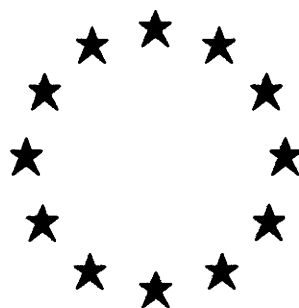

*Reports of
the Consultative Committees
on Third Party Access to
Electricity Networks*



May 1991

COMMISSION OF THE EUROPEAN COMMUNITIES
Directorate-General for Energy



Foreword

I am pleased to present here the reports by the Consultative Committees on access by third parties to electricity networks.

The creation by the Commission of these Committees, one made up of representatives of the Member States and the other of representatives of the electricity companies and consumers, is explicitly mentioned in the Communication by the Commission to Council COM(89)336 which accompanied the draft directive on electricity transit, now adopted by Council.

This consultation seemed necessary in order to explore, beyond the stage of transit, ways of making the greater European market of 1992 a reality in the electricity sector, of strengthening competition and of widening consumer choice.

The task of the Committees was to identify the main technical, economic and administrative elements to be taken account of in the formulation of a Community policy on whether, and how, third parties should have access to electricity networks.

This task of analysis and clarification has been successfully concluded. I would like to thank all Committee members for having participated actively in discussion, for sharing their expertise and for expressing their different points of view on this important and complex subject.

The reports bring an indispensable contribution to the debate on the increasing of competition in the sector concerned and constitute a basis on which to formulate the guiding principles of policy for the European electricity market.

António Cardoso e Cunha
Member of the Commission

**REPORT ON THE PROCEEDINGS OF
THE CONSULTATIVE COMMITTEE
OF MEMBER STATES - ELECTRICITY
CCEME**

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1.0 INTRODUCTION

The European Commission in its Communication COM(89) 336 final, dated September 29, 1989, decided for the installation of two consultative committees in order to study the possibility of providing access to third parties to the electricity networks of the member states of the European Community. One consultative committee consisted of representatives of the electricity industry, i.e. integrated utilities, generators, transmission companies, distributors, large industrial users, domestic and other small consumers and was called the Professional Consultative Committee on Electricity (PCCE). The other committee on electricity consisted of representatives of member states and was called Comité Consultatif Etats Membres Electricité (CCEME). The members of the CCEME are shown in Appendix A.

This report is dedicated to the work of CCEME.

An effort has been made to reflect the views of the delegates as they expressed them, however, when a point was made by more than one representative, in more than one occasion, effort has been made to avoid duplication.

1.1 Mandate of the CCEME

The Committee was asked to assist the Commission in identifying the various elements (technical, economic and administrative) to be taken into account by the Commission in considering whether and under what conditions a system of third party access to the electricity transmission networks could be implemented.

The members of the CCEME met several times to discuss and express their views on the most important aspects of the following topics:

- Effects of Third Party Access (TPA) on electricity generation.
- Effects of TPA on electricity transmission.
- Effects of TPA on electricity distribution and consumption.
- Modalities of the implementation of TPA.

It was agreed by all delegates that any TPA scheme considered should not reduce the intended level of security of supply, quality of service and system control.

2.0 TYPES OF TPA

Third Party Access or TPA is a term used throughout this report to denote, in general, the ability of third parties (Generators, independent power producers, consumers, distributors) to receive and pay for services provided to them by an electricity transmission network. Definitions of the type of access that may be available to these parties are provided in the Glossary in Appendix B. It is important to point out that these definitions are provided and used throughout this report as working hypotheses only.

The terms "open access" and "third party access" are used to denote service provided on a "first come - first served" basis versus the term "common carrier" which, throughout this report, is used to denote service provided on a "pro rata" basis.

It became apparent from the early stages of the discussion that there was no support for a pro rata system. It was argued that a pro rata system would jeopardize the security of supply of existing customers. It was therefore decided that such a system should be rejected and not considered any further in this report.

The term "open access" is used to denote that all possible users (generators, independent power producers, distributors, small and large consumers) have access to transmission services, versus the term "third party access" that is used to denote access to these services available only to certain types of customers (for example, only large consumers and distributors).

Throughout this report, the term TPA is used generically to denote any form of access to transmission services, such as open access, or third party access. Despite the fact that it was recognized by most of the delegates that, from a practical point of view, the domestic and other small consumers might not be able to benefit directly from TPA, at least during its initial phase of implementation, it was decided that the discussions should not rule out any type of TPA client at this stage.

3.0 EFFECTS OF TPA ON ELECTRICITY GENERATION

In the context of electricity generation, TPA would make it possible for certain customers or distribution companies to select purchasing electricity from the generator of their choice, in principle anywhere inside or outside the Community, depending on transmission capacity availability.

It was noted by a few participants that any effort to introduce more open access to generation facilities would require some form of formal or informal separation of the production function from the transmission, distribution and/or electricity marketing functions. This separation is also referred to as "unbundling". In highly integrated electricity systems, this separation may vary from a formal disintegration of the company (as was the case in England and Wales) to a possible development of an arms length relationship between the production department and the transmission-distribution departments of the integrated company (as was the case in Scotland). Such a scheme would offer a wider choice of suppliers to electricity consumers and would also be expected to introduce a higher degree of competition at the level of electricity generation.

Thus, the introduction of some form of TPA would affect the electricity industry in different ways, depending upon the structure and the specific circumstances prevailing in each of the twelve member states. TPA would also change the way generation plant is dispatched today, to the extent that the presence of TPA contracts may interfere with the dispatch merit order. In this context, it was recognized that at present there is a wide variety of structures of the electricity industry among member states. It was argued that, in parallel with the introduction of a more competitive system, it is necessary to achieve greater convergence of energy policies of member states, in particular with respect to fuel policies, state aids, environmental and safety requirements, as well as financial parameters such as taxation, accounting policies, costing and pricing principles etc.

Some of the participants noted that there is hardly any doubt that there would be considerable advantages to be gained from an increased integration of the European electricity production system. These advantages could be realized by an increased cooperation among the European electricity producers, as it is expected to occur under the Electricity Transit Directive. In such a case, it was further argued, there would be hardly any further advantages by introducing TPA, which may lead to a reduction of overall economic efficiency and may even hinder the realization of national energy policy objectives. Another delegation argued that, despite an expected improvement in the efficiency of the European electricity system by introducing more transit, a system of electricity monopolies would still be maintained. Such a system would not be in a position to offer the advantages of more competition, including giving individual consumers the freedom to choose the producer of their choice.

Differing views were expressed about the effect of TPA on new generation investments. Most delegates felt that TPA might make future demand less certain, thus making investments in new generating plants riskier. It was submitted that, in such an environment, TPA would tend to favour investments with lower risk, such as Combine Cycle Gas Turbines (CCGT's) that are efficient and can be installed in the form of smaller units with shorter lead times. This would tend to exclude investments in capital intensive projects with longer lead times, such as nuclear and coal plants. Such a shift could be accepted, in the view of one delegate, as a result of market forces, and coincidentally, it could also be beneficial from an environmental point of view.

Some delegates expressed concern that a more competitive system might conflict with national energy policy objectives. However, even in a market based system, governments could still regulate future fuel choices, if they felt that it was in their best interest to do so for energy policy reasons.

Another view expressed by some delegates was that a competitive approach has to be structured very carefully in order to allow competition to work without adversely affecting security of supply, quality of service and system control. It was further argued that in such a competitive environment, there would be no reason why shortages may develop, particularly when the producers have more opportunity to access a larger market. It was also argued that in a TPA regime the execution of long term contractual arrangements between electricity suppliers and their clients would be a distinct possibility. In such cases, the investment uncertainty would be greatly mitigated.

In addition, in a more competitive environment introduced by TPA, it was argued that spare capacity margins might be reduced in an effort to reduce costs, thus compromising security of supply. On the other hand, it was also mentioned that increased levels of inter-regional electricity transit and more open access might reduce the total level of reserve capacity needed Community-wide. Furthermore, reduced capacity margins mean more economic electricity supply, provided that security of supply would not be compromised. Another way to ensure adequate levels of reserve capacity would be through appropriate price signals to the generators.

4.0 EFFECTS OF TPA ON TRANSMISSION

It was recognized by all parties that, because of its nature and its capital intensity, it is uneconomic to duplicate a transmission network. Unnecessary duplication of transmission facilities would constitute waste of scarce resources such as equipment, capital, labor etc. and may be environmentally unacceptable.

It was therefore the view of the Committee that in practice, under any TPA scheme, the transmission system would maintain its monopolistic character. Some delegates felt it should be treated as a function separate from generation providing transmission and related services to all parties.

It was submitted by one of the delegates that any TPA scheme should be based on simple principles. Based on the specific UK example, he proceeded to cite some of the principles that could be used:

- There should be access to the transmission as well as the distribution network on a non-discriminatory basis.
- The transmission/distribution function (the wires business) should be distinguished from the merchandising function, i.e. the commercial aspects of electricity trade.
- The grid should be given the responsibility to dispatch generating units on the basis of some kind of a merit order.
- Rigorous operational codes relating to transmission and distribution.
- An overseeing and/or regulatory function.
- Transmission charges should be transparent and carefully designed to give the right economic signals to future investment.

Another delegate submitted that it is desirable to have more competition in the electricity sector, however, one has to be mindful of the problems that may be created by the introduction of TPA. These may concern:

- the question of who has the obligation to supply;
- Who will have the responsibility to supply the "non-captive" customers, if and when they decide to return to the system.
- Should a system be developed whereby a fee should be charged for opting in or out of the system?
- The difficulty of deriving standard tariffs.

With respect to transmission rates, the same representative submitted that it would be much easier to develop the appropriate transmission rates in stages, by first studying as an example to allow only distribution companies to access the grid and "shop around" for their electricity supplies. His suggestion was to "go slow and learn along the way": by first examining, as an example, allowing TPA to distributors close to an intracommunity boarder.

In response to this last point another representative pointed out that, if some TPA scheme was to be introduced, it would not be appropriate to limit access to boarder distributors. Access should be extended, on a non-discriminatory basis, to include other large electricity users. On this occasion, it was further argued that a TPA system should also be expanded to include even countries outside the EEC associated directly or indirectly with intracommunity electricity trade.

In addition, there was some concern expressed by the same delegate that, the present level of co-operation between European utilities through organizations such as UCPTA would be lost in a more competitive TPA environment. This does not need to be the case if, as indicated earlier by another representative, the "wires" function, i.e. the operation of the transmission system, were separated from the commercial aspects of electricity trade. Such a scheme would still permit cooperation of operators at the technical level of running the grids, while electricity merchants might compete for new business and new markets.

Some member state delegates submitted that they have no experience with TPA and that they could see no reasons or benefits from the introduction of an untested scheme, such as TPA. One delegate more particularly argued that highly integrated systems would be required to review their structure and all aspects of the electricity business. With respect to transportation, it was his view that:

- the grid should be responsible for making available and paying for all ancillary transmission services, such as reserve, back-up, top-up etc.
- In non-profit state owned and/or controlled utilities, a profit scheme would have to be allowed by reorganizing the system.
- If new transmission lines were necessary and if these lines remain under-utilized for long periods, it could lead to lower profitability of the system.

Another representative submitted that at the national level, TPA regarding transmission does not appear to cause any major problems of technical nature, provided that appropriate regulations were instituted and observed. However, the relevant question is not if TPA would be technically possible, but if, from an overall or global point of view, it would be beneficial. It was his view that a kind of TPA that would allow independent producers to access the grid would be attractive, but that it is difficult to see the community-wide advantages of TPA permitted to large scale consumers.

Another delegate stated that a few countries have already taken steps to increase competition, by removing a number of obstacles to imports and exports of electricity and to unbundle production and distribution.

In one country, for instance, all end-users are free to import electricity; distribution companies are free to buy electricity from any internal production company and large consumers have the possibility to purchase electricity from any distribution company they prefer. In addition, these possibilities are facilitated by a statutory transport obligation for grid owners.

The same representative argued that, creating additional incentives to increase competition, e.g. TPA, could seriously put at risk the necessary levels of security of supply. It should also be noted that existing legislation in some countries would have to be changed to enable increased competition incentives.

It was further argued that in some member states, the system was designed without long distance transport in mind and with relatively few generating plants located near centers of demand. In such a case, the transmission infrastructure has remained minimal and no thought has been given to a transmission system that would be able to satisfy TPA requirements. TPA would require additional transmission investment and some doubt was expressed whether that investment could be recovered.

5.0 EFFECTS OF TPA ON DISTRIBUTION AND CONSUMPTION

With respect to the effects of TPA on the security of supply to end users, all delegates were of the view that the level of security would be affected in a more competitive environment. The views on this issue ranged from general remarks that any form of TPA would have a negative effect on the level of security, to the views of some delegates who submitted that it would be possible to rely on a market mechanism and prudent contracting practices in order to obtain the desirable level of security, or that one could design a TPA scheme which, by allowing TPA on a case by case basis and with appropriate national legislation, might ensure an adequate level of security. In any case, most submissions emphasized the need to protect the more vulnerable customers, i.e. the franchise or captive customers.

With respect to the need to classify users to "franchise" versus "non-franchise", despite the danger of introducing some degree of discrimination between customer groups, most of the delegates submitted that, from a practical point of view, it may be necessary to make the distinction in order to better protect users that either are not large enough to exert significant market power, have no alternative fuel capability, or are too small and inexperienced. Two delegates expressed different views on this issue by either stating that they would allow all customers equal TPA rights, knowing full well that only the larger ones will be able to use these rights, or that a "phased" introduction of TPA might create market conditions that would make such distinction unnecessary. It was further argued that, irrespective of the distinction, a carefully designed TPA scheme should be in a position to benefit not only the large but the small electricity users as well.

On the issue of obligation to supply, there was substantial agreement that someone (in most cases the view was that it should be the local distribution company) should have the obligation to supply, particularly the captive "franchise" customers.

With respect to the electricity costs of distribution companies (where they exist as separate entities), one delegation expressed the view that distributors should be allowed to "shop around" to obtain the best possible deal, not only in terms of price, but also in terms of reliable secure supply. Another representative pointed out that in his country distributors may be allowed to choose their supplier only from within the same state, thus safeguarding national security of supply.

A third representative suggested that it might be possible, even for integrated electricity systems, to allow their regional distributors to choose their supplier from either within or outside their country under certain conditions. He observed that the possible advantages and disadvantages of a TPA system could strongly depend on the TPA system chosen. In particular, a type of TPA limited to distribution companies could considerably reduce the risk of cross-subsidization, since these distributors would maintain the responsibility to supply the industrial consumers as well as the other consumers. In fact, in cases of even temporary production overcapacity, the temptation would be to sell at

the spot marginal price, something that could tempt flexible industrial customers to switch and could lead to reactions that would be detrimental for the captive consumers who would have to bare the fixed costs.

On the issue of the effect of TPA on prices in general, it was acknowledged by most delegates who spoke on this topic that prices will be affected, but there might be different reactions, depending on the conditions prevailing in each member state. Delegates also pointed out that lower prices for some customers might lead to cross-subsidization and discrimination between customer classes, both serious potential problems induced by TPA.

The impact of TPA on the level of demand was expected to be modest and difficult to determine, a view expressed by most delegates. One representative submitted that the impact was expected to be minor, if any, because studies in his country indicate that it would take a significant price change (at least for the domestic consumer) before demand is affected.

No major concerns were expressed on the issue of end-use inter-fuel competition, where it was argued that fuel prices would determine the competitiveness of each fuel, provided that they reflected costs.

On the issue of how TPA may affect environmental policies, it was pointed out that this is mainly an issue linked with the production of electricity. The general view expressed by most of the participants was that a more competitive environment would provide fewer incentives for environmental protection. However, this problem may be addressed through the adoption of minimum environmental standards by the member states on a consistent basis. In any event, as it was pointed out by one of the delegates, environmental policy may be pursued with or without TPA.

With respect to pricing methodologies, one view was that electricity prices under TPA should be allowed to be determined by market forces, whereas another opinion expressed concern that under TPA it would be more difficult to establish prices. A third delegate pointed out that in his country prices are set by a committee and before tariffs are changed, the impact on all sectors of the economy has to be assessed. Under TPA this would be difficult to do, furthermore some customers might stand to benefit more than others.

There was general consensus among the delegates in favour of price transparency. On the issue of cost transparency, a few delegates felt that it is useful and that it would help the creation of a more competitive environment. Other delegates argued, however, that once a truly competitive environment has been created, cost transparency would not be consistent with competition and therefore would not be needed. However, depending on the TPA system introduced, cost information would be needed by the competent authorities in confidence, to help establish regulated prices of monopoly services such as transmission and transmission related services. This information in some member states is already submitted in confidence.

With respect to the need for regulation of tariffs, one delegate submitted that one either has allowed the development of a competitive industry, in which case regulation would not be necessary, or a monopoly situation is maintained, in which case there would be a need for regulation and regulated tariffs. Another representative pointed out that under TPA there would be parts of the system, such as transmission, that would remain as monopolies and would therefore need some form of regulation.

6.0 MODALITIES OF IMPLEMENTATION OF TPA

The delegates were asked to make submissions on the need for regulation under TPA, the regulatory arrangements and instruments needed for the implementation of TPA and the institutional requirements of regulation. Given that the debate on the possible advantages of TPA had not been conclusive, some delegates were hesitant to pronounce themselves on these issues indicating it was "premature". It would also be appropriate, according to a few delegates, to wait for the results of the implementation of the Electricity Transit Directive and the Price Transparency Directive. Nevertheless, the following remarks were made:

Various schemes of regulation already exist in the electricity industry of the member states, in order to set or approve prices charged to the final consumers. It was the view of most delegates that the introduction of any form of TPA would give rise to some new issues, both at the Community as well as the national level, that would require some form of new regulatory intervention. Some delegates commented that limiting TPA to certain customers only, or limiting client mobility might be anticompetitive and possibly even incompatible with the Treaty of Rome under certain conditions.

One delegate pointed out that some new administrative set-up would be necessary at Community level to ensure fairness and equal treatment of all users. He added that new regulations should have common features across all member states but maximum flexibility and freedom to implement these regulations should be given to all member states. With respect to the form and degree of TPA and the regulatory instruments needed to achieve the main objectives of more competition and freedom of choice, one delegate stated that the development of more competition would require a regulatory framework. Real cost transparency would be needed to avoid cross-subsidization. Flexible regulation would be needed to deal with the issue of generation and transmission capacity. TPA would, in his view, be able to take care of other market needs through negotiations in a competitive environment. With respect to future investment uncertainty induced by TPA, he stated that some rules would be needed to limit mobility of clients (such as providing for several years of notice of entry and/or exit) as well as conditions of access. He finally suggested that an effort to resolve disputes should be made first at the national level before resorting to the courts or an arbiter at Community level.

Another delegate also recognized the need for some form of regulation under any TPA regime and referred to the conditions in his country where legislation already provides for some regulation with respect to, for example, the obligation to transport electricity for third parties and distribution companies. He added that TPA has to be related to energy policy objectives of member states, such as security of supply.

Another delegate pointed out the need to install a permanent cost control system that would unbundle the costs of generation, transmission and distribution and would allocate costs to consumers in a way to avoid cross-subsidization. He further suggested that principles of regulation should be established community-wide and that

a more detailed regulatory scheme should be developed at the national level in a way to serve the specific needs of each country. He particularly emphasized the need for a flexible national scheme that would ensure security of supply and fair prices in all national regions, particularly in areas where economic and social disparities exist.

Another delegate mentioned that one of the main objectives of TPA should be the production of electricity at the lowest possible cost. In this context he suggested that autoproducers should be free to sell power to the grid. Even if the economic justification of TPA is based on the expectation that some customers would be able to purchase electricity cheaper than they do now, TPA would cause some cross-subsidization and therefore some customers would gain but some would also lose. He made the general statement that electricity is sufficiently different from other goods to justify a treatment different from the treatment of other goods in a competitive market. He finally stated that his country would be willing to consider allowing the next power plant to be built by the private sector, but he expressed some concern that the electricity market in his country was not large enough to allow many generators to compete effectively.

The next delegate expressed some concern that some important issues have not yet been thought through sufficiently in order to allow the choice of a particular form of TPA that may be appropriate for the Community. He suggested that more detailed forms of TPA should be examined more closely before any specific modalities of implementation are examined.

The next delegate to make submissions on the subject expressed the view that the advantages would not exceed the disadvantages of TPA and emphasized continuing scepticism about open access. It was also pointed out that there is no possible TPA arrangement that would reduce regulation, or the need for it, and that any mode of implementation would depend on the objectives of TPA. Support was expressed for more competition in the electricity market, but not necessarily through TPA only. Emphasis was placed in the parallel development of flanking policies and other accompanying measures that would lead to a more harmonized framework in the electricity sector.

Another delegate stated that TPA does require regulation. However, a different degree of regulation is needed in areas that would be subject to competitive forces, such as generation, versus areas that remain effective monopolies, such as transmission. In areas where competition could work, he added, competition law would be enough, even though some ground rules with respect to licensing, notice periods for entry and exit etc. would be needed. With respect to small customers, the situation would be more difficult and schemes both excluding and including the small customers from TPA could be considered together with their advantages and disadvantages. The same delegate suggested that regulation could be implemented in a different manner in each one of the member states in a way that would satisfy the specific conditions prevailing in that country. He added that it would be very difficult and complex to implement any form of detailed regulation at Community level and he stressed the need for an adequate transition

period to allow for the smooth transition of existing systems to any new TPA scheme. It was his view that in any TPA scheme provision could be made for adequate security of supply and policy priorities. He finally proposed a two stage approach in implementing TPA in the Community:

In the first stage, a period in which member states would commit to removing legislative and other obstacles and introducing some elements of TPA but maintain the discretion on the form they should take. During this stage some guidelines might be needed.

In the second stage, the right of TPA across the Community would be enshrined in legislation together with basic principles such as unbundling and non-discrimination. However, there would be no detailed prescription of the way TPA would be provided for and no heavy community-wide regulation. This stage might be conditional on a review of Stage One.

A delegate expressed some support for the above proposal provided that, he emphasized, a period of evaluation was allowed between the first and the second stage that would permit, on the basis of the results of stage one, making a decision whether to proceed with stage two.

7.0 SUMMARY

7.1 Points of agreement

There was general agreement among the delegates that enhancing competition and broadening the electricity market would be beneficial, including the benefits expected from the implementation of the Electricity Transit Directive and the Price Transparency Directive. This would be consistent with the objectives of the Internal Energy Market. Relying on as much competition as possible would bring benefits, provided that important factors, such as security of supply, quality of service and system control were not compromised. In this regard, a significant number of delegates emphasized that the "traditional" electricity systems that exist in numerous member states were not without merit.

During the discussions another important argument made was that means other than TPA were also able to favour the continued integration of the Community electricity market. In parallel to more competition, it would be necessary to obtain more convergence in different domains (such as fiscal, environmental, accounting policies, access to primary energy sources etc.) and second, the elimination of trade obstacles (such as, for example, import and export monopolies).

On the other hand, it was recognized that it is at the level of electricity production that more competition may be introduced (autoproduction, cogeneration, independent power production), and this may be achieved without necessarily resorting to TPA.

Another important argument that was made implicitly during the discussions is that the internal electricity market (and the possible introduction of TPA whose form is still to be decided) does not necessarily require modification of the structure of the electricity industry. In other words, the existing diversity of these structures is not in itself an unsurmountable obstacle in the realization of the internal electricity market. However, achieving an internal market for electricity would be facilitated if proposals having that as an objective, have comparable effects on all member states.

It is also fair to say that, in the context of TPA, there was agreement on the following three aspects:

- first, it was agreed to exclude decisively any form of "common carrier" as it implies a danger of pro rating existing contracts.
- second, if TPA were to be introduced (see below), its modalities of implementation should be based, as much as possible, on the following ideas: minimum regulation, subsidiarity, gradual approach, and evaluation of experience.
- finally, the TPA system that is progressively introduced in the UK represents, with respect to modalities of implementation, only one example of what could be contemplated in this domain.

7.2 Remaining differences

It is clear that the debate brought to light the persistence of appreciably divergent points of view on a number of issues and more specifically on the possible effects of a TPA system.

a) Possible effects

These differences of opinion may be summarized as follows:

i) Concerning the impact of a TPA system on the production of electricity.

Certain delegates anticipate that TPA would risk to compromise new investments necessary to respond to future demand, given that the uncertainty of future prospects resulting from competition could dissuade investors. On the other hand, the TPA would favour generation investments with lower fixed costs, such as gas fired stations, and would disadvantage coal and nuclear stations that require relatively longer amortization periods.

In contrast to this, it was argued that the competitive climate resulting from TPA would favour the entry of new investors and independent producers, and would accelerate investments. In addition, TPA would encourage investors to try to build more efficient and better performing units.

ii) Concerning the impact of TPA on the transmission of electricity

It was argued that the commercial freedom introduced by TPA would not endanger the quality of the technical management of the European electricity networks. TPA would allow the availability of electricity originating from cheaper production sources in the Community, and would allow the development of a European electricity network based truly on the opportunities of commercial trade.

On the other hand, certain delegates anticipate that TPA would make the management of electricity transmission networks excessively complex, something that would have a negative effect on the reliability of the networks and the continuity in the supply of electricity. In addition, TPA would risk to disturb the existing atmosphere of cooperation between large networks.

iii) Concerning the impact of TPA on distribution and consumption

Certain delegates expect that TPA would increase costs by endangering the planning of production investments, increasing transmission losses and disrupting the "merit order" (the optimization of variable costs by calling to service stations on the basis of an economic hierarchy). In addition, TPA would introduce serious discrimination by asking captive customers,

or customers with little negotiating power, to pay for the benefits that would be obtained by the large consumers. It was argued that the advantages and/or disadvantages linked to a TPA system could strongly depend on the system chosen. In particular, a TPA system limited to distribution companies would reduce considerably the risk of cross-subsidization, since these distributors would maintain the responsibility to supply the industrial as well as the other customers.

On the other hand it was argued that, by increasing exchanges and by increasing the opportunities offered to lower cost sources of production, TPA would allow the reduction of electricity costs in time. Furthermore, TPA would lead to a closer relationship of prices with costs, would eliminate cross-subsidies between consumer types and would thus lead to a more rational price structure that would be more favourable to general economic development.

b) Modalities

Some delegates were of the view that, before discussing possible modalities, one should wait to see the results of the implementation of the Electricity Transit Directive and the Price Transparency Directive.

Concerning the possible modalities of implementing a TPA scheme, two interrelated issues became the subject of considerable difference:

- the advantages and particularly the feasibility of unbundling the various activities of the electricity sector (generation, transmission, distribution).
- cost transparency.

7.3 Concluding Remarks

The CCME fulfilled its mandate practically within the set deadline, even if some times some delegates felt they were under fairly strong time pressure.

The debate was frank and was conducted in a positive and open atmosphere. In this regard, it is important to underline that, even though they expressed themselves as national representatives, the delegates accepted in this report the principle of anonymity which indicates that the positions expressed were not necessarily fixed and irreversible. This agrees with the intention of the Commission, when it created the Consultative Committees to deal with the issue of TPA.

As it is natural, the discussions in the frame of CCME were less technical than those of the professional committees; on the other hand, concerns of energy policy were always at the forefront of various interventions, taking into account the special nature of the electricity sector (almost impossible storage and the necessity of the supply to instantly adjust to demand fluctuations).

Finally, in terms of balance of opinions, (and without prejudice to what was said in the second paragraph of this section), the sceptics of the possible advantages and modalities of implementing TPA significantly outnumbered those who were favourable. Commission Services, in accordance with their task, remained neutral at this stage on all aspects of this problem.

APPENDIX A

LIST OF MEMBERS AND SUPPLEANTS OF CCME

Belgium

M. J. LIZIN
Directeur général de l'Administration de l'Energie
Rue de Mot, 30
1040 Bruxelles
Suppleant : M. Janssen

Denmark

M. Jorgen STAFFELDT
Chef de Service
Ministère de l'Energie
Slotsholms Gade, 1
1216 Kobenhavnk
Suppleant : M. Mogens Pedersen

Federal Republic of Germany

Dr. R. Kemper
Ministère de l'Economie
Villemombler Str. 76
D-5300 Bonn
Suppleant : Dr. Herx

Greece

M. G. Koutsoukos
Councillor
Permanent Representation of Greece
Av. de Cortenberg 71,
1040 - Brussels
Suppleant: Dr. Pipos

Spain

M. D.L.A. Rico Urias
Chef de Service
Ministerie de l'Industrie et de l'Energie
Paseo de la Castellana, 160, E- Madrid
Suppleant : M. D. Ed. Ramos Garcia

France

M. L. OURCEL
Directeur
Ministère de l'Industrie
99-109, Rue de Grenelle
F-75007 Paris
Suppleant : M.Philippe Boisseau

Ireland

Mr. Mac Kay
Department of Energy
Principal Officer
25, Clare Street
IRL- Dublin 2
Suppleant : M. Noel Hughes

Italy

M. A. REGA
Directeur général adjoint
Direction générale de l'Energie
Via Veneto, 33
I-00187 Roma
Suppleant : M. Carlo Crea

Luxembourg

M. J. HOFFMAN
Commissaire du Gouvernement à l'Energie
Ministère de l'Energie
Boulevard Royal, 19-21, L-2917 Luxembourg
Suppleant : M. Romain Becker

Netherlands

M. H.F.G. Geijzers
Direction générale de l'Energie
Ministerie van Economische Zaken
Bezuidenhoutseweg, 6
NL- Den-Haag
Suppleant : M. D.A. Schoorel

Portugal

M. José Vicente Reis
Ministerio da Indústria E Energia
Direction générale de l'Energie
Rua da Beneficancia, 241
P-1093 Lisboa
Suppleant : M. Jose Barros Monteiro

United Kingdom

Mr. R. Williamson
Department of Energy
Electricity Division
1 Palace Street
GB-SW1E 5HE London
Suppleant : Dr. Eileen Marshall

Commission Services Represented

DG XVII:

Messrs	J. C. Guibal	Chairman
	H. EliasMoeller	Vice-Chairman
	H. U. Beelitz	Secretariat
Ms	N. Commeau	
Messrs	R. Greenwood	
	P. Coroyannakis	
	E. Brakels	

DG III:

Ms. Keegan
Mr. Kupiec

DG IV:

Mr. Magloire
Ms. Pellistrandi

APPENDIX B

Glossary of terms

Access right	Right to the use of the transmission and distribution system in a TPA regime.
Autoproduction	The generation of electricity by an enterprise for its own final consumption, some of which may be available for sale to other parties.
Broker/Trader	An intermediary who buys electricity from whatever source for its subsequent resale.
CHP-Combined heat and - power plant	Plant designed to produce heat for own purposes or for supply to local customers (district heating) as well as to generate electricity.
Common carriage	A regime providing for a general obligation on transmission and distribution companies to provide electricity transport services at all time, with no distinction between existing and new clients and by allocating capacity prorata amongst all applicants.
Cross-subsidization	Process of charging an unjustifiably low price to one group of customers and compensating for this by charging higher prices to other customer groups.
Distribution	The transport of electricity on lower voltage local networks in view of its delivery to final consumers.

Franchise area	An area in which an electricity company is providing services to franchise and possibly non-franchise customers.
Franchise customer	A captive customer in a franchised area.
Grid control	The centralized control of the operation of both transmission and production within a region, including load management, maintenance of reliability and generation plants dispatch.
Independent producer	A producer of electricity not associated either with transmission or distribution business.
Local distribution company - LDC -	A local or regional distribution company which is not part of an integrated electricity company.
Merit order	The ranking of available electricity generating plants with a view to their economic dispatching, usually on the basis of variable generating costs.
Non-franchise customer	A customer who may or may not be in a franchise area who has been granted access rights.
Partly integrated electricity company	A company performing two of the tasks of generation, transmission and distribution in a coordinated way with the view of supplying wholesale or final consumers.
Production	The generation of electricity
Production/Transmission System	A group of production and transmission assets operated as a whole.

Region	The geographical area served by a particular grid controller.
Regional system	A production/transmission system in a region.
Supply	The delivery of electricity to final consumers, combining its generation or purchase, transmission and distribution.
Third Party Access - TPA	A regime providing for a qualified obligation on companies operating electricity transmission grids and distribution networks to offer terms for the use of their system.
Transmission	The transport of electricity on the high voltage interconnected grid in view of its delivery to wholesale or final consumers.
Transport	Includes both the transmission and distribution functions.
UCPTE	(Western European) Union for the coordination of production and transport of electricity.
Unbundling	Disaggregation of charging, accounting or management of particular operations, or even ownership of a wholly integrated or a partly integrated company.
Wholly integrated electricity company	A company performing the tasks of generation, transmission and distribution of electricity in a coordinated way with the view of supplying final consumers.



COMMISSION
OF THE EUROPEAN
COMMUNITIES

DIRECTORATE-GENERAL FOR ENERGY

FINAL REPORT

PROFESSIONAL CONSULTATIVE COMMITTEE

ON ELECTRICITY

DG XVII

APRIL 1991

PCCE Committee Procedures

(Note by the Chairman)

In arranging these consultations it was our aim in the European Commission to bring about a genuine discussion between the members of the Professional Committee, rather than simply to ascertain their individual views or those of the interests they represented. That could in any case have been achieved by correspondence or bilateral meetings. From the beginning, therefore, it was clear that the Committee's Report should both identify the key issues, as required by the terms of reference, and clarify the areas of agreement or disagreement between the participants.

Against this background it was essential that the text of the Committee Report should be based on thorough discussion of all aspects of the Third Party Access (TPA) question. After a first procedural meeting in May 1990, therefore, the discussions were divided into four subject areas:

- Electricity Production;
- Electricity Transmission and its relation with Production;
- Competition, Pricing and Consumption;
- Modalities and Regulation.

For each of these areas a first discussion was held on the basis of a non-exclusive agenda sent out in advance by the Commission, in its role as Committee Secretariat. The Secretariat then prepared and circulated to Members a draft Chapter for the Committee Report dealing with that subject.

This draft text was then discussed in a second Committee meeting, revised accordingly, circulated for written comments and revised for a second time. A few further changes were made to these Chapters at a later stage, to take account of the final phases of the Committee's discussions.

Following the discussions of the four subject areas, the Secretariat prepared an Executive Summary for the overall Report. In successive versions, this text was discussed twice in the Committee and twice circulated for written comments, with revisions at each stage.

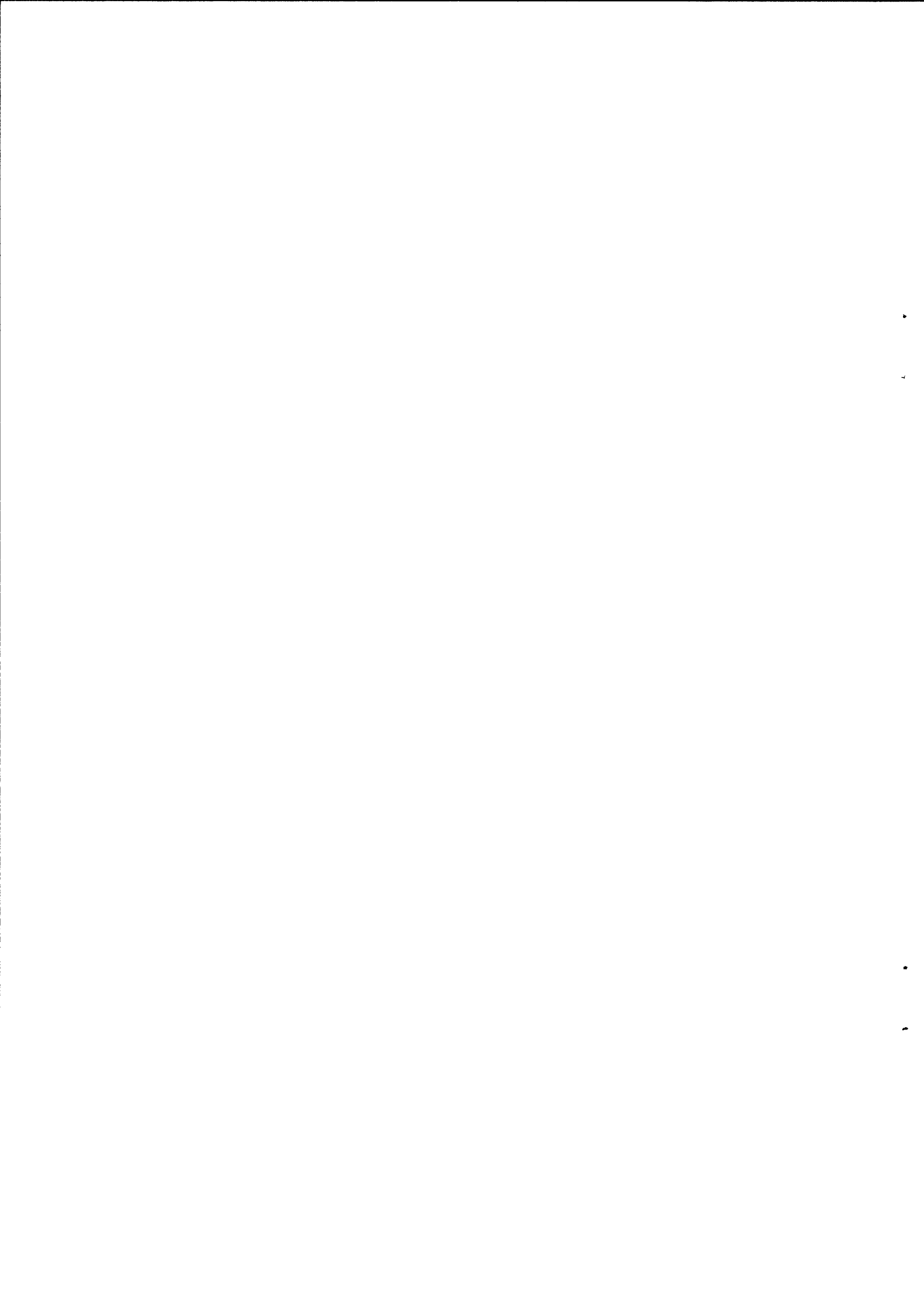
To illustrate the extensive nature of these consultations, the effect of TPA on Electricity Production, for instance, was discussed in both the Committee's June and July 1990 meetings. Written comments on successive draft texts of the Production Chapter were requested in August and again

at the end of the year. The subject of Production was returned to in the two Committee discussions of the Executive Summary in January 1991, and in Members' written comments on that Summary text.

The Report of the Professional Consultative Committee on Electricity is therefore a synthesis of views exchanged in the Committee's discussions and/or expressed in written comments. As such, it should not be taken to reflect in detail the views of any individual Committee Member.

Some Committee members, however, requested that the published report should be accompanied by position statements setting out their views or those of their organisations on the TPA issue. These statements are annexed to the PCCE Report, but were not discussed by the Committee and should not be taken as forming part of the Report.

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PCCE Membership

Chairman

Mr. Clive Jones - Deputy Director General for Energy,
European Commission

Vice-Chairman

Mr. Hans Ellasmöller - Head of Unit "Electricity" -
(until 31.12.90) Directorate-General for Energy,
European Commission

<u>Members</u>	<u>Position</u>	<u>Proposed by:*</u>
Mr. Matteo Bonetta	Direttore Centrale Ente Nazionale per l'Energia Elettrica (ENEL)	EURELECTRIC
Mr. Aldo Buscaglione	Direttore Unione Nazionale Aziende Autoproduttrici e Consumatrici di Energia Elettrica (UNAPACE)	IFIEC
Mr. Claude Destival	Directeur de l'Economie, de la Prospective et de la Stratégie Electricité de France (EDF)	EURELECTRIC
Mr. Fritz Fassbender ⁽¹⁾	Zentralverband der Deutschen Elektrohandwerke	UEAPME
Mr. H.F.L.J. Fransen ⁽²⁾	DSM - Limburg B.V. Group utilities	UNICE
Mr. Christian Gambart ⁽³⁾	ADEIC-FEN	Consultative Committee for Consumers in the EC
Mr. Mike Gibbons	Energy Policy & Purchasing Manager - ICI	IFIEC
Prof. Dr. Joachim Grawe	Hauptgeschäftsführer Vereinigung Deutscher Elektrizitätswerke (VDEW)	EURELECTRIC
Ir. Gerrit van Hoek	Directeur Samenwerkende Elektriciteits-Productie bedrijven (N.V. SEP)	EURELECTRIC

(1) Having succeeded Mr. Fesser (since 01.08.90)

(2) Having succeeded Mr. Van Beek (since 15.11.90)

(3) Having succeeded Mr. Allix (since 01.08.90)

Mr. David Jefferies	Chairman National Grid Company (NGC-UK)	EURELECTRIC
Mrs. Helma Kip ⁽⁴⁾	Vereniging van Exploitanten van Elektriciteitsbedrijven in Nederland (VEEN)	VEEN
Mr. Robert Malpas	(Former) Chairman of PowerGen	POWERGEN
Ms. Laura Mosca ⁽⁵⁾	Conseiller économique BEUC	BEUC
Mr. José Maria Paz Goday	Director General de Explotacion Red Electrica de Espana S.A. (REDESA)	EURELECTRIC
Mr. Luis Filipe Pereira	Vice-Président Electricidade de Portugal (EDP)	EDP
Mr. Hans Günther Pöttken	Geschäftsführer der Gesellschaft für Stromwirtschaft mbH	UNICE
Mr. Joseph Reuter	Ingénieur en chef Compagnie Grand Ducale d'Electricité du Luxembourg (CEGEDEL)	CEGEDEL

*all members have been nominated by the Commission in their personal capacity

Committee expert

Prof. Dieter Schmitt (University of Essen)

Secretariat

Mr. Hans-Ulrich Beelitz	Chief of Secretariat Head of Unit - Task Force 1 - European Commission
Mr. Yvan Capouet	Principal Administrator
Mr. Anthony Halliwell	Principal Administrator
Mr. Panos Coroyannakis	Expert

Administrative matters

Mr. Egbert Brakels	Assistant
--------------------	-----------

(4) Having succeeded Mr. Witvliet (since 01.11.90) and Mr. Fabius (since 01.08.90)

(5) Having succeeded Mr. Lejeune (since 01.11.90)

<u>Substitutes</u>	<u>Company</u>	<u>Proposed by</u>
Mr. Covino	ENEL	EURELECTRIC
Mr. Georgoulea nombreuses	Confédération des familles	BEUC
Mr. Rolf van Hasselt	Krachtwerktuigen	IFIEC
Mr. Gaetan Lepeu	PAVIE	UEAPME
Mr. Marquis	Vereinigte Saar- Elektrizitäts-AG	EURELECTRIC
Mr. Moreira	Electricidade de Portugal	EDP
Mr. Orfanoyannis	Public Power Corporation	EURELECTRIC
Mr. Herbert Ruch	Rheinische Kalksteinwerke GmbH/Dolomitwerke GmbH	UNICE
Mr. Sagarminaga	Unidad Electrica SA (UNESA)	EURELECTRIC
Mr. Taccoen	Electricité de France	EURELECTRIC
Mr. Waha	CPTE	EURELECTRIC
Mr. Walker	Energy Committee of the Dutch Chambers of Commerce	UNICE
Mr. E.A. Wallis	PowerGen	POWERGEN
Mr. Karl Walter	Bayer AG	IFIEC

Representatives of members who attended meetings:

<u>Names</u>	<u>Company</u>
Mr. John Banks	National Grid Company
Mr. Daniel Declercq	IFIEC
Mr. Henry van Duin	Hoogovens IJmuiden
Mr. Arslan Erinmez	National Grid Company
Mr. W.-R. Heinemann	VDEW
Mr. Edgar McCarthy	PowerGen
Mr. Juan Moreno	Red Electrica de Espana, s.a.
Dr. J. Siddons	PowerGen

EXECUTIVE SUMMARY

1. The two main reasons underlying the decision to begin consultations on third party access were the need to integrate the Community's electricity markets, as part of the overall 1992 programme, and growing discussion of whether it would be possible and desirable to introduce more competition and consumer choice in the electricity sector.
2. The work of the Professional Consultative Committee on Electricity (PCCE) has successfully fulfilled the Committee's remit of identifying the main implications of introducing a Third Party Access (TPA) regime. But the consultations have shown that clear differences of opinion exist on the advantages and disadvantages of the present system and those of a TPA regime. An inherent complication has been the need to compare the present long-established market system with a type of regime for which there has as yet been only limited experience.
3. Those arguing for change have underlined the benefits that TPA should yield in terms of costs and system efficiency by giving those consumers and distribution companies which were eligible the freedom to negotiate better supply and price arrangements; by opening the way for more trade between regional and/or national systems; and by creating a competitive climate at the level of electricity production for the existing industry, new entrants and autoproducers.
4. Those resisting TPA have argued that it would create uncertainty and have adverse consequences for investment planning, supply security (both overall and at the level of the individual consumer), system control, supply costs and price stability. They consider that the benefits sought could be achieved by other means, without sacrificing the advantages of the present system. They have also argued that TPA would require an excessive amount of regulation going beyond that necessary to protect consumers, and that any benefits of such a regime would accrue only to large consumers at the expense of other users of the system. Lastly, they believe that it would not be right to introduce TPA in a situation where competition would be distorted by differences in national rules and conditions in areas such as taxation, pricing, finance, environmental protection and fuel use.

5. The considerations identified by PCE are described in Chapters 2 to 5 of this Report. This Summary Chapter outlines only the major issues which will need to be addressed in deciding whether or not to move towards a TPA regime, excluding legal questions which were outside the scope of the Committee's work. Before discussing the main issues, however, it is first necessary to describe briefly the concept of Third Party Access and the nature of electricity supply.

TPA and Electricity Supply

6. The concept of Third Party Access is that eligible consumers, producers (including autoproducers) local distribution companies (LDC's) and other suppliers, should have the right to be offered transmission/distribution services. This would make it possible, where capacity was available, for supply arrangements to be contracted directly between individual consumers and suppliers (including independent producers) other than the electricity company usually serving their area, whether those suppliers were located within or outside their own region. As explained in the Introduction to this Report, it was decided from the outset to rule out the 'common carrier' approach in which existing customers might have to give up transmission capacity, pro rata, to make room for new clients.
7. The TPA concept must be interpreted in the light of the nature of electricity supply. The physical nature of electricity and electricity transmission is fundamentally different from other distributed commodities such as water or natural gas. In effect, demand is met instantaneously by tapping into a balanced system where electrical potential is supplied by a range of production units connected to the system. Production units will therefore almost always supply their electricity to the central transmission grid, and consumers (or distributors) will in effect 'take' their electricity from that single source.
8. This has two important consequences. Firstly, the electricity contracted for under a TPA arrangement will not in reality flow from the production unit or area concerned along a given route to the TPA customer. What will happen in practice is that all production/transmission systems directly involved, and possibly some connected systems, will be rebalanced to allow for the production input and the customer's offtake.

Secondly, to ensure the security of the system, the relevant transmission (or grid) company must continue to control the balance between supply and demand, including the power to call-up or shut down individual production units in its region, whether or not it owns those facilities, as well as the power to interrupt supply to consumers where production is insufficient.

Both these points have implications for the TPA concept.

The Main Issues

9. Against this background, the five main issues identified by the Committee were the effects of a TPA regime on:-

- Production Investments;
- Production Costs;
- Transmission Capacity;
- System Control;
- Consumer Prices.

These are discussed briefly in paragraphs 10 to 23 below. The possible modalities of a TPA regime, and the degree of regulation which might be needed, are discussed in paragraphs 24 to 31.

Production Investments

10. There was a clear disagreement on whether total production capacity would be adequate in future under a TPA regime. A majority of the electricity industry representatives argued that uncertainty about future sales in a competitive market situation would hinder planning and capital-intensive investments in new plants and that, as a result, the high level of supply security demanded by consumers could be jeopardised in the longer term. They accepted that TPA customers would often be willing to provide some investment certainty by entering into long term contracts, but argued that the duration of such contracts would be highly unlikely to match the expected life of new production plants. Other Committee members, however, believed that freedom to negotiate direct sales in a much wider market, and better conditions for independent producers, including autoproducers, entering the market, would give more encouragement to production investments and harness new sources of capital. They also argued that the present market system did not always produce an appropriate level of investment, although it was pointed out that political and planning obstacles could give rise to this type of difficulty.

11. A TPA regime might be expected to encourage more autoproduction by enabling autoproducers to market electricity surpluses internationally to a wider range of buyers, rather than just to the local electricity company, or to 'transmit' electricity to other

sites owned by the autoproducer or affiliated companies. Autoproducers would also no longer have to rely exclusively on the local electricity company for electricity purchases at times of deficit.

TPA would not however be the only way of encouraging autoproduction. As noted in Chapter 5, the 1988 Council Recommendation on this subject, coupled with recognition of the efficiency advantages of autoproduction (eg : in CHP schemes) have led to legal or administrative changes in several countries, including obligations placed on electricity companies to buy autoproduction surpluses. These rules would clearly need to be reviewed if autoproducers were assured third party access rights. Decisions on whether purchase obligations should be modified or removed would no doubt depend on the extent to which TPA opened up realistic opportunities to sell autoproduction surpluses, as well as on energy policy considerations. Autoproducers believe that the current situation is not as favourable for them as would be a more open market created by TPA.

12. Within the total level of investment, it was agreed that the type of capacity could be affected by a TPA regime. In a competitive environment, there should be a greater incentive to build efficient and innovative plants, including co-generation/CHP units. Autoproducers, in particular, would be likely to favour CHP schemes. There were however differences of opinion about whether producers would be likely to adopt short-term strategies when faced with uncertainties about future sales levels. To the extent that this happened, companies might decide to reduce front-end investment by opting for smaller and/or less capital intensive plants, which could in turn reinforce the current trend towards the use of natural gas as a power station fuel, and perhaps favour oil as well, with undesirable consequences for the diversification of energy supplies. Decisions to invest in large coal or nuclear plants would depend on companies taking a longer-term strategic view and giving priority to achieving lower unit production costs despite the higher capital investment required. Comparisons with other capital intensive markets do not give any clear guidance on this question. It might well be that the situation would evolve over time, with companies tending to reduce investment risks until they had more experience of the effects of TPA on the electricity market.

13. It is important to recognise that in a competitive TPA situation, it would become much more difficult for governments to influence the choice of power station fuels. Nevertheless it would still remain important for national and Community energy policy to retain a diversified pattern of fuel use. Larger companies would presumably want to maintain some fuel diversification to spread their market risks; and dual firing could become more attractive in a competitive situation. But other means of exerting an energy policy influence might be necessary. To avoid unacceptable distortions in

electricity trade, such interventions would need either to be implemented on Community level, or applied at national level within a framework of agreed Community rules.

Production Costs

14. The impact of TPA on production costs would in part depend on whether there was a tendency to invest in smaller and/or less capital intensive plants, or whether the pressure of competition dictated investments in plants which were more capital intensive but likely to yield lower and more stable production costs. Some investments could of course strike a satisfactory balance between both these aims. In any case TPA, provided that transmission charges were realistic, should encourage economic siting of new plants irrespective of national or regional boundaries, subject always to any differences in local investment conditions (see paragraph 4 above).
15. Another potentially important question is the effect of a TPA regime on plant utilisation. Normally, within any particular system, the grid company will call up individual power stations in accordance with a Merit Order of variable production costs. This economic dispatching procedure should ensure that, at any given time, demand is met by the lowest cost production units, although in practice the situation is sometimes distorted by energy policy interventions in favour of particular fuels. Under a TPA regime, the utilisation of particular production sources would depend only on contractual commitments, unless specific measures were adopted to preserve Merit Order operation. The market forces inherent in a TPA situation would however tend, over time, to favour use of the most economic production units. (This issue is returned to in paragraph 20 below.)

Transmission Capacity

16. It would be logical to accompany the introduction of a TPA regime by removing any legal or administrative barriers discriminating against the construction of transmission lines by companies other than the present grid owners. But, given the high costs of building new lines, some Committee Members felt that this would not be an effective alternative to granting TPA rights to sellers or buyers wishing to use the existing networks.

Because transmission systems are designed to allow for major emergencies and for future demand growth, most systems will have capacity to handle additional transmission demands. Many TPA arrangements would in any case simply rearrange flows within a system, without giving rise to any additional production or consumption. Nevertheless many electricity industry representatives

on the Committee foresee difficulties arising under this heading. They point to the difficulty of assessing the availability of spare capacity to meet short-term, longer-term or interruptible needs. They also underline the integral nature of the production/transmission system and believe that TPA would reduce security and make it impossible to optimise system use. Some other Committee members, however, believe that the key to optimisation is economic dispatching and that it would be possible under TPA to maintain such an approach (see paragraph 20 below).

17. There could, therefore, be cases where it was judged that new TPA contracts could not be managed without unacceptably jeopardising the security of the system and of its existing customers. Also, limitations on transmission capacity are likely to be encountered in trade between different systems, where interconnections are less extensive. These problems and possible regulatory solutions are discussed further in paragraphs 24 to 31 below.

System Control

18. For the reasons explained in paragraph 8 above, central control of a particular transmission system and its related production units would need to continue under any regime. The Committee's discussions have shown that in a TPA situation there would be real difficulties in reconciling this need for central control with the matching of production patterns to contractual commitments.
19. With sophisticated and costly telecommunications and control equipment, it might in theory be possible for a company managing a system to keep the production of individual producers or power stations at a level exactly matching the demand of their contracted customers at any point in time. But in reality, this would not seem to be a practicable approach. The control would need to extend across more than one system, where TPA contracts existed with external suppliers, and unexpected closures of power stations or major consuming plants could also cause difficulties. The major problem however would be the number of contracts to be handled. To avoid discrimination it would probably be necessary to extend TPA rights to a sizeable number of large consumers and distributors in any particular system. The ability to handle a large number of contracts would depend on developments in control technologies.
20. Two possible ways of avoiding this problem would be :
 - a) A Clearing House Mechanism

Under this option the grid company would at all times operate a Merit Order, based on production costs, irrespective of

contractual commitments. There would however be a financial compensation mechanism in which the cost savings achieved by the Merit Order would effectively be divided between the companies producing more than provided for in their contracts, and those producing less.

b) A Pool System

One example of this approach is the mechanism adopted in the new UK electricity regime, which is designed to preserve effective system control and a type of Merit Order dispatching. Under that regime the grid company operates a 'Pool' from which all consumers and distribution companies purchase at the same price. Supplies to the Pool are called up by the grid company not on the basis of costs but according to prices bid by the generating companies for individual power stations. To smooth out the risks of pool price fluctuation, buyers and sellers enter separately into contracts based (usually) on fixed prices.

There were considerable differences of view in the Committee about the merits and relevance of this second option. Some electricity industry representatives felt that it was misleading, in this context, to refer specifically to the new UK regime, which had not been tested over any extended period of time and, in their view, was not relevant to the situation in other Member States, which differed in both legal and structural terms. More particularly it was also argued that the UK pool system was not in reality a TPA regime since there were no direct supply contracts determining production levels. The price bidding system used in the UK was also criticised. Other Committee members argued that the UK regime was a real life situation which could not be ignored by the Committee, and that in providing competition and consumer choice it fulfilled the essential aims of a TPA regime.

It was also recognised that it would be difficult to apply either of the two approaches discussed above at Community level, although trading between national and regional systems organised in this way would be feasible.

Consumer Prices

21. It is clearly not possible to establish in advance the impact of a TPA regime on prices paid for electricity by different types of consumer. Much would depend on whether the particular rules for TPA preserved a Merit Order. A number of electricity industry representatives argued that overall supply costs would increase because of planning inefficiencies and a tendency to reduce front-end investment. They also argued that even (and perhaps particularly) if large consumers negotiated lower prices, small and medium-sized customers would pay more. (The issue of cross-subsidisation is discussed in paragraph 24.)

22. The counter-argument was that improvements in system efficiency and in production costs resulting from a competitive TPA regime should benefit all consumers. Distributors eligible for TPA should in principle also be able to negotiate lower prices, which would in that case presumably benefit both their smaller and larger customers.
23. In any case, TPA competition should tend to ensure that prices for those customers eligible for TPA reflected the true costs of supply (including transmission costs), provided cross-subsidisation was avoided. Distortions in pricing introduced for industrial or regional policy reasons would tend to be driven out of the system.

Modalities and Regulation

24. The main new area of regulation under a TPA regime would concern electricity transport. Regulation on matters such as supply obligations and pricing would continue only for consumers remaining within monopoly franchises. It would be important to decide whether this division should be made on the basis of eligibility for TPA, or according to whether consumers decided to exercise that option.

Some Committee members felt, however, that the introduction of TPA would lead to increased regulation in all phases of electricity supply, including electricity production as well as transmission and distribution.

There were also differences of opinion in the Committee about the risk of cross-subsidisation in a TPA situation. Many electricity industry representatives felt that this risk would be increased because integrated companies or distributors might try to hold on to their larger consumers by cutting prices to them and charging franchise customers more, and that this would be difficult if not impossible to bring under control. Some others on the Committee felt that TPA would reduce the risk of cross-subsidisation through allowing direct sales by electricity producers, and through the separate accounting for different activities (unbundling) which TPA would in their view require. They also underlined that the risk of cross-subsidisation would be reduced if LDCs could exercise market power and pass on the benefits to smaller consumers. It was however common ground that regulators would, as is already the case in many Member States, need to monitor prices from this point of view, although it was argued that the allocation of costs to different categories of consumer was a difficult task.

25. Regulation of electricity transport would in particular have to cover:

- the availability and allocation of transport capacity;
- charges for transportation and related services;
- security of supply arrangements for TPA customers.

26. The amount of transport regulation needed would, in the first instance, depend on the extent of TPA rights. Obviously regulation would be more manageable if only certain types of customers were eligible and fewer TPA arrangements were involved. It is an important feature of the mechanisms described in paragraph 20 that regulation under all three headings in the previous paragraph would be avoided or greatly simplified. Nevertheless, some Committee members felt that in these circumstances difficulties would still arise for the operation and development of the electricity transport network.
27. If, however, a mechanism of this type was not adopted, it would be necessary to find other ways of avoiding the need for detailed case-by-case regulation, which could reach costly and unmanageable proportions. One suggested means of achieving this was to draw up a Legal Code laying down the main principles of a TPA regime (see Chapter 5 paragraph 5), although not all Committee members felt that this would be a feasible approach.

For the reasons discussed in paragraphs 16 and 17 above, transport capacity would be a particularly important but difficult problem to be dealt with under such a Code. Key elements in finding a solution would probably be as much transparency as possible on the capacity situation and separate accounting for transmission services, although some members disagreed with these ideas. It would also be essential to create a situation in which grid companies were willing to provide new transmission capacity if existing capacity was insufficient, and indeed to develop the system in the longer-term in a way which allowed for TPA needs. Increases in capacity would not always involve high investment costs, but in any case the key to ensuring satisfactory system development would be a level of transmission charges which provided an incentive to market transmission services. If this approach did not work, however, it might be necessary to place an obligation on grid companies to ensure, with due notice, a level of capacity sufficient to deal with TPA demands. This proposal was regarded as unacceptable or illegal by most of the electricity industry representatives on the Committee. In either case it would be important that regional or national authorities should facilitate the construction of new lines.

A further means of simplifying regulation might be to include in the Code an arbitration procedure for resolving disputes on certain issues without recourse to the regulator.

28. As an alternative to drawing up a Legal Code laying down the main principles of a TPA regime, the possibility was raised of TPA legislation based on the prevention of abuse by undertakings dominating the market. Such abuse regulation would be, from the viewpoint of both procedures and principles, an element of cartel law. It would leave the conclusion and contents of transmission contracts to the parties involved, thus providing scope for varying solutions. Only in individual cases of refusal to grant access on reasonable terms, would the relevant authorities investigate and take corrective action. They would do so on the basis of general predetermined criteria indicating what situations should be considered as abuses of dominant position. The Committee did not discuss in any detail the arguments for and against such an approach, or its legal implications.

29. The need to adjust to a TPA regime, and some of the regulatory problems which would arise, could certainly be helped by authorising transitional arrangements for a defined period of time.

30. There was wide agreement that it would be most practicable for any TPA regime to be administered jointly at national and Community levels. National authorities could draw up and implement Legal Codes based on agreed principles laid down in Community legislation. Regulation at Community level would be necessary for cross-frontier TPA trade, as well as oversight to ensure harmonisation of national regimes. Community action would also be needed to remove any competitive distortions which were not likely to be driven out by TPA competition.

31. It was argued by some Committee members that the need for regulation on a number of key issues, such as transport capacity and assistance in emergencies, arose mainly from the integrated structure of the industry in many Member States and the need to assure consumers and independent producers that, in a TPA regime, integrated companies would not give preference to their own operations. One means of alleviating this concern could be to provide for 'unbundling' of the operational management and accounting of the production, transmission and distribution activities of integrated companies. This was regarded as impracticable by some Committee members, whereas others believed it to be an essential feature of any TPA regime.

32. Ultimately, the success of a TPA regime and the extent to which detailed regulation could be avoided would depend on the mechanism selected and on the practicability and effectiveness of the regulatory principles which were adopted.

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CHAPTER 1

INTRODUCTION

1. In September 1989 the Commission sent a Communication to the Council on the subject of intra-Community electricity trade¹. This included a proposal for a Council Directive on electricity transit, which was subsequently adopted, with certain amendments, by the Energy Council on 29 October 1990².
2. The Electricity Transit Directive applies only to transactions which involve cross-frontier trade within the Community, and which are conducted by the companies responsible for the Community's transmission grids. It does not therefore assure access to transmission grids for others such as independent producers, autoproducers, non-integrated electricity companies or particular types of consumers. Nor does the transit directive apply to transactions which concern only one Member State.
3. In its September 1989 Communication the Commission announced its intention to hold a dialogue with interested parties before deciding whether or not to make further proposals on third party access. This would be achieved by creating two Consultative Committees, one composed of Member States' representatives and the other of interested parties representing electricity companies, autoproducers and consumers.
4. The second of these Committees, the Professional Consultative Committee for Electricity (PCCE), met for the first time on 7 May 1990 and has been responsible for the preparation of this Report.

The full membership of PCCE is set out on page (...), including changes which have taken place during the Committee's work

5. The terms of reference agreed by the Committee at its first meeting were:

'To identify and present the main technical, economic and administrative considerations which should be taken into

1 COM(89)336 final of 29 September 1989

2 Council Directive 90/547/EEC of 29 October 1990

account in Community policy on whether and by what means third party access to electricity transmission systems should be provided.'

It was not therefore the Committee's task to make specific recommendations on whether or not, or in what form, Third Party Access should be introduced in the Community's electricity system. This will be a matter on which the Commission will make its proposals following this Report and the other consultations now in progress.

6. The following chapters of this Report describe the considerations which PCCE has identified in accordance with these terms of reference. On some points there were important differences of opinion in the Committee, which are recorded in the Report. Although not directly within the Committee's remit, other methods of providing for enhanced competition in electricity markets were raised at various stages of the discussions. Some Committee Members took the view that it would be right to compare the advantages and disadvantages of different types of competition rather than to consider only third party access.
7. Throughout the Report, reference is made to the three basic phases of electricity supply, that is production (or generation), high voltage transmission and local distribution. There are considerable differences in the structure of the industry in different Member States. In some countries the three phases are carried out by a single company, and in others separate companies are involved. The companies concerned are in some cases private and in other cases State-owned or owned by other public or municipal authorities. Mixed ownership also exists in some countries. One common feature however is that the balance of supply and demand in a particular system at any given time must be controlled centrally by the company operating the transmission grid.
8. In its first meeting the Committee underlined the difference between a common carrier and a third party access regime. The former concept would require transport capacity to be allocated pro-rata amongst all applicants at any given time, with no distinction between existing and new clients. This would obviously jeopardise security of supply for existing customers and existing contracts. The common carrier approach is not therefore considered further in this Report.
9. It was also recognised that a number of types of third party access regime were conceivable, depending on which categories of consumer and which categories of suppliers or producers were assured access

rights. Rather than limit the scope of the consultations, it was decided that the discussions should not rule out any particular type of TPA client at this stage. The considerations identified in the Report would then assist the Commission to take a view on the advantages or disadvantages of assuring access for particular types of client, as well as on the overall advantages and disadvantages of the third party access concept.

10. Lastly, it was also agreed at the beginning of the Committee's work that, for effective competition, it would be necessary to evaluate the merits of introducing third party access to both transmission and local distribution systems. It would also be assumed that both transactions within particular countries or regions, and transactions across frontiers, would be covered by such a regime. All aspects of electricity supply would need to be taken into account.

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Chapter 2

EFFECTS ON ELECTRICITY PRODUCTION

Production Capacity

1. A third party access (TPA) regime would make it possible, where transmission capacity was available, for eligible consumers and local distribution companies to negotiate power supply arrangements directly with producers (including autoproducers) or suppliers other than the electricity company usually serving their area. As well as widening consumer choice, this would introduce a new and wider element of competition at the level of electricity production. It would be implicit in such a situation that any other legal or administrative measures which could hinder or significantly distort competition should be remedied.
2. This new situation would, inter alia, over a period of time, affect both the absolute level of production capacity and its make-up.
3. Although demand forecasting is always problematical, greater competition would naturally create more uncertainty for individual producers about their sales prospects. The effect on total capacity would depend on companies' reactions to that additional uncertainty. Some might defer or cancel plans to construct new capacity, or retrofitting investments, because of the risk of losing customers in their region. Others might accelerate or expand their investment plans to take advantage of the larger Community market available to them, and to do so before their competitors. The entry of new companies into the market, would be an important factor in maintaining investment levels.
4. It would certainly assist judgements of individual companies on capacity investments (or closures) if good market intelligence was available on overall demand and supply prospects. This could be organised by public authorities or by the industry itself. Such assessments would need to cover all regions and be concerted for the Community as a whole.
5. There was a clear disagreement on whether total production capacity would be adequate in future under a TPA regime. Over time, the price mechanism if flexible and sensitive to market changes, should provide the right investment signals, but the question is whether TPA competition would bring forward enough investment to maintain at all times a satisfactory level of generation capacity, that is

enough capacity to cover demand and provide an adequate contingency reserve. One view is that the electricity sector is in this respect not fundamentally different from some other major industries, and that there is therefore no reason why shortages should develop in a competitive market, particularly when producers would have a much larger market open to them. There is also the argument that the present market system has not always produced the right level of investment. The contrary view is that, because of the high costs, major capital risks and long lead-times, the necessary degree of investment planning can in the case of electricity only be achieved in a monopolistic or centrally regulated situation, and that, as a result, security of supply for consumers could be jeopardised by a TPA regime.

6. The importance of this question is accentuated by the widely held view, based on consumers past experience, that anything more than a minimal risk of electricity supply interruption is unacceptable. Even in the new UK regime the formula for regulating prices has been constructed in such a way as to provide a strong incentive for new investments when reserve capacity appears likely to decline.
7. The acceptability of supply interruption will in reality vary from one consumer to another. Interruptible contracts can, for larger consumers, already be concluded under the present regime. But, third party access would bring about a new situation in which decisions about supply interruptibility for the relevant consumers were arrived at by negotiation between them and several potential suppliers, rather than decided in a bilateral relationship with a monopoly supplier or determined by government intervention. Consumers would have more scope to define what trade-off between price and security they could accept. More consumers might be willing to accept a greater risk of supply interruption in exchange for a price reduction, or decide to provide some of their own security by installing stand-by generation plant. It would be important for this approach that the customer, and the political authorities concerned, should accept in practice any interruptions provided for contractually, whatever the economic or employment implications.
8. Not all consumers would see advantages in that situation. Many, with less flexibility and market power, for instance householders and smaller industrial consumers, might well prefer to avoid risk and remain covered, as in the present situation, by a regulated monopolistic regime in which they benefited from a supply obligation and regulated prices. Indeed, a reduction in the security of supply for such consumers might well be regarded as unacceptable in social and political terms, particularly where public utilities were concerned. This suggests the possibility of creating two groups of consumers - franchise customers covered by the present monopoly

supply arrangements, and non-franchise customers with third party access rights relying on contractual arrangements only. Membership of one or the other group could be determined legislatively or left to the choice of the consumers themselves, although in the latter case switching back to the franchise sector would clearly have to be subject to administrative control. Some degree of regulation would probably be necessary to ensure that there was no cross-subsidisation between the two groups. Issues of pricing and regulation in this context are discussed further in chapters 4 and 5.

9. To the extent that electricity producers retained a franchise market their investment security would be partly preserved. Some of their other customers might be willing to provide an additional degree of certainty by entering into long-term and committed contracts, although the duration of such contracts would be unlikely to match the expected life of new production plants. The division of the market into franchise and non-franchise sectors would however raise issues of pricing and regulation which are discussed later in chapters 4 and 5 of this report.

Energy Policy

10. As noted in paragraph 2 above, the greater market uncertainty faced by electricity producers under a TPA regime could change the make-up of production capacity.
11. There were differences of opinion about whether this greater market uncertainty would reinforce the present tendency to reduce risk by minimising front-end investment costs in the provision of new capacity. To the extent that this happened, producers would tend to work to shorter planning horizons and favour the construction of smaller and/or less capital intensive plants designed to use natural gas, and possibly oil. It could also become more difficult for utilities to invest in some new and renewable energy schemes which might not be economically attractive in a competitive market situation. Decisions to invest in large coal or nuclear plants would depend on companies taking a longer-term strategic view and giving priority to achieving lower unit production costs. Comparisons with other capital intensive markets do not give any clear guidance on this question. It might well be that the situation would evolve over time, with companies tending to reduce investment risks until they had more experience of the effects of TPA on the electricity market.

As well as their effect on production costs (see chapter 4), changes in the make-up of production capacity could in the long term have an impact on the diversification of fuels used by the Community for electricity production. Although now under review, the 1995 Community

energy objectives adopted in 1986 called for less than 15% of Community electricity to be produced from oil and gas. Since that time, there has been stronger recognition of the environmental benefits of using gas rather than other fossil fuels.

12. Historically, national governments have sought, in the interests of energy policy, to ensure a diversified stock of electricity generation capacity or to favour specific energy sources either by directing or influencing the utilities concerned at the planning stage, or through the authorisation or refusal of construction consents. There have also been interventions in the use of power station capacity, for instance to ensure greater reliance on domestically produced coal.

13. Under a TPA regime it would become more difficult for national governments to intervene in this way. Producers could not reasonably be directed to maximise the use of particular fuels in a situation where the utilisation of capacity was dependent on market competition. Governments could in theory still intervene at the planning or authorisation stage to influence the choice of fuels for new production capacity, but their ability to do so would be constrained by:
 - the fact that the power station would not necessarily be used for supplying electricity to the country concerned;
 - the need for generation capacity to be competitive in the new market situation;
 - the risk that national interventions could distort trade and competition in the Community's electricity market.

14. It seems clear therefore that a TPA regime would, in principle, limit the ability of national governments to ensure a diversified pattern of fuel use, or greater use of indigenous resources, in the electricity sector. In parallel, market forces would tend to increase reliance on natural gas (particularly) and perhaps oil. To some extent, however, the electricity industry itself will want to ensure diversification as a matter of good commercial practice. Nor have energy policy decisions taken in the past under the existing, centrally controlled regime always been effective. Nevertheless both Member States and the Community would probably want to retain some power to act in this field.

15. It is not ruled out that this influence could still be exerted at national level through regulation, incentives, or taxation, but such measures would need to be authorised by the Commission, in accordance with the Treaties, if there were a risk of distortion in intra-Community trade. A more equitable approach would be to offset

any weakening of energy policy control by means of Community measures applying in all Member States, or by bringing national measures within a framework of agreed Community rules.

Independent Production/Autoproduction

16. The entry of new companies into the electricity production field would be encouraged by a TPA regime under which they could market their electricity through the grid to customers or electricity companies outside their own area. The same would be true of autoproducers for their electricity surpluses, which could either be sold or transmitted for use in their own company's branches or affiliates elsewhere in the Community. In both cases electricity price levels would of course also be a key factor in investment decisions.

17. A TPA regime is not the only way in which independent electricity producers or autoproducers could be promoted. In line with the EEC Council Recommendation 88/611/EEC, a number of Member States have sought to promote autoproduction of electricity, or certain types of autoproduction, by defining a framework for co-operation between the utilities and the autoproducers. These measures facilitate, by voluntary or legislative means, sales of electricity by such producers to the supply companies operating in their area. But some autoproducers feel that these arrangements are still not effective in many cases, particularly in the prices paid for surplus production, conditions for back-up supplies and limitations on cross-frontier trade. There would clearly be a need to review these rules if autoproducers were granted access rights. This is discussed further in paragraph 11 of the Executive Summary.

18. Under either approach, better market access for independent or autoproduction would tend to promote co-operative ventures between generators and consumers and to encourage particular types of electricity investments, notably CHP schemes and projects using local resources, including new and renewable energy resources where the economics are favourable. Both examples would be beneficial from an energy policy point of view, and CHP schemes should be particularly attractive in a competitive market situation. The other implication of growing independent production, because of the same front-end cost considerations discussed in paragraph 11 above, would probably be a further reinforcement of the trend towards fuelling with natural gas.

Energy Efficiency

19. The enhanced degree of competition brought about by a TPA regime would certainly encourage CHP schemes and should in general lead companies to search for greater energy efficiency in electricity production. There is also the possibility that a TPA regime might encourage large users to smooth out their demand profiles in response to advantageous prices, although it was argued that this could equally be achieved in the present market regime.

If electricity prices fall generally or for particular consumers, there would be some adverse effect on the efficiency of electricity use. But it would be an economic fallacy in any sector to argue that costs or profits should be inflated to ensure greater efficiency at the point of consumption.

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Chapter 3

**EFFECTS ON ELECTRICITY TRANSMISSION
AND ITS RELATION WITH PRODUCTION**

1. It is an inherent characteristic of the electricity sector that, under any market regime, there will need to be centralised control of the operation of both transmission and production within a particular region⁽¹⁾. As well as providing transmission and related services such as frequency and voltage control, the central control point will have to ensure that production matches demand at any given time, and to deal with unexpected emergencies. The grid control must therefore extend to 'calling up' individual power stations onto the system (dispatching) and, more rarely, to curtailing demand by reducing voltage or limiting offtake by distributors or individual large consumers. This central control is exercised either by integrated electricity suppliers, carrying out both generation and transmission and perhaps also local distribution, or, where the industry structure is not integrated, by the transmission or 'grid' company.

2. It is also a normal feature of the industry that the control centre will operate, within a regional system, an economic dispatching procedure by calling up production units in accordance with a 'merit order' taking account of production, transmission and other variable operating costs in the short and medium term. This type of dispatching will usually take account also of government policy requirements. This process can be furthered by the sort of joint planning and operation of production and transmission carried out by integrated companies. In any case, a continuing dialogue between the responsible companies will be necessary.

3. In discussing the effects of TPA on electricity transmission and its relationship with production two points need to be taken into account. The first is the integrated nature of the production/transmission system. The concept of electricity moving from a particular source of production to a particular consumer is not a reality in European electricity networks. Each entry of new production or new demand to an integrated system rebalances the production/transmission system as a whole. The second point is that it will often be important to distinguish between intra-regional transmission within a region covered by one grid control centre) and inter-regional transmission (between regions covered by

(1) In this report, the area served by a particular grid control centre (whether national or regional) will be called a "region".

different control centres, as well as within those regions). The first aspect is discussed in paragraphs 4 to 15 below and the latter in paragraphs 16 to 26.

Operational Control

4. The Committee's discussions have shown that in a TPA situation there would be real difficulties in reconciling the need for central control with the matching of production patterns to contractual commitments. The company operating the grid would still have the responsibility for controlling transmission and production to ensure quality of service and maintain a balance between supply and demand. But depending on the number and the nature of TPA contracts, the complexity of the control operation would need to increase considerably to ensure that specific contractual commitments were implemented. The ability to handle a large number of complex contracts is not guaranteed in the present status of technology. Ways of avoiding this difficulty are discussed in paragraph 20 of the Executive Summary.

TPA would raise a number of other basic questions:

- the availability and allocation of transmission capacity;
- the basis for transmission charges;
- the effects on production patterns and economic dispatching..

Transmission Capacity

5. It is assumed in this report that any TPA regime introduced in the Community would not allow new TPA arrangements to override existing supply obligations, whether legal or contractual. As explained in the Introduction, the alternative 'common carrier' approach, in which any demand for transmission at any time would have to be accommodated by sharing the available capacity pro-rata amongst existing and new users, could obviously have an unacceptable impact on security of supply and is not considered further in this report.
6. Many TPA contracts would not involve any increase in electricity demand, but only replace one supplier with another. But such contracts could nevertheless result in an additional load and transmission losses if the new supplier was geographically more distant and/or the direction of supply was adverse. Contracts involving new electricity demand, or in some cases transit through the system, would be more likely to have this effect.

7. Most transmission systems will have some capacity to handle additional transmission demands. Some of this flexibility should however be reserved for dealing with emergency situations (see paragraph 8) and, it is argued, could not be used for TPA, even interruptibly, without jeopardising that need. The integrated industry also argues that it would be economically disadvantageous for all concerned to use transmission capacity for TPA rather than for 'spot' trade between different electricity systems, designed to maximise the short term use of lower cost production. Some consumers argued however that spare transmission capacity should not be reserved for trading opportunities limited to electricity companies.

8. It would be essential to ensure that a growth in TPA contracts did not undermine the security of the overall system. This could happen if there were an unacceptable reduction in the ability to 'bring' electricity from other parts of the system, or from adjoining systems, to replace unexpected supply losses. It would not therefore be feasible for TPA contracts involving new transmission demands to go ahead unless the company responsible for the grid could handle the transmission without jeopardising security margins, or had been granted sufficient time to provide additional transmission capacity. Transmission charges should always reflect this security element. (The security of supply implications for consumers of TPA contracts are discussed later in chapter 5 of this report.)

9. There would inevitably be a risk of disputes arising when TPA consumers or producers were refused transmission services because the company operating the grid took the view that sufficient transmission capacity was not available, or was unwilling to provide the necessary capacity in a reasonable timescale.

There are a number of possible ways of alleviating this problem:

- (a) a system of regulation could be introduced in which the regulatory authority or independent arbiters would assess the situation and decide whether the capacity limitation was valid. This could be a complex and time-consuming process, particularly if the resulting decision was then appealed to the Courts. The expertise of the electricity company on the technicalities of its own system would be difficult to match;

- (b) Some type of obligation to provide capacity could be imposed by law on the transmission company. This could include an obligation to construct new transmission lines, or to increase the capacity of new lines already planned, where TPA needs could not otherwise be provided for without jeopardising the needs of the overall system. Such an approach would clearly require a reasonable period of notice to be given for major new

TPA transmission requirements, as well as willingness to enter into term contracts. But it would not be easy to impose obligations to invest on integrated companies, particularly perhaps private companies, in a situation where TPA contracts were reducing their own sales. And there are often real planning difficulties hindering the construction of new lines.

- (c) Integrated companies could be required to introduce separate operational management and accounting for the services they provide, including transmission. While maintaining coordination of overall planning, this would help to improve transparency in the transmission phase of the business, including the capacity situation, cost structure and revenues. But judgements on the availability of capacity would still remain complex.
- (d) separate ownership of transmission would create a situation in which the grid company was interested only in providing transmission services, irrespective of which suppliers and consumers were involved. In that situation the company could itself be expected to take all the steps necessary to market transmission services, including the construction of new capacity. But, representatives of the integrated electricity industry argued that separate ownership could have negative consequences in terms of the overall economics of the system, which are at present based, in most countries, on central planning within integrated utilities.

- 10. A combination of some or all of these options might well be required. This aspect of the TPA issue is discussed further in the Executive Summary.
- 11. In principle, one further way of encouraging more competition would be to remove any legislative obstacles to the construction of new transmission lines by companies other than the owners of the existing transmission systems. Much would however depend on circumstances. Where electricity was to be supplied to a new greenfield site there would seem to be no particular reason to exclude the construction of an independently-owned transmission line, linked to a production source, either directly or, if a TPA regime was in force, through the main grid. If such a new link was to be connected to the main grid, the design and operation of the link would need to match the grid's technical requirements, and the resulting security and quality of supply should be paid for in an appropriate way. But where the electricity was to be supplied to a site already serviced by the grid, planning authorities would be unlikely to welcome the construction of lines where transmission capacity was available in the existing system. A possible approach, if changes to the present regime were thought desirable, would therefore be to liberalise construction alongside the introduction of a TPA regime.

Transmission Charges

12. Under a TPA regime transmission would remain very largely a monopoly service, and would therefore inevitably be subject to price regulation. Such regulation would need to cover charges for ancillary services (reserve capacity, differences in production patterns, metering, providing reactive power etc..) as well as transmission charges. One basis for setting transmission charges would be system costs, plus a reasonable rate of return.

Other possibilities might be competitive bidding or some calculation of opportunity costs, but these would not seem to be appropriate in a situation where transmission largely remained a monopoly service, and could introduce economic distortions. But even for a cost-related system of charges a number of questions would remain:

- (i) how should the costs of a particular transmission operation be calculated, given that any flow would in reality react on the whole system rather than travel along a fixed path? Indeed some TPA contracts could actually reduce costs by counteracting the general direction of electricity flow in the system;
- (ii) should capital costs be reflected in transmission charges on a historical cost or replacement cost basis? The latter would clearly do most to promote the construction of new lines, but would that be an equitable basis for users of the existing system? If not, would it be acceptable for TPA users of the system to be at a competitive disadvantage?

These questions are discussed further in chapter 5 on Modalities and Regulation.

13. These are classical problems of utility regulation to which solutions have been developed in other countries, although often on a basis of rough justice and never without leaving room for criticism. The separate accounting for services referred to in paragraph 9(c) above would probably be essential and would help to clarify the true level of transmission costs, which are not always fully understood in the present situation. It is also worth noting that problems of this type would be alleviated by independent ownership of transmission systems. In that situation the companies concerned would no doubt seek to develop and encourage optimal use of their system by proposing a competitive and reasonably simple structure of transmission charges.

Production Patterns

14. The Merit Order approach commonly followed in regional production/transmission system operations (paragraph 2 above) would appear to be undermined by a TPA regime. Rather than calling up power stations only according to their production costs, the grid company would have to ensure that production from particular suppliers, or even particular stations, was in accordance with contractual commitments. The question is whether this would tend to increase average production costs by making it no longer possible to optimise the system as a whole, although it was pointed out by some Committee Members that current Merit Order optimisation is limited by regional boundaries and often distorted by energy policy constraints.

15. One view is that TPA competition for lower cost supplies would in any case ensure over time that the most efficient and lowest cost sources of production were preferentially exploited. The other view is that special measures should be adopted to ensure that a Merit Order is retained. This has been the view taken in the UK where a Pool System has been adopted which operates a type of Merit Order based on bidding prices. Under this system all consumers, irrespective of their supplier, pay the Pool price at any given time, together with a charge to cover local distribution costs. The Pool price is composed of the system marginal price derived from the bids and of a capacity related element. It includes also an element to cover the costs of the transmission grid. However, consumers as well as suppliers who wish for greater predictability of electricity prices may enter into option contracts. The concept of the pool is returned to in paragraph 20 of the Executive Summary.

Inter-Regional TPA

16. The first part of this chapter discussed the implications of introducing a TPA regime within a particular regional system in terms of the effects of that regime on transmission, and on its relationship with production, within that system. It did not deal with the effects of a wider Community TPA regime, which would apply to transmission involving more than one regional system, as well as within particular regional systems.

17. A Community-wide TPA regime could take the form of either a single regime applied at Community level or a harmonised set of national TPA regimes accompanied by rules governing the treatment of electricity moving between Member States under TPA contracts. In either case basic questions about operational control, transmission capacity, charges and production patterns would again arise (paragraph 4) but in a more complex form.

Operational Control

18. Under a TPA regime extending across more than one regional system, operational control would become still more complex. A particular system operator would now have to take account not just of TPA contract arrangements within his own system (paragraph 4 above) but also of inter-regional transactions. The costs of telecommunications and control systems would certainly increase, as would the sensitivity of the system to telecommunication failures. But long-term contracts with local back-up arrangements would probably be easier to accommodate.

19. In this context it is important to recognise that the decision of a particular consumer to enter into a TPA contract with a supplier outside his own region would not 'remove' him from his local system. Physically, he would remain part of that system and would benefit from the flexibility, quality of service and security provided by its central control system, interconnected network and stock of generating capacity. The ultimate example of this would be a situation in which the 'external' supplier of a TPA customer could no longer provide a supply because of a breakdown in production or transmission facilities. In these circumstances the local system would automatically take over the burden of meeting that customer's demand, unless specific steps were taken to cut him off from the system (which might not be acceptable in the case of priority users). It is clear that the possibility of a TPA customer having this recourse, and the payments to be made for that facility, would need to be negotiated in advance.

Transmission Capacity

20. The problem of resolving disputes about the availability of transmission capacity, including the risk that TPA contracts might infringe the ability to deal with emergencies, would presumably now be accentuated by the scope for TPA contracts with external suppliers or consumers, and by additional transit of electricity through systems (including systems not directly on the theoretical transmission path). The options outlined in paragraphs 9(a) to (d), and their advantages or disadvantages, would not change fundamentally, but there would be an additional need for any such measure to be harmonised at Community level. The same need for harmonisation would also arise in the case of authorisations for the construction of new 'independently-owned' transmission lines (paragraph 11).

21. There is also the question of interconnections between different systems. These lines are used at present for the existing spot or longer-term trade between regional systems, as well as for mutual

help in emergency situations, and the level of capacity available will often relate only to these needs. Inter-regional TPA contracts would be in direct competition for this capacity. The problems of determining the availability of capacity or the allowable contingency reserve, and of ensuring the construction in good time of new interconnection lines, would in this case involve more than one country or region, and would therefore presumably need to be solved at Community level. The trend towards greater interconnection would help to increase the flexibility and reliability of the Community system.

Transmission Charges

22. As well as the considerations discussed in paragraphs 12 to 13 above, the principles for calculating transmission charges would clearly need to be harmonised at Community level to avoid unnecessary distortions in trade patterns. The level of charges would, inter alia, need to take account of additional costs arising from greater complexity of system control and operation. Conversely, increased utilisation of the system could help to reduce transmission costs.

Production Patterns

23. Any direct form of TPA regime, whether at national or Community level, would appear to undermine the 'merit order' approach or economic load dispatch regime within a particular regional system (paragraph 14). In addition, increased trade through a particular system, if predominantly in one direction, could tend to rebalance the system in such a way as to impose a further 'directional' distortion in the use of power stations, at least until new transmission capacity was provided. On the other hand, TPA would reduce the distortions created by the fact that the "merit order" approach is generally limited to the boundaries of a particular regional system.
24. Again, the two possible options outlined in paragraph 15 would apply in the case of TPA, that is to rely on competition to produce an acceptable outcome over time, or to adopt some type of Pool system. For a Community-wide regime, the latter approach would presumably have to be based on establishing a series of 'Regional Pools', with imports or exports being treated in the same way as production or consumption within each system, as is already the case for inter-system trade.

25. An important factor to be taken into account in considering the merits of TPA is the co-operation which takes place under the present structure of the European electricity industry, which includes a growing level of trade between systems. The industry believes that because the integrated national or regional companies are not in direct competition with each other, they are readier to co-operate in matters such as transit or the provision of assistance in emergency situations. They believe that this type of mutual support would become more difficult to arrange if, because of the introduction of TPA, the industry moved from a co-operative to a competitive regime. Emergency assistance would however seem likely to remain a matter of some mutual concern.
26. The introduction of cross-frontier competition through a Community TPA regime would raise a number of questions in the industry about competitive distortions arising from differences in the conditions which electricity utilities face in their own countries. Examples of this would be differing environmental standards, planning procedures, taxation regimes, subsidies or national requirements to give preference to particular power station fuels. The Commission has recognised that this type of problem should be addressed in its overall internal market programme to ensure fair trade and competition in all energy sectors, although not as a prerequisite for market integration. TPA induced competition should however help to identify and 'drive out' such distortions. This is discussed further in chapter 5.

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Chapter 4

EFFECTS ON COMPETITION, PRICES AND CONSUMPTION.

Competition

1. Although there will be some scope for the construction of extensions to the grids by generators and large users (see chapter 3 above), it will very often remain uneconomic, under any type of legal regime, to duplicate existing transmission lines or distribution networks. The stage where competition has a practical significance in electricity is, therefore, production. One way of promoting such competition would be through TPA, which would allow eligible consumers and distributors to conclude contracts directly with producers on a commercial basis.
2. If such a competitive choice existed, consumers exercising that choice would presumably benefit because they would have a better opportunity to negotiate not only price but some non-price terms to suit their needs. Terms related to the quality of electricity like frequency and voltage control would, however, remain an integral part of the supply contract and could not be separately negotiated. The relationship between the supplier and the customer should be more balanced with TPA, particularly if there were good market transparency. There were however differences of opinion on whether all consumer classes would benefit equally and, in particular, what the effect would be on consumers without access rights or with less market power. This is discussed further in paras 12 to 17 below.
3. There is already a limited degree of competition in electricity production. The UCPTTE exchange mechanisms enable utilities to trade electricity among themselves in a co-operative framework and recent developments point towards the development of a more commercial inter-utility spot-market. One further point made by the electricity industry is that the publication of comparative prices amounts to an indirect form of competition between utilities.

Competition at the level of production could also be enhanced without TPA if there were a regime establishing fair conditions for the grid to buy its electricity from competing independent producers (see chapter 2 above). This would imply that the grid is either a separate entity independent of the generators or an integrated company subject to a regulation ensuring that it does not favour its own generation plants. However such a regime would not give individual consumers any direct say in their supply arrangements, although they should benefit indirectly from any cost savings.

4. Lastly, under this heading, it is important to recognise that competition between producers at Community level would be affected by differences in national rules on matters such as environment standards, planning consents, fiscal/accounting practices or fuel choice. Increased trade and competition should tend to reduce or harmonise such interventions, although in some cases Community level solutions might need to be found.

Effects on costs.

5. Competition will always provide a clear incentive to put downward pressure on costs, whether variable or fixed capital costs. The present electricity structure does already include, in some cases, price control mechanisms by national authorities that provide incentives for cost minimisation and ensure that price increases are only allowed when the utilities can demonstrate that cost increases reflect rational operation. Also the UCPT exchange mechanisms (referred in paragraph 3 above) enable utilities to optimise the use of production resources to a certain extent. The question is whether TPA and the form of competition it allows will lead in the electricity sector to higher cost efficiency than other forms of organisation.
6. There are different opinions about this. One view is that integrated electricity companies are in the best position to identify potential additional benefits, and that co-operation will suffice to bring overall costs down. It is also argued that TPA would be accompanied by significant extra costs deriving from the need for new control systems, planning difficulties and sub-optimal use of the production/transmission system. The contrary view is that TPA induced competition would bring additional pressure on costs as well as more technical and commercial flexibility.
7. In the analysis, it is important to distinguish the short term static effects of TPA from the long term dynamic ones. Short term effects result from the fact that TPA allows consumers to compare offers from suppliers and to make an economical choice. Long term effects depend on the companies' strategies to take advantage of the opportunities and cope with the risks of the open market.
8. In the short term, TPA would also affect costs through its impact on the dispatching order and on transmission operations.

Cost increases could be experienced if TPA was implemented in such a way that the economic dispatch of plants were disrupted, although

It is arguable that customers seeking lower prices would, over time, ensure the most efficient use of capacity and the network (chapter 3). Nevertheless it is uncertain whether TPA contracted demand and supply would be compatible with the practical constraints of the operation of the grid and would ensure, within those constraints, the use of the most efficient production capacity over time. Paragraph 20 of the Executive summary discusses possible ways to preserve Merit Order operation by allowing the grid to retain the authority to operate independently from the contracts and call on production in an economic way. This approach within a region presumably achieves the same savings as the present economic dispatch applied in many regions of the Community.

An interregional TPA regime would provide an external incentive for more interregional trade and should, therefore, allow a wider use of low cost resources in the limits of the present interconnection system, thus reducing the average cost of production. It was however argued that such trade would in any case now develop under the current regime.

9. TPA would affect and presumably increase the cost of transmission operations. Transmission losses could increase as the quantities of transmitted electricity increased, although such increases would be small in relation to the total supply costs of electricity (chapter 3). Metering and billing requirements would increase. Technical co-ordination between regional control centres would become more complex. But these additional costs should be paid for and offset by the difference in production costs in the production and consumption regions, which would be the driving force for TPA contracts.

A number of additional costs could also result from too short a transition period to TPA.

10. In the long term, TPA should have an impact on costs through the producers' new approach towards investment and the search for greater internal efficiency.

The impact of TPA on production costs will in part depend on whether TPA changes the make-up of supply (chapter 2 above). Considering the increased market uncertainty, producers might seek to minimize front-end investments and avoid large capital intensive investments that are only recoverable in the long term. This factor could raise average production costs, although other producers might decide that the lower and more stable production costs offered by larger plants were still attractive, particularly in a competitive situation.

A number of electricity industry representatives argue that overall supply costs would increase because of planning inefficiencies.

The counter-argument was that competition would improve system efficiency. In particular, TPA or another means of allowing more competition at the level of production should also broaden the scope for involvement of energy consuming industry in electricity generation and thereby lead to more development of CHP plants. This would result in lower electricity production costs and higher production efficiency. TPA would also reduce the costs of environmental protection insofar as it modified the energy mix in favour of gas and improved overall energy efficiency (see again in chapter 2).

11. The argument was also made that TPA should bring cost benefits in allowing consumers to define better what services they are interested in and at what prices. The unbundling of services would help to diversify the concept of electricity supply and provide a basis for identifying costs and therefore pricing, for instance as regards security of supply. TPA should also encourage better load management as prices more closely followed supply costs. But the contrary view was that these needs were already met by the present market organization.

Effects on prices.

12. For TPA consumers, some components of the final electricity price such as transmission and distribution would still be regulated and cost based. The price of electricity at the level of production would, however, be determined by the market for those consumers, subject only to regulatory safeguards designed to protect non-TPA consumers from paying for cross-subsidisation. In a competitive pricing situation it is not certain whether the market would perform smoothly, or whether, as in other capital intensive commodity markets, spot prices would fluctuate widely. But most consumers and producers would probably want to enter into more stable longer term contracts.
13. TPA would also shed new light on the issue of prices for different classes of consumers. Electricity prices should be non-discriminatory in this sense and should reflect the costs incurred in supplying the various categories of consumers. Domestic consumers pay more for their electricity than large industrial consumers. This is due to technical factors (delivered quantities, voltage of delivery, shape of the load curve,..) and to the fact that domestic consumers tend to expect a high degree of security of supply. In most Member States, the relative prices for different classes of consumers are monitored by public authorities.
14. At present, however, the ratios between the domestic consumer (regulated) price and the large industrial consumer (regulated or

not) price vary widely between the Member countries. This may be due to structural differences in the electricity production, transmission and distribution systems, or to different policy influences, or to regulatory imperfections as regards the allocation of costs to different consumer classes.

15. With TPA, the prices paid by customers eligible for TPA would be set by market mechanisms and should, in the longer term, reflect differences in supply costs. Distortions in pricing introduced for industrial or regional policy reasons would tend to be driven out of the system.

There were differences of opinion in the Committee about the risk of cross-subsidisation in a TPA situation. Many electricity industry representatives felt that there could be an increased risk of large industrial consumers negotiating price reductions to an extent that would have to be compensated for by the remaining consumers supporting a larger part of the fixed investments. Some others on the Committee felt that TPA would reduce the risk of cross-subsidisation through allowing direct sales by electricity producers, and through the unbundling of accounting which TPA would in their view require.

16. It was however common ground that regulators would, as is already the case in many Member States, need to monitor prices from this point of view and ensure that captive and smaller consumers were not exploited to the benefit of other larger consumers. But the identification and allocation of the costs is a complex and uncertain process. Consumers' organisations could, as at present, help to protect smaller consumers by monitoring developments and ensuring a satisfactory regulatory process. Lastly, price transparency would clearly be essential in this sense .
17. If adequately regulated, distributors could play a useful role in this respect by aggregating demand of domestic and intermediate consumers, negotiating TPA contracts and spreading potential benefits to all users. But distributors might find it more difficult than final consumers to negotiate flexible requirements for the reliability of supply as they would have less scope for controlling electricity demand. This might prevent them from obtaining, by means of TPA, rebates similar to those of final consumers of comparable size, although they might be able to compensate for this by offering greater sales volumes.

Effects on consumption

18. TPA's impact on electricity consumption will depend on the price effects and the price elasticities in each of the submarkets. Large industrial consumers take the view that consumption in a number of sectors would significantly increase with TPA, through promoting new uses of electricity and making more likely investments in new electricity consuming plants.

19. TPA could, through better price signals, provide incentives for effective load management and electricity savings. It should encourage distributors to seek ways of modifying the demand patterns of domestic consumers. But the industry argues that the same incentives can also be provided for with the present market system.

* * * * *

Chapter 5

MODALITIES AND REGULATION

1. Regulatory patterns in the Member States differ according to industry structures and the degree of public ownership. In general, although electricity utilities are subject to a variety of rules on matters such as safety, land use and the environment, the main areas of regulation relevant to this report have been consumer prices and the obligation to supply.
2. Insofar as particular types of consumer were outside a TPA regime, this type of regulation would, for them, continue. The governments or regulatory authorities concerned with price regulation would still need, as now, to take account of the allocation of costs over the whole system. Consumers not outside TPA would wish to be assured that the market power exerted by TPA buyers was not loading onto them an undue share of system costs, for instance through TPA buyers being offered prices based on marginal costs. This difficult problem of identifying true costs and potential cross-subsidisation already exists in the present situation and might even be alleviated to some extent by the greater transparency inherent in a TPA regime. But the risk of cross-subsidisation, and the level of concern about that risk, might increase under a TPA regime.
3. There should however be no need for regulation of the prices charged for generation by electricity producers to consumers who took advantage of a TPA regime. In that case competition and consumer choice would ensure that prices were equitable. All that would be needed would be the usual national or EC competition rules, and the provisions of contract law.
4. Under a TPA regime, therefore, it would mainly be in the field of electricity transport where a need for new forms of regulation could arise. At present, in most Member States, electricity transport is controlled by the grid owners and transmission is not usually carried out for third parties. But if a TPA regime was introduced some new mechanism would be needed to ensure that access was made available and that the charges for use of the grid were fair. It would be the duty of the organisation or organisations charged with this responsibility (the regulator) to protect the interests of all the users of the grid, including the grid owners, and to ensure that decisions, for instance on reserve capacity, were compatible with the security of the system.

Code of Practice

5. It would be important that any such regulatory system should be as simple, transparent, practicable and effective as possible. Case-by-case regulation should as far as possible be avoided. One suggested means of achieving this was lay down the strategic principles of a TPA regime in advance in the form of a Legal Code, drawn up after consultations between the regulator and representatives of all parties concerned. This Code would probably have to include:
- a definition of which types of companies or individuals should have a right to TPA and of how those rights should be activated; it would be important to decide whether the division should be made on the basis of eligibility for TPA, or according to whether consumers decided to exercise that option.
 - a requirement to offer to applicants spare transport capacity, if necessary on an interruptible basis, without prejudicing the legal or contractual rights of existing customers;
 - transitional arrangements for changing to a TPA regime;
 - quality of service standards for all customers (e.g. frequency, voltage, connection conditions);
 - any system of priorities modifying the basic first come first served system of allocating capacity to new applicants if temporary shortages of capacity arise;
 - non-discrimination between returning and new customers;
 - possible marketability of transmission contracts;
 - a requirement for the company owning the grid to publish regular information on grid capacity and capacity constraints;
 - Possibly, an obligation on the company owning the grid to maintain a sufficient level of transport capacity over time to provide for its own customers and for TPA business (including an allowable contingency reserve) subject to any necessary conditions on timing, feasibility and the costs of constructing new lines;
 - principles for determining non-discriminatory transport charges;
 - back-up arrangements;
 - a requirement to publish, and keep up to date, a scale of charges for transportation and related services;

- confidentiality of individual transport commercial arrangements;
- any procedures for resolving disputes on any of the above matters before recourse to the regulator.

The Code could also include provisions necessary for the protection of customers outside the TPA regime, for instance on supply obligations and cross-subsidisation.

There was disagreement about the extent to which this approach would avoid detailed case-by-case regulation and provide acceptable solutions to the problems arising under a TPA regime. The need for regulatory intervention should decrease over time as precedents were set and disputes resolved.

Transport capacity

6. The availability and allocation of transport capacity would be a particularly difficult problem to be dealt with under such a Code. This issue is discussed further in the Executive Summary.

Transport Charges and Costs

7. The identification of the principles for setting transport charges would be another particularly complex aspect of this approach. Each TPA operation would involve costs made up of many elements arising from the transmission as well as from the provision of related services and the rebalancing of the system concerned. Various studies are in progress to develop more sophisticated charging principles, but in the meantime there would seem to be no operationally practicable alternative to the publication of a 'standard' scale of maximum charges, taking account of only a few basic variables such as distance, quantity, capacity and perhaps interruptibility. Contract duration might also be a factor. Provided that transmission charges were realistic, they should encourage economic siting of new plants irrespective of national or regional boundaries.
8. Such a standardised system of charges would no doubt produce situations where charges were higher or lower than the specific characteristics of a particular transaction would justify, but provided that the basic principles were adequate these differences should not undermine the viability of a TPA regime or of the transmission system. Transport costs are not a major element of total supply costs and integrated electricity companies do not at

present calculate them in any detail when contracting with new customers. In the course of time more sophisticated methods of transmission pricing should evolve under the impetus of a TPA regime.

9. It would have to be a pre-requisite for establishing such a scale of charges that the short-term and long-term costs of transportation related services should be 'unbundled' from a utility's overall costs in accounting terms. This 'unbundling' could also include the allocation of these costs to various customer categories, thus reducing the risk of cross-subsidisation. Also, basic decisions would have to be taken by the regulator on matters such as the use of average or marginal costing, the appropriate rate of return or profit margin, and the calculation of capital charges in historic or replacement cost terms. It would be essential for the regulatory system to ensure the continued financial security of the grid company and the viability of investments in the transmission system. Price differences arising from the 'vintage' of particular transmission lines should probably be avoided.
10. A suggested alternative approach to the setting of transmission charges on the basis of costs is to allow them to be determined by negotiation between the parties concerned. But this would not seem to be an acceptable approach in a situation where the grid companies have monopoly power and are often integrated upstream and downstream. This may not however rule out the possibility of some element of market negotiation within ranges, or below maxima, set in accordance with the principles established by the Code.

Security of Supply

11. One further aspect which would need to be included in a Legal Code governing a TPA regime would be the arrangements and cost principles under which the local electricity system should provide back-up emergency supplies to a customer in its supply area which had a TPA contract with an external supplier. It would seem appropriate for this service, if requested by the TPA customer, to be provided for, and charged for, in each TPA transmission contract. Such services could also be provided by third parties.
12. One further related provision in the Code would be to ensure that a TPA customer wishing to 'return' to his local supplier was treated without discrimination in the same way as any other new customer eligible for TPA, provided appropriate notice of leaving or returning was given. New customers benefiting from legal supply obligations would of course receive priority.

Prevention of abuse legislation

13. The possibility of legislation based on the prevention of abuse was also suggested and is mentioned in paragraph 28 of the Executive Summary.

Level of Regulation

14. Given the need for local knowledge, the considerable variations between national systems, and the principle of subsidiarity, it would seem advisable for the Legal Codes and regulatory mechanisms discussed above to be drawn up and operated at Member State level. But the Codes and their implementation would need to be based on Community-wide principles to ensure no distortions in national or cross-frontier electricity trade.
15. In addition, there would need to be a degree of central supervision to ensure the correct application of the Community principles, the harmonisation of national regimes and principles for transmission charges, and to deal with cross-frontier trade. In the latter case, principles would need to be laid down for access to inter-system transmission capacity (including the provision of additional capacity) and for the corresponding transport charges. These responsibilities could be undertaken either by the European Commission or by a new supervisory agency at Community level.
16. Lastly, under the heading of modalities, the electricity industry argues strongly that greater competition, for instance by means of a TPA regime, should not be introduced until a level playing field has been created by removing competitive distortions arising for example from differing national laws, arrangements for licensing electricity production, energy policy interventions or State subsidies. The contrary view is that it would never be feasible to delay all action to complete the Community's internal market until such differences had been eliminated, and that open trade and competition should indeed help to 'drive out' such distortions. The Commission is in any case committed to removing such distortions by the use of its Treaty powers or by seeking new legislation at Community level. It will also address any other relevant barriers to cross-frontier electricity trade.

* * * * *

Glossary of terms

Access right	Right to the use of the transmission and distribution system in a TPA regime.
Autoproduction	The generation of electricity by an enterprise for its own final consumption, some of which may be available for sale to other parties.
Broker/Trader	An intermediary who buys electricity from whatever source for its subsequent resale.
CHP-Combined heat and power plant	Plant designed to produce heat for own purposes or for supply to local customers (district heating) as well as to generate electricity.
Common carriage	A regime providing for a general obligation on transmission and distribution companies to provide electricity transport services at all time, with no distinction between existing and new clients and by allocating capacity prorata amongst all applicants.
Cross subsidisation	Process of charging an unjustifiably low price to one group of customers and compensating for this by charging higher prices to other customer groups.
Distribution	The transport of electricity on lower voltage local networks in view of its delivery to final consumers.
Franchise area	An area in which an electricity company is providing services to franchise and possibly non-franchise customers.
Franchise customer	A captive customer in a franchised area.

Grid control	The centralised control of the operation of both transmission and production within a region, including load management, maintenance of reliability and generation plants dispatch.
Independent producer	A producer of electricity not associated either with transmission or distribution business.
Local or regional distribution company - LDC -	A local or regional distribution company which is not part of an integrated electricity company.
Merit order	The ranking of available electricity generating plants with a view to their economic dispatching, usually on the basis of variable generating costs.
Non-franchise customer	A customer who may or may not be in a franchise area who has been granted access rights.
Partly integrated electricity company	A company performing two of the tasks of generation, transmission and distribution in a coordinated way with the view of supplying wholesale or final consumers.
Production	The generation of electricity
Production/Transmission System	A group of production and transmission assets operated as a whole.
Region	The geographical area served by a particular grid controller.
Regional system	A production/transmission system in a region.

Supply	The delivery of electricity to final consumers, combining its generation or purchase, transmission and distribution.
Third Party Access - TPA	A regime providing for a qualified obligation on companies operating electricity transmission grids and distribution networks to offer terms for the use of their system.
Transmission	The transport of electricity on the high voltage interconnected grid in view of its delivery to wholesale or final consumers.
Transport	Includes both the transmission and distribution functions.
UCPTE	(Western European) Union for the coordination of production and transport of electricity.
Unbundling	Disaggregation of charging, accounting or management of particular operations, or even ownership of a wholly integrated or a partly integrated company.
Wholly integrated electricity company	A company performing the tasks of generation, transmission and distribution of electricity in a coordinated way with the view of supplying final consumers.

LIST OF BACK-UP PAPERS TRANSMITTED BY COMMITTEE MEMBERS
UP TO 19 APRIL 1991

LISTE DES DOCUMENTS TRANSMIS PAR LES MEMBRES DU COMITE
JUSQU'AU 19 AVRIL 1991

LISTE DER BIS ZUM 19 APRIL 1991
VON AUSSCHUSSMITGLIEDERN ÜBERMITTELTEN DOKUMENTE

- 1) UNAPACE - (M. Buscaglione) 28 May 1990
- Note on transport of self-generated electricity
+ IFIEC-EUR position paper
- 2) EURELECTRIC 5 July 1990
- Opinion on utilisation of transport by third parties
(definition, impact on either the production system
or the transport of electricity)
- 3) VDEW - (Pr.Dr.Grawe) 29 August 1990
- Comments on PCCE(90)9 and PCCE(90)13
- 4) VDEW - (Pr. Dr. Grawe) 3 September 1990
- Comments on PCCE(90)9 and PCCE(90)13
- 5) ENEL - (M. Bonetta) 10 septembre 1990
- Critiques concernant les travaux du PCCE
- 6) EURELECTRIC 11 September 1990
- Note concerning Exchange, Transit and Conciliation/
Mediation
- 7) SEP - (Mr. van Hoek) 11 September 1990
- Criticism on the proceedings of PCCE
- 8) EDF - (M. Destival) 13 Septembre 1990
- Critiques sur le déroulement des travaux

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|-----|-------------------------------------------------|--------------------------|
| 9) | EURELECTRIC | 13 September 1990 |
| | - Criticism on the proceedings of PCCE | |
| 10) | SEP - (Mr. van Hoek) | 21 September 1990 |
| | - Comments on PCCE(90)9 Rev and PCCE(90)13 | |
| 11) | IFIEC - (Mr. Gibbons) | 1 October 1990 |
| | - Comments on PCCE(90)Rev | |
| 12) | VDEW - (Prof. Dr. Grawe) | 1 Oktober 1990 |
| | - Stellungnahme zu PCCE (90)9Rev und PCCE(90)13 | |
| 13) | RED ELECTRICA - (M. Paz) | 2 octobre 1990 |
| | - Commentaires au PCCE(90)9 Rev | |
| 14) | ELECTRICIDADE DE PORTUGAL - (M. Pereira) | 4 octobre 1990 |
| | - Commentaires au PCCE(90)9 Rev et PCCE(90)13 | |
| 15) | NATIONAL GRID Co. - (Mr. Jefferies) | 8 October 1990 |
| | - Comments on PCCE(90)09 Rev | |
| 16) | VDEW - (Pr. Dr. Grawe) | 9 October 1990 |
| | - Comments on PCCE(90)9 Rev (*) | |
| | - Comments on PCCE(90)13 (*) | |
| 17) | VDEW - (Pr. Dr. Grawe) | 15 Oktober 1990 |
| | Strohpreis-Vergleich | |

(*) English translation (short version) of the comments on 1 October 1990 to PCCE(90)9Rev and to PCCE(90)13.

- 18) **GESELLSCHAFT FÜR STROMWIRTSCHAFT - (Mr. Pöttken)** 18 Oktober 1990
- Schriftliche Wiedergabe Ausführungen in Sitzung
12.10.1990
- 19) **EDF - (M. Destival)** 18 octobre 1990
- Précisions concernant une intervention du 12
octobre 1990.
- 20) **SEP - (Mr. van Hoek)** 23 October 1990
- Comments on PCCE(90)13 Rev
- 21) **GESELLSCHAFT FÜR STROMWIRTSCHAFT - (Mr. Pöttken)** 31 Oktober 1990
- VIK-Studie
- 22) **VEEN - (Mrs. Kip)** 1 November 1990
- Comments on PCCE(90)13 Rev
- 23) **ENEL - (M. Bonetta)** 6 novembre 1990
- Contributo personale ai lavori del PCCE
+ traduction française
- 24) **Mr. GIBBONS** 9 November 1990
- IFIEC's paper on principles of regulating the
electricity transmission and distribution systems.
- 25) **VIK - (Dr. Budde)** 14 November 1990
- VIK-report "TPA - A competitive instrument in
the Electrical Power Sector"
- 26) **VDEW - (Pr. Dr. Grawe)** 15 November 1990
- Stellungnahme zu PCCE(90)17

- 27) **VDEW - (Pr. Dr. Grawe)** 19 November 1990
- Internationale Strohpreisvergleich
- 28) **IFIEC - (Mr. Buscaglione)** 7 December 1990
- Specific position of industrial self-generation
- 29) **Pr. SCHMITT** 10 Dezember 1990
- Erste Überlegungen zur Gestaltung des Durchleitungs entgeltes.
- 30) **DSM - (Mr. Fransen)** 10 December 1990
and 21 December 1990
- Comments on PCCE(90)19
- 31) **DSM - (Mr. Fransen)** 21 December 1990
- Comments on PCCE(90)17Rev
- 32) **DSM - (Mr. Fransen)** 21 December 1990
- Comments on PCCE(90)19
- 33) **IFIEC - (Mr. Gibbons)** 21 December 1990
- Comments on PCCE(90)17Rev
- 34) **IFIEC - (Mr. Gibbons)** 21 December 1990
- Comments on PCCE(90)13Rev and PCCE(90)15Rev
- 35) **RED ELECTRICA - (M. Paz)** 28 décembre 1990
- Commentaires aux PCCE(90)15 Rev et PCCE(90)17Rev
- 36) **SEP - (Mr. Van Hoek)** 8 January 1991
- Comments on the use of the contingency reserve.

- 37) Pr. SCHMITT 9 Januar 1991
- Anregungen zum Abschlussbericht
- 38) RED ELECTRICA - (M. Paz) 11 Janvier 1991
-Traduction française de commentaires sur les
PCCE(90)15 Rev et PCCE(90)17Rev du 28.12.1990
- 39) EURELECTRIC - (Melle A. Riedl) 10 January 1991
- Request to postpone meeting of 14.1.91 to 24.1.1991
- 40) ENEL - (M. Bonetta) 14 Janvier 1991
- Commentaires relatifs au PCCE(91)1
- 41) UNAPACE - (Mr. Buscaglione) 14 January 1991
- Note on self-generation
- 42) EDF - (M. Destival) 18 Janvier 1991
- Commentaires sur le résumé et conclusions
- 43) DSM - (Mr. Fransen) 18 January 1991
and 21 January 1991
- Comments on Summary and Conclusions
- 44) VEEN - (Mrs. Kip) 18 January 1991
- Comments on PCCE(91)1
- 45) Mr. FASSBENDER 21 January 1991
- Comments on the work of PCCE
- 46) VDEW - (Pr. Dr. Grawe) 23 January 1991
- Comments on the work of PCCE

- 47) **Mr. GIBBONS** 21 January 1991
and 25 January 1991
- Comments on Summary and Conclusions
- 48) **RED ELECTRICA - (Mr. Paz)** 25 January 1991
Comments on PCCE(91)1 and its translation
- 49) **BDI - (HH. Kreklau - Böke - Heller)** 28 Januar 1991
- BDI Position zur Durchleitung-Strom
- 50) **ENEL - (Mr. Bonetta)** 30 January 1991
- Comments on PCCE(91)1 (in French)
- 51) **VEEN - (Mrs. Kip)** 4 February 1991
- Remark on second revised Executive Summary
- 52) **UNAPACE - (Mr. Buscaglione)** 6 February 1991
- Point 11 of Summary and Conclusions.
- 53) **REDESA - (Mr. Paz Goday)** 6 February 1991
- Comentarios al PCCE "Draft Final Report"
- 54) **Pr. Dr. J. GRAWE** 8 February 1991
- Comments on chapters 2 to 5
- 55) **CPTE - (Mr. Waha)** 11 février 1991
- Commentaires sur l'introduction et le résumé
- 56) **Pr. Dr. D. SCHMITT** 11 February 1991
- TPA by abuse legislation
- 57) **VIK - (Dr. Budde)** 13 February 1991
- Comments on position of the German Federation of
Industry (BDI) concerning "Common Carriage"

- 58) IFIEC - (Mr. Gibbons) 13 February 1991
- Article of High Technology concerning recent developments in metering
- 59) EDF - (M. C. Destival) 14 février 1991
- Commentaires concernant l'introduction et le résumé
- 60) DSM - (Mr. Fransen) 15 February 1991
- Comments on chapters 1 to 5 of PCCE(91)1
- 61) Prof. Dr. J. GRAWE 15 February 1991
- Comments on Glossary
- 62) DSM - (Mr. Fransen) 15 February 1991
- Comments on chapter 1 rev Introduction - Executive Summary Glossary
- 63) IFIEC - (Mr. Gibbons) 15 February 1991
- Comments on PCCE(91)1 REV - Introduction
- 64) ENEL - (M. Bonetta) 15 février 1991
- Commentaires sur les chapitres "Introduction" et "Rapport de Synthèse"
- 65) N.V.SEP - (ir. G.A.L. van Hoek) 18 February 1991
- Letter concerning PCCE
- 66) SIGE - (Mr. E.A. de Wit) 26 February 1991
- Letter on TPA to electricity and gas grids
- 67) ADEIC-FEN - (Mr. Gambart) 27 février 1991
- Commentaires concernant le projet de rapport

- 68) VEEN - (Mrs. Kip) 4 March 1991
- Comments on PCCE (91)4
- 69) SEP - (Mr. van Hoek) 4 March 1991
- Comments on PCCE(91)4
- 70) VDEW - (Pr. Dr. Grawe) 5 März 1991
- Stellungnahme zu PCCE(91)4
- 71) Dr. PÖTTKEN 5 March 1991
- Comments on "Common Carrier"
- 72) ENEL - (M. Bonetta) 6 mars 1991
- Commentaires relatifs au PCCE(91)4 confirmant
les lettres des 30 janvier et 15 février
- 73) PPC - (Mr. Papastefanou) 8 March 1991
- Comments on PCCE(91)4
- 74) RED ELECTRICA - (Mr. Paz) 8 March 1991
- Comments on PCCE(91)4
- 75) EDF - (M. Taccoen) 8 mars 1991
- Commentaires concernant le PCCE (91)4
- 76) Dr. PÖTTKEN 11 March 1991
- Comments on PCCE(91)4
- 77) CPTÉ - (Mr. Waha) 11 mars 1991
- Commentaires concernant le PCCE(91)4

- 78) **Mrs. KIP** 18 March 1991
- Reaction to Mr. Jones' letter of 15.3.91
- 79) **DSM - (Mr. Fransen)** 20 March 1991
- Comments on addendum to PCCE final report
- 80) **EURELECTRIC _ (Mr. Bergougnoux)** 21 March 1991
- Position of Eurelectric
- 81) **IFIEC - (Mr. Mongon)** 4 April 1991
- IFIEC Europe Statement (addendum to PCCE final report)
- 82) **IFIEC - (Mr. Gibbons)** 10 April 1991
- Comments to final draft report
- 83) **VEEN - (Mrs. Kip)** 19 April 1991
- Position statement and reaction to Mr. Van Hoek's
letter of 4 March
- 84) **ZENTRALE VERBAND DER DEUTSCHEN ELEKTROHANDWERKE**
(H. Fassbender) 19 April 1991
- Stellungnahme zu TPA

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Adeic-fen

Association d'éducation et d'information du consommateur
de la Fédération de l'Éducation Nationale

43, boulevard du Montparnasse
75006 PARIS

Tél. : (1) 40.49.03.04

Fax : (1) 45.48.18.58

Christian Gambart
Member of PCCE

Paris, 27. february 1991

Mr Clive JONES,
Directeur général adjoint de la
DGXVII "Energie"
C.E.E.
200, rue de la Loi.
BRUXELLES

Sir,

You would like to find above the remarks that inspires me the last issues of the PCCE report.

The report that is laying us, well globally show from the outset, the contradictories opinions that raise as well the actual system than the TPA system considered.

One know the problems the actual system can raise:

- disparity of different national situations,
- absence of choice for consumers,

-climate of non economic competitiveness that induce a certain stability that one, may be mix up with a sane economical situation.



Le quotidien c'est important

One can wonder if the actual electricity output and distribution in Europe don't look like a melting point of a liquid after a suddenly fall of temperature... So take only one example, the electricity output, made by EDF (the state owned company for electricity in France) is one of the more competitive in Europe. But the management of nuclear waste is, in France, a political problem. Paul Gardent delivering his twelve "wise men"(referred to the subject) advice report, proclaimed, the last 21 of February : "EDF has to integrate the management cost of the nuclear waste in the KWh price". If he would be followed by the french government, what would be the future of the EDF price of electricity? One should multiply examples : to show that we may be argue about the european electric situation with data that have, may be, gone.

The TPA project certainly presents the meant to set the problem and to propose an alternative. Nevertheless, one have never totally can convince us. Ones who are in favor of this system, can base their opinion on a really pertinent acquired example. Great Britain was often cited. But don't we are too close for a proper view to judge the experience? Aren't there scale differences with Europe?

The TPA system obviously keep a speculative dimension.

Although it is, our comity remarks have put in evidence the crucial problem of the small consumers necessary protection? Whatever will be the electric energy distribution in Europe, they can't be too much the captive victims of those crossed subsidisation so often showed as implicate reply to TPA (from what the reference to control instances).

But, are we certain that the actual organization is more efficient to answer everywhere and always that care ? The TPA system at least presents the interest to set a guarantee, relating to the subject, to the home consumer : a formalized guarantee at this level, more and more pertinent for consumption, that is the Community.



ANNEX II

COMITE EUROPEEN DES ENTREPRISES D'ELECTRICITE
EUROPEAN COMMITTEE OF ELECTRICITY SUPPLY INDUSTRY

21st March 1991

Orig : F

**WHAT FORM OF COMPETITION FOR THE ELECTRICITY
SUPPLY SECTOR IN EUROPE ?**

POSITION OF THE CONTINENTAL MEMBERS OF EURELECTRIC

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INTRODUCTION

Looking ahead to the single European energy market, the EEC Commission has initiated discussions concerning the opportunity of creating new forms of competition between the participants in the electricity sector, in particular by opening the electricity grids to third parties. This is the method favoured by the EEC Commission, in its approach to integration of the electricity sector in the single European market.

This document describes the position adopted by the Continental members of Eurelectric on this important question.

In all countries, the electricity companies - in their various legal forms - have all been given the mission of providing a service of general economic interest, comprising the supply of electricity to the Community:

- the availability of supply is due to all, and must be provided under optimum conditions of cost and security, with security covering both the short term (continuity of supply) and the longer term (development of equipment required to satisfy demand;
- electricity prices must reflect the cost of each supply, in order to avoid cross subsidies between different consumer categories. Prices must comply with the principle of equality of treatment. In certain countries, a system of geographical tariff equalization is also applied to certain categories of consumer;
- given the importance of electricity production in the energy budget, the electricity companies contribute to the policy of the public authorities in the area of security of primary energy supply.

This note sets out to examine:

- the method of constituting an operating model for electricity systems, common to all countries irrespective of their institutional diversity, and how this model can assist the electricity industry to carry out its mission of providing a service of general economic interest;
- why free third party access to the grids would impede this mission;
- whether the existing model can still be improved, while retaining its advantages in terms of economic and security-related efficiency.

1. A COMMON MODEL - ITS EMERGENCE IN THE PAST AND RECENT CHANGES

1.1 Emergence of an "industrial model" of electricity supply system operation

The first point which strikes one when comparing the organization of electricity supply systems is their diversity. The German system comprises hundreds of separate companies, some public, some semi-public and some private, each contributing to the electricity supply function, while the Italian and French systems are dominated by a single, large public authority. This diversity reflects the political and institutional traditions of each country to a large extent.

However, despite this diversity, the systems all present a number of common points, sufficiently pronounced for their inclusion in a single operating model, and one which is sufficiently flexible to take account of the diversity of institutional forms, although broader than the limited area covered by the expression "service monopoly with an obligation to supply".

This "industrial model" is characterized by the following:

- close coordination of production and transmission over vast areas, regions or countries, and the objective of balanced regional supply, based on location of production resources close to the consumption centres, with, in particular for purposes of economic efficiency, security of supply and quality of service, a single operator responsible for running the production-transmission system in each area;
- close relations with distributors on a long-term basis, these relations accompanying the service monopoly and obligation to supply, present in all cases de facto or de jure;
- a method of regulation characterized by the predominating intervention of the public authorities, which control utilization of public property, choice of investments and tariff levels.

The emergence of this model forms part of the history of electricity supply, and is based on two major technical innovations at the origin of the electricity supply system:

- the arrival of alternating current, the victory of which over direct current at the beginning of the century terminated competition between two technically different systems. The production-distribution grid systems then became local public services;
- the possibility of electricity transmission over long distances, and the increase in the unit size of power stations.

Between the two world wars, and as a result of oligopolistic competition for the territories, a number of production-transmission-distribution systems ("electricity supply holding companies") were set up, and were finally controlled, in practically all cases, by the State or by the regional authorities, on the basis of continuous, flexible regulation.

Crystallization of a common industrial operating method thus appeared as the historical result of selection, introduced progressively due to competition, of forms of organization and regulation enabling the electricity supply sector to carry out its mission more efficiently.

The industrial model of electricity supply effectively took shape as a result of competition, when the electricity companies, starting from a local dimension, engaged in a race for increased size, enabling them to benefit from the increased return generated by the creation of vast production - transmission systems, while lowering the cost of electricity and increasing security of supply. This race for increased size was naturally restricted by the technical and economic limits of long-distance electricity transmission. It is cheaper to transmit fuel, such as gas, coal or oil, over long distances.

A certain degree of competition is still present today, due to the existence of independent distributors (which are also producers in certain countries), and the possibility of certain large industrial consumers to develop their own production of electricity, or locate their new centres in areas where electricity prices are most attractive.

In Europe, relations between producers are based on simultaneous cooperation and competition:

- cooperation generates very substantial gains in efficiency, resulting from interconnection of the national systems. It should be remembered that the electricity companies of continental Europe were thus encouraged to set up groups such as Nordel and UCPTE, which have experienced considerable development. These groups include both EEC and non-EEC countries, all contributing to improved security of supply, reduction of transmission losses, and optimization of production;
- competition applies pressure in various forms, such as competition between primary energies, competition in the spot market for electricity, trading between interconnected companies, and indirect competition resulting from comparison of prices and quality of supply.

In this system, the control applied by the State guarantees that fair prices, based on actual costs, are applied to the different groups of consumers, all of which represent captive customers. Indirect competition resulting from comparison of electricity prices in Europe, constitutes an incentive for improved efficiency, and influences the location of industries in certain cases, and consequently regional and local economic development.

1.2 Subjects of debate and reforms over the last ten years

The various reforms introduced appear to be essentially due to the identification of difficulties associated with the structure of the industry or regulations applying to the industry, rather than the introduction of major technical innovations.

These reforms have differed substantially from one country to another:

- in the United Kingdom they form part of general political options, which the State, which owns the Electricity Supply Industry, has been able to undertake in the uniform legal, technical and economic context of an insular system. The Electricity Act, voted in 1989 has begun to introduce competition in generation and supply as part of privatization of the industry. A regulator has been appointed, with a duty to promote competition and regulate those aspects of the activity which remain monopolistic. Open access to transmission and distribution networks for suppliers and consumers has been introduced by separation of generation, transmission and distribution functions into separate companies in England and Wales and into separate businesses within the two main (vertically integrated) Scottish companies. Pool trading arrangements enabling integrated technical operation of the system based on a bid priced merit order compiled by the grid company have been put in place in England and Wales, side by side with supply contract arrangements for financial operation. Special trading arrangements apply between the Scottish companies. Both have been allocated a part of the interconnection capacity between Scotland and England over which they can trade with Pool in England and Wales. France also trades with the Pool through a Cross Channel Link. Codes of practice ensure the technical operation of the integrated system, trading operation of the integrated system, trading across interconnectors with other systems and emergency cooperation;
- in the USA, reforms are situated in a special legal, economic and industrial tradition, with specific energy contexts. In certain States, production has been opened to other participants via auctions organized by the regulating authorities and electricity companies, although this experiment has so far been of limited scope. It should be recalled here that the initially extensive reflection on opening the grids to end users, has now been totally abandoned in the USA;
- in Spain and the Netherlands, State intervention has changed the structures, in order to achieve stronger concentration and coordination of the electricity sector (although in the Netherlands, a large manufacturer has the right to consult a producer remote from its own area, this legalized option has not yet been taken up);
- the industrial model has also evolved in other countries, where the electricity supply sectors have had to adapt to new economic situations, while preserving the framework of coherence essential for security of supply.

Thus, if we leave aside the important reforms undertaken in Great Britain, the lessons to be drawn from which all will not be apparent for several years to come, recent changes clearly reflect emphasis on improving the efficiency of the electricity supply industry as far as possible, by the introduction, where appropriate, of additional competitive elements at the production level, while retaining the advantages acquired with the "industrial model". Opening of the market to competition at production level - yes, but opening the electricity supply grids to third parties in general - no.

Through the subjects of debate and reforms introduced in the last ten years, we discern the outline of two major alternatives to the industrial model, for operation of the electricity supply sector, with on the one hand, the initial draft of a deregulation model, which breaks away from the current model (English system), and on the other, the opening of production to competition, but without opening the grids and accompanied by the improvement of existing regulations, while retaining the established principles of the industrial model (USA, Spain, etc.)

We shall therefore analyse the alternatives, following a recapitulation of the logic, coherent with its mission, with which the existing model complies.

2. INDUSTRIAL MODEL

The main advantages of the industrial model are as follows:

- exclusive service areas provide producers, whether they are also engaged in distribution activities or not, with the long-term security required for commitment of major investment spread over a lengthy period (these exclusive service areas enable distributors, where they are independent, to conclude long-term supply contracts with their producers, or in certain countries, to achieve a suitable multi-source production situation);
- the essential need for security of supply, which forms an integral part of the mission with which the electricity supply industry is charged, is taken into account for each geographical area by a single operator, having authority over production, the topology and operation of the grid, exchanges with neighbouring systems, and as an ultimate measure, load-shedding;

- substantial productivity gains are obtained by means of integrated programming, and optimized operation of interconnected production-transmission systems;
- national governments, in their capacity as regulating authorities for the electricity supply industry, possess the resources required to implement their energy policies, and ensure long-term security of supply.

2.1 Service monopoly and long-term investment decisions

Long-term security, which is necessary for amortization of investments, is essential for electricity producers as a result of the capital nature, long construction period and lifetime of the power plants, which further-more can only be used to produce electricity. Operators only decide to invest if the level of risk is acceptable.

Consumers may think, wrongly, that they are not concerned with the investment amortization problems of the electricity supply industry, but are interested, on the other hand, in obtaining advantageous prices, and in reliable supply and good quality of service.

The existence of a large service monopoly with an obligation to supply for a specific geographical area, reconciles the need for long-term security on the part of the producers, and the shorter term considerations of the consumers. This situation effectively provides a framework in which the decision to commit specific investment, representing the most efficient basic production resources, can be made. The service monopoly provides a guarantee of having to meet demand over a period of time, the assurance of being able to pass on production and transmission costs to all consumers, by means of tariffs controlled by the public authorities, and the possibility of achieving optimum control of future demand forecasts, and thus organizing the increase in individual demand at lowest cost, principally by means of the electricity tariffs, and passing on productivity gains on an equitable basis.

2.2 Security of supply

Electricity has become vital for operation of the national economy, the daily life of the population, and operation of the public services, with particular reference to health and public order.

Thus security of electricity supply has become a major necessity for all businesses participating in this activity.

This means that any interruption of supply must be reduced to a minimum, in terms of both duration and frequency.

The industrial model clearly demonstrates, from this point of view, that the production, transmission and distribution of electricity form a system, all the component elements of which are heavily interdependent. Thus, the high level of security of supply achieved in Europe is based on the existence of a single operator, holding authority for a vast area, region or country, over production, the topology and operation of the grid, exchanges with neighbouring systems, and where appropriate, load-shedding as a last resort to avoid breakdown of the system.

Some customers consider that the supplies they demand do not require the degree of guarantee normally provided by the local supplier. It should not be forgotten that the local supplier will provide this guarantee at all events, in view of the integrated operating laws governing the grid, and that the local supplier must allow for this in his production and transmission reserve planning. Furthermore, if the customer does not require this guarantee, numerous forms of contract covering interruptible supply, subject to prior notice, are now available.

2.3 Integrated programming and optimized operation

The industrial model is based on the concept of an integrated production-transmission system, in which the EHV grid interconnects a large number of production centres, and a multitude of supply points to the distribution networks throughout the territory. Considerable economies of both scale and scope are achieved, to the benefit of the consumers, by means of this inter-connection, combined with integration of system planning and operation:

- economies of scale associated with the increase in individual demand and supply;
- economies of scope associated with the complementarity of the load curves for different categories of consumer, combined with planning for an optimum production structure, global planning of maintenance for production and transmission capabilities, management of hydraulic reserves and demand management actions, and implementation of tariffs aimed at lowest cost management of the supply/demand system.

2.4 Energy policy

The flexibility of electricity supply, for which all sources of primary energy can be used for production, constitutes an essential advantage for this energy vector, in the face of the uncertainties of the world energy market.

The electricity supply industry in each country, regulated by the national governments, thus plays an important part in the implementation of national energy policy, and can also contribute to implementation of the European energy policy. The recent Gulf crisis reminded us how it was possible for a number of European countries to achieve a rapid and substantial reduction

of energy dependence in the past, as a result of conversion of the production facility to energy sources available in the country concerned, or to imported energies involving a lower risk than that of oil, combined with an increased penetration of the national energy budget by electricity.

2.5 Regulation - limits of the industrial model

Those who criticize the current organization of the electricity supply industry, point to difficulties concerning regulation of the monopoly, whether public or private. This regulation must provide for tariff control and optimization of production, which essentially relates to the choice and implementation of investments and primary energy sources.

However, it must be stressed that improvement of this regulation can provide a partial answer to these criticisms. Flexible, continuous regulation applied by the public authorities, can indeed be based on reasonable "rules of the road":

- tariff levels must cover all electricity costs, including the cost of capital, while the tariff structure must reflect seasonal, weekly and daily variations in supply costs, according to the load curve for each user, and differentiation of grid costs according to the connection level for each customer;
- the choice of production and transmission investment, determined on a centralized basis for each area, region or country by the companies concerned, and which conditions a high proportion of the cost per kWh, can be justified very easily in economic terms, on the basis of minimization of long-term costs.

Nevertheless, the control of producer efficiency in terms of construction and operating cost control for production resources, is one of the many preoccupations of the electricity supply industry regulating authority.

2.6 Diversity of national situations

Differences between electricity prices in the EEC countries stem from the diversity of situations in each country.

The differentiation of costs, and consequently of electricity service prices, is the result of various factors, including:

- economies of scale in favour of large companies;
- geographical, orographical, user density and mean consumption level situations which differ according to the territories served.

This set of factors, which have an impact in one direction or another on the determination of company costs, and which can therefore offset each other, only provides a partial explanation of the price differences observed.

The main cause of these differences must be sought in the varying operating conditions imposed on the electricity companies by the public authorities, in the various countries.

The following aspects should be remembered, in particular:

- constraints and prohibited access to certain primary energy sources (e.g. obligation to use high-cost national coal production, prohibition or moratorium on use of nuclear power);
- relatively severe constraints imposed in connection with the protection of the environment, as to the location, type and operating methods for production facilities. These various requirements lead to differing levels of financial charges for transmission, production or distribution;
- differences in taxation levels for fuels employed for production, and applied to electric energy sold (in certain cases, this component has a major impact on user price differences, in particular where taxation is based on excise duty in addition to VAT tax);
- different funding possibilities and methods, and remuneration of invested capital, for the companies;
- tariff policy constraints imposed by the government for macro-economic reasons, such as anti-inflationary measures, restriction of end-user consumption, and the competitive position of national industries in export markets.

3. DIFFICULTIES RESULTING FROM THIRD PARTY ACCESS TO THE GRID.

The idea of opening grids to third parties is based on economic analyses made in a North American context during the 1970s and early 1980s, with respect to all grids. The supporters of this common approach to grid economics proposed a new breakdown of these sectors (overhead transmission, telecommunications, gas, electricity, etc.). Grid infrastructures were to remain natural, regulated monopolies, whereas the remainder (transmission, added-value services, and gas and electricity production) were to be opened to competition. These economic analyses were expressed, in legal form, in the "Essential Facility Doctrine".

Thus, the constitution of a deregulation model for the electricity supply sector is based on the convergence of three elements: the notion that no further increase in production efficiency is possible, the theory of competitive access to the grids, liable to form a bottleneck for upstream or downstream competition, and increased public awareness of environmental problems and "small is beautiful" ideology.

Following an initial period of deregulation based on this approach (concerning telecommunications, overhead transmission and gas), numerous economists, lawyers and professionals from the industries concerned in the USA, are now experiencing the need to take the technical and economic characteristics of each sector more fully into account. It is from this viewpoint that this document presents a specific analysis of the electricity supply sector.

The notion of third party access (TPA) has been put forward, for the purpose of developing competition at production level, resulting from market pressure exerted by end-user customers. Opening of the grids would enable distributors and large industrial consumers to have their electricity supply carried and delivered by the grid operated by a specific electricity company, thus enabling the consumer to buy electricity directly from the producers of its choice. Symmetrically, opening of the grids would give the producers the same grid access rights, enabling them to sell electricity directly to the distributors or large industrial consumers.

A TPA situation would thus terminate the traditional integration of the commercial and transmission functions of the electricity transmission and distribution grids and networks. This would create two new markets: a captive market for captive customers, and a wholesale electricity supply market, corresponding to a competitive market situation with direct sales to customers holding grid access rights. In other words, there would be a regulated market and a competitive market, both served by the same physical transmission and distribution networks. The American regulators describe this as a "half-slave, half-free" sector.

Any administrative separation, such as that involving separation of production, transmission and distribution of electricity, consequently failing to take account of the physical characteristics of electricity (non-storability, transmission at the speed of light) is open to criticism. Analysis of actual costs would then be made practically impossible, and consequently subject to agreements which would not take account of the realities of operation.

TPA would require coherent development of regulations covering the complete electricity supply sector, as we shall see as we examine in succession, in terms of economic efficiency, its effects on distribution, transmission and production.

But firstly, to analyse these questions, we must determine what technical conditions a TPA system must meet in any case, while preserving the essential requirement of security of consumer supply. Is this indeed possible?

3.1 Security of supply and third party access

Irrespective of the concrete methods adopted, a TPA system must ensure that the security of consumer supply is maintained. For this purpose, control of the electricity supply system by the despatching system operators must also be maintained. This control is based on operator capacity for action and anticipation, and the operators must therefore retain their authority over the production resources, the topology and operation of the grid, exchanges with interconnected neighbouring systems, and load-shedding operations where necessary. This control is necessarily applied over the complete area in which the operator is responsible for supply, and must have access to all the above possibilities for proper management of his resources.

In the short term and real-time, the despatching unit operator must be able, in particular, to interrupt any electricity transmission transaction on behalf of a third party, where the transaction poses a threat to security of supply in the area under his responsibility. This is naturally true in a real-time situation, where the operator must return the electricity supply system to its normal operating configuration as quickly as possible, following multiple incidents affecting the grid or production, at the same time minimizing the consequences of the incidents for consumers. However, this is also true in a predictive management context, as the operator must retain the responsibility for taking any necessary preventive measures, to ensure that any unscheduled failure of a production or grid element has no real-time consequence on continuity of supply.

We already know that it will be essential, for transit contracts concluded between grid operators, to link the quantity and quality of the transiting energy to a set of programmed advance warnings and values. This has major technical consequences associated with physical laws, involving the implementation of a set of exchange services, usually of a reciprocal nature (adjustment of frequency and voltage, exchanges of information, coordination of procedures, etc.).

However, procedures of this type would not be sufficient for TPA contracts. A number of conclusions can be drawn from examination of the technical aspect alone:

- direct sale contracts between a producer and distributor or large industrial consumer, could not include any guarantee of supply. Only correct operation of the complete grid system, combined with local intervention on production under the authority of the despatching units - taking due account of technical possibilities - could ensure that a non-captive customer (TPA customer) obtains uninterrupted supply and the

requisite quality of service. Services necessary for security of supply, including reserve management, would be provided by the local producer;

- regulation of grid access (see paragraph 3.3) should take account of the above elements. Furthermore, as the assessment made by the system operators concerning the conditions required for security of supply could be contested by third parties, it would be necessary to set up an authority (regulating authority) to settle disputes of this nature, which would take the interests of all participants' (owner of the grid, free TPA customer and captive customer) into account on an equitable basis. The question of the return of a free TPA customer to the regulated system, would have to be considered in this context.

It must not be forgotten that the continental EEC countries possess a very extensive grid system with a dense mesh structure, destined to be extended to include operation in parallel with the Central and Eastern European countries, as desired by the EEC authorities.

The important task involving the uprating of standards covering security of operation on the grids of the Central and Eastern European countries, can only be undertaken if the European electricity companies can cooperate for this purpose. In contrast, a TPA situation would be liable to smother the grids under the constraints resulting from commercial agreements, differing from those which the electricity companies make for the benefit of all users.

It should be pointed out that the direct competition introduced by opening the grids would cast doubt on the current practice of mutual, voluntary back-up practiced by the partners of the interconnected grid system, which will have negative effects on security of supply.

At all events, we must observe that definition of the free capacities of a grid, namely those which the operator can release after allowing for the transmission reserves required for emergency services in the event of an incident, is a delicate matter. Corresponding estimation varies in the course of time, according to the regional production-consumption budgets, withdrawal of facilities from service for maintenance purposes, etc. Rules of priority between the various grid users, would therefore have to be established as a safeguard for eventual difficult operating situations.

We shall take another look at the majority of these problems, which reflect the integrated nature of the production-transmission system, examined from the angle of economic efficiency.

3.2 Protection of captive consumers and regulation of distribution

As long as captive consumers continue to exist, there must be a public authority responsible for their protection, and in particular for ensuring, as far as possible, that cross subsidies do not act against them.

This means firstly that consumers having access to a "free" market should be prohibited from returning to the regulated market, and be deprived of the option of demanding from their natural supplier, not only actual electricity supply but also application of regulated tariffs. In the absence of any such prohibition, the switch-over effect would enable these consumers to avoid a part of the fixed cost charge, to the detriment of the captive consumers.

However, any such prohibition of return to the regulated monopoly system would obviously be inadequate to guarantee the total absence of cross subsidies. With the current system of exclusive service areas, producers have little reason to apply cross subsidies as their market share is not dependent thereon. The task of the regulating authority is facilitated. On the other hand, under TPA conditions, each producer will be encouraged to revert to cross subsidies, to the detriment of captive consumers, in order to win or retain his share of the competitive market, and thus at least ensure global coverage of his costs.

Regulation aimed at controlling cross subsidies is difficult to apply. It supposes first and foremost, that rules are established for the assignment of costs to the various consumer categories, whereas the electricity supply system is a single entity, where "physical" assignment of specific production to specific consumption is never made, and the grid delivers energy to a large number of individual consumers.

This regulation also requires permanent monitoring, as the cost structure is not stable. Production and transmission costs vary according to equipment structures, actual location of production and consumption, grid saturation, environmental standards, and the fluctuation of primary energy costs, etc. to which we must add, in the case of a TPA situation, that the procurement costs for his captive markets for a given operator, will depend on the actual volume of his competitive market share.

This means that the regulating authority must monitor each consumer category according to its individual grid connection level, load curve, etc., and supplier. For this purpose, the regulating authority will need to have detailed knowledge of costs, far beyond what can be provided by separating production, transmission and distribution accounting functions, and close to the level of knowledge possessed by the operator himself, who would have no incentive in the direction of transparency. A TPA situation would provide an incentive to distort prices with respect to costs, as we have already seen. Furthermore, it should be noted that cost transparency is incompatible with the form of competition introduced by a TPA situation, and does not exist in any other sector of industry. Furthermore, as indicated at the beginning of this chapter, it will be necessary to employ keys, frequently open to debate, and not justifiable, for the purpose of distributing costs.

Thus, it is not established that regulation of this type, and which is capable of ensuring appropriate protection for captive consumers, is workable. Were this the case, the problem would still remain of ensuring that regulation provided an incentive in the direction of grid management efficiency, the grids remaining natural monopolies at all events. In this respect, the fact that a distributor can enter the free market, does not relieve him of the need to regulate his own activity or protect his captive customers, or remove the incentive for him to seek the most favourable procurement conditions.

Thus, a TPA system does not avoid the need for regulation of tariffs and grid access. This is partly true today, but regulations will become much more complex and difficult to manage, in contrast to the popular notion that competition will simplify the task of the regulating authority.

The complexity of regulating a "half-slave, half-free" sector is illustrated in the case of telecommunications in the USA. In contrast to the initial ideas of a light-weight form of regulation developed in Great Britain, with a global "price cap" type formula, the US regulating authorities are very much aware of the ever increasing complexity of a regulation system capable of avoiding cross subsidies in a sector of this type.

3.3 Regulation of grid access and pricing

The transmission grid will always remain a monopoly. Grid access and remuneration of the transmission services provided by the grid will therefore have to be regulated under conditions applying to a TPA situation.

The main difficulty with this double regulation stems from the integrated nature of the production-transmission system, which clearly reflects the interaction of production and transmission economics. Even in a situation where the transmission management and accounting functions are separate, this basic question raises the following problems (leaving aside technical problems proper, such as the consequences of rapid transit changes, looped transit, or perturbation at the points of injection):

- a) Regulation of grid access, as discussed in para. 3.1 above, will have to determine the grid capacity available for transmission services, taking due account of the fact that part of the available capacity must remain available for economic and security reasons, and that the remaining part is not necessarily available for long-term transmission services. The capacity available for TPA will therefore be even more difficult to assess for the medium or long term. The regulating authority will have the complex task of determining and allocating this available capacity between a number of competing projects.

- b) Regulation of the remuneration of transmission services will have to determine transmission tariffs, taking full account of the fact that these services, apart from the actual transmission function, necessarily include load monitoring, voltage and frequency adjustment, and finally security of supply and reaction to incidents occurring on the grid. These additional services are supplied by local producers, in coordination with the grid and under the supervision of the grid control centres. Regulation will therefore have to take in the producers also.

At the present time and in the near future, these problems also exist and will exist in the context of application of the transit directive, with respect to exchanges which are frequently bidirectional. However, these problems are solved by cooperation between interconnected companies having the same responsibilities. In the case of free access, services would have to be estimated for generally unidirectional flow, and for participants having different responsibilities (producers, transmission companies and consumers).

Insofar as these two aspects of transmission regulation are concerned in the case of opening the grids to third parties, electricity spot market theory, together with the recent report on electricity transmission, issued by the Task Force of the Federal Energy Regulatory Commission, clearly demonstrate that no satisfactory reply has so far been found. The difficulty here lies in the extreme volatility of transmission costs and constraints, linked to the integrated nature of the production-transmission system, where transit, injection and consumption levels vary permanently.

Consequently, the regulation of electricity transmission will inevitably take the form of a compromise, in all cases conflictual, between the simplicity required for drafting practicable rules for obligatory transmission, and the more sophisticated case-by-case approach required for economic efficiency.

The result will probably be a form of regulation subject to permanent evolution, under pressure from observed inefficiencies, and legal actions instituted by parties which consider they have suffered prejudice, with a consequent, inevitable planning restriction of grid development.

- c) Development of the grid itself will also be difficult under TPA conditions, which will introduce uncertainties as to the transmission capacities to be developed to handle direct sale contracts.

Furthermore, we know that grid development is justified by the prospect of substantial production savings. Integrated programming and optimized operation of the production-transmission system make it possible, in the industrial model, to achieve these savings. On the other hand, separation of production from transmission, with the producers placed in a competitive situation by their customers, would make these productivity gains open to doubt. Third party access could thus have an adverse effect on efficient development of the transmission network, and introduce supplementary costs

resulting from the need to invest in new interconnection lines, which would not be necessary in the absence of this TPA activity.

In view of the foregoing, it appears highly likely that the regulating authority will be obliged to cross the frontier between the regulation of transmission, and the combined regulation of production and transmission. The idea of competition at the production level, instigated by normal market pressures, and with no need for regulation other than that required to ensure the transparency of the transmission grid, thus appears illusory.

3.4 Wholesale electricity market

A TPA system with direct consumer access to the production sources, would lead to the development of a wholesale electricity market, which would have the effect of commonizing electricity, making it just another raw material. In effect, the view held by the supporters of this approach is that no form of regulation, other than the natural play of market pressures, would be necessary at the production level. Competition would lead to a reduction of electricity prices, which explains the support for this idea manifested by certain large industrial consumers.

These arguments are generally based on a short-term view, and presuppose a situation in which supply exceeds demand. However, the consequences of a TPA situation must be examined for both the short and long term, and for both surplus and short-fall market situations. Indeed, we must not forget that while some have experienced over-equipment situations for economic reasons, any such over-equipment is now in the process of substantial reduction, and will have disappeared entirely very soon.

It is clear that the market pressures induced by opening the distribution networks would provide an incentive for increased production efficiency. However, this incentive could be achieved by less complicated means, as we shall see below. In contrast, a TPA situation would bring with it inefficiencies relating to both production and cost allocation:

- a) In the short term, the "cost-based merit order" approach for production resource, characteristic of integrated production-transmission systems, ensures lowest cost operation of the electricity supply system. It is obvious that this approach overstates the efficiency of a TPA system. In effect, under such conditions of free third party access to the grid, the operating control centres would have to check that production by certain units or sets of units complies with contractual commitments. This would tend to increase the global cost of supplies, and prevent any general optimization of the electricity supply system. We would then see a reduction of the possibilities for optimization exchanges between the electricity companies, due to the greater level of utilization of the interconnection lines, and increased losses resulting from the greater distances which the energy supplied would have to travel.

- b) In the long term, the crucial question concerning development of the electricity supply system ("long term" is measured in decades in this context) concerns the performance of the producers with respect to investment. This performance would be modified by comparison with the integrated programming as practiced in the current model, as:
- the competitive framework of the wholesale electricity market would create greater uncertainty for each producer regarding his individual market share;
 - industrial and market risks, currently borne by all consumers, would be intrinsically concentrated on the producers.
- c) Faced with such risks, the producers would be obliged to shorten their planning horizon sharply, privileging the choice of investments less demanding in terms of capital, with shorter construction periods and smaller unit sizes, and not necessarily representing the most economic options in the longer term.

It would become extremely difficult to implement long-term policies, with the probable result of price cycles linked to an alternating pattern of periods of over-investment and under-investment, which could have an adverse effect on reserve power margins, or even the guarantee of continued supply. These price cycles would cause losses of efficiency for users, as a result of the costs associated with excessively frequent switching to and from processes employing competing energy sources.

In this context, the most competitive and largest producers would probably attempt to sign long-term contracts with the distributors, who can make long-term commitments more easily than the manufacturers, offering the most advantageous and stable prices. This would ultimately lead to the manufacturer customers having to bear the risks associated with the volatile nature of the market.

It will also be noted, assuming that the question of cross subsidies, considered in paragraph 3.2, is controlled by the regulator, that the existence of a protected captive sector, for which all price changes are very strictly controlled, will increase the volatile nature of prices in the free market, this phenomenon being common to all product markets where there is a high capital content. This is due to the fact that captive customer consumption is nevertheless subject, in its evolution, to the random factors of economic conditions. A situation of this type is likely, in the long run, to be considerably less attractive for industrial customers, previously accustomed to guarantees of supply, and remarkably stable price levels.

- d) Finally, the tendency to privilege the short-term lowest cost production technique, which would result from instituting a wholesale electricity market, would lead to a highly diversified production structure, based on fuels imported by the EEC. Under present circumstances, these monovalent fuel investments (natural gas) would make production

increasingly sensitive to the volatile nature of fossil fuel prices. In this production market economy context, the national governments or EEC authorities would have less scope than at the present time, for imposing a diversified production structure, or one which took account of their energy policies. In due course, this could contribute to the creation of a threat to European security of primary energy supply.

- e) Opening of the grids, with the introduction of a TPA situation, is intended to allow free play of market pressures between producers and consumers. The competition between producers which it would involve, would not only endanger the efficiency gains obtained via cooperation in connection with interconnected operation, but would also have an adverse effect on international cooperation in general.

3.5 Conclusions concerning third party access

Intended to allow the development of competition at production level, subject to market forces, third party access would in fact require complex regulation, for the purpose of protecting captive consumers, controlling the transmission grids and distribution networks, which would in any case retain a monopolistic status, and involve risks of economic inefficiency, with a consequent global increase in the cost of supplies, associated with the development of a wholesale electricity market.

Are the benefits of competition introduced by TPA likely to offset, or more than offset, this need for cumbersome regulation and the associated losses of efficiency?

Indeed, there are sectors where the potential for technological innovation is such that it can challenge the very organization of the network activity. This is the case with telecommunications, where a number of technical systems are competing (microwave links, optical fibers, cables and satellites). For sectors of this type, the cumbersome regulations required for a "half-captive, half-free" market, can be justified by the fact that deregulation makes it possible to place different technical systems in competition with each other, with subsequent selection of the best system. This was the situation with the electricity supply industry at the beginning of the century. Alterating current and the uniformization of frequency and voltage values were the vectors of progress at this time, which led to development of the present cooperation-competition model.

However at the present time, in the absence of any strong technical innovation, the benefits of competition for the electricity supply industry are limited to the effect of cost control for new production resources, and improved utilization of the comparative advantages as between different national systems.

If we assume that a TPA situation would generate these limited benefits, these benefits would have no common measure with the loss of advantages resulting from integrated planning and operation.

4. OTHER FORMS OF COMPETITION

We have looked at the dangers associated with the type of competition which a TPA situation would involve.

Within the permanent reflection process, aimed at improving the current industrial model, we can raise the question as to whether it is possible to find other forms of competition which, in contrast to TPA, could increase production efficiency without danger to the benefits associated with the industrial model of the electricity supply industry.

4.1 Auto-production

We observe that certain forms of competition in the area of production, the only element of the electricity supply industry activity which is not in a naturally monopolistic situation, already exist in the industrial model.

In Europe, there are a number of producers of electricity for their own use, as also cogenerators in each country. Regulation includes various methods of handling this situation, according to which the electricity supply system is required to purchase any excess production from producers for their own consumption, on the basis of regulated purchase tariffs, or by contract.

4.2 Independent production

4.2.1 American experiment

A number of new participants have appeared in the USA, who are interested in the construction and operation of electric power stations. These include energy industry contractors, oil companies, gas transmission companies, coal producers and engineering or construction companies, such as Bechtel, General Electric, Westinghouse, ABB, Siemens and Alstom.

These newcomers generally operate through joint ventures, formed with electricity companies and financial institutions.

This type of competition has developed in the industrial, energy-related and regulatory context particular to the USA. The solutions put forward vary according to the specific situation in the different States.

We cannot therefore examine the structural and regulatory aspects of these new participants, without a clear comprehension of the individual motivations involved State by State.

4.2.2 Difficulties encountered

A call for tenders mechanism for independent producers has been tried out in a number of American States.

This American experiment has led, through a pragmatic approach, to procedures designed to attempt to maintain the advantages, in terms of economy and security of supply, associated with the integrated programming and optimized operation of electricity supply systems. A new independent producer is thus subject to the planning and operating process implemented by the company responsible for its area.

For this purpose, tender assessment procedures tend to take into account, apart from price, the multiple attributes which characterize a production plant in the choice of investment made by traditional electricity producers, as for example construction time, payment schedule, operating and maintenance expenses, availability, operational flexibility, the type or types of fuel which can be used, lifetime, risks associated with the project from construction to actual operation, and the sharing of these risks between purchaser and seller, the guarantee of production permanency, and the financial penalties in the event of a production failure.

Difficulties encountered in the USA principally concern definition of tender assessment procedures, definition of contracts to be made between the existing system and the successful tenderer, guarantees attaching to these contracts, and their insertion in the tariff system as a whole. Assessment procedures and contract structure must be such that the company responsible for providing the electricity supply service of general economic interest for a given area, can hold on to the resources which enable it to execute its mission correctly.

We can see that this is a form of competition which has not got beyond the stage of a limited experimental level, and which must be studied further in order to obtain a reasoned assessment of its potential advantages and drawbacks. These experiments were introduced in the USA, in order to overcome the specific difficulties with which certain American companies are faced (major drift in investment costs). We cannot ignore the fact that the European electricity companies are operating in an entirely different context.

The experiment mentioned above at least demonstrates that other channels could be envisaged, without opening the grids to third parties, to develop competition in the electricity supply sector. Perhaps there are also lessons to be learnt from the British reorganization of the electricity supply sector. In the short term, the British approach effectively represents a major change with respect to the previous organization of the electricity supply system. But we are concerned here with an insular system - this particularity must not be forgotten - operating within the framework of a single legislation, and consequently under the same operational conditions. This experiment should be monitored and verified over a period of time, before we consider transposing all or part of the

new model which it represents to continental Europe, namely to a heavily meshed, very extensive grid system.

Thus TPA is in no way the only means of developing competition in the electricity supply sector, and other alternatives could be studied.

CONCLUSION

This analysis may appear arduous, but in fact does no more than reflect the complexity of the problem. In our opinion however, two clear conclusions emerge:

- a) Opening of the grids to distributors and/or large end-user consumers must be excluded, as it would be in opposition to the mission of general economic interest which is that of the electricity supply industry.

We have seen that such a move would raise the following problems:

- economic losses linked to less closely controlled equipment programming, and with a shorter horizon; loss of control by the public authorities over the structure of production resources, and consequently over the security of primary energy supply;
- difficulties with management of multiple contracts, and reconciliation of this management function with real-time and medium-term control of the electricity supply system, if we are to preserve the economic gains of optimized management, and the security of supply which demands centralized control of the system;
- quasi-impossibility of finding a method of remunerating transmission services, which is at the same time sufficiently simple, non-dissuasive with respect to economically justified exchanges, and embodies an incentive for grid development;
- extreme difficulty, or even impossibility for the regulating authorities, of guaranteeing the absence of reciprocal subsidies between captive and non-captive customers.

We believe that no genuinely satisfactory answer to these questions exists, and that the present model should consequently continue to be the reference for organization and operation of the electricity supply industry.

- b) Progress with operating methods currently in use in the electricity supply industry is possible, and the electricity companies are ready to play their part. We consider that two channels should be examined, or pursued in greater depth:

1. Development of cooperation-competition between the European electricity companies.

These companies have been engaged in this direction since European interconnection came into being. More recently, Eurelectric has undertaken the organization of an electricity trading exchange, the search for improved concertation with respect to production and transmission investments, and application of the EEC directive concerning transit operations.

Together, these various actions should already make it possible to increase the efficiency of the electricity supply industry still further, and doubtless constitute the only means of achieving this objective, without in any way losing the economic advantages obtained from the current organization.

2. Other directions for extending competition

The experiments described in Chapter 4 demonstrates that solutions exist, other than a TPA situation, for improving competition in the electricity supply sector. None of the known channels is free from difficulty, but all deserve examination or investigation in greater depth. Eurelectric is ready to undertake this work with the EEC Commission, taking due account of the fact that the importance of the electricity supply sector in both economic and social life, necessarily demands a pragmatic approach to these problems.

The European electricity companies are ready, should the EEC Commission, in agreement with their respective governments, wish to explore such channels, to participate in experiments concerning independent production. This subject could then be examined in greater depth by all the European electricity companies.

The purpose of this investigation should be to check the feasibility of these initiatives, with respect to the European electricity supply system.

INTERNATIONAL FEDERATION
OF INDUSTRIAL ENERGY CONSUMERS

ANNEX III

EUROPE



IFIEC EUROPE

Siège :
111-113 Chaussée de Charleroi
Bruxelles (Belgique)

Brussels, April 4, 1991

Re: PCCE Final Report

GENERAL STATEMENT
*** ORIGINAL ***

1 - Professional Consultative Committee on Electricity
***** IFIEC EUROPE ASSESSMENT**

The initial terms of reference proposed by the Commission and adopted by all the delegates invited to participate in the Professional Consultative Committee on Electricity stated:

"To identify and present the main technical, economic and administrative considerations which should be taken into account in Community policy on whether and by what means TPA to electricity transmission systems should be provided."

The Committee was asked, as a group of experts, to assist the Commission in identifying these factors. An objective picture taking into account the various views of the participants was to be drawn up in a committee report, with the understanding that any points on which disagreement remained should be clearly recorded therein.

IFIEC EUROPE delegates were invited to participate in the PCCE meetings on behalf of energy consumer industries and industrial autoproducers. Their assessment of the PCCE procedures is :

(a) The PCCE meetings provided an open forum for all delegates to freely express ideas and opinions, both verbally and in writing. Although IFIEC Europe does not share all the views presented, it supports the principle whereby divergent views should be given equal expression.

(b) IFIEC Europe approves the Final Report as a balanced committee report in which a wide range of views on the subject is presented adequately. In this respect, the Report fulfills the committee's aims as set out in the initial procedural terms of reference.

However, the opportunity has been offered to IFIEC Europe to make a clear statement of its particular views ; IFIEC Europe welcomes this opportunity and provides the statement attached herewith.

2 - Third Party Access (TPA)
*** IFIEC EUROPE OBJECTIVES

For IFIEC Europe, Third Party Access is not an end in itself...

2.1. TPA is a means of opening up new opportunities of CHOICE for generators, distributors and end-users. This POWER OF CHOICE can be expected, as in other competitive markets, to :

- (i) provide strong incentives for increased efficiency and reducing costs of supply,
- (ii) enable a better balance to be achieved in the relationship between suppliers and consumers and a greater responsiveness to each others' needs,
- (iii) facilitate a greater diversity in contracting practices, offering more options, and allowing consumers a greater role in decisions affecting their supply arrangements.

Consumers today are effectively captive users of power provided by monopoly suppliers and are obliged in most cases to adapt to tariff structures which are imposed. Furthermore, consumers have few effective routes for challenging these structures, and no transparent procedure for independent resolution of disputes.

IFIEC Europe believes that the traditional structures in place today need to be progressively adapted to respond to the need for greater consumer choice and influence in electricity supply.

Traditional power suppliers, themselves, recognize today that choice is fundamental for optimising economic activity in declaring that open access to primary sources of energy is one of their major concerns. Choice has also been fundamental in the development of electricity exchanges between suppliers and will remain a key factor in cross-border electricity trade under the guidance of the recent Electricity Transit Directive.

Similar and other new opportunities for choice in the electricity market should be extended, on a non-discriminatory basis, to independent producers, including industrial autoproducers, as well as industrial end-users and local distribution companies acting on behalf of small and domestic consumers.

2.2. IFIEC Europe has a high regard for the technical expertise and grid control experience on which security of supply depends. It unreservedly accepts the key role of the grid controllers. However, from the PCCE discussions, it appears today that there are no insuperable technical obstacles to TPA. Nor should optimisation procedures, where they exist, be hampered by new contractual frameworks governing customer relations.

TPA would enable consumers to reach their own decisions concerning the trade-off between continuity of supply at all times and the cost of providing it. Customers would be willing, indeed would seek to sign, long term contracts, and this would aid investment planning and hence, security of supply.

TPA would also enable new entrants and new technologies to participate in the markets, creating a broader generating base, increasing diversification in type of fuel and plant, enhancing differentiation in order to respond to developing market needs and attracting new sources of capital; such new opportunities would undoubtedly increase, not diminish, the long-term security of supply within the whole Community.

2.3. TPA merits careful consideration within the scope of future Community Energy Policy as it is being elaborated today :

- in terms of completing the Internal Energy Market, the EC documents:
 - * Commission working document COM (88)238 Final
 - * Communication from the Commission to the Council and the European Parliament COM(89)336 Final

clearly raise the issue of TPA in terms of the implementation of a more integrated European market ;

- more recently, the draft European Energy Charter proposes, among its operational goals, "the development of trade, particularly through the free functioning of the market, free access to resources and the development of infrastructures".

IFIEC Europe believes that the ultimate success of such emerging community initiatives as :

- . the development of independent power,
- . the development of industrial self-generation, CHP,
- . the development of renewables, alternative fuels, etc...,
- . the need to increase energy efficiency,
- . the need to better protect the environment,
- . the development of community interconnection networks,

will depend, in large part, on the extent to which consumers are given a more active role in the decision-making processes associated with these initiatives.

Industry (*), in the past, has played a major rôle in power production across Europe. As a key initiator of the existing European power industry, and as a motor of economic development on which economic growth and social welfare depend, Industry also has the expertise and experience to play a greater part in reaching the Internal Energy Market and the European Energy Charter objectives.

2.4. Freedom to obtain the power supplies best adapted to Industry's specific needs is fundamental to its overall viability, which is, in turn, essential to the Community's long term well-being. Industrial investment is capital-intensive and long-term in scope. Where Industrial activity is energy-intensive, supply conditions are often a key factor in the choice of plant site. For other power consuming industries, which have to be situated close to their down-stream markets, energy costs may be one of the critical factors that determine their commercial margin and ability to remain competitive. In many cases, project financing for industrial development in the future will depend, in part, on industry's ability to procure long-term energy supplies under competitive conditions.

* * * * *

Industry today is world-wide in scope and obliged to operate in competitive markets that do not offer automatic pass-through of costs. Choice of supply, flexibility, supply security and balanced contractual relationships are the "stuff" of TPA.

IFIEC Europe asks that careful, objective consideration be given to the overall long term benefits of introducing competition and consumer choice to the European power markets as they evolve, progressively, into a more integrated Community configuration. TPA should be at the heart of energy policy discussions in the coming months, not as an instrument of chaotic change, but as a means to flexible problem solving that will allow Industry to pursue a course of dynamic economic development within the Community in the future.

(*) "Industry" designates hereafter: energy consuming industries and industrial autoproducers

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THE DESIRABILITY OF THIRD PARTY ACCESS (TPA)

Position statement of the association of the Dutch electricity distribution companies.

Europe without internal borders

The structure of the public electricity supply industry in the various Member States is determined on the basis of national considerations and has sharp national delimitations. This has led to the situation that on both sides of the current internal borders completely different structures are found. On the basis of this mere fact it may be concluded that it will be impossible to maintain the current national structures when the single internal market has been established. So it is not a matter of whether there will be any change, but of which direction the change will have to take. In fact, the choice is between incorporation of the current nationally defined structures into a centrally developed EEC structure and an essentially different approach: a more open energy market. The latter option is to be preferred for many reasons. A more open energy market offers possibilities for better bringing out of diversity within Europe; by competition it leads to higher efficiency and it offers the best perspectives for further development of the European electricity market.

A more open energy market is not feasible without a solution for the apparent discrepancy between an open market and the natural monopoly of electricity transmission and electricity distribution. TPA is that solution. TPA provides the conditions for a more competitive electricity market while retaining the efficient use of the existing and future electricity supply infrastructure.

Position of Local Distribution Companies (LDC's) under a TPA regime

The introduction of TPA leads to a competitive situation for LDC's vis à vis their customers, which in itself is already an argument that LDC's should be eligible for TPA vis à vis their suppliers. Furthermore LDC's buy large volumes of electricity for their large and small consumers and are subsequently in a position to enter into long term contracts for large volumes. They are therefore an important player in a more competitive market. Of course LDC's need a high level of supply security.

VERENIGING VAN EXPLOITANTEN VAN
ELEKTRICITEITSBEDRIJVEN IN NEDERLAND

Utrechtseweg 310 - 6812 AR Arnhem.
Postbus 9042 - 6800 GD Arnhem.
Telefoon (085) 56 94 44.
Teletax (085) 45 13 47.

This should not lead to the conclusion that LDC's, for reserve capacity reasons, should be obliged to buy all their electricity from one supplier. As (industrial) consumers LDC's can enter into reserve capacity contracts as a supplement to supply contracts. Of course - like (industrial) consumers - they have to pay for such reserve contracts.

It is sometimes argued that a TPA-regime will only benefit the large consumers at the cost of the small consumers, who are not eligible to reach out for TPA contracts. However, (local) distribution companies must also - jointly if relevant - be able to negotiate TPA benefits to reach out for a balance between the different categories of buyers in the electricity market including and in particular in favour of the small consumers.

VERENIGING VAN EXPLOITANTEN VAN
ELEKTRICITEITSBEDRIJVEN IN NEDERLAND

Utrechtseweg 310 - 6812 AR Arnhem.
Postbus 9042 - 6800 GD Arnhem.
Telefoon (085) 56 94 44.
Telefax (085) 45 13 47.

ANNEX V

ZENTRALE VERBAND DER DEUTSCHEN ELEKTROHANDWERKE

German translation of Mr. Fassbender's letter
to Mr. C.L.Jones of 19.4.1991

Dear Mr. Jones

Concerns: PCCE

As arranged with Mr. Brakels, I send you my position, explained in the following:

After all the consultations that I have attended to and after having heard all the arguments, I cannot see in which a change of the system should lead to advantages.

Before I can approve of any of the recommendations made, an exact listing should be drawn up that would clearly show the advantages and disadvantages of the existing national systems.

It is only in that way that merely approximately a responsible recommendation can be given.

With best regards,

F. Fassbender