrated their commitment to becoming part of the Western European electricity grid by undertaking extensive upgrading and testing of their power systems starting in 1991 and achieving successful synchronous operation with the UCPTE interconnection since 1996.

As part of the European Union (EU), the electric utilities of the CENTREL countries, namely:

- PSE (also referred to as PPGC) in Poland,
- MVM in Hungary,
- CEZ in the Czech Republic, and
- SE in Slovakia,

will become subject to the rules and regulations of the EU. Of these rules and regulations, the EU Directive 96/92/EC, concerning common rules for the internal market in electricity, has far reaching implications for the electric utilities because it seeks to establish a more competitive internal market for electricity in the EU member states. This directive will affect many aspects of the CENTREL electric utilities in the near and long term. Therefore, an understanding of the key provisions of EU 96/92 is essential for identifying the needs of the CENTREL utilities.

The key provisions of the Directive and the current status within the EU countries are briefly summarized in Section 2. A much more detailed summary and discussion is provided in Appendix A. The discussion in Appendix A illuminates several of the more contentious issues being faced, including network access, reciprocity for access to customers, and the single buyer model. Section 3 of the report - The CENTREL Situation- contains:

- A description of the origin and evolution of the CENTREL system,
- Status of privatization and restructuring efforts of the energy companies,
- Status of each country's energy laws, and finally,
- A summary of the specific issues and decisions facing the CENTREL member countries as a result of this Directive. This section provides a good overall summary for the reader familiar with both the EU Directive and CENTREL.

2 The EU 96/92/EC Directive

The EU Directive 96/92/EC (the Directive) is not lengthy (only 19 pages), but has many far-reaching consequences. As stated in Article 1,

“The Directive establishes common rules for the generation, transmission and distribution of electricity. It lays down the rules relating to the organization and functioning of the electricity sector, access to the market, the criteria and procedures applicable to calls for tender and the granting of authorizations and the operation of the systems.”

The Directive consists of a Preamble and the following eight chapters (containing a total of 29 articles numbered sequentially):

- Chapter I: Scope and Definitions (Articles 1-2),
- Chapter II: General Rules for the Organization of the Sector (Article 3),
- Chapter III: Generation (Articles 4-6),
- Chapter IV: Transmission System Operation (Articles 7-9),
- Chapter V: Distribution System Operation (Article 10-12),
- Chapter VI: Unbundling and Transparency of Accounts (Articles 13-15),
- Chapter VII: Organization of Access to System (16-22),
- Chapter VIII: Final Provisions (Articles 23-29).

2.1 Key Provisions of the Directive

While reading the complete Directive is advised, in the following we highlight key provisions that have broad implications for the structure of the electric utility industry in the CENTREL region.

“... [I]n accordance with the **principle of subsidiarity**, general principles... must be established at the Community level, but their detailed implementation should be left to the Member States...” (Preamble -11).

Market Opening. Member States (MS) are required to open their internal electricity markets “at least up to a significant level,” which has been determined to be as follows:

<i>Step No.</i>	<i>Date</i>	<i>Minimum % of market opening</i>	<i>Based on consumers consuming</i>
1	19 February 1999	25.37%	more than 40 GWh
2	19 February 2000	approximately 28%	more than 20 GWh
3	19 February 2003	approximately 33%	more than 9 GWh

The MS are at liberty to define the internal customers who will have the legal right to contract for electricity but all consumers (including distributors) consuming (or, in the case of distributors, providing) more than 100 GWh must be given that right. These customers are referred to as **eligible customers**.

Transmission Access. Access to the transmission grid can be provided according to two models. The first model is referred to as **Third Party Access (TPA)**. The second model is referred to as the **Single Buyer Model**. Under TPA two variations are permitted:

- **Negotiated TPA.** Producers and consumers of electricity will contract with each other, but they will have to negotiate access to the network with its operator. Such negotiations will deal with transport tariffs and other conditions.
- **Regulated TPA.** Producers and Consumers also contract directly with each other for supply. The price for the use of the transmission and distribution system cannot be negotiated. The eligible customers have a right of access on the basis of published tariffs.

Two variations are also permitted under Single Buyer:

- **Single Buyer with obligation to buy (No TPA).** The single buyer is obliged to buy the electricity contracted by an eligible customer from the supplier at a price determined by a specified formula when TPA is not permitted. Single buyer must publish a non-discriminatory access tariff.
- **Single Buyer with TPA.** In the Single Buyer model, eligible customers can conclude contracts on a negotiated or regulated TPA.

Transmission System Operator. Member States must designate a System Operator responsible for ensuring a secure, reliable, and efficient electricity system, and for ensuring availability of ancillary services.

Authorization and Tendering procedure for new generating capacity - In the tendering procedure, the Member State sets up an inventory of the need for future generating capacity, including the demand for electricity. The inventory is based on estimations carried out by the transmission system operator or any other competent authority designated by the Member State. In the authorization system, applications that conform to the criteria for granting an authorization should be authorized.

Dispatching. System Operator will be responsible for the dispatching of generation in an objective, published, and non-discriminatory manner. *Priority* may be given to generating resources using *renewable energy sources, waste, or producing combined heat and power*. Member States may give priority to *indigenous fuel sources* not exceeding 15% of overall primary energy.

Unbundling and Transparency of Accounts. Integrated electricity undertakings shall, in their internal accounting, keep separate accounts for their generation, transmission, and distribution activities... with a view to *avoiding discrimination, cross subsidization and distortion of competition*.

Distribution System Operation – MS may impose on distribution companies an **obligation to supply customers** located in a local area. The **tariff for such supplies may be regulated** for instance to ensure equal treatment of all customers

“Member States shall **create** appropriate and efficient mechanisms for **regulation, control, and transparency** so as to **avoid any abuse of dominant position** in particular to the detriment of consumers, **and any predatory behavior...**”

Direct Line. Suppliers can construct a Direct Line to supply its own needs or to supply an eligible customer.

Opt-out provisions. There are several provisions in the Directive that give Member States a degree of independence. They may impose public service obligations, prioritize certain types of generating resources, use indigenous fuel resources, institute transitional regimes or derogations, and "reciprocity" requirements. These provisions have been viewed by some as "escape clauses." However, any such decisions are subject to review and are to be clearly defined, transparent, non-discriminatory, verifiable, published, and the least restrictive as possible.

2.2 The Status in the EU

The following is an "unofficial" status report on the Internal Electricity Market in the EU. This is still evolving and is based on personal conversations and discussions. Nevertheless, we believe it presents a reasonable accurate picture at this time.

The market opening is expected to be close to 60% in 1999 much more than the approximately 25% required by the Directive

Transposing the Directive to National Laws has been achieved in Sweden, Finland, Spain and Germany and will be achieved by February 1999 in Austria, Denmark, Luxembourg, Portugal and Italy. France and Netherlands remain a question. Belgium, Greece and Ireland were given additional time. However, as reported in *Transmission and Distribution World* of November 1998, the Belgium government has recently approved guidelines for participating in the competitive market and is now expected to comply by February 1999.

Most of the countries are opting for the authorization procedure for new generating capacity. Portugal will have a tendering procedure for the captive capacity and Greece for the remote islands.

Suppliers/Traders in Electricity will be permitted in UK, Sweden, Finland, France, Spain and Greece.

Eligible Customers. 100% of the consumers will be granted access in UK, Sweden, Finland and Germany. The minimum level of consumers – approximately 25% - will be granted access in Austria, Portugal, France, Greece, and Ireland. The others are somewhere in between.

The access to the network in almost all cases will be Regulated TPA. Germany may use Negotiated TPA. The situation with respect to France is not clear. As reported in the *Financial Times* of December 12, 1998, only a draft bill has been approved, and it may not be passed by February 1999. It appears that EDP will retain control of the distribution companies and be the grid operator. A government nominee is to monitor transparency. The bill's provisions are considered to be the minimum necessary to meet the requirements of the Directive.

It is clear that the internal electricity market in the EU is going to be opened to competition by the deadline at a higher level than required by the directive.

3 The CENTREL Situation

3.1 Overview of CENTREL

Historical Background

The Polish, Czech, Slovak, and Hungarian power systems are located at the border of the two large European power systems, the UCPTE (interconnected power system of the West European countries) and the former CDO-IPS (interconnected power systems of the former COMECON countries) with the Central Dispatch Office (CDO) in Prague. Prior to the early 1990s, they were operating in parallel with the CDO-IPS via interconnections with Ukraine, Romania and Serbia. Interconnections with UCPTE were via DC lines to Germany and Austria, or via normally open AC lines. The Polish and Czech power systems were also interconnected via AC lines to the East German (German Democratic Republic) power system.

The CDO-IPS was founded in 1962 in order to improve the cooperation among the COMECON countries of the continent. The governments of Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, and the Soviet Union established a central dispatching office in Prague. From 1962 to 1978 only the power system of western Ukraine of the Soviet Union worked in parallel with the COMECON countries. From 1978, after the installation of the Soviet Union-Hungary 750 kV line, the whole Ukrainian and the European region of the Soviet Union took part in the cooperation. In the mid 1980s, the Soviet Union to Poland and Soviet Union to Romania 750 kV lines were built and the technical possibility of 5,000 MW import from the Soviet Union to the CDO member countries was established. The installed capacity of the CDO IPS system was 175,500 MW in 1990.

The cooperation within the IPS-CDO system was characterized by the following:

- interconnections were strong with the CDO-IPS countries and weak with UCPTE.
- dependency on imports from the former USSR.
- frequency control was responsibility of the Soviet system.
- CDO Prague was responsible for energy accounting as well as other functions such as switching of lines, coordination with other dispatchers.
- the quality of electric supply did not meet West European standards.

One of the specific problems of the IPS-CDO operation was related to the fairly high one-way power delivery planned from the power system of the former Soviet Union to the other power systems. The transmission capacity was not adequate to support the high transfers and periodically large-scale load shedding was required following an outage on the transmission system.

After the political changes in late 1980s and 1990s, Russia and Ukraine become members of CDO and the Czech Republic and Slovakia became individual members.

Numerous problems including, operational problems, fuel shortages in Ukraine, the need to reduce dependence on the Russian imports, and the need to improve power quality, led to the break up of the CDO-IPS into three subsystems, and the connection with Russia was cut off. The subsystem consisting of 7 power systems (VEAG, Polish, Czech, Slovak, Hungarian,

Romanian, and West Ukrainian) operated without power frequency control. In 1994, Romania switched to parallel operation with the Yugoslav and Greek systems. In May 1994, the VEAG, Polish, Czech, and Slovak power systems, joined later by the Hungarian system, switched on primary frequency control thereby improving system frequency behavior.

Developments since 1990, CENTREL, and interconnection with UCPTE

Following the breakup of the former Soviet Union and the collapse of COMECON, the power systems of Hungary, Poland, the Czech Republic, and Slovakia announced in 1990-1991 their intention to join UCPTE (which is the acronym for the French title "Union pour la Coordination de la Production et du Transport de l'Electricité"). To discuss these questions, UCPTE formed a committee of general managers of the UCPTE power companies neighboring the four power systems. This committee, together with the general managers for the Polish, Czech, Slovak, and Hungarian power companies, formulated a Catalog of Measures ("Massnahmenkatalog") in 1992. The catalog of measures included technical, economic, and organizational aspects. The seven UCPTE representatives included BAG, PreussenElektra, VEAG, ÖVEG, JUGEL, ELES, and HEP. These, together with the four CENTREL companies, formed the group of 11.

It was assumed that if the requirements of the Catalog of Measures are fulfilled, trial parallel operation with UCPTE could be realized. During the preparation, the cooperation of the four power companies became more intense and the cooperation extended beyond the UCPTE interconnection to other fields such as economics, operation, trade, and development. On October 11, 1992, the four companies institutionalized this cooperation and formed CENTREL.

CENTREL is a regional group of four electric power companies from the Czech Republic, Hungary, Poland, and the Slovak Republic. CENTREL was established in 1992 with the signing of the founding charter in October 1992 in Prague by:

- CEZ, a.s. from the Czech Republic,
- Magyar Villamos Művek Rt. (MVM Rt) from Hungary,
- Polskiej Sieci Elektroenergetycznej SA (PSE SA) from Poland (a.k.a. the Polish Power Grid (PPG)), and
- Slovenský Energetický Podnik s.p. today Slovenske Elektrárne a.s (SE a.s.) from the Slovak Republic.

CEZ, MVM, PSE, and SE are the current members of CENTREL. The chairman of CENTREL is elected for a two-year term from among the four companies on a rotating basis. CENTREL activities are governed according to the Charter of CENTREL. The Council of CENTREL is the General Assembly of the members and is formed by the four Presidents/General Managers and three appointed representatives from each member. The Council of CENTREL has at least one annual meeting.

In addition to the four members, the following organizations have observer status:

- VEAG, Germany,
- Verbund, Austria,
- Ministry of Energy and Electronics, Ukraine,
- RENEL, Romania, and
- NEK, Bulgaria.

Any electric power company, previously with observer status, whose system is or shall be interconnected to the CENTREL network, can apply for membership, provided that all technical, economic, and organizational requirements set by the Council of CENTREL have been accomplished.

The main objectives of CENTREL are:

- The promotion of cooperation of CENTREL with UCPTE and other associations of interconnected power systems;
- The improvement of Czech, Hungarian, Polish and Slovak power systems performance;
- The most efficient use of CENTREL generating and transmission systems; and,
- The facilitation of international exchange of electric power.

The close cooperation among the four CENTREL members started much earlier when the leading power companies from the four, as it was known at that time, “Visegrad Group” countries, initiated the process of conforming to the standards binding the “Union for the Coordination of Production and Transmission of Electricity” (UCPTE). Because of their location, CENTREL systems will have a key role in the further development of the European interconnection towards the south, southeast (Slovenia, Croatia, Romania, Bulgaria, and Greece), east (Ukraine, Russia, Belorussia), and northeast (Lithuania, Latvia, Estonia). The key parameters of the CENTREL power systems are shown in Table 1 below.

Table 1: Key Parameters of the CENTREL and members (1995)

	Installed Capacity MW	Peak Load MW	Energy Consumption TWh
CENTREL	61393	42921	253.5
CEZ	14595	9916	61.3
MVM	6764	5273	36.2
PSE	32110	20394	138.9
SE	7114	3964	38.0

The data is from 1995 and is extracted from different sources, which may account for the inconsistency between the sum of the individual quantities and the CENTREL totals. Note also that the data is for each country as a whole.

In comparison, UCPTE has an installed capacity of 386,000 MW with a peak load of 250,000MW and a total energy consumption of 1500 TWh (1992 data).

The activities of CENTREL are carried out by permanent and "ad hoc" working groups established by the Council of CENTREL. The working groups are:

- Interconnection Working Group (IWG),
- System Operation Working Group (SWG),
- Organization Working Group (OWG),
- Economy Working Group (EWG), and
- Development Working Group (DWG).

The IWG deals with interconnection issues including power-frequency control, system calculation, which includes data bases and dynamic behavior, and defense plans to deal with the consequences of system outages. SWG deals with measurements, communication, coordination, autonomous operation, spot market transactions, and dispatching. OWG deals with the internal structure of CENTREL, monitoring of important documents that may influence CENTREL's future activities, exchange of experience on privatization and electricity laws. The EWG deals with marginal prices, tariffs, developing pricing policy, and issues related to transit of energy. The DWG deals with energy sector development policy, power network development plans, regional environmental plans, forecasting methodology and tools.

In order to permit parallel operation with UCPTE, the CENTREL members undertook many extensive and expensive changes to their power systems to meet the Catalog of Measures and supplementary requirements concerning, among others, the installation of power system stabilizers. In order to prove the ability of the CENTREL system to operate autonomously (without interconnections with the CDO-IPS or UCPTE), a test was undertaken on 29-30 September 1993. CENTREL plus VEAG successfully completed this test which was designed to prove that this system could control disturbances. During this test all international lines outward of CENTREL and VEAG were opened and the primary control of power units was activated. During the two days of testing, nine planned outages from 300-500 MW took place in different power systems. The total system peak load was about 45,000 MW. Under steady state conditions the frequency deviations was practically within ± 20 mHz of the nominal frequency of 50 Hz. During dynamic tests, the maximum frequency deviation was 50-80 mHz depending on the amount of outage MW. In all cases, the primary regulation worked well. The reserve margin for primary regulation in the interconnected VEAG systems was between 2.8% to 3.2% of the generated power during the whole testing period.

The primary and secondary control was distributed over most of the power generating units and the range of primary regulation in most of these units was 5%. Frequency dead band was set to zero and the droop was set to 4 or 5%. The results fully met the expectation and the trial operation was considered successful.

From November 1993 to 13 September 1995, the CDO-IPS/UPS system operated separately as three autonomous operating subsystems. As the western subsystem of the CDO-IPS system, VEAG, Poland, Czech Republic, Slovakia, Hungary, and a Ukrainian island (of about 1000 MW) operated in parallel. The Romanian power system operated in parallel with this region until May 1994, then changed over to the Yugoslav, Greek and Albanian systems.

In May 1994, the VEAG, Polish, Czech, Slovak, and Hungarian power systems switched on the primary control, which has been in permanent operation since then.

VEAG was to change over to UCPTE synchronous operation on 13 September 1995. Breaking the parallel operation with VEAG greatly affects CENTREL because the network connections became weaker. Therefore, the CENTREL companies made a proposal at the 11 sided UCPTE-CENTREL executive committee meeting on 21 March 1995 to begin a synchronous trial operation with UCPTE through VEAG at the same time. A technical working group was set up to survey the status of CENTREL companies with regard to fulfillment of the Catalog of Measures. The technical committee summarized the measures that needed to be completed prior to trial parallel operation. The UCPTE-CENTREL executive committee accepted the report of the technical committee at the meeting held on 30 August 1995 with the final decision made on 28 September 1995. They approved the CENTREL-UCPTE trial parallel operation, on condition that the technical group evaluate the results of a two week stand-alone CENTREL trial operation and decide on the exact time of the interconnection.

On 13 September 1995, after the UCPTE interconnection of VEAG, the CENTREL system began their autonomous operation. During this period, four planned outages took place, one in each CENTREL system. Each outage was between 200-300 MW and occurred in both generation and consumption. The system performance was monitored continuously during the two-week period and the results showed satisfactory performance of the system. The tests were designed to:

- Examine the efficiency of the primary and secondary control in each CENTREL system;
- Evaluate the effect of normal and sudden power changes;
- Determine the static and dynamic frequency characteristics as well as the frequency characteristics;
- Examine the voltage conditions at the boundary; and
- Evaluate the operation of the Power System Stabilizers in the Polish and Hungarian power systems.

The autonomous operation was divided into two phases. The first phase for the first two days involved planned outages. The second phase was the two week period when the systems were evaluated under normal conditions and during unplanned outages.

During the system tests the total load was 25,000 MW. The primary reserve was $\pm 2.5\%$ as required by UCPTE. The droop of the primary regulators was 6-7% and the dead band setting was zero.

The test results indicated satisfactory performance. The UCPTE-CENTREL technical group met on 13 October 1995, and evaluated the test results. They approved the results and recommended that trial parallel operation begin on 18 October 1995. Since that time, CENTREL systems operate in parallel with UCPTE through VEAG and BAG and subsequently with additional interconnections to Austria.

It was decided previously that pluralistic control is necessary for the CENTREL block operating in parallel with UCPTE. Consequently, the CENTREL companies decided to establish an Accounting and Control Center in Warsaw. VEAG offered that during the UCPTE-CENTREL trial operation through VEAG and BAG, the area control error of the CENTREL systems could be eliminated by pluralistic control of VEAG. This was agreed to by all parties. During this period the accounting among the CENTREL countries could be done by the CDO in Prague.

It was also decided that after the CENTREL Accounting and Control Center in Warsaw becomes operational, a second, one-year trial operation will start. The CENTREL-UCPTE parallel operation can be approved after knowing the results of this second one-year operation.

The one-year trial parallel operation with UCPTE, which began in October 18, 1995, was completed satisfactorily. The CENTREL Accounting and Control Center in Warsaw was completed in 1996. A second year of trial operation was begun in October 1996 and was successfully completed in 1997.

The Power Systems Of The CENTREL Countries

Interconnections between CENTREL and UCPTE

The tie lines between CENTREL and UCPTE are listed below.

From PSE to VEAG/Bewag, Germany

1. Krajnik to Vierraden 220kV
2. Mikuilowa to Hagenwerder 220kV
3. Mikulowa to Kiesdorf 330kV

From CEZ to VEAG/Bewag, Germany

1. Hradec to Röhrsdorf 330kV
2. Hradec to Zwönitz 220kV

From CEZ to Bayenwerk, Germany

1. Hradec to Etzenricht 330kV

From SE to ÖVG, Austria

1. Slavetice to Dürnröhr 330kV

From MVM to ÖVG

- Györ to Wien-Südost 330kV

Type Of Capacity In CENTREL

The installed capacity by type of generation in the CENTREL countries is shown in the following table.

Table 2 Installed capacity (in percent by type) in CENTREL region

	CENTREL	CEZ	MVM	PSE	SE
Thermal	71	64	74.4	84	41.9
Nuclear	16	13	24.9		24.7
Hydro	13	10	0.7	6	33.4
Industrial		13		10	

CEZ shareholders include the National Property Fund (67.46%), Restitution Investment Fund (1.1%), and other legal persons (26.7%) for a total of 95.26% of which 83.06% is domestic and 12.2% foreign. The remaining 4.74% is owned by private individuals. CEZ is building a new Nuclear Plant at Temelin with a capacity of 2*981 MW. Unit 1 is expected to be operational in 1998 and unit 2 in 1999. The majority (94.5% in 1995) of the electricity produced by CEZ is sold to eight distribution companies. The remainder was for export (4.6%) and directly connected customers (0.9%) The price paid by the distribution companies to CEZ is a result of bilateral negotiations and has been a problem. The end user price is regulated but does not appear to cover the costs of production and delivery. CEZ generated over 80% of the total energy in the Czech republic in 1992 and 76.9% in 1995

MVM was the vertically integrated electric utility in Hungary, which was disaggregated into 10 Generators, a single Transporter (MVM Rt), and six Suppliers (distribution companies) by the middle of 1997. There is limited competition in generation but the transmission and distribution companies are monopolies. New power stations are being acquired on a competitive basis. Six of the generators and all six distribution companies are privately owned.

PSE is the owner of all transmission assets and a majority share portfolio in the Pumped Storage Power Station Company (Elektrownie Szcztowo-Pompowe S.A.) – the company providing a significant part of the regulation power (approx. 1,600 MW) for Poland's power system. The distribution (and electricity supply) subsection consists of 33 distribution companies all of which are joint stock companies. The generation sector consists of large power stations. Among the large system power stations, 12 are state owned enterprises and 4 are joint stock companies. All combined heat and power (CHP) – 19 in all – are joint stock companies. Brown coal fired power stations are linked to the coal mines. The latter (4) have the status of independent, state-owned enterprises.

SE a.s., a joint stock company, was established in November 1994 from part of the assets of the state enterprise Slovensky Energeticky Podnik (SEP s.p.). SE owns 6120 MW of installed capacity, which is 86 % of the total. There are three regional distribution companies, which own 3% and industrial producers own 11% of the generating capacity respectively. The three regional distribution utilities are ZSE, SSE, and VSE.

Transmission System in CENTREL countries

The CEZ Transmission System

The CEZ transmission system consists of 400 kV and 220 kV grid including 31 substations, 2,860 km of 400 kV and 1,555 km of 220 kV transmission lines.

MVM Transmission System

The power transmission network in Hungary consists of 268 km of 750 kV, 1574 km of 400 kV, 1244 of 230 kV lines. In addition, 130 km of the 120 kV lines are considered part of the main transmission grid.

PSE Transmission System

The power transmission system in PSE consists of 114 km of 750 kV, 4522 km of 400 kV, 7884 km of 220 kV, and 27km of 110 kV lines. There are 1-750 kV, 26-400 kV, and 62 220 kV substations of which 1, 16, 14 and 0 substations respectively are owned by PSE.

SE Transmission System

The SE transmission system consists of 1519 km of 400 kV and 964 km of 220 kV lines.

Energy Accounting and Control Center in Warsaw

The Energy Accounting and Control Center (EACC) is located in Warsaw at PSE SA and is responsible for:

- Control of power exchange between CENTREL and UCPTE,
- Accounting and offsetting unintentional deviations within CENTREL,
- Accounting and offsetting of unintentional deviations between CENTREL and UCPTE.

CENTREL's EACC will be included in the Block NORD of UCPTE (accounting center at Brauweiler). Block NORD includes the Netherlands, Belgium, Germany, Luxembourg, Denmark, Austria, and now CENTREL. Prior to the formation of the EACC, secondary load frequency control of the VEAG+CENTREL blocks was done by VEAG and the accounting of unintentional deviations by the CDO of the IPS in Prague.

To realize pluralistic control of the CENTREL power system, communication lines from the tie-lines to the National Control Center were built. The real time data for control is acquired at a periodicity of 1-2 sec over redundant communication paths. The Polish power system is responsible for the control of CENTREL ACE while the individual power systems are responsible for their own ACE.

High precision meters have been installed at all interconnection points with an integration period of 15 minutes with data collected once a day. Direct access to this data is provided to both the EACC and the neighboring utilities.

The EACC began operation on October 1, 1996.

3.2 Privatization And Restructuring

The power systems of the CENTREL countries are in a transitional state with the final structure and organization of the power industry not fully defined. Therefore, this report represents a snapshot of the situation as of early to mid 1998, Furthermore, all four countries are in the process of modifying/developing the Energy Laws and are also planning to harmonize with the Energy Laws of the European Union. These developments should be monitored in order to get the most up-to-date status. This summary highlights key points and provides some essential background; however, for more details the original documents must be consulted.

Hungary

Via privatization transactions in 1995, nearly 70% of the state property has been transferred to private hands. The new privatization act of May 17,1996, resulted in a significant acceleration of the privatization of industrial and commercial companies. The partial sale of electric power companies, six distribution companies, and 2 power stations was completed in 1995. Most of the investors were foreign companies including Bayenwerk (Munich), EDF International (Paris), RWE (Essen), Isar Ampwerke (Munich).

MVM is the sole transmission company and is also the single buyer for power in the country.

Poland

Poland has over 30 generating companies, all but three of which are Government-owned Joint Stock Companies. There are also over 30 distribution companies, which are also being converted to Joint Stock Companies. PSE is the sole transmission grid operator.

Czech Republic

CEZ is a vertically integrated (generation and transmission) monopoly under state control. Distribution companies have been disaggregated and partially privatized through the coupon scheme and they do not have a strong foreign partner.

Slovakia

The entire power industry is government owned monopoly. SE is the dominant generator and owns all transmission. It supplies electricity to three regional distribution companies which also own the remaining 10% of the generation. SE is a joint stock company but all stock is owned by two government entities – the National Property Fund (93.8%), the Restitution Investment Fund (2.9%)- and the Slovak Gas Company (3.3%).

3.3 Energy Laws

Poland

An Energy Law was passed on 10 April 1997, published in June 1997, which sets forth the principles of structuring the energy policy of the country, terms and conditions of efficient procurement and utilization of fuels and energy, including heat, and activities of energy

undertakings. It also set forth the authorities responsible for fuel and energy management. The Energy Act is to become in full force on December 4, 1997.

The Ministry of Economy shall be the supreme government authority appropriate in the energy policy issues (Article 12). The Ministry of Economy is directed by the Council of Ministers.

An Energy Regulatory Office (ERO) is to be formed with the Chairman and Vice Chairman appointed by the Prime Minister. The Chairman of ERO shall regulate the activity of energy undertakings according to the state energy policy guidelines and the Act, aiming to balance the interests of the energy undertakings and the consumers of fuels and energy. Some of the tasks and competencies of the Chairman of the ERO shall include:

- Granting, rejecting, withdrawing, amendment of concessions,
- Approving and controlling gas, electricity, and heat tariffs,
- Controlling quality of power,
- Resolving disputes, etc.

The Prime Minister will appoint a seven-member Consultancy Council (Council). The Council may on its own initiative, express opinions and take a stance with regard to any matters within the scope of the tasks of the Chairman of ERO. Specifically, the Council shall express opinion in matters presented by the Chairman of ERO (Article 27).

The decisions of the Chairman of the ERO may be subject to an appeal before the Voivodship Anti-Monopoly Court in Warsaw within a period of two weeks from the delivery of the decision.

Third Party Access (TPA) rights in transmission and distribution of electricity is envisioned to be introduced while ensuring

- Reliability of Supply,
- Quality of Services,
- Stability of Prices, and
- Scope of Supplies.

TPA would first apply to wholesale transactions with retail transactions being implemented no later than 8 years later.

Polish Power Grid company is the system operator and the operator of the system electricity market.

Hungary

The Hungary Energy Law was passed by Parliament on April 6, 1994 (Act XLVIII of 1994) on the Production, Transport, and Supply of Electric Energy. This Energy Law does not cover nuclear plants, power plants, and wire networks thereof with capacities less than 50 MW used exclusively for meeting internal demand.

The Minister of Industry and Trade is the chief Government body for implementing the Hungarian Energy Policy. An Energy Office shall be responsible for all task related to the

production, transport, and supply of electric energy in a natural monopoly, the control of satisfying customers demands and the standard of services (see Section 5). The office shall (section 6):

- issue and amend licenses of operation of production, transport, and supply of electric energy;
- approve the business rules;
- prepare prices of electric energy;
- establish order of restriction;
- define economic data to be publicly disclosed; and,
- approve rules of industrial operation.

Article 7 address issues relating to protection of consumers.

Sections 41, 42, and 43 address Electric Energy Production, Transport, and Supply. Sections 41 and 42 imply that there is a single buyer (“transporter”) of supply and that the transporter shall “purchase electric energy at the lowest price from producers including imports. In addition, the transporter may not discriminate to the advantage or disadvantage of certain producers over others.”

The Electricity Act of 1995 sets out the general outline of the power industry structure. Under this act MVM is the single buyer and all generators above a certain size have to offer their output to MVM. Only MVM can import and export. Generators are supposed to receive an 8% profit. Price hikes to meet this requirement were delayed and the current situation is unclear.

Slovak Republic

There are four key companies in the electric power sector of Slovakia. These are Slovenské Elektrárne, (SE – Slovak Power Plants Corp.), the dominant electricity generator and operator of the transmission systems, and the three distribution companies Western Slovakian Utilities Bratislava, Central Slovakian Utilities Zilina, and Eastern Slovakian Utilities Kosice. SE is a joint stock company with 93.7% of shares owned by the National Property Fund and 2.9% by the Restitution Investment Fund. SE was established in November 1994 by transforming the former state owned company SEP into the joint stock company. SE owns 86% of installed capacity of Slovakia’s power plants and covers 90% of domestic consumption. The distribution companies are owned by the state and have the acronyms ZSE, SSE and VSE.

The energy strategy of the country is outlined in the Energy Concept of which a draft for 2005 has been recently submitted to the Government. The basis of energy legislation will be the Act on conditions of doing business and performance of the state authorities in energy-related branches (the Act on business activities in the energy sector). The objective of the Act is to make equal business conditions in the energy sector, modify rights and obligations for natural and legal persons performing business activities in energy-related branches, and define the scope of state intervention. It also covers the activities of the State Energy Inspection. The bill also takes into account the EU regulations. *The only exception will be the provision on third party access into grids*, implementing which will require a time delay until energy prices are adjusted while taking into account differences among class of consumers.

An Act on Energy Management is also under preparation. It deals with final energy use, focusing on energy intensity, energy conservation, and the introduction of mechanisms supporting reasonable energy management. The Act applies provisions of EU, IEA and the Energy Charter on energy efficiency and related ecological aspects.

One of the tools for reaching the strategic objectives of the Energy Concepts of Slovakia is the regulation of natural monopolies. Natural energy monopolies will retain significant portion of their monopolistic position in the future. The reason for that is a need to provide continual, high quality and reliable network and the protection of the strategic state interests.

The objective of the regulation in the energy sector is to create a sound competitive environment and balanced conditions for both investors requiring return on investment and consumers who cannot be merely guided by the market principles and select the most suitable supplier.

The Ministry of Finance has been authorized to regulate the pricing policy, tariffs, and related conditions for the individual energy forms, and to evaluate and provide Government guarantees for investment and reconstruction of key energy sources. The antitrust authority SR performs the regulation of contractual relations posing threat to competition or the competitive environment.

Under the bill on energy management, the Ministry of Economy will be in charge of regulation in other fields such as justified cost, product, and service quality, etc.

The development of the regulatory framework and the essential scope of regulation will gradually approach the deregulation trend in the EU to establish conditions for the equal access to the energy markets with transparent prices and investment, equal access to transmission networks, and connection to the joint dispatching system.

Many issues remain to be resolved before the new structure can be implemented in Slovakia.

Czech Republic

CEZ, the vertically integrated monopoly, remains state owned and the dominant owner of generation. CEZ controls about 75% of the generation, as well as all transmission. Distribution companies have been disaggregated and partially privatized via the coupon privatization program of the Czech government.

CEZ, the distribution companies, government agencies, and others are in the process of creating a centralized dispatch system for realizing least cost dispatch regardless of ownership. This is still in its formative stage.

The energy sector is governed by Act 222, which is vague in some critical areas and does not open up the market to competition. The Ministry of Industry and Trade is the principal ministry for the energy sector and, along with the Ministry of Finance, administers the sector. These ministries are in the process of preparing amendments to Act 222 to address certain of the Act's shortcomings, particularly in planning, licensing, imports and exports, and pricing.

The Ministry of Finance ultimately sets prices and tariffs while the licensing and approval of new investments are the responsibility of the Ministry of Industry and Trade.

Nothing in the Act 222 requires third party access (TPA) and CEZ does not in fact allow such access.

3.4 The European Union 96/92/EC Directive and CENTREL

Three of the CENTREL countries – Poland, Hungary and the Czech republic – are in the first tier of countries from the former Eastern bloc scheduled to be considered for membership in the European Union. Therefore, three of the CENTREL countries will be subject to the European Union rules and requirements. The European Union (EU) issued a directive EU/96/92 on December 19, 1996 that defines the operation of the electric energy industry within the EU. The salient features of this directive related to TPA and transmission system operation are summarized previously. The current situation with regard to privatization and regulation in the CENTREL region has also been summarized above. In this section we discuss the specific issues facing the CENTREL countries vis-à-vis the EU directive.

3.4.1 The Directive Requirements

The application of the Directive to CENTREL and any decisions made by the CENTREL must recognize the following underlying principles of the Directive:

- **Gradual opening of the market.** While the existing MS are required to open the market gradually, according to the EU, CENTREL will have to conform to the degree of market opening at the time of ascension.
- **Subsidiarity.** The Directive states that “Whereas, in accordance with the principle of subsidiarity, general principles providing for a framework must be established at the Community level. but their **detailed implementation should be left to the Member States**, thus allowing each MS to choose the regime which corresponds best to its particular situation”. The Directive provides many options for the Member States in recognition of the diversity of the MS. Therefore CENTREL can choose the alternatives that best meets its needs.
- **Equivalence.** Whatever option is selected by an MS, it must lead to equivalent economic results and comparable level of market opening.
- **Competition.** Subject to certain exceptions, almost any actions that inhibit competition are unacceptable.
- **Objective, Transparent, and Non-discriminatory.** The Directive repeatedly emphasizes that all criteria, decisions, tendering procedures, public service obligations, pricing, access, and regulations must be objective, transparent and non-discriminatory.

The following sections describe the major issues that the CENTREL electric companies and the governments of the CENTREL countries have to address in order to comply with the provisions of the EU Directive.

Access to Transmission

CENTREL utilities can choose one of four (2 each with 2 variants) options:

Third Party Access - Negotiated

Third Party Access - Regulated

Single Buyer - with obligation to buy

Single Buyer - with TPA but no obligation to buy

At the present time, Hungary, Czech Republic and Slovakia appear to be leaning towards the Single Buyer while Poland plans to implement TPA. However, the Single Buyer option being considered needs more careful analysis to make sure that it in fact conforms to the Directive.

Unbundling of Transmission

The Directive requires only that the Transmission function be separated from the other functions in a vertically integrated utility in terms of

- Accounting
- Management
- Information flow

However, many of the EU MS have gone further and are legally separating the Transmission function. CENTREL utilities must decide on the form of separation. Hungary has largely privatized the generation and distribution functions leaving only the transmission responsibility to MVM. Poland is following a similar approach. CEZ and SE are still debating the precise structure and appear to have a bias toward retaining the integrated system.

Pricing of Transmission System Services

The Directive is silent on how these services are to be priced. The CENTREL countries must develop methods and tools for pricing access to the system, for providing information about the available transfer capability, and pricing of congestion.

The establishment of transmission prices is required irrespective of the access model (TPA or Single Buyer) is selected.

Establishment of System Operator

A system operator is to be designated for the operation, maintenance and development of the transmission system. The system operator is responsible for ensuring a secure, reliable, and efficient electricity system and ensuring the availability of ancillary services.

Definition of Eligible Customers

Except for customers consuming more than 100 Gwh annually, the Directive explicitly allows the MS to define the criteria for identifying eligible customers. Therefore CENTREL must begin the process of defining the criteria and ensure that the degree of market opening required by the Directive will be achieved. Note that the degree of market opening has to be the percentage at the time of ascension NOT the percentage in February 1999.

Generation Capacity Procurement

The CENTREL countries have to decide on whether to use the authorization or the tendering procedure for new capacity.

Use and Pricing of Indigenous Fuels, Renewables, CHP

The Directive permits the MS to give preferential treatment to use of indigenous fuels, renewable energy resources, and Combined Heat and Power Plants (CHP). CENTREL countries will have to decide on (1) whether they wish to exercise this option and (2) who will pay for these options assuming they are not competitive (i.e., more expensive than other options)

Regulation, Dispute Resolution

Hungary, Poland and the Czech Republic have established Regulatory Agencies. Slovakia currently plans to leave the regulatory issues to the Ministries, but this may be a violation of the Directive. However, much of the supplementary legislation needed to ensure the independence and authority of the agencies needs to be completed. Note that the Directive requires that MS create appropriate and efficient mechanisms for regulation, control and transparency so as to avoid any abuse of dominant position, in particular to the detriment of any consumers, and any predatory behavior.

MS are also required to implement dispute resolution procedures both for internal disputes and disputes with other MS.

Accounting Rules to be followed

Integrated electricity undertakings are required to keep separate accounts for their generation, transmission, and distribution activities. This is to avoid discrimination, cross subsidization and distortion of competition. For the CENTREL countries planning to retain the vertically integrated structure, this is an important requirement since it mandates separate accounting systems for each function and the accounts are subject to audit.

In addition, the Directive requires that all electricity undertakings, whatever their system of ownership or legal form, shall draw up, submit to audit, and publish their annual accounts in accordance with the rules of national law concerning the accounts of limited liability companies adopted pursuant to the fourth council Directive 78/660/EEC of 25 July 1978

Direct Lines

An unusual aspect of this directive is that it explicitly permits the producers and electricity supply undertakings to construct their own transmission lines, subject of course to meeting published, objective and non-discriminatory criteria. The criteria will have to be formulated.

Transposition of EU Directive into National Laws

All MS are required to codify the Directive in the National Laws. Existing MS are required to do so by February 1999 but it is assumed that the CENTREL countries will have to complete this at the time of ascension. While some steps have been taken in this direction in all countries, more needs to be done.

3.4.2 Additional CENTREL Issues

The discussion so far has addressed the EU Directive requirements as they affect CENTREL. In addition, the CENTREL countries also face several other complex, unique issues.

Date of EU membership

The CENTREL countries are unlikely to become EU MS for at least several years. Thus they have to decide how to evolve to the EU market without actually being participants.

Tariffs and Cross-subsidies

This is a serious problem. The electricity tariffs are not sufficient to cover costs. In addition, there is cross-subsidization between the industrial and domestic customers. Since it is the industrial customer who is likely to be the eligible customer, loss of these to other suppliers will have a serious affect on the remaining consumers. Thus tariffs and cross-subsidization are serious hurdles to be overcome.

The Power Exchange/Energy Market

While the Directive clearly states that Eligible Customers will have the right to purchase energy from any source, the mechanism by which the producers and customers can agree to transactions of electricity is not specified. The Power Exchange, such as the one in California, or some similar organization, such as the one in Amsterdam, is needed to permit efficient exchange of information and buy and sell decisions.

The products offered, the obligations, the regulations, dispute resolution mechanism, financial integrity and governance of the exchange needs to be defined. Acquisition of ancillary services could also be supported by the exchange. A regional exchange should be considered.

Ancillary Services

This topic is barely mentioned in the Directive except to say that the System Operator is to acquire them as needed. However, this is not a simple matter and will require considerable CENTREL effort to determine how, at what price and during what time horizons such services will be acquired.

Transmission Grid Code of Conduct

The electricity companies in CENTREL must publish the rules for connection to the transmission grid. These rules should define all of the technical and engineering requirements that a producer must meet to connect to the grid and also establish the basis for any charges.

Metering

Revenue quality metering will be required at the eligible customers and producers. This is relatively expensive.

Regional vs. Local

Regional (e.g., CENTREL wide or even larger) versus an individual country approach in areas such as transmission pricing, power exchange, congestion management, and back office functions needs to be decided. Also, long-term development of the grid and wheeling of energy over multiple transmission paths should be considered

Market Agents

Market agents, i.e., those entities who will participate in the competitive electricity market, have to be defined. Code of conduct, requirements, roles and responsibilities and the supporting infrastructure will have to be designed.

Long Term Contracts

Long term contracts that are used to inhibit competition or to reduce market opening are considered to be in violation of the Directive. This could be a problem in the CENTREL countries because long term contracts have been entered into as part of the privatization, restructuring process. Take or pay contracts that are used to deny access can be a particularly serious problem. All long term contracts especially new ones require careful scrutiny.

Stranded Assets

The Directive is silent on the problem of stranded assets. Recovery of stranded costs may be possible under the transitional regime although this is not stated in the Directive. CENTREL should assess whether such assets and liabilities exist and, if so, how these may be recovered.

Governance

The structure, legal basis, management of new organization such as the transmission system operator must be defined. Governance defines how the business entity will be formed, what are its responsibilities, how will it be operated and perform its duties.

Derogations/ Transitional Regimes

The Directive in principle permits temporary exemptions in cases where the provisions of the Directive will result in the MS not honoring prior commitments. The CENTREL utilities should evaluate whether such problems will occur and be prepared to bring them to the attention of the EU Directorate. Stranded assets, long term contracts, tariffs and cross-subsidies are examples of the areas that could be considered.

Additional legislation

This legislation is required to conform to the requirements of the Directive and to support the functioning of the competitive electricity industry.

In summary, CENTREL countries face many challenges some of them common with other Member States and others that are perhaps more difficult because they involve drastic changes in the historical ways of functioning. The CENTREL utilities have formed a Working Group on Electricity Market Harmonization and have, in addition, met with and held discussions with the EU Directorate responsible for internal electricity market development. These efforts need to continue and be strengthened as the date of membership draws closer.

Appendix A The EU Directive EC 96/92 – Summary and Narrative

A.1 Annotated Discussion of Directive

Preamble

The Preamble outlines the assumptions and rationale behind the Directive. Clauses 1-14, 22, 24, 38, 39 can be viewed as the motivating factors behind the Directive, clauses 15-21 contain the applicable EU principles, clauses 23 to 29 (excluding 22, 24) address technical issues, and clauses 30-37 the structural and organizational aspects.

The definitions of terms used in the Directive follow the preamble. However, the preamble uses many of the terms. Therefore, for the readers convenience, we have inserted the definitions of terms when the terms are first used. Some extracts from selected articles of the preamble are included below as they provide the rationale behind the Directive.

“...[The] establishment of the **internal market in electricity is particularly important** in order to **increase efficiency** in the production, transmission and distribution of this product, while **reinforcing security of supply and the competitiveness of the European economy** and respecting environmental protection” (4).

“...[The] internal market in electricity **needs to be established gradually** in order to enable the industry to adjust in a flexible and ordered manner...” (5).

“...[E]lectricity undertakings must be able to operate, **without prejudice to compliance with public service obligations**, with a view to achieving a competitive market in electricity” (9).

“...[I]n accordance with the **principle of subsidiarity**, general principles... must be established at the Community level, but their detailed implementation should be left to the Member States...” (11).

“...[W]hatever the prevailing market conditions, **access to the system must be open...** and must lead to equivalent economic results in the States and hence to directly comparable degree of access to electricity markets” (12).

“...[F]or some Member States the **imposition of public service obligations may be necessary** to ensure security of supply and consumer and environmental protection, which, in their view, free competition left to itself, cannot necessarily guarantee” (13).

“[T]here are two systems which may be applied for opening up the **production market, an authorization procedure and a tendering procedure**, and these must operate in accordance with objective, transparent and non-discriminatory criteria” (23).

Note. For definition of Authorization and Tendering Procedure see Chapter III summary.

“...[E]ach transmission system must be subject to central management and control in order to ensure reliability and efficiency of the system in the interests of producers and their customers, whereas a transmission system operator should therefore be designated and entrusted with operation, maintenance and if necessary the development of the

system... **Transmission System Operator must operate in an objective, transparent, and non-discriminatory manner**" (25).

"...[T]he **technical rules** for the operation of transmission systems and direct lines **must be transparent and ensure interoperability**" (26).

"...[I]n order to ensure transparency and non-discrimination, **the transmission function of vertically integrated utilities should be operated independently** from other activities" (30).

"[W]hereas the **single buyer must operate separately** from the generation and distribution activities of vertically integrated undertakings; whereas the flow of information between the single buyer activities and these generation and distribution activities needs to be restricted" (31).

"...[T]he accounts must be separate for each activity" (32).

"...[P]rovision should be made for authorizing the construction of **direct lines**" (35).

Definition: "Direct line shall mean an electricity line complementary to the interconnected system."

"...[The] **abuse of a dominant position** or any predatory behaviour **should be avoided**" (37).

"...[P]rovision should be made for **transitional regimes or derogations**, especially for the operation of small isolated systems" (38).

Definition: "Small isolated system shall mean a system with consumption of less than 2500 GWh in the year 1996, where less than 5% of annual consumption is obtained through interconnection with other systems."

Chapter I: Scope and Definitions (Articles 1 &2)

Where considered necessary, the definitions are inserted. A separate summary of Chapter I is not provided.

Chapter II General Rules for the organization of the sector

Article 3

"Member States shall ensure... with due regard to the principle of subsidiarity that... electricity undertakings are operated in accordance with the principles of this Directive, with a view to achieving a competitive market in electricity, and shall not discriminate between these undertakings as regards either rights or obligations. The two approaches to system access referred to in Article 17 and 18 must lead to equivalent economic results and hence to directly comparable level of opening up of markets and a directly comparable degree of access to electricity markets."

Note: Article 17 deals with Third Party Access (TPA) either negotiated or regulated and Article 18 deals with the Single Buyer.

“Member States may impose on undertakings operating in the electricity sector... [P]ublic service obligations... must be clearly defined, transparent, non-discriminatory, and verifiable;... shall be published and notified to the Commission without delay...”

Chapter III Generation

This defines the **authorization and tendering procedure** for new generating capacity. It appears that the **authorization procedure** applies to generation capacity that **meets certain specific criteria** and is to be built in the territory of the Member States while the **tendering procedure applies to ‘generic’ capacity** which is built based on estimates of capacity needed, published at least every two years, and may be built either inside or outside the territory.

For the **authorization procedure**, the criteria that can be specified include environmental, land use, type of fuel, and energy efficiency. However, any refusal to grant authorization to an applicant who wishes to build the plant must be based on objective and non-discriminatory reasons and must be well-founded and duly substantiated.

The **tendering procedure** is a competitive procurement of additional capacity based on published requirements, bid evaluation criteria, and regular (at least every two years) assessment of capacity needs.

We infer from this section that the authorization procedure may not be based on as strict a set of rules as the tendering procedure, but nevertheless to which any applicant can respond.

Chapter IV Transmission System Operation (Articles 7-9)

Key provisions of Article 7 include:

“Member States shall designate, or require transmission owning undertakings to **designate a system operator**... to be responsible for operation, ensuring maintenance and, if necessary, developing a transmission system in a given area and its interconnectors with other systems in order to guarantee security of supply.”

Note: **Interconnectors** are defined as equipment used to link electricity systems.

“The system operator shall be responsible for managing energy flows taking into account exchanges with other interconnected systems. To that end, the **system operator shall be responsible for ensuring a secure, reliable and efficient electricity system and, in that context, for ensuring the availability of ancillary services.**”

Definition: Ancillary services are defined as: “all services necessary for the operation of a transmission or distribution system.”

“The **system operator shall not discriminate** between system users or classes of system users, particularly in favour of its subsidiaries or shareholders.”

“...[T]he **system operator shall be independent** at least in management terms from other activities not relating to the transmission system.”

Article 8

“The **transmission system operator shall be responsible for dispatching** the generating installation in its area and for determining the use of interconnectors with other systems.”

“...[T]he **dispatching of generating** installations and the use of interconnectors shall be determined on the basis of criteria... which **must be objective, published,** and applied in a **non-discriminatory** manner. They shall take into account the **economic precedence** of electricity...”

“... **may give priority** to generating installations using **renewable energy sources, or waste or producing combined heat and power.**”

“Member states may direct that **priority be given to... indigenous fuel sources... not exceeding 15%** of the overall primary energy needed to produce the electricity consumed in the Member State concerned.”

Remark: Transmission System Operator and System Operator are apparently synonymous.

Chapter V Distribution System Operation (Articles 10 -12)

“Member States may impose on distribution companies an obligation to supply customers located in an area. The **tariff for such supplies may be regulated** for instance to ensure equal treatment of customers concerned.”

“... designate a **system operator to be responsible for operating, ensuring the maintenance** of and, if necessary, developing the distribution system in a given area and its interconnectors with other systems.”

Comment: Note the similarity between the responsibilities of the transmission and distribution system operator. It also appears that the unbundling of distribution companies is not anticipated.

Chapter VI Unbundling and Transparency of Accounts (Articles 13-15)

Article 14

Para 2: “Electricity undertakings, **whatever their system of ownership or legal form,** shall draw up, submit to, audit and **publish their annual accounts in accordance** with the rules of the national law concerning the annual accounts of **limited liability companies** adopted pursuant to the Fourth Council Directive 78/660/EEC of 25 July 1978...”

Para 3: “Integrated electricity undertakings shall, in their internal accounting, **keep separate accounts for their generation, transmission and distribution activities,**... and consolidated accounts for other non-electricity activities... with a view to avoiding discrimination, cross subsidization, and distortion of competition...”

Article 15

“Member states that **designate as a single buyer** a vertically integrated electricity undertaking... shall lay down provisions requiring the single buyer **to operate separately from the generation and distribution** activities of the integrated undertaking.”

Note: According to definition 23 from Chapter I, “**single buyer**” shall mean any legal person who, within the system where he is established, is responsible for the unified management of the transmission system and/or for centralized electricity purchasing and selling.

Article 16

“Member States that ensure that there is **no flow of information between the single buyer activities... and their generation and distribution activities...**”

Chapter VII Organization of access to the system (Articles 17 - 21)

“... Member States may choose between procedures referred in Article 17 and/or in Article 18... Both procedures shall operate in accordance with **objective, transparent, and non-discriminatory criteria.**”

Article 17

“... [F]or electricity producers... and supply undertakings and eligible customers... to be able to **negotiate access** to systems so as to conclude supply contracts with each other on the basis of voluntary commercial agreements.”

“... [T]o promote transparency and facilitate negotiations for access to the system, system operators **must publish** in the first year following implementation of the Directive, **an indicative range of prices for use of the transmission and distribution system.**”

“Member States may also opt for a **regulated** system of access procedure, giving eligible customers a right success, **on the basis of published tariffs...**”

Article 18

1. “In the case of the single buyer procedure. Member States shall designate a legal person to be the **single buyer... shall take the necessary measures for**”

(i) “the **publication of a non-discriminatory tariff** for the use of the transmission and distribution system.”

(ii) “**eligible customers** to be free to conclude supply contracts to cover their own needs with producers... and suppliers **outside** the territory covered by the system...”

(iii) “eligible customers to be free to conclude supply contracts to cover their own needs with producers... **inside** the territory covered by the system...”

Note: Eligible Customers are those who are designated as being “eligible” to obtain their electricity needs from other than their local electric utility.

2. “The single buyer may be **obliged to purchase** the electricity contracted by an eligible customer from a producer inside or outside the territory covered by the system at a price which is equal to the sale price offered by the single buyer to eligible customers minus the price of the published tariff (see (i) above).”

Paragraph 3 states that “if the **purchase obligation is not imposed**... Member States must... ensure that the supply contracts are implemented... on the basis of published tariff or via negotiated access.”

Article 19

1. “Member States shall take the necessary steps to **ensure an opening of their electricity markets** so that contracts under Articles 17 and 18 can be concluded **at least up to a significant level**...”

The **share of the national market** shall be calculated on the basis of the Community share of electricity consumed by the final customers consuming **more than 40 GWh per year** (on a consumption site basis and including autoproduction).

2. “The **share** of the national market referred to in 1 above shall be **progressively increased** over a period of **six years**. The increase will be calculated by reducing the Community consumption threshold of 40 GWh to a level of 20 GWh in three years... and to a level of 9 GWh annually after six years...”

3. “...specify those customers... which have legal capacity to contract electricity... given that **all final consumers consuming more than 100 GWh** (on a consumption site basis and including autoproduction) **must be included** in the above category.”

4. “Member States shall **publish... criteria for the definition of eligible customers**, which are able to conclude contracts under the conditions stated in Articles 17 and 18.”

5. “To **avoid imbalance** in the opening of the electricity market... (a) **contracts for the supply of electricity... with an eligible customer in the system of another Member State** shall not be prohibited if the customer is considered as **eligible in both systems** involved...”

Note: This is the famous **Reciprocity** clause which is discussed later also.

Articles 20 and 21

Article 20 **ensures access** to the transmission system by **independent producers and autoproducers**. Also for generators built outside the territory in response to a tendering procedure.

Article 21 addresses the establishment of a **Direct Line** – a line that can be constructed by a producer to supply its own needs or supply an eligible customer.

Article 22

“Member States shall **create** appropriate and efficient mechanisms for **regulation, control, and transparency** so as to **avoid any abuse of dominant position** in particular to the detriment of consumers, and **any predatory behavior...**”

Chapter VIII Final Provisions

Article 23 (this article addresses emergency conditions)

“In the event of a **sudden crisis...** a Member State may temporarily **take the necessary safeguard measures.**”

“Such measures must **cause the least possible disturbance in... electricity market...**”

“... notify... other Member States, and to the Commission, which may decide that the Member State concerned must **amend or abolish such measures, insofar as they distort competition and adversely affect trade...**”

Article 24

“Those Member States in which commitments... may not be honoured on account... of this Directive **may apply for a transitional regime...**”

Article 27

“Member States shall... **to comply with this Directive not later than 19 February 1999.**”

Done in Brussels 19 December 1996.

Note: the Directive entered into force two months later on 19 February 1997.

A.2 Supplementary Information Related to the Directive

The information included in this section is not from the Directive but is from other material available from the EU.

A. 2.1 Percentage of Market Opening

According to the calculations made by the Commission under Article 19(1) 2nd and 3rd paragraph of Directive 96/92/EC -

the average Community share of electricity market opening, as effective in 1998, is 25.37%.

This figure has been calculated by adding, on the one hand electricity consumed by final consumers consuming more than 40 GWh in all the Member States and, on the other, total net consumption in all the Member States, and then dividing the first figure by the second (*COMMUNICATION from the COMMISSION (OJC 330 01/11/1997)*).

The Directive provides for a gradual market opening in three steps as follows:

<i>Step No.</i>	<i>Date</i>	<i>Minimum % of market opening</i>	<i>Based on consumers consuming</i>
1	19 February 1999	25.37%	more than 40 GWh
2	19 February 2000	approximately 28%	more than 20 GWh
3	19 February 2003	approximately 33%	more than 9 GWh

Member States themselves define the eligible customers to participate in the market opening. However, very large final consumers of over 100 GWh, and distributors responsible for this volume of electricity consumed through their distribution network by other final eligible customers, must be included in the definition of eligible customers.

A.2.2 Authorization and Tendering Procedure for Generation

The difference between the two procedures is that in the tendering procedure the Member State sets up an inventory of the need for future generating capacity, including the demand for electricity, based on estimations carried out by the transmission system operator or any other competent authority designated by the Member State. In the authorization system, applications which conform with the criteria for granting an authorization should be authorized.

The criteria for the grant of an authorization shall be made public, may relate to safety and security, protection of the environment, land use and siting, use of public ground, energy efficiency, the nature of the primary sources, qualifications of the applicant, and public service obligations. Lack of demand is not a valid reason for refusal of authorization.

A.2.3 Access to the Network

Member States can choose between:

- **Negotiated or Regulated Third Party Access (TPA), or**
- **The Single Buyer Procedure.**

Whichever option is chosen, both sets of procedures **shall operate in accordance with objective, transparent, and non-discriminatory criteria.**

Both in the case of third party access and single buyer, Member States shall take measures to enable producers to supply through a **direct line**. All electricity producers and electricity suppliers have a right to supply their own premises, subsidiaries and eligible customers through a direct line when the suppliers have the necessary authorization. The criteria for constructing a direct line must be objective and non-discriminatory. MS can make authorization subject to the refusal to grant access.

Negotiated third party access. Producers and consumers of electricity will contract with each other, but they will have to negotiate access to the network with its operator. Such negotiations will deal with transport tariffs and other conditions.

Regulated TPA. Producers and Consumers also contract directly with each other for supply. The price for the use of the transmission and distribution system cannot be negotiated. The eligible customers have a right of access on the basis of published tariffs.

Single Buyer. “The single buyer has been defined in the Directive as a legal person who is responsible for the unified management of the transmission system and/or for centralized electricity purchasing and selling. This means that the single buyer would normally be the transmission system operator but not necessarily.”

The single buyer system is characterized by:

- the publication of a **non-discriminatory tariff** for the use of the transmission and distribution system.
- **eligible customers are free to conclude supply contracts** to cover their own needs with producers outside or inside the area covered by the single buyer.
- the single buyer is **obliged** (except in the case where the single buyer principle is combined with TPA or in the case of lack of capacity in the transmission or distribution network) to **purchase the electricity** contracted by an eligible customer from a producer at a price which is equal to the sales price offered by the single buyer minus the price of use of the network. The single buyer is not informed of the electricity price as it appears between the producer and the eligible customer.

The **benefit to the eligible customer** is equivalent to the difference between the purchase from the producer (non-single buyer) and the price of sale to the single buyer, including the transmission costs. This should create the same result as regulated TPA.

The single buyer principle can be applied without imposing a purchase obligation on the single buyer. In this case, eligible customers can conclude supply contracts on the basis of negotiated or regulated TPA.

A.2.4 Reciprocity

This refers to Article 19 paragraph 5, which is considered a transitional mechanism because it may conflict with the overall EU treaty, which requires equal treatment, meaning that reciprocity cannot be a principle. However, to avoid imbalances in the opening of the energy markets, the Directive contains possibilities for **refusing access for customers from other**

Member States when the Member State itself opens a larger part of the market than the other states.

Article 19.5b implicitly allows refusal to allow access from certain Member States because the Customer is eligible only in one of the two systems. In order to apply Article 19.5, two preconditions have to be fulfilled:

1. A higher level of market opening (percentage higher than the minimum) is implemented by the Member State that wishes to apply Article 19.5 against a company located in another Member State.
2. An eligible customer that wants to contract electricity from a supplier situated in the other Member State would not have the status of an eligible customer in that other Member State.

A.2.5 The Single Buyer System

This has been the subject of a great deal of discussion and, one might add, confusion. This section provides some historical background, and, it is hoped, clarifies the evolution of the Single Buyer concept contained in the Directive. (See A.M. Klos, *Different approaches to Electricity Liberalization - Can Negotiated Third Party Access and the Single Buyer Model Exist.*)

The Single Buyer model, as originally proposed by France, is a system in which in principle only a single entity would buy and sell electricity. All producers would sell to the Single Buyer on a competitive basis, all consumers would buy from the Single Buyer against optimized prices. The Single Buyer would manage the network, undertake long-term planning and optimization of investments, and would ensure respect of services of general economic interest. Direct contract negotiations are only foreseen for electricity imports managed via the Single Buyer.

The negotiated third party access (N-TPA) forms a system in which electricity producers can sell supplies directly to eligible consumers by means of negotiating access to the network. Electricity consumers would shop around inside and outside the system for competitive electricity supplies, while the network operator is responsible for ensuring system security and the fulfillment of public service obligations.

Based on an analysis of both the technical and legal issues, the Commission reached a conclusion in its working paper that the **Single Buyer model as proposed by France can be neither considered an equivalent to the Commission's proposal for negotiated TPA nor provides for reciprocity** since it falls short of what is desirable and achievable from a competition point of view. The Commission further concluded "that the single buyer system, in its present form with an internal monopoly structure, is to be considered as a measure of equivalent effect to a quantitative restriction on imports within the meaning of Article 30 of the EC Treaty... A system that channels imports and exports through an intermediary is **contrary to the principle of free movement of goods. Exclusive rights** resulting in absolute control over imports, transmission, and distribution **are prima facie contrary to the basic Community principles** of free movement and competition and cannot be automatically justified on public service grounds, but need to be analyzed on a case-by-case basis in order to ensure respect for the principle of proportionality."

The Commission suggested that to ensure maximum of reciprocity and compatibility with the Treaty, the Single Buyer system should have to meet the following conditions:

1. Eligible customers should have the freedom to contract for electricity supplies with external producers under the same conditions as with domestic IPPs.
2. Both systems (single buyer and negotiated TPA) could generate directly comparable and acceptable results if the import regime under Single Buyer model is governed by an obligation of SB to buy unlimited quantities of imported electricity under certain objective conditions, and transparency of tariffs for use of the transmission system.
3. Single Buyer, where it is part of an integrated undertaking, should be fully unbundled in terms of full separation of management and information flows.
4. Tendering procedures for new capacity should only be organized and decided by public authorities or other independent entities appointed for this purpose.
5. Even under the tendering procedure, a parallel authorization procedure for new capacity should be instituted for IPPs to strengthen competition.
6. All eligible customers shall have the freedom to construct and use direct lines.

Initially only conditions 1, 2, 5 were accepted by all parties. However, it appears that finally all of them were accepted.

It is perhaps worth noting that the original Single Buyer model is essentially identical to the England and Wales Pool and was considered in California as the “exclusive” POOLCO model.

It is clear that the confusion about the meaning of the Single Buyer results from the fact that it has meant different things at different times and the term SINGLE BUYER is no longer clear to most people. Examining the EU Directive as a whole, the Single Buyer concept permits Bilateral Contracts between eligible customers and Suppliers or obligates the Single Buyer to buy the energy associated with these contracts at the price it charges its customers less a transmission charge. In the California discussions, this was referred to as the flexible POOLCO. In practice, the use of Contracts for Differences (CfD) resulted in the same end result in the England and Wales Pool although CfDs are purely financial instruments.