



HAL
open science

Managing uncertain reform through ” flexible institutions ” : Electricity sector liberalization in France

Thomas Reverdy

► **To cite this version:**

Thomas Reverdy. Managing uncertain reform through ” flexible institutions ” : Electricity sector liberalization in France. SASE Conference: Inequality in the 21st Century, Jul 2015, London, United Kingdom. halshs-01174295

HAL Id: halshs-01174295

<https://shs.hal.science/halshs-01174295v1>

Submitted on 8 Jul 2015

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

SASE Conference London July 02 - 04, 2015

Network H: Markets, Firms and Institutions

Managing uncertain reform through “flexible institution”:

Electricity sector liberalization in France

Thomas Reverdy, Grenoble-Alpes University, PACTE, Grenoble-INP

thomas.reverdy@grenoble-inp.fr

Taking into account uncertainties in the governance of a liberal economic reform leads to a challenging paradox. Economic reform requires institutional stability, which is guaranteed by the independence of the economic regulation authorities from political influence and by a loyalty to initial institutional commitments and international standards. However, all economic reform includes a degree of uncertainty in its results, even if it is inspired by experiments from comparable countries (Dobbin, Simmons, and Garrett 2007). Uncertainties are related to national characteristics or political dynamic or economic conditions (Djelic and Quack 2007). The more the reform is liberal, the more the economic actors are free to develop their own strategy, and the more the effects are uncertain (Schneiberg and Bartley 2010). This uncertainty can be reduced during the implementation of the reform: learning from experience may lead national governments or independent regulatory authorities to introduce adjustments to contain the most problematic effects. Nevertheless, adjustments are limited by the initial institutional commitments and institutionalized standards (Carruthers 2007). Institutional stability and coherence issues may prevent political intervention, especially when the country is committed to international trade agreements (Zelner, Henisz, and G. 2009).

The liberalization of the electricity sector in France (implementation of a wholesale market, opening to competitors) is an interesting example of this paradox (Reverdy, 2014). This reform has met a strong contradiction between the constraint for institutional continuity and coherence, and the request from economic actors for political intervention on the market organization (to ensure economic continuity through price stability). This strong contradiction comes from the economic uncertainties associated with the electricity market price. This market price has a high

sensitivity due to the investment costs and implementation delays and the non-storable nature of electricity. A liberal reform can have very significant effects on the costs and the margins of economic actors, producers and industrial customers, redistributing losses and incomes. In France, the wholesale price increased (200 % between 2004 and 2008) in the context of a relative stabilization of average production costs of electricity, and convergence towards an equilibrium price was not guaranteed. The price increase produced a political crisis and a contestation of the liberal reform by French industrial customers. The French government faced a dilemma between institutional stability (not changing the rules and the adopted market model) and economic stability (moratorium of the reform, political control of the price).

After a trial and error process, an intermediate strategy has been found between institutional stability and economic stability: a “redesign” of the market, attentive to the maintenance of major economic and political equilibrium, and compatible with major European commitments. But this solution hasn't been found immediately. It was the result of a long exploratory process, marked by several attempts and failures, mainly involving the actors of the French market, political authorities and the European Commission (Directorate General for Competition). This exploratory process includes technical, legal, and political dimensions. During the process, political authorities played a key role, whereas one could have expected that they might delegate this adaptation of the market to regulatory authorities.

By articulating the sociology of science and technology to new institutionalist theory in sociology, this communication describes this exploratory adaptation process of a highly institutionalized economic model. In a context where economic expertise gain legitimacy and authority in the market organization, mobilizing contradictory expertise plays a key role in the adaptation process. This expertise can highlight the contradictions and uncertainties of market models and undermine the legitimacy of the regulatory authorities who derive their legitimacy from these models. This weakening of knowledge and of the regulators allows politicians to regain control, to produce new rules, to present them as adaptations of the market and therefore to present an apparent compliance to institutional commitments. The contradiction between economic stability and institutional stability is therefore enabled by a certain flexibility of market models. It remains to specify the extent and the conditions of this flexibility, as well as the nature of possible adaptations in an existing institutional framework.

The first section of the communication will explain how research in economic sociology takes account of the tension between the international standards and rules and national political dynamics. Then, it will explicit our hypotheses concerning the processes engaged in the flexibility of market models. In a second, empirical, section, it will address the case of the French electricity market, emphasizing the dynamic of flexibility, through deinstitutionalization of the

market model implemented in European countries, the search for alternatives and the redesign of the market organization. In a third section, the communication will revisit the notion of « flexible institution », applied here to a market model: an institution that is sufficiently stable, recognizable, shared, founded, in order to be legitimate and to give legitimacy to those who appeal to her, but which remains, in a certain number of conditions, “adaptable” to specific circumstances, integrating political contingencies and decoupling from institutional commitments.

The flexibility of economic model

Economic sociology has produced many proves that liberal economic policies diffuse at an international level, held by international rules and economic expertise. In Europe, the European Commission and the Competition rules contribute to stability and to compliance with international standards. How economic sociology can explain the flexibility of economic standards and their adaptation to local political configurations and unexpected effects?

The diffusion of market models

According to Richard Scott (2001), an economic practice has three institutional pillars that support its power and stability: a cognitive pillar, consisting of knowledge and beliefs; a normative pillar, consisting of assessments and values; and a coercive pillar, consisting essentially of rules and coercive techniques. A mechanism of diffusion corresponds to each of these institutional pillars. The three pillars are influencing each other. When these pillars are consistent with each other, this gives a strong legitimacy to economic practices.

Concerning the sector of electricity, it is possible to characterize a model of market organization that has been institutionalized through economic expertise and competition rules. The liberalization of national electricity sectors rely on a set of shared intellectual foundations within an expert community of economists. This community transformed economic matters, usually considered as political issues, into technical issues that can be processed by independent bureaucratic structures (Dezalay and Garth 2005, Kogut and MacPherson 2007, Fourcade 2006). More precisely: in Europe, the liberalization of different network industries was based on a doctrine and an expertise developed in Anglo-Saxon countries. If the action of the Commission can be qualified as political - it aimed to revive a halting European integration (Jabko, 2006) - it is impossible to deny that it obtained its legitimacy from economic expertise and prevailing competition rules. The Commission could also rely on European legislation, with the support of the Court of Justice of the European Communities, to extend the rules of the single market to network industries (Schmidt 1998, Schmidt 2000, Woll, 2009). Once these sectors had been

liberalized, economic activities were subject to the same requirements as other economic activities in terms of competition. Regulation of these sectors found a legal foundation already well established at European level, applied to almost all economic sectors and includes the rules against cartel, concentrations and state aid (Cini 2001; Cini and McGowan 1998; Fligstein and Sweet 2002).

The competition regulation has been reinforced by the strengthening of the Directorate General for Competition and other independent regulatory authorities, such as the Competition Authority in France (Djelic and Kleiner 2006). These authorities rely on law to arbitrate in disputes concerning the organization of markets. They also use economic expertise and borrow to academic knowledge its definition of an efficient market, with the equilibrium mechanism of supply and demand as the main method for achieving collective wealth (Veljanovski 2010). Thus, by limiting the regulation of the economy to the organization of competition and by defining this competition with the help of economic expertise, the equilibrium mechanism of supply and demand through prices has gained a strong normativity. The definition by the economic expertise of the conditions of market efficiency has become the main reference that guides the work of independent regulatory authorities. It also provides tools and concepts in order to identify market failures (neoclassical economics, new institutional economics, game theory).

This economic expertise has organized itself, by referring to academic knowledge, in order to form a set of references. Thus we defend the existing of an « institutionalized market model » in the case of the electricity sector. In addition, the role of economic expertise has been strengthened since the regulation of competition was less interested in market structures than in market player's strategies of price manipulation. To detect price manipulation supposes to be able to say what would have been a "normal" price, something only market simulation can do (Breslau 2011).

The mobilization of this expertise enables local adaptations of these reforms. Academic economists promote "market design" activities, which use economic theory, simulation and experimental methods, to adapt the rules, the methods of price monitoring and the technical devices for auction, in close dialogue with regulators (MacKenzie, Muniesa, and Siu 2007). The diversity of deregulation experiences, particularly in the United States (Marty, 2004) counted as life-size experimentation. Regulatory authorities seek academic economists support to clarify the operating procedures of these markets, adapted in a way they respect the requirements of economic efficiency rationality (Breslau, 2011).

Independent regulatory authorities are not exempt from the phenomenon of cognitive and political capture. The process of development of market rules is often entrusted to experts whose

independence towards existing economic powers can not be guaranteed. The legal and economic principles are often sufficiently abstract and distant, in order for the expertise to maintain a considerable flexibility in categorizing practices, and therefore in the choice of principles that apply (Huault and Montagner 2009). Free spaces primarily benefit principally to experts often mandated by economic actors themselves: production of rules is "privatized" (Chiapello and Medjad 2009).

Thus, in this market regulation, we can question the interdependence between expertise and independent regulatory authorities. The transfer of power from political authorities to independent regulatory authorities requires a development of their legitimacy, which would be associated with the expertise they invoke. We can expect that, in order to avoid contestation, independent regulatory authorities must rely on non-questionable knowledge, who should therefore be the most universal and rational possible. But, reversely, it is still possible that a powerful contestation of the knowledge would be able to question the legitimacy of the independent regulatory authority.

How economic and political actors exploit uncertainties in order to circumvent institutional pressure

Beside this first group of research insisting on legalization and standardization of market regulation, a second group of research insist instead on policy interventions involved into the liberalization process. Rainer Eising and Nicolas Jabko (2001) evoke the negotiations ahead of the liberalization directives in the electricity market, where national political authorities repeatedly intervened. Bennet Zelner, Witold Henisz and Guy Holburn (2009) identify many liberal reforms of the electricity sector in the world, where governments do not respect their commitments towards private investors after liberalization: non-respected purchase prizes, price that were imposed by the state, renationalization ... Although not as visible as the retrenchment mentioned by this study, the gaps between international economic rules as adopted by countries and local practices are common when it comes to the implementation of significant economic reforms (Carruthers and Halliday 2006; Boyle and Meyer 2002). These gaps can be sustained by practices that John Meyer and Brian Rowan (1977) call decoupling. This concept refers to various methods that allow to maintain the gap between external requirements, considered as rational and universal (eg, international rules), and local practices (at the level of a country), despite a formal commitment to respect these external requirements. Decoupling is usually made possible by a weak compliance monitoring (Bromley and Powell, 2012), by superficial compliance or by maintaining an ambiguity about the rules and an opacity on actual practices. It often comes from the existence of issues that are competing and conflicting with the overall rule.

Although we can not avoid this second hypothesis, it is difficult to privilege it definitely. According to Patricia Bromley and Walter Powell (2012), the gaps between adopted formal rules and practices in the business world tend to get reduced, due to the rationalization of the latter. Audit and control techniques as well as coercive technics have never been developed. This applies to European competition law, which is based on a strong compliance mechanism and where economic players are themselves involved in monitoring the application of the rule (Fligstein and Stone Sweet, 2002). European countries belong rather to the configuration identified by Bennet Zelner and his colleagues (2009), described as unfavorable to turnovers and to non-compliance with market rules. In this context, the margins would be narrower than in countries less constrained by legal commitments.

It is therefore important to explain how political actors have been able to regain a certain power in the trajectory of these liberal reforms. The explanation can be based on research that examines more in detail how economic expertise is exercised. Thus, sociology of science and technics shows that the economic theory and simulation tools takes an important role in the process of transformation of these very "artificialized" markets (Levin and Espeland 2002). The pricing practices depends on the development of information technology (Callon and Muniesa, 2005) and on mathematic formulas (MacKenzie and Millo, 2003). These devices, once they are mobilized in practice, produce unexpected effects that do not necessarily correspond to the initial wish or to the promises associated with them (MacKenzie 2008; Veal and Mouzas 2012). The artificial and sophisticated nature of financial markets and energy offers opportunities for technical controversies (Callon and Muniesa, 2009), whose resolution depends on cognitive or normative influences toward independent regulatory authorities (Mirowski and Nik- Khah, 2007, Dumez and Jeunemaitre 1998).

Sociology of science and technics suggest the hypothesis that a strong technical controversy over the organization of a market, driven by a powerful coalition, can weaken the legitimacy of the institutionalized market model to the point of politicizing the debate and therefore, encourage political intervention in the organization of the market.

This hypothesis can be based on neo-institutionalism, which explains that the production of new knowledge and the formation of a political coalition can affect an institutionalized model by attacking its cognitive pillar, its "taken-for-grantedness", i.e. the belief and opacity which hitherto permitted it to be accepted without discussion (Maguire and Hardy 2009). What was considered as being obvious until the controversy, can lose that status and become an arbitrary belief or even a hypothesis that could be falsified. It should be known for whom and under what circumstances a statement remains a belief or becomes questionable assumption.

The weakening of the cognitive pillar leads sooner or later to the weakening of the normative pillar: it is difficult to continue to give a positive value to a practice if the beliefs that justify it are weakened (Caronna 2004). Similarly, rules that allow a practice can hardly be maintained for a long period if the practice is challenged in terms of its effectiveness and when it is seen negatively by public opinion. The weakening of the technical foundations can facilitate a return to political and economic actors, who were initially kept away (Kubo and Morgan 2005).

According to Steve Maguire and Cynthia Hardy (2009), the sociology of translation (Callon, 1986) can address these recompositions. It enlightens the diversity of possible attitudes of the actors towards the institutions, their level of adherence to the different pillars identified by Richard Scott (2001), and take into account all the argumentative, legal or technical associations that stabilize institutions. Practices that were considered as institutionalized are actually composite doctrines, formed by a set of statements, beliefs and rules, related between each other by various argumentations, but can also lose some of their coherence, their status of obviousness, of value, or rule (Lawrence and Suddaby 2006). When contestation occurs, actors can develop new discursive strategies, new problematizations relying on experts discourse. The deinstitutionalization process is produced by the weakening of the many associations between technical, political or legal arguments. The institutionalization process implies on the contrary a mobilization of new resources and the finding of new argumentative associations.

Each of the instances has its own criteria of validity: economic expertise, political debate or legal action. Quoting Michel Foucault, Steve Maguire and Cynthia Hardy (2009) state that "truth" is what society accepts as true, through mechanisms that distinguish right from wrong, that grant status to certain actors to say what is true and what is not. That is why the maintenance or renewal of an institutional practice is related to production of statements and with the forum that recognize them as valid and who each have their own stabilization modality. The cognitive pillar stabilizes by the accumulation of measurements, modeling and simulations, by the verification of the internal validity of arguments, but also, the social position of experts, their link with the academic field. Economic expertise is not only a matter of ideology or interests. The political pillar will stabilize by the formation of a coalition that will recognize a proposal as acceptable: this coalition has to defend its legitimacy into the political arena. The legal pillar will stabilize market organization by the verification of compliance with existing law. But these three dynamic of institutionalization do not operate totally independently of each other. For example, the judicial activity is never totally indifferent from political agreement or disagreement.

Method

Our research approach is based on the distinction proposed by Richard Scott (2001) between the three pillars of an institutionalized practice: the cognitive pillar, consisting of knowledge and beliefs; the normative pillar, made by assessments and values; and coercive pillar, consisting essentially of rules and means of coercion. We also rely on the analysis of de-institutionalization process by Steve Maguire and Cynthia Hardy (2009) who associated with each of the three pillars specific spaces for debate in which the various problematizations of an economic practice can unfold.

The cognitive pillar is easily recognizable in the work of experts and scholars, who contribute to the objectification of the debate by mobilizing economic inquiries and modeling capacities. The debate takes place via publications that engage the credibility of the authors, qualified as experts. The normative pillar refers to the debate in the public space, where values and political judgments are associated with economic practices. Basically, it is reflected by publications, releases, political debates, issued by economic and political actors. The coercive pillar concerns the debates within (or associated with) the independent regulatory authorities, the use of rules of law, the way a practice is allowed, tolerated or forbidden... This demands a precise examination of the way these rules are actually implemented, and therefore of the action of control and sanction of independent regulatory authorities.

The distinction between the three pillars must be applied carefully and must not be affected definitively to specific actors. Each actor and authority request different sources of legitimacy even if some of them are more important for them: economic actors defend technical arguments and contribute to their validation, economics experts defend also political or legal arguments, political authorities defend technical arguments against independent authority...

In our approach, we have also been careful to identify the strategic issues of the economic actors, their losses and profits associated with different market rules. This analysis helps to explain their motivations, although it does not explain their argumentative strategy, neither what can make its success or failure. Although it is tempting to read the different decisions as the effect of a coalition of several economic and political actors, an approach focused on the economic interests does not provide an explanation on the ability of the coalition to keep its goals.

For each decision, we therefore investigated prior positions, mainly through literature review. Interviews with actors has allowed us to investigate key elements of negotiations and main motivations of decisions. We have considered the public comments by the actors once the decisions had been taken. We have identify the shifts in requirements from independent

regulatory authorities, when they agree to push to the limit on the validity of rules and applicable standards. Finally, we reconstructed the succession of decisions since every decision creates a new situation that becomes the context of the following decision. The reform of the reform is an incremental process.

The flexibility of the institutionalized model of electricity market in France

The presentation of the case allows us to specify the mechanisms at work in the implementation and adaptation of an institutionalized market model. First of all, it explains the process of adoption of a market model characterized by the same techniques of exchange and by the same rules from one country to another in Europe. Secondly, it evokes the collective mobilization, the circumvention of European competition regulation authority and use of expertise in order to contest this institutionalized model. Finally, it explains how economic expertise and legal arguments have been mobilized by political actors to design an alternative model for the electricity market, consistent with the political expectations and sufficiently consistent with knowledge and institutionalized rules.

The adoption of an taken-for-granted model of market

Let us examine more in detail the story of the debates and the readjustments of the electricity market. Our observations show that during the first years of liberalization in continental Europe (before 2004), the European Commission and national regulators have been working to develop an integrated European market for electricity, by facilitating cross-border trade by organizing a network of independent regulators in each country, by establishing interconnected spot markets and by fighting against existing monopolies.

This means not only just a deregulation: network industries continue to be the subject of specific technical regulation, in particular to facilitate third party access to the network, but also to encourage new entrants. Furthermore, electricity has the characteristic of being a non-storable good, for which the production and consumption must fit precisely in real time. The market must achieve the balance of production and consumption through the formation of a price.

French industrialists campaigned in favor of liberalization before the European Commission. As in many countries, the most active opponents to liberalization were the unions of the national electricity and gas companies. Taking into account French specifics, and especially the extent of the nuclear power and hydropower base, the government considered that the short-term effects would be negligible. The government was confident about the long-term advantages. At most, it expected to see some new renewable energy players, whom they indeed intended to promote. The government focused above all on maintaining cohesion with other European countries.

The opening up of the electricity markets was accompanied by a phase of euphoria during which industrialists invested in learning new purchasing techniques: calls for tender, mutual agreements, fixed or indexed prices, auctioning, etc. Most industrialists exercised their eligibility, i.e. their right to buy electricity on the free market when it was opened (except those benefiting from a long-term contract at a preferential rate). Prices on the wholesale markets diminished, confirming the “promises” of competitive markets.

Given the specificity of the electricity market, in particular the difficulty of organizing third party access to the network and the permanent balancing of production and consumption, most European countries chose to set up specialized independent regulators. These controllers are networked, share their knowledge, draw on existing experience and have developed roughly the same technical standards and coordinated the establishment of spot markets. The European market, as developed from 2000, benefited from the accumulated expertise and devices developed in other countries, particularly the United States, where liberalization has led to a variety of more or less successful experiences.

As noted by Daniel Breslau (2013), economic expertise is put in practice in a pragmatic way: it does not impose Walrasian model, but deals with the technical and material constraints of the market, while taking reference on various simulations, as if the market was not hampered by such constraints. Daniel Breslau calls this practice "Applied Platonism": a modeled market, freed from constraints, serves as a reference to assess the price prevailing in the real market. When the constraints introduced by the actors or the regulator, turn the market operation away from the theoretical market, the expert recommends compensation.

This economic expertise has produced a set of rules of reference which enabled, in Europe, to stabilize an organizational model, and this model serves as an institution (Scott, 2001). This institutionalized market is supported both by theorized representations and on technical devices. In practice, this means an electronic auction which aggregates and prioritizes daily offers and requests for the next day and set a price to meet the two curves of supply and demand. An algorithm determines the meeting by linear interpolation of the two curves and gives the "market clearing price". This price is used as a reference for all transactions managed by the auction. It also serves as a reference for many other transactions, including medium-term contracts and futures. A second market, driven by the network operator, also manages the gaps between forecasts and actual instant production and consumption.

The calculation of price offers is based on a technique that is widely shared by electricity producers: the marginal cost curve of power facilities, classified by merit order. This curve allows an operator to set a price offer for the volume of electricity it will propose on the spot

market. This calculation method is based on the following reasoning: given the non-storable nature of electricity and strong variations in electricity consumption, the power generation firms has interest to exploit several different technologies, that have different incremental costs and who are mobilized in order of merit in accordance with the increase in consumption (Bohn, Caramanis and Schweppe 1984). To provide demand, the electrical industry can use equipment that is expensive in investment, but whose functioning costs are low and who do not depend on the quantity produced, such as nuclear power plants. For peak demand, it can use cheaper means of production by investment, but overall more expensive, which can produce on demand with higher variable costs, such as oil or gas power plants. This calculation technique plays a central role in price variations in the short and medium term. It is also justified by an economic simulation which shows that the market price can lead to the convergence of the investment strategies of the actors toward an optimum electric park (Laffont and Tirole 1993).

Market actor have agreed together with the regulator to adopt this calculation formula, which is also used by regulators in market control. Indeed, this market is subject to close monitoring of prices and investments to verify that there has been no agreement or abuse of dominant positions, a monitoring that has been justified by many economists (Joskow 2003). This performative character of price calculation models allows us to understand the importance of conflicts between actors and the regulator in the justification on the settings for this model. For example, the marginal cost curve of power generation, ranked by order of merit, is the subject of controversy among actors and the regulator, which are generally arbitrated by a technical discussion or by the use of academic expertise.

Finally, the construction of the European electricity market passes through a coupling of the various national markets. Border connections, previously developed for security objectives concerning the electricity grid, were massively required for economic exchange. And regulators have encouraged third party access to the gas transport infrastructure, facilitating trade again. These couplings have been systematically sought inside Europe through an economic integration policy. The evolution of the material and contractual infrastructure has been complemented by an IT-infrastructure that has gradually connected transactions between market players from one country to another, thus constituting interconnected European markets.

Identification of an unexpected effect of market liberalization: a price increase

When the decision to liberalize the French market was validated, economic and political actors never anticipated the resulting price increase. After having benefited from a particularly attractive price compared with the regulated tariff, the electricity market faced a substantial increase with the rise in oil prices, to such an extent that the market rate largely exceeded the regulated rate

albeit based on production costs. Electricity-intensive industrialists were the first to point out this increase in 2003. It was seen to be unjustified when compared with production costs in France. The industrialists publicly expressed their concerns: they felt that the low prices they obtained during the first years had been a trap. They suspected that the producers had agreed together to increase their prices. The highly concentrated structure of the market, with competition limited mainly to the historical producers, seemed to point to a price fixing agreement.

Faced with the industrialists' mobilization, the French government was slow to react. During this period, the Finance Ministry was very active in setting up the operation to open up the capital of the French electricity producer EDF. Given the context, EDF's electricity sales prices also enhanced the value of the company, and therefore the profit to be gained from the sale of its capital. The French government was also a prisoner of its own consistency. The liberalization of the market and the privatization of EDF supposed a freedom in price fixing, this being the basic principle underlying any competitive market.

But at the beginning of 2004, the Economy and Finance Ministry asked the General Council of Mines and the General Finance Inspectorate to study the market's operation and hence shed light on the debate. Performed by members of both administrative bodies, this mission was based on a series of interviews and the collection of economic data from a long list of stakeholder, including European actors. The committee collected the arguments produced by EDF and, in particular, the market model promoted by the company. It also put this theory to the test, comparing it to the empirical data to which it had access.

The report provided a long explanation of the spot pricing model on the wholesale electricity markets, a model which all economists agreed with. The explanation was based on micro-economic reasoning: a highly competitive market sets prices at the level of the producer's marginal cost, and the marginal cost curve follows a "merit order." EDF used this "marginal electricity production cost" to justify the increase in market prices and the difference between market prices and its production cost. In accordance with this theory, in a single French-German electricity market, it was normal for the wholesale market spot price to be aligned with the marginal costs of the most expensive installations used to meet marginal demand, i.e. with the German installations using coal and fuel. As the marginal cost of these installations was far greater than the complete cost of the nuclear power generation, the market introduced a market price different from the average production cost. The market created an important economic rent for the producer EDF. The difference between the average production cost and the market price was not acceptable for these industrialists, given the favorable tariffs they had been granted by EDF at the request of the State.

The IGF-CGM report was nevertheless very cautious when it came to checking this theory using empirical means. The committee attempted to study prices on Powernext, the electricity exchange, and assess how the marginal cost theory was applied. The wholesale market price analysis did clearly show the correlation between the French market price and the German market prices for term-based contracts. This correlation ties in with economic theory in the case of a perfectly interconnected Franco-German market. To prevent objections being raised by the DG Competition, EDF followed the shared economic model (applied to the Franco-German “interconnected electricity network”). EDF had to prove that it was not attempting to maintain its dominant position through overly low prices, or misusing this position by applying overly high prices. The prices granted to industrialists “mechanically” followed the wholesale market price in line with the marginal cost theory.

As Marcel Boiteux, a French economist and CEO of EDF for many years, emphasizes, “it is no longer a question of opening up competition in order to reduce prices, as one might have initially believed, but of raising prices to allow competition. What a superb paradox...”

Deconstruction of the market model

French academic economists joined the debate in 2006. The first paper to focus on the debates concerning the difference between the production price of French electricity and the market price was published in 2006 by David Spector, a member of the Paris School of Economics. He shared the conclusion of the IGF-CGM report. Dominique Finon and Jean-Michel Glachant, two other economists specialized in energy markets did the same. All agreed that this “rent” should be maintained, if not increased, in the future: the current market price reflected the scarcity of nuclear power plants, and in order to offset such an imbalance there would have to be massive investments in nuclear power across Europe, resulting in capacity being at least doubled. However, the other European states were more than reticent to go nuclear. And France would not be able to produce and export an equivalent volume, owing to both technical and political reasons. Basically, in a single European electricity market, EDF would have lasting benefits and inevitably generate a considerable amount of “rent.”

The price increase led to a political debate where economic experts (administration, companies and academics) worked to identify market dysfunctions. These experts were largely inspired by the same specialized literature and circulate in the same networks, even if their political and ideological sensibility could be different (Bockman and Eyal, 2002). The activity of these networks played an essential role in clarifying the diagnosis.

Market modeling contributed to the understanding of the market and the anticipation of its development. It explained how a difference between the market price and the production cost is

formed and gave credibility to the scenario of an increase in income with the opening of the French market to competition. Market modeling led to the shared conviction in France that more competition on the electricity market would not lead to a drop in prices, and would not encourage prices to be aligned with an average production cost. Economic modeling highlighted the specific case of the French market and made it possible to deconstruct the principle, albeit largely shared, on which all European policy was based: “the opening of markets to competition brings prices down”.

The rapid emergence of the controversy in France, and the forming of an agreement based on the difference between market prices and production costs being interpreted as a scarcity rent, testifies to active and pluralist economic expertise that understands the mechanisms specific to electricity markets and is able to delve into a wealth of different references. Thierry de Bresson, probably the most reputed economist among electricity-intensive industrialists, put forward other forms of market organization that avoided the price formation mechanism he denounced. He made use of economic theory to defend alternative market organizations which do not produce the same effect in terms of price, as long-term contracts for large consumers, which are adopted in Australia, the United States, Canada, and New Zealand.

European Commission defending the institutionalized model

Economic experts in France, whether they worked for the administration, the university, EDF or industry, agreed on the technical diagnosis of the situation. The European Commission has never officially discussed this diagnose, neither confirming nor invalidating it. The DG Competition was still convinced that the main problems were still due to the absence of effective competition on the European market, due to its overly heavy concentration, and even to the deliberate strategies of some players to increase market prices. All of the difficulties generated by market opening have been interpreted in one way: liberalization has not gone far enough.

The highly concentrated structure of the market called for closer monitoring of exchanges and price formation. This is why at the end of 2005, the DG Competition decided to undertake an enquiry into the level of competition on the markets. It thus responded to the concerns of many governments and economic actors faced with the constant increase in electricity and gas prices. The objective of the report was also to respond to the current controversies.

In the report, the DG Competition emphasized its conviction that a structurally more open market would lead to virtuous behavior in market players. It claimed that this conviction was shared by most economic actors consulted. More surprising still, from a French viewpoint, was the DG Competition’s acceptance of a high electricity price level: it considered that a high price level was not necessarily a sign of market dysfunction and could have a positive effect on investment

decisions. Some experts have reproached the Commission for having transformed the sector's enquiry, initially described as a midway market opening feedback, into an enquiry limited to the assessment of the level of competition.

The main problem identified in the report was that a high price level in a highly concentrated market would not necessarily lead to investment given that producers could share out the income amongst themselves. This is why the DG Competition again emphasized the need to move ahead with market liberalization so that competition operated in a satisfactory manner and focused on the disintegration of the energy sectors (separation between production, transportation, distribution, etc.). The market model itself and its redistributive effects were not discussed.

For French political and economic actors, the European Commission seemed to be trapped by the institutional frame that had been guiding its policy since the Treaty of Rome and the creation of the Single Market, as well as its efforts to counterbalance the specific, political and economic interests of individual European states. The European Single Market had become an objective in itself and its legitimacy could not be undermined. It had been built on formalized, dense, robust, cumulative institutions. Since its legitimacy was at stake when market opening was evaluated, the European Commission refused to explore and formally recognize the unexpected effects of the model it defended. The French industrialists remained highly critical of the action of the DG Competition, reproaching it for devoting more effort to imposing its market model than assessing its consequences on the economy.

The search for alternatives

Via the union of energy-using industries (UNIDEN, accounting for 70% of the industrial energy consumed in France), the industrialists demanded that regulated prices be re-institutionalized for industrialists. However, for the French government, which was in the process of organizing the liberalization of the entire market, there was no question of going back to regulated prices. Nevertheless, the Minister of Industry, Francis Mer (himself a former manager from the electricity-intensive industry) was especially sensitive to what the electricity-intensive users were saying.

The IGF-CGM committee drew inspiration from the Finish PWR, financed by a consortium of electricity-consuming industrialists. The idea was to transpose this approach to France, i.e. to set up a purchasing consortium that would sign a long-term contract with EDF.

The consortium was the object of several discussions between UNIDEM and EDF and with the Ministry of Industry. Nevertheless, throughout this negotiation, the prices offered to high energy consumers constantly varied, re-opening the controversy about nuclear power production costs.

Several times, UNIDEN representatives threatened EDF with State arbitration. Paradoxically, the more public the price debates became, the more they weakened the considerable efforts undertaken until then to prove that EDF could join the consortium without being subject to political pressures.

The IGF-CGM report imposed restrictive conditions of access to the consortium in order to stave off the Commission's objections. Access was thus reserved to "electricity-intensive industrialists that could relocate abroad". This is probably the compromise that the Government had forged between the Ministry of Industry, whose aim was to protect the most exposed industries, and the Ministry of Finance, whose aim was to maintain EDF's profitability. Nevertheless, the eligibility criteria gradually changed as non-eligible industrialists began to react. When the energy law was being drafted in 2006, a new agreement was outlined based on a new definition of electricity-intensive industry and less restrictive criteria. This meant that a bigger volume would be involved if all industrialists wished to participate.

Following exchanges with the DG Competition, the work on legitimization also evolved: the initial arguments were replaced. The consortium emphasized that its aim was to meet the urgent need of the highly indebted electricity producer to finance its development using new means. The search for institutional alternatives in France has to be placed in the context of European commitments: European directives about the energy sector and the Single Market rules. The French State could not reorganize the electric market without searching for legal validity from the European Commission.

Before the Ministry of Industry supported the Exeltium consortium, it wanted to make sure that this solution would be accepted by the DG Competition. Indeed, the competition authority might accuse the French State of subsidizing its industrial activity via a favorable long-term contract. The simple fact that the State was a majority shareholder was bound to arouse the suspicions of the DG Competition. To justify this setup before the DG Competition, it had to be proved that both the contract and the price remained "plausible", in other words, that it was in the interest of EDF to sign a long-term contract at a price below the market price.

The report then based its arguments on judicial precedents authorizing a specific price for a customer when the loss of such a customer would be detrimental to production. In line with this argument, the contract would therefore only concern electricity-intensive industrialists: if the price did shoot up, these industrialists would have to relocate their production and EDF stood to lose a substantial amount of revenue if this happened. The committee therefore had to identify the industrial activities at risk to be transferred abroad.

The IGF-CGM report stipulated the conditions under which the price of such a long-term contract would be fixed. It pointed out that community case law decisions required public companies to invoice “according to normal market conditions”. Failing this, the DG Competition would compare prices to the complete cost of the services in question, i.e. to the sum of operating costs and return on capital, including private equity.

So, this credible alternative was weakened with a multitude of contradictions, the most obvious of which was the following: trying to get the State to arbitrate while attempting to show that the setup was conceivable without its support. The supposed strategic behavior of the economic players in an idealized market – i.e. what EDF could do if it was not a state-owned company in a monopolistic situation – was used as a reference to draw up the partnership contract, calculate the prices, etc.

Normally, the DG Competition should not have been able to oppose the drawing up of long-term contracts, identified as a means of encouraging investment, especially when the electricity sale price was supposed to cover the cost of building a new PWR. However, the DG Competition evaluated the Exeltium case in a “structuralist” approach. The degree of electricity sector concentration in France was extremely high and long-term contracts with a dominant supplier were likely to worsen this situation. The consortium had attempted to get around this argument by organizing a bigger call for tender (only EDF fulfilled the criteria) but the DG Competition used the structuralist argument to ask for a reduction in the volume to be distributed by the consortium. The authority requested that members of the consortium would be allowed to sell electricity on the wholesale market, so that this market would have a bigger supply in terms of volume.

Thus, the controversy moved from a diagnosis to a discussion of solutions, from economic modeling to legal qualification. As the legal and economic discussions progressed, the actors realized that there was no immediately applicable institutional resource. They explored politically acceptable solutions, which they reformulated in legal and economic arguments wherever possible. Cornered by its own contradictions, DG Competition could not reproach EDF and French industrialists for an industrial agreement with a price guaranteed to provide a return on investment. There was a tacit agreement not to disagree with the price, which shows that the market opening led to a higher price than was needed to cover the costs of the investments.

A retrenchment: the return to the regulated tariff

During 2005, while French industrialists were heavily involved in setting up the consortium, they also understood that this would not provide them with easy access to electricity at a reasonable price. This was even truer given that there would be likely delays in setting up of the consortium

while electricity prices continued to rise and the need to act became urgent. While Exeltium was being set up, different industrial customer associations actively lobbied the French parliament in favor of a new regulated tariff. They used the formalization of the price formation mechanism to justify their defense of maintaining regulated tariffs. They were supported by members of parliament for different parties.

French Parliamentarians used a legal opportunity to grab the issue: while the parliamentary debate focused on the possibility for individual consumers to return to a regulated tariff, which they had abandoned, parliamentarians managed to embed a new tariff for industry in the law: the “Transient Market Adjustment Regulated Tariff” or “Tartam.” The justification given for this new tariff pointed to the distortions in competition between industrial customers who had subscribed to market offers and those who had remained loyal to the historical supplier. The tariff defined within the framework of the Tartam was 20 to 30% higher than the existing regulated tariff but remained much lower than the market price. In August 2008, France decided to extend this mechanism until June 30, 2010 and to open it up to new beneficiaries.

Unlike the Exeltium consortium setup, which the European Commission had been willing to accept, the setting up of a new tariff, the Tartam, was bound to trigger a virulent response and worsen relations between the French State and the European Commission. From the point of view of the DG Competition, the Tartam was a sacrilege since it consisted of re-introducing a regulated tariff which should be reserved for very specific situations of vulnerable individual consumers. This initiative broke away from the very cautious strategy adopted until then and which had led the UNIDEN and the Ministry of Industry to regularly consult the DG Competition and set up proposals that complied as much as possible with European law on competition. In 2007, the DG Competition opened a formal procedure to examine aid supposedly granted in favor of large and medium-sized enterprises in France in the form of an artificially low level of regulated industrial electricity tariffs, financed either directly or indirectly by the State. This procedure led to France’s condemnation in 2009: the Tartam was considered as illegal State aid because it was selective (the tariff was considered as advantageous to electricity-intensive consumers).

This retrenchment can be considered as a reactivation of a specific economic culture in a problematic situation, leading to local reinterpretation and specific solutions (Dobbin, 2001). Nevertheless, the interventionist industrial political culture that existed in France cannot alone explain this turnaround. National economic organizations and economic doctrines have been made highly uniform under pressure from European institutions. Furthermore, France has also experienced its government’s substantial disengagement from industry owing to European integration (Schmidt, 2003).

This retrenchment is better explained by the substantial inertia of the economic model of the French electricity sector, based on the nuclear industry. This model is concretely objectified in the nation's nuclear power plants, but also in its electricity-intensive industry, its transport system, and in the consumer practices of private individuals (electrical heating). It is based on an extremely centralized system where the power is shared between the State and EDF, who are closely interdependent. This model is organized around agreements that give the access to electricity at its production cost. In spite of all the criticism, this model has retained considerable legitimacy because it constitutes the material reality of the French nation's lighting, heating, transport, and everyday work. But the introduction of the market pool disconnects this technical and economic association, by introducing the wholesale market price between producers and electricity-intensive industry. With a price that is more than twice the production costs, the spread becomes problematic.

France is impregnated by the centralized and planned production model. It is this model, institutionalized through both the economic knowledge and the materiality, which acts as a counterweight for assessing and discussing market opening. The controversy about the nuclear rent awakened a desire for industrial policy that several years of European legal control had put to sleep. It reactivated "Colbertism" reflexes, which had not been completely buried either. An institutionalized economic model, presented as universal, always produce specific effects in a national context, due to technical, economic and cultural path dependency (Djelic and Quack, 2007).

A legal arrangement to develop competition in retail sales

While market opening in France was progressive, competitors were immediately tempted to develop their market share on segments open to competition. As of 2004, the market was opened to small business professionals. Competitors such as Direct Energie and Poweo were also present on this market segment.

As they were not electricity producers, their main supply came from EDF. The European Commission obliged EDF to meet the supply of its competitors, in exchange for the authorization of the merger between EDF and EnBW. The decision outlined the transfer of considerable volumes of electricity in the form of "virtual power plants." EDF proposed these volumes of electricity at the market price. At the same time, in order to accelerate market opening, EDF negotiated agreements with Poweo and Direct Energie in order to sell electricity to them at an attractive price.

Nevertheless, over the course of this period, prices on the wholesale market shot up. This meant that Direct Energie had to tackle a margin squeeze effect in dealings with its end user: the margin

it was able to set aside, after taking into account its supply costs, aligned on wholesale market prices, and its sales prices, which were close to the regulated tariff (the “blue” tariff) and to EDF’s offer to professionals, was not enough to finance its activity. In 2007, Direct Energie asked the French Competition Council to intervene.

In its decision¹, the French Competition Council recognized the margin squeeze effect. It proposed to deal with Direct Energie’s request within the framework of European law on competition. The Council made an analogy with the telecom industry, where the former public monopolies had been obliged to provide their competitors with services at prices affording them sufficient margins and competitiveness in relation to the end user. These services concerned access to the existing telecom network, considered as an “indispensable input” to which competitors had to have access at a price reflecting the production costs.

EDF wanted to prevent its competitors from selling the electricity they bought at low prices on the wholesale market owing to the income this would allow them to build up. EDF thus recalled the risk of selling on the wholesale market the electricity purchased through the new disposition. The difference of price between the regulated contract and the wholesale price would mechanically create an opportunity for arbitrage. EDF therefore asked for an additional clause. This clause stipulated that electricity could only be sold by competitors to end users. The Competition Council’s requirement only made sense in this “dedicated” market where the margin squeeze effect could be observed. EDF asked for an additional mechanism to sanction the resale of electricity on the wholesale market. These proposals were finally validated by the French Competition Council in a second decision (after that competitor benefited from the arbitrage opportunity during 6 months).

These legal arrangement introduced new elements of reasoning. Even if the reference to legal arguments and the use of judicial precedents remained very vague (considering nuclear power as an “indispensable input” for competitors) it answered to the institutional pressures. The European competition authorities exerted considerable institutional pressure to open the market, including directly threatening EDF (financial sanctions, dismantling, etc.). It was actually in the interest of EDF to develop competition. By proposing the price and showing that it was not really favorable to the idea, EDF wanted to show that it was contributing as much as it could to market opening and, in this way, maintain its institutional legitimacy. It wanted to demonstrate that it had set up the most favorable conditions possible for competitors to develop their market share: hoping in this way to make them responsible for the development (or the non-development) of competition.

¹ Decision 07-MC-04 of 28 June 2007

Reference to the tariff and to the production and distribution costs played an important role in the debate and in the building of a final solution, which is paradoxical on an open market: in a liberalized market it is the market price that is supposed to act as a reference for calculating the tariff and not the opposite. However, for all the stakeholders, the production cost was considered more reliable than the market price. In other words, the costs were more institutionalized than the price.

Designing a politically acceptable and euro-compatible market

The mission entrusted to the Champsaur Commission by the Minister for the Economy and the Minister for the Environment was to put forward a French market organization that benefitted the consumer, served the competitiveness of the French economy and guaranteed control over electricity prices “while meeting European liberalization requirements.” The letter of assignment recognized that the expectations were contradictory but expected the Champsaur Commission to set up a “market design” that would reconcile these. Paul Champsaur was the president of the french regulatory authority for the telecom industry. He had obtained a strong legitimacy with the opening of the French telecom market, especially by implementing asymmetrical regulation that considerably helped new market players to develop their market share. The Commission was made up of members of parliament and qualified individuals, including Jacques Percebois, an energy economist who regularly worked for the French Economic Analysis Council and was a specialist in energy markets and especially economic rent associated with energy production.

When reviewing its letter of assignment, the Champsaur Commission also pointed out the contradictory nature of its mission. Up until then, solutions like the Tartam or the regulated tariff, while meeting expectations in terms of competitiveness and purchasing capacity, had not enabled the formation of a price signal to encourage energy savings or investments in new installations. The report also pointed out the problems related to the political acceptance and technical realism of a single European market where French nuclear power generation would provide a basis for other countries.

The need for new regulations reintroduced strong interdependence between EDF, the French State and the European Commission. It should first be remembered that EDF are more engaged in market opening than they appear: the national champion EDF continues to gain market share in other countries. Having accepted the extension of EDF to other markets, the French State is indebted to its European partners. The French State should accept the opening of its market to other European suppliers.

EDF participates in this system of interdependencies. EDF has to demonstrate to the European Commission that it is not preventing competition from developing in France. It has to

demonstrate to the French general public that it is not getting richer to the detriment of the consumer. The acceptance of the redistribution of the nuclear rent by EDF is due to the fact that French State possessed 80 % of the capital of EDF and had the control of the EDF strategy... This capitalistic dependency played an important role in the cooperative strategy of EDF according to political orientations.

Despite its aggressive reaction against the new regulatory tariff, the European Commission also has a political understanding of the situation. It is aware of the low level of legitimacy behind the price rise and the risks of deindustrialization. Its main objective is nevertheless the reciprocity between European states, ie the opening of the French market, even if this requires rearrangements with some European principles.

The report proposed and discussed two solutions. The first was to set up a tax on nuclear electricity production while letting EDF sell freely on the market. The tax would be based on the difference between the price on the wholesale market and the average production cost for base consumption.

However, the report expressed a clear preference for “regulated access to production for base load consumption.” Such a system required defining precise criteria for determining the quantity of nuclear electricity that suppliers would be entitled to. In the absence of such criteria, and according to arbitrage logic, suppliers would be rationally led to ask that all their nuclear electricity production be sold at the market price. To determine the quantity of nuclear electricity that suppliers would be entitled to, it was therefore decided that an “objective, transparent and non-discriminatory” criterion be chosen: “the consumption structure of the portfolio of customers residing in France.”

But the industrial consumers believed less and less in the possibility of designing a euro-compatible French market. They asked for the debate to be shifted to the European level and to “at last smooth out the dysfunctions of the European electricity market, which constitutes the only case of economic stalemate in the world.”

For academics, the Champsaur Commission’s proposal was similar to a fair number of the readjustments implemented by States or regulation authorities to take into account the different political and structural dimensions of their market. By introducing a “regulated sale” of base electricity, the French State was fabricating a specific market model that was very different from the standard model of an electricity market, and much more complex and therefore easier to manipulate. These readjustments had been analyzed many times by academics who had emphasized the economic risks and the costs of control.

The main interlocutor to convince remains the European Commission. Nicolas Sarkozy formally asked Neelie Kroes, who heads the Directorate General for Competition, to abandon the condemnation of France in the Tartam-case, and committed himself to implement as soon as possible this new market organization. In his letter dated September 15th 2009, Prime Minister Francois Fillon explained the precise technical arrangements that should regulate the access for competing suppliers. The regulated sale of basic electricity by EDF is presented as "asymmetrical regulation of a dominant operator" to promote the entry of competition in the market.

The Champsaur Commission considers that the existing base load is an "indispensable input" in the same way as the transportation and distribution network, which justifies a new entrant can access the facilities of the historical monopoly. This concept of "indispensable input" has the advantage to be extensive. It allows to redefine the perimeters of the market and monopoly. What is integrated in the scope of the indispensable input is valued in terms of historical cost or operating cost, while what is outside this perimeter is valued in terms of market price.

The DG Competition approved this regulation because it facilitates the opening of the French market to European competitors. In its reply of the 15th of September 2009, it recognizes that the historic investments in nuclear power and low production costs are a problem for the regulation of competition. The DG Competition admits for the first time that if the tariffs were abandoned, "consumers could probably benefit only to a limited extent from the benefits of competition." It assumes that the Champsaur proposal "is likely to provide a major lever for competition." Finally, it considers that the propositions are compatible with Competition law, even if it expresses some concerns related to the technical complexity of this new market model and to the risks of limiting the development of competition this may bring.

Political negotiations in market redesign

The New Electricity Market Law institutionalized the compromise of the Champsaur Commission. The different versions of the texts have been submitted to the Higher Energy Council, a representative body that was set up in 2002 with the main objective to advise the ministry in charge of energy. This body brings together members of parliament and senators, ministries, the State Council, representatives of regional and local authorities, suppliers and energy consumers. It has an advisory role. Its composition, particularly wide, should allow to identify the weaknesses of a text, thanks to the expertise of the different actors. The administration can test the various proposals, especially on a technical level.

Between the initial work of the Champsaur Commission and new law, two important items were discussed: the scope of the power generation affected to the "regulated access". During the work of the Champsaur Commission, a parallel negotiation affects the initial draft of the perimeter

integrating all base load power generation. Base load has two parts: one (the majority) comes from historical nuclear power, while the other (also significant) comes from dams along the water, especially those operated by the Compagnie Nationale du Rhône (CNR), sold to Suez. But the hydro base load electricity disappeared from the final report. It entirely escapes from the “regulated access”.

For François Brottes, Socialist parliamentarian and member of the Champsaur Commission, "hydroelectric rent" was neglected: "The nuclear tree hides the forest of the dams [...] since the Commission dismissed the 12% hydropower, whose ultra-competitive costs should also benefit consumers". He communicated his disappointment in an interview: "I was very interested in the idea of regulated base load access. I also was very interested in finding a euro-compatibility. [...] At the end of the course, under government injunction, regulated access has moved from the base load to the historical nuclear power, with a focus on EDF ... Whereas my proposal was the entire base load power generation, including hydropower, which costs even less to produce than nuclear. This will be increasingly true when we incorporate the true cost of nuclear power. By taking this decision, the government changed its ethics. It is possible that a "deal" with GDF Suez has escaped to the Champsaur Commission. "

According to the new law, GDF Suez will not have the obligation to sell the electricity at its production cost. This decision is most likely motivated by legal argument. GDF Suez would have been able to may contest the decision by filing an appeal with the State Council, with the argument of the property rights acquired by the CNR. This legal risk has motivated the abandonment of hydraulics. "The legal dispute was certain. I always had the desire to avoid voting hypocrite laws, which could not be applied. We put our head in the sand. For Tartam it was politically the only solution for a difficult period, even if this rate was temporary. While there we face a very complicated legal debate. Very soon, everyone followed the argument of the historic nuclear and not the base load electricity, of which nobody was able to define the limits". This negotiation reveals the legal and technical fragility of new law. It shows that the law has been accepted by EDF because the state has kept the company's control as a majority shareholder. It is for this reason that the law can be seen as an institutional decoupling (Boyle and Meyer, 2002) since this market design betrays a fundamental principle. The only market actor with an economic interest in challenging this law, EDF, cannot challenge it because it would oppose its main shareholder, the French State.

The key role of the Government is particularly evident in the definition of the price level at which nuclear power electricity is sold, a tariff called ARENH (regulated access to historical nuclear energy). The definition of the ARENH tariff opposed political power, administration, EDF and its competitors. EDF request at the start a rate of over 50 €/MWh to finance the renewal of the

nuclear plants. Within the French administration, it was supported by the State Holdings Agency, which represents the State as shareholder and is therefore interested in dividends from the shares of EDF possessed by the State. Nevertheless, there was a strong political pressure on the Government by the members of the administration in order to keep prices as low as possible, but they also question the risk of an asphyxiation of EDF. The administration defends a price of about € 38/MWh based on its own knowledge of the nuclear costs. For its part, GDF Suez defend another evaluation of costs, based on its nuclear facilities which is about 35 €/MWh. The debates were organized around the available economic data and calculations of operating costs and investment. In these technical discussions, each actor was required to justify its economic choices and to demonstrate that it defends the collective interest. After this confrontation, the new CEO of EDF, Henri Proglio, obtained from the government that it chosen the Tartam as reference for the definition of basic electricity sales price (42 €/MWh).

This political intervention in the market organization reflects the place of electricity in France. If the political issues inspire the new law, the orientations are convergent with the traditional model of the French electricity sector: public planning, centralization, political control of prices, nuclear production.

Conclusion: The flexibility of institutionalized economic model

The liberalization of the electricity sector in Europe has resulted in the creation of national electricity markets with the same model as reference, in the perspective of the European integration. These markets are based on a set of reasoning that cannot be discussed a priori, that are highly valued because they are supported by economic expertise, and they comply with the formal rules in force (Scott, 2001). These markets have been defined in relation to the regulatory authorities that share common economic expertise.

However, during its implementation in France, the electricity market model has been strongly contested. Industrial consumers have shown that it couldn't fulfill the promise it defended. Its contradictions were revealed by the price increase. The contestation has caused a loss of legitimacy of the market model. Accordingly, the liberal reform of the electricity sector has adopted a much more exploratory and uncertain path that had profoundly affected the credit attributed to the institutionalized market model. This weakening has led to a politicization of conception of markets, with several interventions by political authorities.

In this process of exploration within the liberal reform, we can thus distinguish two market regulation logics that do not rely on the same forms of legitimacy and do not maintain the same relationship with economic expertise and the institutionalized model: the intervention of the

political authorities and the regulation by independent authorities. These terms and the authorities that carry them are in competition with each other, especially when faced with situations of challenge or crisis.

The regulatory authorities, whether specialized in energy or in competition, defend a first mode of regulation. The legitimacy of regulatory authorities is based on the legal definition of their delegations and on their technical expertise, which should be as universal as possible. That is why they tend to rely on already institutionalized market models, models that have been theorized and justified. There is however differences: the French Competition Council is not specialized in the field of energy, which allows it to imagine new solutions inspired by other sectors, while the French Energy Regulatory Commission remains faithful to the international standard for electricity market in its opinions and declarations. But the competencies of the French ERC, defined by Parliament, is limited to a technical intervention. It can not oppose parliamentarian's decision as the Tartam or New Electricity Market Law. The Directorate General for Competition has a much higher authority, because it can impose a decision on Member States. It interacts with the network of national regulatory authorities with the aim to standardize the electricity markets in Europe and to foster economic integration. So, these three authorities don't have the same relation to economic standards and rules: the French Competition Council is vigilant about national economic equilibrium, the French Energy Regulatory Commission and the Directorate General for Competition defend only the European energy directives and a standardization of market design in Europe, even if it produce economic disequilibrium.

The second source of regulation is the intervention of political authorities, governments and parliaments. It has often been presented as a modality in decline inside the economic field. However, this intervention is back in crisis situations, when regulation by laws and standards is contested. Political intervention has greater latitude from the requirements of legal and technical legitimacy because it benefits from the elective legitimacy. It takes account of distributional effects of reform and political risks associated with the economic transition. The political authorities first are reasoning on economic effects, on the consequences in terms of price and economic stability. They do not assess the market in terms of compliance with international or European standards. They are more receptive to alternative expertise if these can question standard and serve their political strategy. They can be sources of proposals in the redesign of the market organization.

These various sources of regulation are articulated to each other in a system of interdependencies. Political authorities need technical legitimacy. They can rely on an expert administration, but they may also need the legitimacy of regulatory authorities. The autonomous space in which political actors act when it comes to the regulation of markets is not defined a priori. The

distribution of roles doesn't take place in the constitutional principles or general institutional rules. It rebuilt itself at an ad hoc basis during confrontations or put to mutual tests. The frontier between what is technical and what remains political is not stabilized. The autonomy of political authority is reconstituted in a continuous confrontation with the regulatory authorities.

This autonomy can develop in the space left by the weakening of the economic doctrine on which the regulatory authorities base themselves. The more this doctrine has weaknesses, inconsistencies, with visible effects that can be grasped politically, the more independent authorities lose legitimacy and the more they are forced to concede margins for political authorities. The intervention of the French Competition Council is indicative of the weakness of a competition authority in a very unfavorable political context. The weight of the political actors in the regulation depends on both their ability to deconstruct the institutionalized standards and their ability to reformulate technical issues as political issues.

In an exploratory economic reform, policies and autonomous regulatory authorities are as well complementary as rivals: the political authorities can instruct the debate and seek solutions when the market fails to guarantee an acceptable political balance, but they must reach to defend their proposals before the regulatory authorities, who will reassess their legitimacy. At the heart of their dialogue, economic expertise provides reference models, but also the means to anticipate and evaluate possible solutions and effects. Moreover, criticism of economic models doesn't always require a position outside the economic expertise and its modes of reasoning. It may, on the contrary, find there very strong arguments. This criticism has widely used economic expertise, without being influenced with a normative stance in favor of the market standard. The strong pretension of economic knowledge to build "efficient" markets may turn against them as soon as the actors can prove that knowledge, hitherto anchored as beliefs, are not validated. This knowledge comes to be discussed and tested as scientific or technical hypotheses. Nevertheless, the burden of proof is on the side of the critics of the market and not of its promoters. Criticism is expensive, it needs to rely on alternatives.

In an industry that meets strong economic cycle effects, criticizing the market is easier when it offers higher prices, and less easy when it offers low prices. In a context of liberalization and development of competition, the political legitimacy of the economic interests of customers is often superior to supplier one, always accused of benefiting from their oligopolistic position. Thus, the political obstacles to the market are stronger when market prices are higher than average production costs. Borenstein and Bushnell (2014) observed this phenomena in the United States. The market model is progressing, thanks to political support, when market prices are lower than average production costs, and it does not progress or even regresses, when the relationship between prices and costs reverse. In France, the policy goes beyond: when market

prices exceed the average costs of production, industrial clients obtain a return to the references of costs, when prices are above, they benefit from the price from the market.

This case study allows us to specify the conditions of a decoupling between an institutionalized model and local practice. Patricia Bromley and Walter Powell (2012) suggest a new type of decoupling, not simply between rules and practices but between the desired effects of a rule or a standard, and the effects observed after the implementation. These gaps result from decoupling between means and ends: the rules or models do not guarantee the announced result. Such decoupling can be explained by the complexity, globalization and liberalization of economies, which multiply couplings and uncertainties. In the case of the electricity market, the liberal reform do not lead to the expected effect, the announced promise (lower prices, economic efficiency in terms of allocation). As we have shown above, if the cognitive and normative pillars of the market (the belief in its effectiveness) no longer support the general rule (competition and the standards that normally apply to it), economic and political actors can step into the breach to defend the legitimacy of a changing of the rule, or of a circumvention if the rule is immutable. Thus, a means-ends decoupling would lead to a second decoupling between the rules and practices: the loss of legitimacy of a rule can impact the entire chain of the application and monitoring of this rule.

With flexibility in models and rules, the institution "market" can survive economic cycles and political and technical controversies. Within the institution, a hierarchy of requirements exists, from the indispensable on which we can not compromise, the uncertain that can be reshaped, and the accessory that can be given up. The confrontation between the issues raised by political actors and the evaluation by regulatory authorities allows to focus on the essential requirements. In the studied case, the issue of competition has emerged as the main requirement, while European economic integration by an electric price defined at European level, has been tempered by controversy and became a debatable requirement. The second essential requirement was the promise of lower prices: if prices do not fall, politics refuse the market price. The institution "Electricity Market" thus has some flexibility around a pivot, the idea of competition and its promise of lower prices, and political action and independent regulatory authority collaborate in order that the market organization responds to these requirements even while taking liberties with the international standards.

Bibliography

Billette de Villemeur, Etienne, et Pierre-Olivier Pineau. 2012. "Regulation and Electricity Market Integration: When Trade Introduces Inefficiencies." *Energy Economics* 34 (2): 529–35.

Bohn, Roger E., Michael C. Caramanis, et Fred C. Schweppe. 1984. "Optimal Pricing in Electrical Networks over Space and Time." *The Rand Journal of Economics*, 360–76.

Boyle, E. H., et J. W. Meyer. 2002. "Modern Law as a Secularized and Global Model: Implications for the Sociology of Law." In *Global Prescriptions, The Production, Exportation, and Importation of a New Legal Orthodoxy*, edited by Y. Dezalay et B. G. Garth. Michigan: University of Michigan Press.

Borenstein, Severin, et James Bushnell. 2014. "The US Electricity Industry after 20 Years of Restructuring." *Annu. Rev. Econ.*,(7), Submitted.

Breslau, Daniel 2011. "What Do Market Designers Do When They Design Markets?" *Social Knowledge in the Making*, 379.

Breslau, Daniel. 2013. "Designing a Market-like Entity: Economics in the Politics of Market Formation." *Social Studies of Science* 43 (6): 829–51.

Bromley, P., et W. W. Powell. 2012. "From Smoke and Mirrors to Walking the Talk: Decoupling in the Contemporary World." *The Academy of Management Annals* 6 (1): 483–530.

Callon, Michel. 1998. *The Law of Markets*. Oxford: Basic Blackwell.

Callon, Michel, Muniesa Fabian (2009), « Peripheral Vision. Economic Markets as Calculative Collective Devices », *Organization Studies*, 26 (8), p. 1229-1250.

Caronna, Carol A. 2004. "The Misalignment of Institutional 'Pillars': Consequences for the US Health Care Field." *Journal of Health and Social Behavior*, 45–58.

Carruthers, B. G., et T. C. Halliday. 2006. "Negotiating Globalization: Global Scripts and Intermediation in the Construction of Asian Insolvency Regimes." *Law & Social Inquiry* 31 (3): 521–84.

Chiapello, Eve, et Karim Medjad. 2009. "An Unprecedented Privatisation of Mandatory Standard-Setting: The Case of European Accounting Policy." *Critical Perspectives on Accounting* 20 (4): 448–68.

Cini, Michelle, et Lee McGowan. 1998. *Competition Policy in the European Union*. Macmillan Basingstoke.

- Cini, Michelle. 2001. "The Soft Law Approach: Commission Rule-Making in the EU's State Aid Regime." *Journal of European Public Policy* 8 (2): 192–207.
- Dezalay, Yves, et Bryant G. Garth. 2005. *Global Prescriptions, The Production, Exportation, and Importation of a New Legal Orthodoxy*. Michigan: University of Michigan Press.
- Djelic, Marie-Laure, et Sigrid Quack. 2007. "Overcoming Path Dependency: Path Generation in Open Systems." *Theory and Society* 36 (2): 161–86. doi:10.1007/s11186-007-9026-0.
- Djelic, Marie-Laure, et Thibaut Kleiner. 2006. "The International Competition Network: Moving Towards Transnational Governance." Djelic et Sahlin-Andersson (eds.), 287–307.
- Djelic, Marie-Laure, et Thibaut Kleiner. 2006. "The International Competition Network: Moving towards Transnational Governance." Djelic and Sahlin-Andersson (eds.), 287–307.
- Dumez, Hervé, et Alain Jeunemaitre. 1998. "The Unlikely Encounter between Economics and a Market: The Case of the Cement Industry." In *The Law of Markets*, edited by Callon Michel, 222–43. Oxford: Basic Blackwell.
- Eising, Rainer, et Nicolas Jabko. 2001. "Moving Targets National Interests and Electricity Liberalization in the European Union." *Comparative Political Studies* 34 (7): 742–67.
- Evrard, Aurélien. 2013. *Contre Vents et Marées*. Presses de Sciences Po.
- Finon, Dominique, et Elliot Romano. 2009. "Electricity Market Integration: Redistribution Effect versus Resource Reallocation." *Energy Policy* 37: 2977–85.
- Finon, Dominique, et Jean Michel Glachant. 2007. "La Hausse Inéluctable Des Prix de L'électricité En France : Faut-Il Corriger Les Effets Du Marché Continental Européen ?"
- Fligstein, N. 1996. "Markets as Politics: a Political Cultural Approach to Market Institutions." *Am. Sociol. Rev.* 61: 656–73.
- Fligstein, Neil, et Alec Stone Sweet. 2002. "Constructing Politics and Markets: An Institutionalist Account of European Integration." *American Journal of Sociology* 107 (5).
- Fourcade, Marion. 2006. "The Construction of a Global Profession: The Transnationalization of Economics." *AJS* 112 (1): 145–94.
- Huault, Isabelle, et Helène Rainelli-Le Montagner. 2009. "Market Shaping as an Answer to Ambiguities: The Case of Credit Derivatives." *Organization Studies* 30: 549–75.
- Jabko, Nicolas. 2006. *Playing the Market, A Political Strategy for Uniting Europe, 1985–2005*. Cornell University Press.

Joskow, Paul L. 2003. "Electricity Sector Restructuring And Competition: Lessons Learned."

Karner (Peter) (2010), « Material Disruption in Electrical Systems : Can Wind Power Fit in the Existing Electric System ? », dans Madeleine Akrich, Yannick Barthe, Fabian Muniesa et Philippe Mustar (dir.), *Débordements. Mélanges offerts à Michel Callon*, Paris, Presses des Mines, p. 223-240.

Kogut, Bruce, et JM MacPherson. 2007. "The Decision to Privatize as an Economic Policy Idea: Economists, Palace Wars, and Diffusion." In *The Diffusion of Liberalization*, edited by B Simmons, F Dobbin, et G Garrett. London: Cambridge Univ. Press.

Laffont, J.J., et J.Tirole. 1993. *A Theory of Incentives in Procurement and Regulation*. MIT Press.

Lawrence, T. B., et R. Suddaby. 2006. "Institutions and Institutional Work." In *The Sage Handbook of Organization Studies*, 2nd Edition, edited by Clegg Steward. sage.

Lévêque, François. 2006. "Antitrust Enforcement in the Electricity and Gas Industries: Problems and Solutions for the EU." *The Electricity Journal* 19 (5): 27–34.

Levin, P, et W Espeland. 2002. "Pollution Futures: Commensuration, Commodification, and the Market for Air." In *Organizations, Policy, and the Natural Environment*, edited by AJ Hoffman et MJ Ventresca, 119–47. Stanford Univ. Press.

MacKenzie, Donald, Fabian Muniesa, et Lucia Siu. 2007. *Do Economists Make Markets? On the Performativity of Economics*. Princeton: Princeton University Press.

MacKenzie, Donald. 2008. "Making Things the Same: Gases, Emission Rights and the Politics of Carbon Markets." *Accounting, Organizations and Society* 34: 440–55.

Maguire, S, et C Hardy. 2009. "Discourse and Deinstitutionalization: The Decline of DDT." *Academy of Management Journal* 52 (1): 148–78.

Meyer, John W., et Brian Rowan. 1977. "Institutionalized Organizations: Formal Structure as Myth and Ceremony." *American Journal of Sociology* 83 (2): 340–63.

Mirowski, P., et E. Nik-Khah. 2007. "Markets Made Flesh: Performativity, and a Problem in Science Studies, Augmented with Consideration of the FCC Auctions." In *Do Economists Make Markets? On the Performativity of Economics*, edited by D. MacKenzie, F. Muniesa, et L. Siu. Princeton: Princeton University Press.

Morgan, G., et I. Kubo. 2005. "Beyond Path Dependency? Constructing New Models for Institutional Change: The Case of Capital Markets in Japan." *Socio-Economic Review* 3 (1): 55–82.

Muniesa Fabian, Callon Michel (2009), « La performativité des sciences économiques », dans Philippe Steiner et François Vatin (eds), *Traité de sociologie économique*, Paris, PUF, coll. « Quadrige », p. 289-324

Schmidt, Susanne K. 1998. "Commission Activism: Subsuming Telecommunications and Electricity under European Competition Law." *Journal of European Public Policy* 5 (1): 169–84.

———. 2000. "Only an Agenda Setter? The European Commission's Power over the Council of Ministers." *European Union Politics* 1 (1): 37–61.

Spector, David. 2007. "Électricité : Faut-Il Désespérer Du Marché ?"

Veal, Gareth, et Stefanos Mouzas. 2012. "Market-Based Responses to Climate Change: CO2 Market Design versus Operation." *Organization Studies* 33 (11): 1589–1616.

Veljanovski (2010), *Economic approaches to regulation*, in Baldwin (Robert), Martin (Cave) et Martin (Lodge), *The Oxford Handbook of Regulation*, Oxford, Oxford University Press. pp 17-38

Woll, Cornelia, 2008. "Firm Interests : How Governments Shape Business Lobbying on Global Trade." Cornell University Press.

Zelner, B.A., W.J. Henisz, et Holburn G. 2009. "Contentious Implementation and Retrenchment in Neoliberal Policy Reform: The Global Electric Power Industry, 1989–2001." *Administrative Science Quarterly* 54: 379–412.