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Industry: the destabilisation of a public hierarchy in an open
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02-009 WP

November 2002

**A Joint Center of the Department of Economics, Laboratory for Energy
and the Environment, and Sloan School of Management**

Introducing Competition in the French Electricity Supply Industry: the destabilisation of a public hierarchy in an open institutional environment

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ABSTRACT

The introduction of market rules in a electricity supply industry characterized by a vertically integrated monopoly and public ownership is not inherently doomed to failure if characteristics of the reform or other elements of industrial structures give room for enforcing market-rules.

The organisation of the French ESI in a public monopoly was deeply rooted in French institutional peculiarities. Therefore the initial reform, which was adopted in February 2000 under the prescription of the European law of electricity market liberalization, introduced only a provision of regulated third party access to the grid, without legal separation of the transmission system operator and creation of a power exchange. But this created a dynamics of regulatory change which allows the development of an effective competition on the wholesale market and the industrial customers segment.

The paper analyses how the governmental goal of preserving the national champion EDF have had two paradoxical effects in favour of competition development and the building of safeguards for the entrants: 1/ the creation of a credible regulatory governance structure with effective power of control on the network access, and which promoted market-rules and the creation of a power exchange for balancing the incumbent's dominant position, 2/ the enforcement of the credibility of the regulatory framework by the self control of the incumbent on the use of its dominant position and on the capture of the regulator, This two effects results from the influence of the European institutional environment which is superposed to the national one, in particular under the intensive scrutiny of the European Commission, on a model far behind the competitive model.

The paper concludes to the originality of such an institutional model : a permanent regulatory threat on the incumbent for balancing the effects of public property and integration of industrial structures. In other words it would not only be the industrial structures which determine the market players' behaviour but also the credibility of market rules and their enforcement by the regulatory threat and the self control of the incumbent.

This paper has been presented at the 2002 annual Conference of the International Society for New Institutional Economics (ISNIE) held in Cambridge (Mass.) on September 27-29. The author thanks Paul Joskow and Jean-Michel Glachant for their useful comments on the draft version.

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1. Introduction

In February 2000 France, in accordance with European Directive 96/92 relating to the deregulation of electricity markets, undertook a minimal reform of the organisation of its electricity industry, whilst at the same time preserving the vertical and horizontal integration and the public ownership of the incumbent company. The reform was based on the introduction of a rule of third party access (TPA) to the network, allowing bilateral direct sale arrangements on a limited number of eligible consumers (30%), without any other notable changes to the industry's structure. A combination of vertical integration and state ownership is *a priori* the least attractive structure for entry and competition development at wholesale level, given the numerous ways in which the incumbent can wield market power and the exposure of entrants to the expropriation risk. In 2002, however, a number of new entrants were active in the market segment, with a market share of around 20%. Industrial prices have decreased sharply on the market segment, while wholesale prices have become established at a relatively low level. Therefore foreign sellers, traders and brokers are well aware of the French wholesale and industrial retail markets, which are considered as easier to enter than some other markets in Europe.

How can this mismatch between market rules on one hand and retained vertical and horizontal integration and state ownership on the other hand be handled in the French electricity industry?. This paper asserts that despite vertical integration and State ownership, competitive entry could be allowed through the addition of a number of market rules and institutions, creating the necessary safeguards for enforcing new institutional arrangements to facilitate competitive entry and give credibility to the legal provision of TPA.

However, two other situations are needed for the process of creating these rules. Firstly, the initial reform must create an independent regulatory authority: as the guardian of the reform process and a "credibility monitoring device" for ex-post aspects of the reform, it acts as the main instigator of the post-reform rule-making aimed at remedying problems and promoting competition. Secondly, an external institutional environment that poses a threat to local institutions is necessary to enforce the rule-making process and limit the capture of the regulator by the public incumbent or the government. Indeed, in a closed and autarkic national context, no element could make rules post-reform: this is evident from the lack of results following the introduction of unregulated TPA in the British public electricity industry in 1984 (Helm et al., 1989). The French reform occurs in a regional economic and political space, the European Union, that is undergoing economic integration, in which the convergence of national regulations is considered essential for removing barriers to exchange. The heterogeneous nature of the structures and regulations in the various Member states means that the French institutions are being constantly scrutinised.

One aim of this paper is to supplement the comparative studies whose aim is to explain the variety of electricity reforms through the differences between institutional environments (Bergman et al., 1999; Glachant, 2001). We develop a dynamic approach that refers to destabilising factors and institutional learning in the institutional environment of the electricity industry. The next section sets out the framework for analysing the development of safeguards in a post-reform period. Next, we examine the elements of mismatching in the

initial reform. Finally, having defined the level of competitive entry and competition, we analyse the incentive relation between the European environment and the French institutions and the current stage of the post-reform rule making aimed at developing safeguards.

2. The adaptability of pro-competitive reforms with retained integration and state ownership : an analytical framework

In the New Institutional Economics interpretative framework of the reforms of public utility industries they are analysed in terms of interaction between the choices of new institutional arrangements such as the type of regulation and property regime on the one hand and the institutional environment which determines the general rules applying to every agent and their institutional arrangements on the other hand¹. In the case of the European reforms of networks industries, and in particular the electricity ones, France shares with the others European Union members a new layer of institutional environment which has developed in the last fifteen years. In view of the achievement of the integration of national markets in every industry, the European Union acts on the national institutions in a style of weak federalism (Majone, 1996; Mény, 1996):

- a legislative and rule-making activity bounded by the systematic necessity of compromises and structured by the reciprocity principle and the rules harmonisation,
- a judicial control of the implementation of the European legislation by the States,
- an antitrust control, but no ex-ante regulatory powers and no formal power to decide ex-ante on industrial structures and ownership².

In this sense the European 1996 Directive on electricity markets is a compromise between the member-states' different conceptions and interests reflected in the menu of minimalist options for introducing market-rules at the different levels of generation, networks and supply (EC, 1996): the liberalisation of entry in generation either by licensing or by call for tenders, minimal opening up of final market of 30% in 2000, the third party access to grid either negotiated or regulated, a simple accountable unbundling between the three levels, and a functional separation of the system operator *a minima*. But apart the pioneering and radical British reform which has been the reference model for the European Commission's first proposals³, the state-members had to comply with it and they did it in very different ways,

Interpretation of the variety of reforms in utility sectors by comparative studies brings out some stylised facts as explanations in two dimensions, the specificities of the institutional environment of each national power industry and the former industrial structures and forms of ownership (Glachant, 2001, Glachant and Finon, 2000). In the range of reforms it appears that the centralisation of political structures and the direct state ownership of all property rights on an integrated company give the government all the formal rights to restructure directly the industrial organisation and to privatise, with no possibilities of judicial intervention as in the

¹The distinction between the institutions and the institutional environment is mainly based on the hypothesis that the agents could not influence at all on the second but could acts on the institutions;

² The European Commission cannot mandate reforms of the industrial structures at the exception of mergers and acquisitions supposed to affect competition at the European level.

³ The British reform of 1990 could be briefly characterized by the following traits: the progressive opening-up of the final market, the liberalisation of entries and the horizontal de-integration of generation, the complete separation of the grid, the installation of a centralized mandatory pool combining market operation and transmission system, horizontal de-integration of the distribution-supply, the creation of a specialised regulatory authority with effective powers and the privatisation

UK. Despite quite similar conditions the French reform is one of the most conservative ones in Europe.

- **Mandatory reforms and institutional mismatch**

The starting situation in France is the “public service” model in the form of an integrated public monopoly, Electricité de France (EDF), which is supposed to supply electricity on the basis of the equalitarian principles of the public service and to be the instruments of industrial and energy policies. It controls 94% of the generation and 96% of the French retail supply (beside 170 municipal distributors). Strong political consensus around the social norms of public service and the energy independence objective by the nuclear option constitutes bounds to the “feasibility” of every market liberalisation reform. This organisation was and is still considered as economically and socially efficient, at least in the representation of social efficiency particular to the French political culture. So the European Directive creates an institutional mismatch between legal provisions of third party access which are supposed to introduce competition by allowing entry on the final market on one hand and the combination of vertical integration and public ownership which would not give credibility to it on the other hand.

Now it must be pointed out that the introduction of competitive market-rules into a vertically integrated monopoly industry structure with public ownership is not inherently doomed to failure if characteristics of the reforms or other elements of the industrial structures give room for enforcing competitive market-rules. It is shown by other cases than the French one. New Zealand and the Nordic countries (Norway, Sweden) do it, but with no real mismatching. In these countries the logic to maintain public ownership is partly historical and partly linked to the presence of hydro plants. It does not preclude competition in generation and supply and incentives in cutting costs and profit seeking (Newbery, 2001). These reforms present some important differences with France: they have been undertaken with more fragmented structures in production and distribution, with municipal ownership in distribution and they imposed a clear unbundling of the grid and system operation in a new public company and eventually some splitting in generation. (Magnus and Midttun, 2000; Glachant, 2000; IEA, 1994). In the Nordic countries safeguards result from complete separation of public producers and the public transporters that are also system operators, the constitution of a market pool as a legally and separate company with a representative council of market participants, the presence of numerous local and regional public companies operating in Nord Pool and competing against the major public producers and the supervision by independent regulators with effective decisional powers (Bergman et al., 1999). In such a structural context nascent marketplaces or pools can play rapidly an important role in the new coordination, reaching a good level of liquidity. Public ownership could also have positive effects in reducing risks of speculative behaviour on the marketplaces in period of shortage as it is observed on the Nordic market.

- **Institutional mismatch and evolutionary adaptations**

The mismatching of institutional structures between European and national levels is a classical problem of the “europeanization” process that state-members met at one moment in some fields of the European integration. General literature on domestic adaptation to EU legislation stresses the fact that results of adaptation are quite unpredictable and are less linked up to the degree of misfit than the political willingness to comply and the political and administrative capabilities. (Cowles, 2001; Mény, 1996).

The problem raised by the imposition of a new set of institutions to an unfitted industrial organisation is also tackled by the recent literature on institutions and industrial organisation. In particular Aoki (2001) demonstrates that only institutional arrangements which are mutually compatible or which enforce each other are viable and long lasting. Otherwise new institutions are unstable. But their introduction could also produce unintended side-effects and set in motion a dynamic process of institutional creation by inciting the endogenous production of new rules and the accumulation of particular competences in complementary fields (as he demonstrates for the Japanese banking system). More generally, adaptation to a mismatch situation is a matter of institutional learning process. If we refer to the evolutionary research program on institutions, the new forms of governance and the regulatory framework must be apprehended in dynamics, as two elements of learning in a process of codetermination (De Vany and Walls, 1995; Foss, 1994; Loasby, 2000).

In the case of the power reforms the complexity of the technical and economic coordinations makes the range of options widely opened (Joskow, 1996). So experiences show that reform is a multi-stage process. After the initial reform which is either minimalist, or uncomplete given the social compromise to be reached or unsuitable given the lack of experience, a series of new rules and market institutions is progressively added and adjusted by a new law, regulatory process or private initiatives. Institutional learning plays in different ways:

- the necessity to complement the regulatory framework with detailed rules by the regulatory authorities, the perceived necessity to ease trade by the creation of market institutions (such as a price index, a market place, etc.), and to remedy problems through changes to structures and set of rules;
- entrants in new activities such as trading, competitive retailing, brokerage create the new institutional arrangements and develop new knowledge and skills, with a capacity to influence the regulators' learning;
- the market-rules or the institutional arrangements which have been adopted in the pioneering countries serve as references for the followers ;
- the decrease of aversion to reform risks as the market culture spread and as the different market players' change their preferences and strategies.

In the general learning process, given their functions and *raison d'être*, two new institutional players have a central role in the creation and adaptation of new rules to complement the regulatory framework and the market institutions. The independent regulatory authority that most of the reforms create has to enforce safeguards for the non-discrimination in network access and to promote competition. It will then be the main source of innovative rules in a logic of market-making. The transmission system operator which is created results in the redefinition of property rights on the network and has to manage technical constraints independently from the incumbents; it has to manage the creation of a contractual framework for fair and easy access.

3. The institutional mismatch

Unlike the aims of the European promoters of Directive 96/92, the aim of the French reformer was not to favour the development of competition *per se*, but to respect the Directive *a minima* (DGEMP, 1994 and 1998; Dumont, 1998). The initial reform preserves the vertical and horizontal integration of the national utility and the public regime, it introduces only a functional separation of the grid and the system operation and it opens up the final market to

the competition in only a very limited way. This maintains many elements of the incumbent's market power and does not create a clear regulatory framework for encouraging entry and development of a wholesale market .

3.1. Minimal changes in the industrial organisation

Concerning the vertical and horizontal integration the particular political consensus around the nuclear option justifies the preservation of EDF's integration as efficient instrument to operate safely existing nuclear plants (63 GW in 58 units which produce 80% of the EDF's generation) and to develop economically new ones in the future. It constitutes a strict bound for every policy aiming at de-integrating partially in generation, the main way for doing it being the divesture of part of the nuclear assets with some hydro and thermal assets.

Public service defence acts also in the preservation of the horizontal integration of the distribution and so the supply, in particular to the small consumers. None of the various preparatory reports studies the possibility or interest of dispersing production assets or the creation of regional or major local distributors, and the desirability of setting up balanced competition. Any possible alternative schemes have not been examined or discussed, in particular with horizontal de-integration by divesture in generation and in distribution as the British experience and the more recent Italian one could suggest⁴.

As it relates only to competitive principles and market rules at wholesale level, the legal reform does not alter the industrial structure in any way. It is characterised by four main traits:

- It removes legal barriers to entry into production with a simple authorisation procedure, as well as barriers to supplying eligible consumers, import and export.
- It aims to functionally separate transmission and dispatching from the historical operator's other activities, in order to offer guarantees of transparent and fair grid access, thus avoiding more radical solutions such as organic separation through creation of a subsidiary or complete independence.
- It creates an independent regulatory institution, with real powers of control over network access - the Commission de Régulation de l'Electricité (CRE).
- Creating a discretionary risk, the electricity act allows the government to open calls to tender for the development of new capacities in nuclear technology or renewables in the common interest, and to oblige the historical operator to buy back its electricity at the bid price (Article 8 of the law); its cost is financed by a charge paid by all the competitors in the respect of non-discriminatory principles.

Table 1: Increase in the eligible consumers segment

	Eligibility Threshold (GWh)	Market Share	Number of Eligible Sites
1999	40	22.2%	449
2000	16	30%	1,330
2003	9	33%	2,215

With regard to network access, the following provisions have been introduced:

- EDF must create a transmission system operation (TSO) entity (Article 12-14), bringing together the high-voltage network operator and technical dispatch, with a separate budget and specific confidentiality rules aimed at creating a "Chinese

⁴ ENEL, the former Italian electricity utility, has to divest one third of its generating capacity by the successive sales of three GENcos, in order to limit its market share in production to 50%

wall” between it and its sales and production divisions (Article 16)⁵. This entity, the Réseau de Transport d'Electricité or RTE, was created in June 2000.

- EDF's distribution units and the local distributors must not create specific entities, but are subjected to strict confidentiality rules between the network control units and marketing units.
- The type of third party access selected is the regulated TPA, which means that prices for transmission by HV and MV grids and ancillary services and main contractual provisions must be set by the regulatory body (Article 23), although the Directive allowed Member States to choose between the rTPA and the much more discretionary “negotiated third party access”.
- The historical operator must keep separate accounts for production, transportation, distribution and other activities, with transparent calculation rules (Article 25).

Major restrictions on direct exchanges and trading are laid down by two provisions: a minimum duration of 3 years on direct transactions, and the requirement to carry on trading in French electricity to be a producer in France and not to exceed a ratio (20%) of one's own production. It is clear that brokerage, purchase for resale and trading were politically undesirable and *a fortiori* a marketplace.

On one side, therefore, there was the political aim of avoiding destabilisation by separating transmission and dispatch activities through the creation of a neutral enterprise, *a fortiori* by limiting vertical integration between generation and supply with divestiture, and by creating an organised market. On the other side, however, there is a clear willingness to respect the rules of fairness in competition by making technical and economic transactions simple and costs transparent. This was the inspiration for the legislator's choice of the regulated TPA, and it allowed the regulatory authority to develop a real capacity for independent action (see below). In the same logic of institutional learning, legal restrictions on transactions and trading have been *de facto* overcome. A marketplace was created under private initiatives in November 2001. The effects of these changes are amplified by EDF's compulsory auctioning of 6000-MW capacity contracts, the so-called Virtual Power Plants or VPPs, in several multi-auction rounds of 250 MW between September 2001 and the end of 2003, in response to the European Commission's request to clear EDF's partial take-over of Germany's third largest firm EnBW.

▪ 3.2. Elements of the mismatching

In the European rule-making process, the “single buyer system” proposed by France in 1994 and rejected as incompatible would have been consistent with the present institutions. In fact, this proposal was aimed at maintaining monopoly of supply by the historical operator and proposed the combined organisation of planning and long-term competition through an invitation to tender procedure for long term power purchase agreements (DGEMP, 1994).

⁵ The transport system operator fulfils three functions: operating the network and managing imbalances between producers' supply programmes and actual consumption by clients, measuring, and invoicing. The law and decrees do not specify all the means necessary for establishing a real separation of activities between the system operator and the rest of EDF (pricing of electricity bought for imbalances and loss compensation, engineering services for data transmission software, employees' careers etc).

Table 2: Position of EDF's assets in the total French power production in 1999

	EDF		Public dispatchable IPPs		Other producers*	
	Capacity (GW)	Production (TWh)	Capacity (GW)	Production (TWh)	Capacity (GW)	Production (TWh)
Nuclear assets	63	375	-	-	-	-
Thermal assets	17.2	25	2.5(SNET)	8.8 (SNET)	6.1	14.7
Hydro assets	23.3	54.1	2.9 (CNR)	14.9(CNR)	2.0	7.5
TOTAL	102	454.1	5.4	23.	8.1	22.2

* Railways (SHEM/SNCF) in hydro-production, small producers (minihydro, renewables) and self-producers (co-generation, etc).

Source: Ministère de l'Industrie, *Statistiques Gaz, Electricité, Charbon*, Edition 2000.

In the French case, institutional mismatching occurs at two levels: the ownership regime and the remaining vertical and horizontal integration that creates disincentives to entry. EDF initially concentrates about 89% of the installed capacity with two potential competitors institutionally related to it: Compagnie Nationale du Rhône (CNR), which mandated EDF to operate and sell its hydro-production (14.5 TWh), and Société Nationale d'Electricité Thermique (SNET), a subsidiary of Charbonnages de France, which produced 8.5 TWh via dispatchable coal plants. EDF also accounted for 96% of distribution and supply.

Firstly, even if partial privatisation was first contemplated in 2002, public ownership was not a transitional situation at the moment of the reform, but has many effects in terms of credibility of regulatory commitments. It creates *a priori* suspicion of the regulatory powers' partiality, which explains the "distance" between the new regulatory powers and the ministerial supervision but does not eliminate all the risks of capture by the government and the incumbent. It also exposes the incumbent's competitors to the risk of market power in different ways: the incumbent's over-estimation of public service obligation costs that it has to assume and that is financed by a charge on every kWh produced or imported, and governmental discretionary powers for indirect restriction of competition for making the utility pursue public policies⁶.

Secondly, vertical integration creates a number of advantages, shown in the theory, that allow the incumbent to discourage entry by bilateral contracts or develop strategies for responding to the threat.

The first advantage is the asymmetry of costs between the incumbent and its competitors. EDF's dominant position on the French market is considerable, with a holding of 90% of production capacity, mostly at low variable cost (hydro and nuclear with a variable cost of around €8/MWh) (see Table 2). In addition its equipment has mostly depreciated, that gives it the possibility of reacting by low pricing to preserve its market share. Given that EDF's production capacity is in surplus in relation to the French market, and despite the long-term export contracts signed before the Directive (around 60 TWh), the historical operator has considerable capacity for responding to the threat of competition. The total overcapacity (120 GW compared with a peak of around 75 GW) is in any case a disincentive *per se* to entry by

⁶ There is no provision for a direct restriction on competition in view of the general economic interest. However this particular tendering framework could be used for implementing a renewed nuclear investment policy if the national utility does not wish to develop new large up-front investment in a competitive environment. In this case, it would be obliged to buy the equivalent amount of energy. This would represent a shift towards an entry-based industrial policy, or a *per-se* based competition policy, based on the acceptance of entry despite the major risk of its proving ineffective.

investment. Moreover, horizontal integration in production and supply is not greatly conducive to the creation of an organised market that would ease transactions, limiting *a priori* its liquidity prospect, which would mainly depend on import trade.

The incumbent's second advantage is the network access conditions. Integration of the system operator and the incumbent or simple financial links exposes entrants to the risk of the incumbent being given preferential treatment in technical dispatching. Generally speaking, the fact that the system operator was not converted into an independent entity arouses suspicion from candidates concerning the confidentiality of information relating to their transactions, and the possibility of discrimination between competitors in the redispatching. The definition of technical rules and the publication of internal protocols between the TSO and EDF's other divisions must compel the system operator to manage bilateral transactions and EDF's internal transactions in the same way, without ambiguity, and to handle the transmission constraints as such.

A third advantage is the possible manipulation of access charges. This type of market power exercise was evident in Germany between 1998 and 2001, when the major utilities had not separated their grid and could compensate the reduced generation price in this way in fierce competition for market shares in the industrial sector (Brunekreeft, 2001). In France, EDF and RTE are obliged to respect certain principles relating to the publication of accounts; and transparency of definition and simplicity of access tariff structures (postage stamp) laid down by the regulator is helping to limit the risk (Regibeau, 1999). This was not the case in the matter of fixing tariffs for imbalances and ancillary services (the cost of which is always difficult to assess precisely), connection prices and technical rules relating to network access. Competitors were initially submitted to the discretionary valuations made by the incumbent. In 1999 and 2000, most of EDF's clients were encouraged to retain their contracts with EDF because of imbalance pricing several times lower than in the case of switching.

The possibility of cross-subsidies on generation costs between the competitive segment and the captive clients is another way of retaining industrial clients or increasing market wholesale shares on other national markets, despite unbundling of accounts. In the French case, the incumbent's major supply contracts have been under threat from opportunist sales contracts signed at a loss by foreign electricity enterprises with overcapacity. If EDF manages to retain its major clients, who are looking for prices 20-30% lower than past tariffs, it must rationalise and lower its costs⁷. Its current efforts at productivity in the fields of production and transmission will not be sufficient to compensate for such a drop in prices. Moreover, EDF's costly external growth strategy, consisting of taking over companies in Europe and the world, has increased the need for cash from the surplus extracted on the regulated segment of the market.

Finally, the incumbent company has an information-related advantage with regard to the clientele of eligible consumers (possession of a commercial network and client file system, in-depth knowledge of needs for each sector of eligible clientele, etc); it benefits from its brand

⁷ The official report which has prepared the introduction of the new regulatory framework considers that the best tariff principle on the non-eligible client segment is the reference to the long-run marginal cost of production (Champsaur, 2000).

image, the confidence that it has instilled in its newly eligible clientele⁸, and the traditional unwillingness of clients to change their supplier and in particular to change their purchasing culture. Experiences of electricity supply markets shows that distributors-suppliers regularly receive contacts from clients canvassed by other suppliers, and most often respond by dropping their prices. This has clearly been EDF's strategy since 1999, when nearly every contract on the eligible segment was renegotiated (CRE, 2001, 2002). Finally, as wholesale purchasers, the local distributors are not keen to search entrants' supplies by the incumbent's threat to sell on their market sector.

All these aspects justify the definition and improvement of the regulatory framework in order to enforce safeguards for easing entry and the development of competitive transactions on the wholesale and the industrial markets.

4. The enforcement of safeguards

The state of the competitive situation reveals that safeguards for the incumbent's advantages and risks associated with public ownership exist and have shown a certain efficiency. The European institutional environment induces pressures for the incumbent's self limitation of market power exercise and the regulator's "market making" activism.

4.1. The state of the competition development

Two aspects of competition have developed since the opening of the market: entry in competitive supplies to eligible clients, and development of intermediate trade at the wholesale level. The significant price decrease on the competitive market sector shows a level of efficiency of competition.

- *The entrants*

The normal profile of general competition in European countries is an internal competition between a number of national generators, suppliers and traders, supplemented by cross-border sales with foreign countries (EC, 2002). On the French market, the main competitive forces are in fact foreign electricity producers and new entrants to trading. EDF has few direct national competitors in France on the bilateral contracts market: the two former public IPPs, SNET and CNR, that the government is effectively turning into independent producers to be sold to foreign companies (Endesa, Electabel).

⁸ For an analysis of the effect of such a reputation and confidence relationship on the efficiency of a competition, see Stigler (1961). In anticipation of reform, the incumbent can also increase barriers to entry by various strategic actions that contribute to this confidence. EDF actually did this before the 1999 reform, by setting up a privileged contractual relationship with the major consumers (the Emerald contract, which offered an advisory service, pledges of quality and a penalty clause), improving its service offer to other industrial consumers, and reducing its industrial tariffs

Table 3: Structure of the French power industry after the reform

Producers and Importers	EDF-Production Division CNR, SNET, SHEM (railways) Foreign utilities (Electrabel, Endesa, RWE, E.On, HEW, Verbund, Edison, etc.) Traders
Transmission system operator	Réseau de Transport d' Electricité (RTE/EDF)
Distribution	Distribution operators (EDF units, 170 municipalities*)
Retailers/suppliers	EDF-sales Division, 170 municipalities Independent suppliers: foreign traders and producers

*4% of the commercial and household supply before the reform

The potential for competition from foreign sellers is greater. The overcapacity of integrated enterprises in neighbouring countries (Electrabel in Belgium; RWE, E.On, EnBW, HEW in Germany; Endesa in Spain; and some Swiss companies) is a factor in the development of competition on the contracts market. In other places, the action of major traders such as Enron before its bankruptcy, or TXU-Europe, Williams, Aquila and Dynegy before their retreat from Western Europe in 2002, has been very conducive to the introduction of new types of transaction. Traders and power marketers already active in Europe are well aware of the French wholesale market, which has become accessible since the implementation of detailed market-rules and VPP auctions. In 2002 around twenty suppliers, of the 35 registered by the system operator, are actively involved in competition, including supply to the transmission system operator RTE for technical losses.

In mid-2002 16% of the eligible sector, corresponding to 17 TWh, was being supplied by EDF's competitors, an increase of more than threefold in one year⁹.

- *Bilateral contracts and spot market*

Apart from EDF's internal transfers between its production and marketing divisions, transactions are mainly developed bilaterally between producers and eligible clients, or by means of certain brokers or traders with OTC contracts. These include energy contracts in the form of power block supply and complete contracts including balancing services¹⁰.

On the intermediate level of the market, sales increased dramatically between 2001 and 2002 for three reasons: the establishment of "balance responsible" contracts that encouraged trade, the progressive auctioning of EDF's capacity contracts, the so-called Virtual Power Plants (or VPPs) in successive auctions (3400 MW by September 2002 after five rounds) and the creation of the Powernext market place in November 2001.

The creation of Powernext by the European stock exchange in November 2001 helps the development of transactions by offering the possibility to adjust quantities in bilateral contracts and to give a reference price for these contracts. The rules are simple. For the day ahead it auctions standard hourly contracts for physical deliveries in any point of the grid and defines the hourly price by comparing the offer and demand bids. Thirty participants are registered, on which twenty five are active. But, given the EDF's dominance in generation

⁹ It represents 240 clients of the 1300 clients who are eligible up to 2003. It correspond to 4.0% of the total consumption (450 TWh),

¹⁰ For suppliers registered as "balance responsible" by the CRE.

and supply, the growth of trading volumes on PowerNext is slow; the daily traded volume in May 2002 was at around 10.5 GWh (less than 1% of the national consumption and 3% of the eligible segment), compared to 100 GWh for the German marketplace (7% of national consumption). But it could develop mostly because of the progressive introduction of the VPPs that increase its liquidity¹¹ (CRE, 2002). Market participants, in particular the foreign producers, use these to optimise their portfolios. The regulator's expectations for 2004 are set at a level of 3-5% of total physical volumes, helping the marketplace to help price discovery in the near future. The complete auctioning of the 6000-MW VPPs in 2003 will contribute to the increase in its liquidity. Interestingly, despite its marginal dimension Powernext affects directly the bilateral contracting by the indexation of the contractual price on the hourly spot price.

- *Price effects of the nascent competition*

Competition has had significant effects in terms of price decreases on the "eligible" market sector, regardless of whether the supplier is any entrant or EDF. This was mainly brought about by the entry of German competitors. In 1999 and 2000, with fierce competition in the large customer segment of their home market, the German utilities extended their offer of low price contracts to France, with prices set below their avoided or cash cost, that is, around 20 €/MWh. Other competitors (French IPPs and traders) follow this type of price proposal. At the wholesale level, with the creation of market places in Germany and France in 2001, the mutual influence between national markets also has an effect through arbitrage by market participants. In fact, spot prices on the German LPX-EEX and Powernext are quite similar in the band of 20-22 €/MWh for the base contract since their creation (CRE, 2002).

In this competitive context, EDF's response to the threat of competition has been to reduce its prices by 20-25% for large industrial consumers (down to around €25-27/MWh); this is a sustainable price strategy given the low total marginal cost of 15 \$/MWh with its nuclear production. It is however noticeable that it does not defend its market share at any cost by predatory pricing; and up to now, the decrease has not been offset by cross-subsidies.

Regulated prices on non-eligible segments have slightly decreased in real terms in accordance with the four-year regulatory contract which has been set up in 2000 between the national utility and its supervisory minister¹². After the drastic "price cap", which imposed an annual reduction of 3.5% for the 1997-2000 contractual period, the regulated prices are stable in real terms in 2001-2002. However, the risk of cross-subsidisation in the future, mainly because of EDF's expensive future internationalisation strategy (€11 billion invested in 2001) could come true as it is shown by the EDF's tariffs increase demand of 2.5% in 2002¹³.

¹¹ The VPPs auctioning has an effect of diminution of competitive imports in 2002, EDF's foreign competitors substituting VPPs purchase to their own imports, and it provokes a certain development of physical exports by purchasers.

¹² This contractual relationship frames in France the relationship between the public companies and the government since the eighties.

¹³ It has been refused by the new right-wing government in June 2002.

4.2. The mismatch with the European institutional environment: the enforcement of safeguards under “institutional contestability”.

As a consequence that there are not adequate safeguards to compensate for the combination of public ownership and vertical integration, the government, the regulatory authority and the public companies face a constant threat of institutional questioning in the European area, acting under a principle of “institutional contestability” in much the same way as the credible threat of entry in the theory of contestable markets (Baumol et al., 1982). Under the shadow of this institutional threat, the incumbent has to avoid any abuse of dominant position, in particular by bringing the prices on the different markets close to the efficient level (its average costs); the government and the regulator have to create conditions of cost transparency and non-discrimination in grid access.

In a European environment, where the reciprocity principle is a structuring element both in rule-making and in representation of conflicting interests (Eising, 2001), the quasi-monopoly position occupied by the historical operator just after the reform, and its public status, led to institutional and political pressures to harmonization of regulatory frameworks and change in property regime. Moreover the pressure to make the market rules converge towards a common model has been gaining the upper hand since 1998.

The European Commission acts in this direction, helped by its formal function of harmonisation of national regulations between Member States. On its behalf, access rules to network and cross-border interconnections are being harmonised through the co-ordination of national regulators and TSOs in the so-called “Florence process”. A special regulation on cross-border exchanges is in the definition process. With the agreement of most of the Member States, it is preparing a second directive that would impose organic separation of transmission, a regulated TPA, unbundling of supply and distribution and complete openness of the retail market (EC, 2001). Otherwise structural and regulatory developments (level of openness, vertical separation, divestiture in production, creation of power exchanges, etc) are occurring more quickly than was planned in other countries: the average eligibility threshold had reached about 70% by the end of 2001 instead of 30% in the directive, and with the exception of France and Germany, every TSO was at least a subsidiary of the incumbent. They are bringing criticism for the French model, even the amended one, from competitors, the European Commission and other Member States, even though the reciprocity rules laid down in Directive 96/92 are being respected. France’s opposition to the next directive on the issue of the complete market opening up is a source of comfort to the critics.

- *Counter-effects of EDF’s strategic expansion in other European industries*

EDF's ambitious strategy of geographic extension in Europe reinforces these attitudes. It is developing a growth strategy based upon penetration through acquisition of companies and production assets in other European markets rather than on commercial competition through sales of electricity produced in France¹⁴. This strategy is conflicting because of the asymmetry of the property regimes and the impossibility of foreign companies’ acquiring production and distribution assets or companies in France, while EDF benefits from its size and market protection and the financial capacity to fulfil its foreign strategy. European countries have

¹⁴ It is partly explainable by the pre-reform long-term contracts which have not been questioned by the European institutions since 1998 and limits its incentives to develop an aggressive exports strategy. That avoids reciprocity conflicts in this field

been its principal target, with the successful acquisition of a majority shareholding in Grange in Scandinavia in 1996, indirect control of the Swiss producer-transporter ATEL in 1996 (together with the German enterprise RWE), the direct and indirect purchase of London Electric in 1998 and the supply activities of SWEB in 1999 and Seeboard in 2002 in Great Britain, the acquisition in 2000 of a 34% shareholding in EnBW in Germany, and more recently the indirect control of Edison (Italy's second largest generator) and Hidrocantabrico (Spain's fourth largest company) in 2001. Hostile governmental reactions to these last two acquisitions, based on the public status of the purchaser, strongly suggest that the institutional asymmetry is a hindrance.

This external expansion strategy has led to the concrete expression of the European threat to reform. It gives the European Commission some room to compel the French structure to change, insofar as its antitrust powers allow. EDF's partial take-over of EnBW therefore had to be negotiated with the European Commission, which in February 2001 compelled it to sell nearly 6000 MW of capacity in France for clearing it, via the VPP's auctioning¹⁵.

- *The issue of institutional guarantees*

France has to manage to preserve its particular features (wide public service obligations and vertical integration) by demonstrating its ability to avoid anticompetitive discrimination and being proactive in the removal of direct barriers to cross-border trade, as is the case in the Florence process of access rules harmonisation. This situation has three internal effects: it gives the regulatory authority room to impose its institutional solutions to the many problems raised by the implementation of the new regulatory framework; it helps the TSO to achieve managerial and technical independence at EDF's expense; and it continually encourages the incumbent to accept transparent network access rules and the creation of the power exchange to avoid a strategy of market share defence and (in future) manipulation of the French power exchange or the VPPs' auction process. EDF needs to be able to protest its innocence through tangible, sustained and fair participation in the bilateral and the organised wholesale market.

The French electricity industry may develop in some directions without fundamental questioning of EDF's dominant position and the long-term co-ordination mechanism by EDF's internal transactions:

- It has been already the case with the ministerial promotion of the two minor independent producers SNET and CNR controlled by major foreign competitors (Endesa, Electrabel), which introduce some elements of effective competition.
- The field of eligibility could be widened to include all medium-voltage consumers without a major upheaval, as the absence of de-integration of distribution is in itself a guarantee that EDF's dominant position downstream will continue¹⁶.
- The transmission system operator could be organically separated from EDF by being converted into a subsidiary, or even through the creation of an independent business, without calling EDF's dominant position into question.

¹⁵ As a positive side effect it is a way to overcome the internal institutional bounds to reform the industrial structure that could wish government or the regulator. In fact the VPPs auctioning imposed by the European Commission has been an ideal way for the French government and the regulatory authority to avoid the political cost of a divestiture decision and to mitigate the EDF's dominant position which would have been raised rapidly after the creation of the marketplace in front of its persisting lack of liquidity in the next future.

¹⁶ Under this logic, the government signed a decree on the basis of advice by the regulator in November 2000, to immediately increase the eligibility limit to 9 GWh without waiting for 2003, but it was opposed by the Supreme Administrative Court or Conseil d'Etat as being at odds with the Electricity Act.

In the preparation for the next European directive (CE, 2001), therefore, the French government accepts the main aspects of the proposals for promoting wholesale and retail competition. As already evoked above, the directive which will be probably voted in 2003, would impose at a minimum the legal unbundling of the network and the system operator in transmission, the legal unbundling in distribution for companies having more than a certain number of clients (100 000), the obligation to create an independent regulatory authority (which concerns mainly Germany), the regulation of the transmission tariffs and the opening up of the remaining regulated retail market in two stages: up to the non-residential customers in 2004 and to the residential clients two years after. Its opposition is only focused on the proposal of opening up of the residential clients segment and legal unbundling between distribution and supply, which challenges too far the public service culture and EDF's integrity .

4.3. Independence of the regulatory authority and construction of safeguards

From a general viewpoint, market-based reforms in the utility sectors lead to radical changes in the regulatory powers through the creation of an independent specialised agency responsible for promoting and protecting competitive markets, regulating activities in which a monopoly is retained, and protecting consumers (Beesley, 1997). The governments have created this institution, which allows them to commit themselves to not expropriate entrants by discretionary choices, in particular with remaining state-owned utilities. The specific role of the regulatory agency is to give credibility to the regulatory framework and market rules, through its independence and impartiality, for allowing entry and a fair competitive process. For this reason, relations between the independent authority and the other public regulatory powers (ministers, competition authorities and courts) must be carefully designed so as to manage the trade-off between the credibility of the new institution and the control of its discretionary powers (Levy and Spiller, 1996).

In the case of market-based electricity reforms in which public ownership is retained, the regulatory action complements the safeguards that partly neutralise the effects of vertical and horizontal integration of the incumbents and public ownership in giving credibility to TPA provision and consumer eligibility. In France, the safeguards created initially by the law are much more limited and cannot neutralise the combined effects of the incumbent's vertical and horizontal integration and public ownership. The regulatory authority therefore has a central role for adding a number of them, but mainly for the development of wholesale transactions , given its circumscribed powers.

Of the numerous independent regulatory authorities created in Europe, the French one could be classified as having specialised powers focused mainly on access conditions, with a power of proposals similar to effective decisional power (IEA, 2000). It must be remembered that according to the French constitution and the Administrative Law, this type of authority has no formal decision-making powers. The regulatory authority makes a proposal, while the ministry provides legal confirmation, but the minister has to follow this proposal practically. Indeed the minister can either accept or reject proposals on access conditions, without amendment. Proposals have to be differentiated from advice, which is only consultative.

The 2000 Electricity Act clearly separates the role of the government, which is responsible for defining public service duties and general interest objectives (in energy and environmental policies) and for the overall regulatory framework, and that of the CRE, which is mainly

responsible for regulating access to public transport and distribution networks and secondarily for ensuring that public service obligations are correctly implemented¹⁷. Interestingly, the regulator which is supposed to control cross-subsidies via the accountable unbundling of the vertically integrated operator, has no power to propose regulated tariffs in the non-eligible sector. Its role in this respect is limited to reviewing the public utility's demand for tariff increase and giving simple advice (Curien and Bureau, 2001).

Nevertheless, in the institutional environment described above, the CRE has been eager to open new areas in which to exert its regulatory power for promoting competition in the wholesale and industrial retail markets. Even though the electricity law defines its function merely as a function of competition control, with the backing of the competition authority, the CRE identifies itself with the task of promoting competition (Tuot, 2001). That is in fact allowed by the situation in which the government and the public incumbent have an interest in facilitating entry of competitors into the market. Given the inconsistencies and the voids in the electricity law, the CRE has had to specify the rules of network access guaranteeing non-discrimination, adjust provisions opposed to bilateral and trading transactions, and encourage the creation of market institutions. It has constantly supported the TSO in its search for effective decisional independence. To avoid capture by the incumbent, the CRE has been able to refer to innovations tested in other countries and develop an expertise based on outsiders' skills (traders, consultants).

▪ **The quasi-independence of the TSO**

The new law requires separation of system operation and transmission activities, at least in a subsidiary. This mainly involves the duty to preserve the confidentiality of sensitive information between the internal TSO and other EDF divisions, but it does not guarantee fairness of access for competition development. There were different sources of concerns over the potential for abuse by the way in which the system operator handles transmission restrictions and re-dispatching between various market participants.

In keeping with its formal power to oversee the TSO's independence, the CRE contributed to its functional independence by adapting its contractual "terms of reference". It strongly encouraged bringing together high voltage grid and system operation in the same entity and making it an independent budget with specific assets and a corresponding share of EDF's debt¹⁸. Moreover, it spread the idea that the responsibility of the RTE's director before EDF's board of directors is strictly limited, as it is nominated jointly by the minister, with CRE beside EDF's CEO. There is no record of any conflict with incumbent's competitors. It is very similar to a public TSO company, with complete decisional independence in several areas.

In this context, mutual backing of the CRE and RTE allows efficient rule making in:

- the rapid designing of a grid code;
- formalisation of the contractual network access framework in 2001 (access contracts for national exchange, and import, export, transit and balance responsible contracts), especially in providing the framework for trading in France,

¹⁷ It sends proposals to the minister in two areas of skill (Article 35) : transmission tariffs and grid access conditions. It gives its advice on a number of other aspects : tariffs on the non-eligible segments, cost of public service obligation, etc. It controls the annual investment program of RTE. It examines disputes relating to network access and makes referrals for arbitration (Article 36).

¹⁸ RTE has 8000 employees, and a budget of €4 billion in 2001

- since mid-2001, the definition of a balancing market mechanism to be implemented in late 2002.

RTE is also eager to prove its independence from EDF and be active in promoting competition in France. In 2001 it decided to issue auctions for to procurement of its transmission losses (around 11 TWh). It is also actively involved in the European co-ordination of the TSOs (the ETSO which is chaired by the RTE director), aiming to establish rules for close co-ordination between system operation in parallel with the co-ordination of European regulators committed to harmonising transmission tariffs and cross-border conditions.

- **Rule-making by the regulatory authority**

The regulator acts in different areas to implement fair access tariffs and complement the regulatory framework for safeguards.

- *Setting transmission access tariffs*

This issue was one of the main concerns for the risk of dominant position abuse. In fact, the tariffs are set by means of a transparent and independent process, as in most developed EU countries, and are based on accurate accounting information. Tariffs have been set at a moderate level (see table). Moreover, the regulator chose a simple pricing principle, namely stamp post pricing, in order to facilitate trade¹⁹; it is similar to the zonal tariffs with some differentiation with connection points. The option of re-dispatching in cases of managing congestion has been chosen, given the mature and well-knitted configuration of the grid; limited congestion costs are reflected in a minor zonal differentiation without seasonal modulation²⁰.

Table 4. Comparison of transmission tariff levels in selected countries in 2001 (€/MWh)

	France	Belgium	Germany*	Italy	Spain	Sweden	UK
Flat load (HV) 7 MW	5.9	5.7	3.3	5.6	7.3	2.0	5.0
Load 15 MW in the High Voltage network	8.3	8.8	5.2	7.8	10.4	3.0	8.1
Load 15 Mw in the Medium Voltage network	10.0	15	18	15	16	9	8.1

*Intermediate values in a wide range of TSO's price.

Source: EC-*Implementing the internal energy market (first benchmarking report)*-2002, p.41-42

- *The issue of balancing services supplies*

Bilateral physical transactions are the basis of competition for eligible consumers. Under pressure from entrants, the CRE and RTE moved rapidly to define a standard "balance

¹⁹ The definition of transmission tariffs has been long-lasting process. Not until June 2002 was the ministerial decree relating to them adopted. The temporary access tariff in application which has been defined by EDF was also based on simplified principles, as the stamp post pricing

²⁰ The price for connection is also defined along the principle of "swallow pricing", including only the standard of connexion to the grid.

responsible” contract in 2000; there was a pressing need to complement the transactional infrastructure by allowing exchanges of balancing services and limiting EDF's exclusivity in supplying this service. Moreover asymmetry in access to real-time meter information gathered by the TSO and EDF distribution units has been corrected.

Just as important, the issue of pricing the balancing service under EDF’s quasi-monopoly was also raised, because of the excessively high prices charged to entrants (several times higher than for EDF’s transactions with its internal tariff for balancing service between its generation and supply division). The creation of a balancing market, managed by RTE and to be introduced quickly, was envisaged by the CRE and RTE at the end of 2000. In fact the preparation of this solution was the premise for creating the marketplace PowerNext, the presence of a day-ahead market appearing to be a prerequisite for its implementation as an element of a consistent trading infrastructure. But the implementation of the balancing mechanism was postponed after the creation of Powernext. A major difficulty in the design is the anticipated over-dominance EDF in this market mechanism for offering reserve capacity and service of demand reduction (CRE,2002).

- *Market rules for promoting an organised market*

CRE plays a rule-making role (for organising competitive trade conditions), which goes beyond its legal mandate, and therefore promotes a very lax interpretation of the provisions of the law aimed at restricting "purchase for resale" and trading. With ministerial acceptance, CRE popularised two ideas: traders may exist and trade in France, provided they do it from abroad, that is, they are registered abroad; French companies' trading subsidiaries and eligible customers could trade, provided that whatever is not forbidden by law is authorised (Tuot, 2001; CRE, 2002). The same applies to the 3-year minimum period imposed for each contract signed; any shorter period, even one day, is acceptable as an aspect of the clause covering termination by mutual agreement. The contradiction of this provision with the European competition law is so large that no suit has been engaged by opponents in the administrative court. Conversely they do it when, under CRE's proposal, the government signs the decree for decreasing the eligibility threshold to 9 GWh/y in 2000, three years before the legal target conform to the Directive

- *Encouraging the creation of PowerNext*

For CRE, it soon became apparent that the creation of a marketplace would be a major milestone in the promotion of competitive trade in France, despite EDF's over-dominant position in generation and supply (Carmona and Fouchécour, 2001). Referring to foreign experience, and under pressure from entrants familiar with power trading, CRE and RTE encourage and participate actively in the definition of rules for the organised market by Euronext and its contractual environment, especially the amendment of the framework of the network access contract for traders (Depoux, 2001). Significantly, the ownership of Powernext was designed to guarantee its independence with a significant shareholding for RTE and two other TSOs (17%) as well as Euronext(34%). EDF owned only 8% of the shares, sharing that total with five other potential market participants. Moreover, the credibility of Powernext, initially limited by a very low liquidity prospect, has benefited from the simultaneous development of VPP auctions, as already pointed.

- *Improving competition from entrants by the VPP auctions*

VPP contracts are criticised for not being the same as asset divestitures and for not being extended quickly enough to the 6000 MW completed capacity, to be auctioned at the end of 2003. Almost all the contracts in the first round are sales lasting three months, given that EDF offers a range of contracts: base or peak, and three months, six months, one year or three years. CRE has asked for the short-term contracts to be abolished so that purchases can be geared towards three-year contracts more in keeping with virtual asset sales. The total 6000-MW auction can be completed more quickly than the end of 2003 (CRE, 2002). Otherwise, in order to improve the credibility of the VPP device, EDF would have to agree in July 2002 to switch the virtual auction agent from its trading subsidiary (EDF trading) to a neutral agent, Powernext, in keeping with the recommendations of CRE and the European Commission.

- *The issue of interconnection access*

Backed to the traditional government position which argued competitive entry by foreign producers or traders to be a sufficient element of competition²¹, CRE is quite active in defining solutions aimed at easing access to interconnections with all the regulators in other countries. It has dealt in a co-operative way with RTE to create and improve the framework of rules governing information on available capacities and their allocation between agents. Part of the rule-making process has concentrated on rules on publication of information on capacities, so that every competitor can think ahead: not only information on available and allocated capacity for the year, but also on requested and used capacities (with weekly forecasts on supply and demand), thus for allowing market participants to establish spot transactions with limited risk.

In the concerted definition of European rules, CRE defends the general view that the two main issues are the increased capacity for administrative reinforcement of interconnections and the removal of cross-border tariffs on permanently congested interconnections in order to ease exchanges. Market-oriented capacity allocations, especially auctions, must be used only for permanent congestion (UK-France, France-Spain) with rules imposed requiring allocation of profits to transmission investment; systematic auctioning for each interconnection is seen as a way of introducing new barriers to exchange. Therefore, for the interconnections with Belgium, Germany, Italy and Switzerland, which are only temporarily congested, administrative allocation methods such as pro-rata and allocation are preferred in bilateral rule-making with other national regulators (CRE, 2001 and 2002)²².

Beyond these developments it is now clear that some safeguards have been developed under the control of the regulator. However, it cannot easily be said that the industrial structures and market rules in France have the best profile by guaranteeing new institutional arrangements which have emerged in the new legal environment. EDF may remain dominant on the

²¹ Interconnection capacities with neighbour countries are quite developed, with the exception of the links with Spain (1100 MW). However, the pre-directive long-term export contracts with the Netherlands, Germany, Switzerland and Italy limit the real access capacity, as the European Union has not questioned these contracts.

²² The limitations of this paper do not allow development of a theoretical discussion on conditions for integrating national markets at the level of interconnections, cross-border trade, technical co-ordination and harmonisation of balancing rules. CRE's position clearly shows preference for technical co-ordination with limited use of market-oriented allocation methods. The question is: to what extent could physical and economic transactions be disconnected?

bilateral market and indirectly on the marketplace where it is not mandated to bid its remaining available capacity. Progress also needs to be made on the wholesale and retail markets. In particular, we could list:

- the difficulties to implement a balancing market ;
- the limitations of VPPs as equivalents to production asset divestitures ;
- the need for a specific set of rules for adapting to the next eligibility of commercial which will enlarge the market segment (4 million of customers, 250 TWh; instead of 2200 customers and 112 TWh) ;
- the issue of unbundling distribution and supply; and the adaptation of the regulated control of EDF's distribution division, for which asymmetry of information has not been limited in any way by the 2000 Electricity Act.

Moreover, the inclusion of EDF's partial privatisation in the political agenda by the newly elected government could upset the equilibrium.

5. Conclusion

The combination of retained vertical and horizontal integration and state ownership is *a priori* the least favourable situation for enforcing third party access provision in order to allow entry to and development of competitive trade. By going beyond the traditional focus of the institutionalist emphasis on the "rules of the game", the integration of the "game of the rules" into the analysis explains why and how it is possible to build safeguards for enforcing TPA provision to allow this change. The mismatch is source of creation of new rules and institutions in order to reduce it, and with unexpected results such as the development of a significant contract markets and the emergence of a wholesale market. The explanation remains contextual and relates to the French situation and to the particular balance between the European institutional threat and the defence of the public incumbent with, as an enforcement effect, an incentive on EDF's self control of its market power.

This institutional equilibrium is however particular to the wholesale market and quite unstable. The most probable possibility would be for institutional destabilisation to continue on the crucial issue of integration (Finon, 2001). The planned partial privatisation of EDF would further erode the public service model. But above all the reduction of national differences between regulatory set-ups in the European Union, brought about by the next directive (EC, 2001), could dramatically affect the French organisation, especially through the planned mandatory separation of supply and distribution and total opening of the retail market. The present horizontal integration in supply and generation could then be brought into serious question, especially because of the probable long-term lack of liquidity on the wholesale marketplace despite total opening. Given the probable limits of institutions for market-based technical co-ordination between national system operators of the European continent (Smeers, 2002), integration of continental markets will not be sufficient for justifying the preservation of the horizontal integration

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