

Activity Report  
June 2007



COMMISSION  
DE RÉGULATION  
DE L'ÉNERGIE

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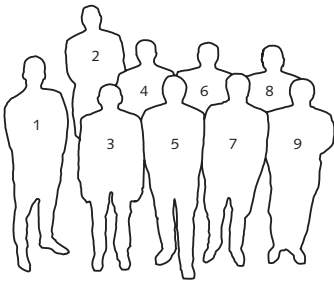
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# Message



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The final formal stage to opening of electricity and gas markets has just been completed. Since 1 July 2007, consumers from most European Union Member States have had the right to choose their electricity and gas supplier.

The European Union's objective, in introducing competition in the electricity and gas sectors, is to create an internal energy market that reconciles competitiveness, security of supply, and sustainable development.

France has completed legislative transposition of the directives providing for complete opening of the electricity and gas markets. The law of 7 December 2006 made all consumers eligible as from 1 July 2007, provided for requisite technical and organisational adaptation on the part of operators, and reinforced the role played by the Commission de Régulation de l'Énergie (CRE) by extending its competence.

In its newly consolidated position, CRE is working to ensure the success of this move to open electricity and gas markets to household customers. Its priority is to see that market operations enable consumers to exercise their freedom of choice in full awareness of the situation and without let or hindrance. This condition is a prerequisite for progressive development of a range of innovative commercial offers better tailored to individual needs. In order to achieve this, CRE, in collaboration with the national Energy Mediator and the public authorities, has set up a website ([www.energie-info.fr](http://www.energie-info.fr)) devoted to the opening of the markets and directed at household consumers as well as a telephone information service which can be reached at the price of a local call.

Full opening of the markets assumes operator compliance with a number of requirements. CRE focuses on the deployment of robust, automated information systems by distribution system operators (DSOs), which will facilitate supplier switching. It checks effective implementation of DSO affiliation, demanding the same requirements of them in terms of independence as those already tried and tested for transmission system operators (TSOs).

Working together with the interested parties, CRE is looking at ways to improve on existing low voltage electricity meters. In an open market, meters should process information in such a way as to satisfy consumer needs, thereby helping to achieve energy efficiency objectives.

Experience acquired since opening the markets to non-household consumers in 2000 suggests that no one should expect any instant massive changeover to the free market, but rather a gradual shifting of custom. The technical challenge of opening up the market to household customers is nevertheless considerable. On 1 July 2007, the number of consumers able to choose their supplier soared from 4.7 million to 33.5 million for electricity, and from 680,000 to 12 million for gas.

The high concentration of French markets, which are largely dominated by incumbent suppliers, remains a concern. The situation benefits neither operators nor consumers. Coexistence of regulated tariffs – applied to all consumers without distinction – and market prices does not enable identification of clear prospects for competitive development of the markets, all the more so because regulated tariffs are subject to legal uncertainty with the European Commission having embarked on litigation proceedings against France.

By eliminating a significant part of existing liquidity, the transitional regulated tariff for market adjustment (TaRTAM) in the electricity sector adversely affects French wholesale market operations. Therefore, despite its high level of consumption, France is unable to set a reference electricity price in Europe, unlike its neighbours in Germany.

Electricity prices are subject to numerous economic and regulatory uncertainties. Volatility of prices along with the rises seen since 2003 have raised a number of legitimate doubts. No hasty conclusions should be drawn, however. It was not market opening that caused prices to rise, but rather the increasingly difficult quest for balance between a limited peak and semi-baseload supply, penalised by the cost of environmental requirements and of oil products, and by growing demand.

The situation in the French gas market is altogether different. Convergence of procurement costs and regulated tariffs opens up interesting prospects for alternative operators. On the non-household market, the number of gas customers to have abandoned their incumbent supplier is proportionately higher than the number of electricity customers.

The European Commission considers that more effective and more transparent price formation mechanisms are necessary if consumers are to enjoy all the benefits offered by an open market. These would also furnish price signals reflecting needs for medium- and long-term investments in generation/production and grid/network infrastructures. CRE is working to ensure rapid implementation of wholesale market monitoring, a remit entrusted to the Commission by the provisions of the law of 7 December 2006.

Electricity and gas transmission and distribution systems form the backbone of energy markets, and their proper operation conditions security of supply and exercise of competition.

In guidelines published on 10 January 2007, the European Commission highlighted the necessity of making system operator independence more effective by insisting on asset unbundling. Based on French experience feedback, CRE reckons that strengthened regulator surveillance of system operators, whoever their shareholders might be, could fulfil European Commission objectives.

The European electricity power cut on 4 November 2006 highlighted the importance of proper transmission grid and cross-border interconnection operations for security of supply. The extent of the cut resulted from poor application of safety rules and insufficient cooperation between European grid operators. In order to resolve such issues, European regulators recommend the setting up of legally restrictive rules for transmission system operators (TSOs), compliance with which would be monitored by themselves.

CRE pays special attention to the levels of investment RTE devotes to electricity interconnections, essential to the setting up of a European internal electricity market. While taking into account the problems inherent in administrative restrictions and regional environmental requirements, CRE would like to emphasise stress that these investments are insufficient.

France imports 98% of its gas consumption. Development of interconnections and setting up of new gas entry points throughout the French territory are indispensable for facilitating the arrival of newcomers on the French market. CRE seeks to ensure that national network dimensioning matches increased domestic consumption and that this is taken into account in its tariff proposals.

CRE plans to propose changes in the structure of upcoming tariffs for systems use, with a view to ensuring that regulation guarantees system development sufficient to the needs of genuinely competitive electricity and gas market operations. With increasingly accurate knowledge of operator costs and the experience acquired from application of the various tariffs proposed since it came into being, CRE has been giving much thought to the setting up of more incentive-based regulation. With this in place, operators would naturally feel more motivated to achieve and exceed predetermined performance objectives, and will thus reveal their levels of cost-effectiveness.

The ways in which the French electricity and gas markets are developing are largely the result of European guidelines, directives and regulations, which is why CRE is actively involved in works carried out by the European Commission Transport and Energy Directorate General, as well as in those conducted by the European Regulators Association. The approach, via major European regional markets (electricity and gas regional initiatives), of opening up to competition and standardisation of electricity and gas markets are among CRE's most pressing priorities.

# → Towards a single European energy market

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Creation of the internal energy market is the **cornerstone** of European energy policy

Facilitated cross-border exchanges are **essential** to creation of an integrated European market.

Regional Initiatives are a **fresh approach** to setting up an integrated market.

## Summary

Europe has just celebrated the 50<sup>th</sup> anniversary of the Treaty of Rome. Historically, the very origins of the European Community project are closely related to energy issues. The setting up of the European Coal and Steel Community (ECSC) in 1952, then the entry into force of the Euratom Treaty on 1 January 1958, at the same time as the treaty establishing the European Economic Community, are proof of this.

For some thirty-five years, however, energy was a subject absent from European debate. The period was marked by Member States' desire to preserve their prerogatives in the electricity and gas fields, so emphasising the differences between their national energy policies. Unequal distribution of domestic primary energy sources and access to foreign supply sources among Member States also delayed the development of a common energy strategy.

Its introduction is a relatively recent development in the history of European integration. Opening of the electricity and gas markets has only been underway for just over a decade, based on the guiding lines provided by the 1986 Single European Act.

Against the background of a changing energy environment, influenced by a number of newly emerged factors, including increased dependence on imports and rises in energy prices, challenges related to climate change, and increased energy interdependence of the EU Member States, the development of a common European Energy policy is now high on the agenda.

In order to face up to these fresh challenges, the European Commission is to present a third legislative package in the second half of 2007, based on the proposals it published on 10 January 2007 and the ensuing debate.

### I. A major part of CRE's activity is governed by decisions at European level

In the absence of a European energy policy in the strict sense of the term, European texts governing the electricity and gas markets are based on the European Commission's competence as regards internal markets, competition, and the environment, decision-making in these areas being the job of the qualified majority.

#### 1. Main principles of the internal electricity and gas market

Set-up of an internal energy market constitutes the cornerstone of the energy policy proposed by the European Commission, which has three major – and not necessarily easy to achieve – priorities to recon-



cile: competitiveness, security of supply, and sustainable development.

The 1996 European directive laying down the framework and procedures for opening of the electricity market, later supplemented in the gas field by the 1998 European directive, then by the European directives of 26 June 2003 (2003/54/EC and 2003/55/EC) concerning common rules for the internal electricity and gas market, set out principles for the internal energy market.

These directives organise opening of the energy market at European Community level by providing for free choice of supplier by consumers, freedom of establishment, and non-discriminatory and transparent right of access at fair prices for all users of distribution and transmission systems. In order to accomplish all this, the directives made independence of transmission and distribution system operators from generation or production and trading activities carried out by integrated undertakings obligatory – without, however, imposing unbundling of system property at this stage. Integrated undertakings should legally unbundle entities in charge of system management activities (as of 1 July 2004 for transmission and 1 July 2007 for distribution) and guarantee their managers day-to-day management control of their activities.

## 2. CRE action at European level

The 2003 directives detail the roles and powers of national regulators. Regulatory authorities are independent of governments and companies within the electricity and gas sectors and are responsible for ensuring non-discriminatory access to grids and networks, effective competition, and efficient market operation. They fix and approve conditions for connection and access to grids and networks, along with balancing conditions, and are authorised to deal with disputes arising therefrom. They check account unbundling of regulated activities within integrated undertakings.

CRE's action at European Community level is largely carried out within two bodies, CEER and ERGEG.

The Council of European Energy Regulators (CEER), set up in 2000 with CRE as a founding member, brings together regulators from Member States and from Iceland and Norway, both members of the European Economic Area.

The European Regulators' Group for Electricity and Gas (ERGEG) was set up in November 2003 by the European Commission, its remit being to advise and support the Commission in its internal market consolidation activity. ERGEG acts as CEER's institutional counterpart vis-à-vis European institutions.

Since July 2006, CRE has been particularly involved in three ERGEG areas of activity: collection of feedback from Member States on market opening, the ERGEG enquiry into the European power cut of 4 November 2006, and drafting of rules governing investments and methods for allocating new capacities in gas infrastructures.

CRE also maintains regular contacts with various European Community institutions and contributes to coordinating French positions on matters related to electricity and gas market regulation.

## 3. Mixed results for the setting up of the internal electricity and gas market in Europe

Economic growth and consumer well-being in the European Union depend on energy markets that work well and guarantee security of energy supply at competitive prices. Opening up of the European electricity and gas markets to competition and setting up of a single European energy market are part and parcel of this perspective.

According to the European Commission, even if progress has been made, the objectives of market opening have not yet been achieved. The European Commission launched a sector enquiry into European electricity and gas market operations in June 2005, with a view to assessing conditions of competition on these markets and pinpointing the causes of market malfunctions.



In the findings of the enquiry, published on 10 January 2007, the European Commission identified the fields in which competition was not fully effective and where action needed to be taken in order for market opening to bear fruit:

- Excessive market concentration and persistence of obstacles for newcomers;
- Vertical foreclosure of the market and insufficient unbundling of system operation and generation/production and supply activities;

- Absence of market integration, marked by regulatory gaps for cross-border issues;
- Lack of transparency in terms of reliable information on the markets available in real time.

## II. Ways and means of improving the European internal market

According to a recent approach, integration of the electricity and gas markets must first take place at regional level, taking in the regions covered by ERGEG regional initiatives in the fields of electricity and gas, and then at European Union level.

Even if these regional initiatives are a useful stage in the setting up of an integrated European electricity and gas market, they must not be allowed to stand in the way of its achievement, which is why CRE considers standardisation of congestion management and market organisation convergence mechanisms between the various regions concerned by these initiatives a priority.

Participation of France and Germany in a number of regional initiatives vests them with special responsibility for the consistency of these latter.

Three gas regional initiatives and seven electricity regional initiatives operate on the basis of specialised working groups bringing together regulators and infrastructure operators from a given geographical zone. The regional initiatives constitute a fresh approach to integration, by gradual progress in system interconnection management.

### 1. Strengthening system interconnections

In the electricity sector, CRE participates in four out of the seven existing regional initiatives, contributing along with the other four regulators in the Central-West region (Germany, Belgium, Luxembourg and the Netherlands) to the drafting of an action plan for the next two years – published in February 2007 – with a view to speeding up regional integration of electricity markets.

Fluidity of cross-border exchanges can be improved by market coupling. This mechanism makes it possible to make a more effective use of the daily interconnection capacity between several national grids, while fostering market price convergence between the different zones concerned. Coupling of the Belgian, French and Dutch electricity markets, implemented in November 2006, is an example of this.

On 6 June 2007, governments, regulators, TSOs, organised electricity market operators and an association of market players (North West Europe market parties platform) in the Central-West region signed a memorandum of understanding to foster integration of national electricity markets in the region. CRE

welcomes the political support provided by governments on the regional front, especially as regards the project for extending market coupling, which constitutes one of the action plan's priorities. CRE is also pleased to note that governments have taken up their idea of a regional investment plan.

In the gas sector, CRE participates in two regional initiatives aimed at fostering the emergence of regional markets by improving transparency and standardising the data published by transmission system operators. In the North-West region (the Netherlands, northern France, Belgium, Ireland, Great Britain, Germany, Denmark, Sweden and Northern Ireland), CRE, along with the German regulator, is responsible for improvement of gas exchanges at interconnections. In the South region (Spain, France and Portugal), Spanish and French gas transmission system operators are encouraged to make coordinated investments and promote interoperability between networks. With this aim in mind, they have presented an investment programme up to 2011.

## 2. Asset unbundling under discussion

A requisite condition for system access to be genuinely non-discriminatory, transparent and available at fair prices, is guaranteed system operator independence from generator/producer and supplier interests.

In order to improve conditions of competition, the European Commission, with the support of the European Parliament, proposes to make unbundling of regulated activities (grids and networks) and competitive activities (generation/production and supply) more effective by insisting on asset unbundling.

Based on French feedback, CRE reckons that - no matter who owns the grids or networks - more rigorous checking of system operators by regulators could be sufficient to achieve the objectives of the European Commission.

Whatever position is adopted, CRE emphasises the necessity of taking existing differences between gas networks and electricity grids into account, and of improving monitoring of grid and network operator independence vis-à-vis their shareholders, especially in the field of investments.

The European Commission is to make proposals in the third energy package, to be presented during the second half of 2007.

## 3. Improved coordination between electricity transmission system operators (TSO)

Cooperation between TSOs is defined by the rules set down in operating guidelines published by the Union for the Coordination of Transmission of Electricity (UCTE), which aim to ensure operational safety for the European grid. These rules are based on voluntary, limited agreements, which are subject to different interpretations incompatible with the existence of national interconnected grids.

Analysis of the electricity power cut of 4 November 2006 confirmed the inadequacies previously highlighted at the time of the blackout in Italy in September 2003. The enquiry reports drafted by CRE and ERGEG propose imposition of a detailed set of rules, legally binding upon TSOs and applicable at European level, along with European coordination of grid operation. Compliance with such rules would be monitored by regulators.

## 4. Strengthened regulator powers

Regulator powers must be strengthened both at European level and within each Member State.

At European level, compliance with obligations imposed on grid operators presupposes effective monitoring by independent regulators. Such monitoring must cover interconnections and cross-border energy exchanges, which are instrumental to security of electricity supply in Europe.

On 8 and 9 March 2007, the European Council recommended the "establishment of an independent mechanism enabling national regulators to cooperate and take decisions on major cross-border issues". This option, known as ERGEG +, has CRE's full backing.

As highlighted by the European Commission in its proposals of 10 January 2007, the priority within Member States is harmonisation of regulator powers and levels of independence. Full application of the European Community texts by each Member State would resolve this issue.

# I. Birth of a single European energy market

## 1. Origins of Europe of Energy

Today, energy is a leading European Union preoccupation. It is one of the subjects mentioned in the short declaration published in March 2007, on the occasion of the 50<sup>th</sup> anniversary of the signing of the Treaty of Rome: “We intend jointly to lead the way in energy policy and climate protection and make our contribution to averting the global threat of climate change.” This is a major step because, although Europe has never neglected a sector so essential to its economic well-being, energy is still not the subject of a European Community policy as such.

Nonetheless, the very origins of the European Community project are closely linked to energy issues. The creation of the European Coal and Steel Community (ECSC) in 1952, concerning two sectors directly connected with the war effort, is a case in point. The ECSC Treaty put French and German coal and steel production under the responsibility of a High Authority assisted by a Council of Ministers, an Assembly, and a Court of Justice, which are at the origin of present-day European Community institutions.

In June 1955, the Ministers of Foreign Affairs of the six founding States met in Messina to sketch out the “general outline of a common policy”, in which energy was to figure very prominently.

The resolution of this meeting, whose purpose was first and foremost to put Europe back on its feet again and prepare for creation of the European Economic Community, is surprisingly reminiscent of present-day thinking as far as energy policy is concerned. It declares that “a joint study will be undertaken of development projects, centred on the establishment of a European network of [...] electric railway lines” and that “all measures should, therefore, be taken to develop the exchange of gas and electric current in order to raise the profitability of investments and reduce the cost of supplies.” The same document also states that “a study will also be made of methods co-ordi-

nating the common prospects for the development of energy production and consumption and establishing the broad outlines of an overall policy”. The Euratom Treaty, which came into force on 1 January 1958, at the same time as the treaty that founded the European Economic Community (EEC), sought to bring about development in research and diffusion of technical know-how in the sphere of nuclear power, contribute to development of European nuclear industries, ensure that all Member States benefited from development of atomic energy (with all Member States having access to raw materials coming from third countries), and guarantee security of supply.

The ECSC Treaty expired in 2002 and was not renewed. Despite the Euratom Treaty, nuclear power remained largely a matter for national public policy, and was a subject conspicuously absent from European debate – Member States, whose resources and supplies were highly heterogeneous, being unwilling to give up their freedom of action in this realm.

A common approach to energy issues is therefore a recent development in the history of European integration. It was not until the 1980s that discussion began on the possible benefits of opening up electricity and gas markets to competition.

The first directives concerning the internal energy market were adopted in 1996 for electricity and in 1998 for gas. In 2000, at the European Council of Lisbon, the European Commission proposed stepping up the pace of market integration, to enable consumers to benefit from totally open, efficiently operated markets guaranteeing security of energy supply at competitive prices as from 2005. The proposal resulted in the directives of June 2003 that furthered development of a regulatory framework for the internal energy market and set 1 July 2007 as the target date for opening the markets. However, as the European Commission has stated, conditions for operation of the internal electricity and gas market are yet to be fulfilled in their entirety.

## 2. Emergence of a European energy policy

This reprioritising of a draft European energy policy came about in a context that had changed under the influence of a number of factors: growing dependence on imports, particularly of hydrocarbons, rises in energy prices, challenges posed by climate change, which will necessitate major decreases in CO<sub>2</sub> emissions over the coming years, and the increased interdependence of European Union Member States.

The strategy of such a policy was back on the agenda at the informal European Union summit held at Hampton Court in October 2005, in the course of which, Heads of State and government requested the European Commission to formulate proposals in this regard. The Green Paper on 'A European Strategy for Sustainable, Competitive and Secure energy', published in March 2006, is the Commission's response to the request. It sought to encourage the rise of a Europe of Energy strong both internally and at international level, by enabling Europe to meet challenges posed by energy and their consequences

in terms of competitiveness, security of supply and environmental impact, through improvement of the internal market and advances in energy efficiency, as well as through research and formulation of an external policy.

On 10 January 2007, following this first stage of consultation, the European Commission published a major set of documents, including a Communication entitled 'An Energy Policy for Europe', which proposed definition of a common energy policy closely linked with the fight against climate change. The achievement of an internal electricity and gas market is one of the tools advocated therein to bring this about. Basing itself on these proposals and the ensuing debate, the European Commission is set to propose a third legislative package during the second half of 2007.

In a speech made on 29 March 2007, José Manuel Barroso, President of the European Commission, emphasised the importance of this step, stating that energy and environmental policies must henceforth be regarded as priorities by the European Union.

# II. Main European Community guiding lines

## 1. European governance as regards energy

Present means of European governance of energy issues reflect the difficulties that Member States are experiencing in combining their efforts.

In the absence of a European energy policy in the strict sense of the term, the European Commission does not have any direct competence in the matter. Furthermore, article 3 of the Treaty establishing the European Community (TEC) stipulates that "the activities of the Community shall include, as provided in this Treaty and in accordance with the timetable set out therein [...] measures in the spheres of energy, civil protection, and tourism." Any major decision therefore supposes unanimous agreement by Member States, by virtue of the provisions of article 308 TEC.

In practice, the European Commission has nonetheless extended its power of initiative in the energy field,

on the basis of its exclusive competences regarding the internal market (TEC, article 14), competition (TEC, articles 81 and 82) and the environment (TEC, article 174), spheres in which decisions are taken by qualified majority of the Council of Ministers.

Progressive setting up of the internal electricity and gas market, based on decisions made by the qualified majority, is taking place in the wider context of creation of a single European market, a process begun in 1993 and which seeks to bring about free movement of all goods, services, persons, and capital within the European Union.

For the record, the 2004 draft treaty establishing a Constitution for Europe provided for a new legal basis for the energy policy, which came into the category of 'shared competences' (article I-14). Resumption of this provision would be likely to have a positive impact on the definition of an extensive European energy policy.

## 2. Guiding principles for the internal energy market

Creation of the internal energy market is the cornerstone of a European energy policy focusing on three major – and not always easy to achieve – priorities: competitiveness, security of supply and sustainable development.

The European directives 2003/54/EC and 2003/55/EC of 26 June 2003 concerning common rules for the internal market in electricity and natural gas, which replaced the 1996 and 1998 directives that respectively laid down the framework and procedures for opening electricity and gas markets, set out guiding principles for the internal energy market.

These directives provide an organisational framework for opening the energy market at European Community level, providing for free choice of supplier by consumers, freedom of establishment for generators and producers, and right of access, in non-discriminatory, transparent and objective conditions, for all users of distribution and transmission grids and networks. In order to accomplish all this, the directives made independence of transmission and distribution system operators, as well as of gas storage and liquefied natural gas (LNG) infrastructures from generation, production and trading activities carried out by integrated undertakings obligatory – without, however, imposing unbundling of grid and network ownership at this stage. Integrated undertakings could hold on to their basic economic rights, but had to legally unbundle entities responsible for grids and network operation activities (as from 1 July 2004 for transmission, and as from 1 July 2007 for distribution) and guarantee their managers day-to-day control of their activities.

The two directives also insisted on the necessary independence of grid and network operators, which had to be guaranteed, in particular with regard to the interests of generators, producers, consumers and suppliers.

Recitals 7 of Directive 2003/54/EC (electricity) and 8 of Directive 2003/55/EC (gas) state that non-discriminatory access to transmission and distribution grids and networks is of prime importance to successful achievement of internal electricity and gas markets. The directives declare that

“in order to ensure efficient and non-discriminatory network access it is appropriate that the distribution and transmission systems are operated through legally separate entities where vertically integrated undertakings exist” and that “[...] it is also appropriate that the transmission and distribution system operators have effective decision-making rights with respect to assets necessary to maintain, operate and develop networks when the assets in question are owned and operated by vertically integrated undertakings.”

By virtue of the directives of June 2003, effective regulation, carried out by one or more national regulatory authorities, is of prime importance in guaranteeing the existence of non-discriminatory conditions of grid and network access. In application to this principle, they state that:

“[...] Member States specify the functions, competences and administrative powers of the regulatory authorities. It is important that the regulatory authorities in all Member States share the same minimum set of competences. Those authorities should have the competence to fix or approve the tariffs, or at least, the methodologies underlying the calculation of transmission and distribution tariffs.”

### **Inset 1: Main provisions of the electricity and gas directives (2003/54/EC and 2003/55/EC) harmonising the roles and powers of national regulators**

Existence of regulation carried out by one or more national regulatory authorities is of prime importance in guaranteeing non-discriminatory conditions of grid and network access, and ensuring effective competition and efficient market operations (Recitals 15 of the electricity directive, and 13 of the gas directive)

Minimum competences for regulatory authorities are set out in articles 23 and 25 of the electricity and gas directives. They must:

- be responsible for management of interconnections and their possible congestion,
- supervise the ways in which grid and network operators fulfil their obligations,
- assess levels of transparency and competition on the markets;
- make sure that transmission and distribution grid and network

operators publish appropriate information regarding interconnections, grid and network use, and allocation of capacities to interested parties.

Regulation authorities are also responsible for fixing or approving:

- Conditions for grid and network connection and access, including transmission and distribution tariffs,
- Balancing conditions.

They are authorised to require transmission and distribution grid and network operators to modify access conditions and tariffs as necessary, to ensure that these latter are adjusted and applied in a non-discriminatory manner, and are vested with the power to rule on related disputes.

They must also check account unbundling of regulated activities within integrated undertakings.

# III. European Community activities

## 1. European Commission reports

The European Commission’s communication has given rise to discussion which, by the autumn of 2007, should result in proposals for directives designed in particular to supplement and improve those of June 2003 setting out common rules for internal electricity and gas markets. The European Commission also insists on the need for the European Union to have a common external policy as regards energy.

At the same time, the European Commission presented the conclusions reached by the Sector Inquiries into the electricity and gas markets that it had initiated in June 2005.

The German Presidency of the European Union organised discussions between Member States, enabling the Council of Ministers for Energy to put forward an opinion on the proposals and to open the way to discussion at the European Council of 8 and 9 March 2007. Most of the proposals were accepted and ratified by the Heads of State and Government present. Such was the case for legally binding targets regarding a 20% limitation of greenhouse gas emissions and a minimum of 20% of consumption to be covered by renewable energies. A number of points, however – such as the role of nuclear power and ways of unbundling transmission grids and networks from integrated undertakings, were not finally decided upon by the Heads of

State and government present, leaving the European Commission free to draft its proposals for directives.

The European Council’s conclusions represent a major step for the European Union – towards a common energy policy henceforth closely linked with environmental policy.

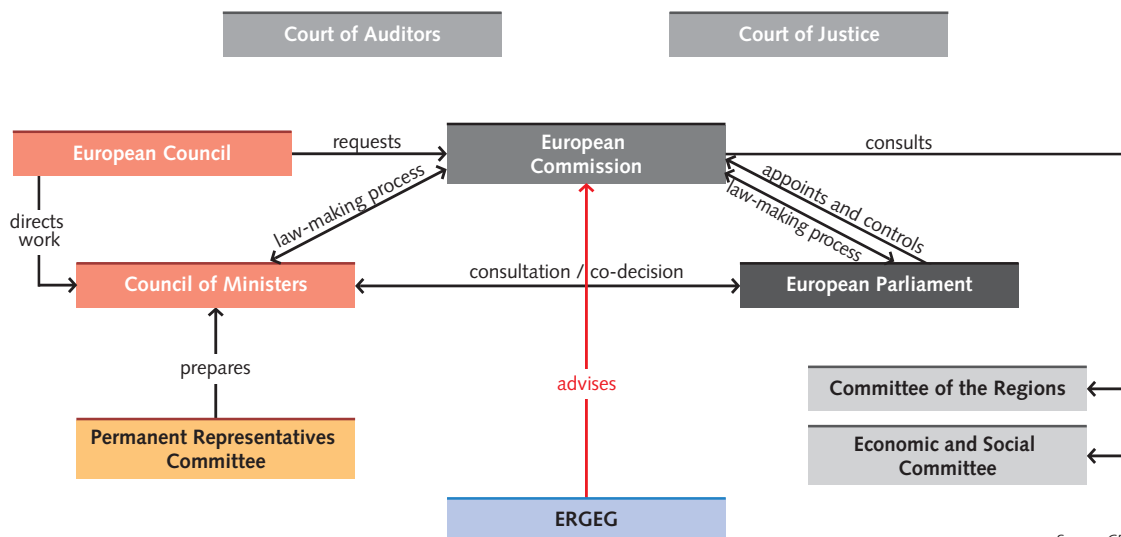
### 1.1. Main components of documents published by the European Commission on 10 January 2007

#### 1.1.1. Report on setting up of the internal electricity and gas market

The European Commission stated that, despite progress made, a successful internal market was far from having been achieved, and consequently proposed various measures which might be taken in order to improve the situation and encourage investment:

- More effective unbundling of energy generation/production, transmission and distribution. Two options were put forward:
  - Recourse to an independent system operator (ISO): the vertically integrated company continues to own grid/network assets, and receives regulated return on such assets, but is not in charge of operation, maintenance, or development. This system is generally thought to be rather complex to control,

Figure 1: Organisation of European bodies



Source: CRE



- Ownership unbundling: regulated activities, with assets of grid/network undertakings and generation/production undertakings totally unbundled. This is the option preferred by the European Commission;
- More effective coordination of the activities of regulatory authorities. A new body, provisionally entitled 'ERGEG +', would have the power to adopt decisions legally binding for regulators and market players with regard to cross-border exchanges and operation of European grids and networks (cf. p. 17);
- Improved transparency of information supplied by TSOs in the electricity and gas sectors;
- Improved coordination between transmission system operators;
- Introduction of harmonised and legally binding minimum standards to ensure grid and network safety.

As stated in its annual progress report on the creation of the internal electricity and gas market, published in November 2005, in 2006, the European Commission carried out "a detailed country-by-country examination of how regulatory and legal measures were actually being applied, including complementary national measures".

Speaking of France, the European Commission emphasised the inadequate independence of grids and networks, above all as regards distribution. It noted an insufficient ("largely theoretical") degree of market opening and a lack of transparency, and also criticised the generalised maintenance of regulated retail tariffs that should only apply to a well-defined category of consumers.

#### **1.1.2. Presentation of the final report on the Sector Inquiry into energy markets**

In June 2005, following complaints from market players, the Directorate-General for Competition opened a Sector Inquiry into the gas and electricity markets, focusing on wholesale market operations and the ways in which pricing was established.

In its final report, the European Commission reckons that consumers are penalised by insufficient development of the internal market. The main problems noted as far as competition is concerned are the following:

- High degree of market concentration;
- Vertical integration of supply, generation/production and infrastructure, which prevents fair access to infrastructures;
- Insufficient integration of markets, which remain national;
- Lack of transparency;
- Unclear price formation mechanisms, and continued application of regulated tariffs;
- Balancing mechanisms that favour incumbent operators;
- Retail markets that are still highly uncompetitive.

Consequently, the European Commission proposes the following measures for removing these obstacles: initiating proceedings in individual cases (collusion, concentration and State aid), and improving the existing regulatory framework (reinforcement of existing provisions governing the electricity and gas markets), so consolidating the proposals contained in the report on the internal market, such as unbundling of grid and network ownership.

#### **1.1.3. The Priority Interconnection Plan for electricity grids and gas networks**

The European Commission proposes appointment of European coordinators responsible for overseeing four major projects:

- High-voltage link between Germany, Poland and Lithuania;
- Links with wind farms in the North Sea;
- France/Spain electrical interconnection;
- Nabucco gas pipeline (for transporting gas from the Caspian Sea to Central Europe).

It also proposes strengthening cooperation between TSOs, who will monitor and analyse planning for development of infrastructures.

#### **1.1.4. A common external energy policy**

The European Commission reckons that, on its own, the European Union will be unable to achieve its objectives regarding energy and climate change. It will be necessary to collaborate with developed and developing countries as well as with consumers and energy generators and producers. The European Union will have to set up effective solidarity mecha-



nisms and develop a common external energy policy in order to better address third countries with a single voice.

After creation of a network of energy safety correspondents, the European Commission proposes a series of measures with a view to developing an effective external energy policy.

- Reinforcement of existing international agreements (post-Kyoto scheme as regards climate change, with extension of the emission trading scheme to world-wide partners);
- Development of energy relations with neighbouring countries (extension of the treaty founding the Energy Community to Moldova, Norway, Turkey, and the Ukraine);
- Seeking dialogue and relations with the major energy-producing countries and with transit countries (new framework agreement with Russia);
- Drafting of an international agreement on energy efficiency.

The Commission also proposes development of an Africa-Europe partnership, with dialogue focusing on security of supply, transfer of renewable energy technologies, operation of sustainable resources, and market transparency.

#### 1.1.5. Promotion of more environment-friendly electricity generation based on fossil fuels

The European Commission would like to see cleaner technologies implemented for use of coal. A deadline will be set for installation of CO<sub>2</sub> capture and storage systems in coal- and gas-fired plants.

It also proposed to set up and operate a dozen projects for large-scale demonstration of technologies by the year 2012, enabling sustainable use of fossil fuels for electricity generation in the European Union.

#### 1.1.6. Promotion of renewable energies

The European Commission has put forward a long-term roadmap for renewable energy sources. A legally binding objective of 20% of consumption for renewable energy sources in the European Union's overall energy mix must be achieved by 2020, as well as a legally binding objective of 10% for use of biofuels for road transport.

Member States must draw up action plans setting out national objectives as well as targets by sector of activity.

#### 1.1.7. Analysis of the role of nuclear power in Europe

The European Commission has examined the current situation as regards the role of nuclear power in the European energy mix. It proposes setting up a high level group bringing together national nuclear regulatory authorities, with the aim of working out a common approach and drawing up European rules on nuclear safety and security.

#### 1.1.8. The upcoming European Strategic Energy Technology plan

The first Strategic Energy Technology Plan should be drafted during 2007, its objective being to speed up innovation in energy technologies and push European industry into managing threats posed by climate change and security of supply.

Between 2007 and 2013, the European Commission will invest around 1 billion euros a year in research and innovation in the sphere of energy technologies.

### 1.2. Infringement proceedings initiated against France

On 4 April 2006, the European Commission addressed letters of formal notice to Member States, the first step in initiation of infringement proceedings.

In the case of France, the European Commission's grievances focused on five issues:

- Management of cross-border interconnections;
- Publication of commercial conditions for use of gas storage facilities;
- Notification of public service obligation;
- Independence of grid and network operators;
- Regulated tariffs.

The Government made its reply to these grievances on 12 June 2006.

The first two issues – cross-border interconnections and conditions for use of gas storage facilities – were no longer a problem, as corrective measures had been taken before the letter of formal notice was sent out.

In the matter of grid and network operator independence, the Government considered that it had transposed the directives correctly, but indicated that it was ready to amend French legal systems to comply with European Commission requirements. As for notification of public service obligation, this was simply a matter of formal obligation.

On the other hand, the Government, in whose view regulated tariffs were not legally questionable, indicated that it did not share the stance taken by the European Commission.

On 12 December 2006, taking the second step in infringement proceedings, the European Commission sent a reasoned opinion to most Member States. The Commission's grievances against France only bore now upon the tariff issue. In its new reply, on 15 March, the Government maintained its position of principle. It was then up to the European Commission to decide whether or not to submit this dispute to the Court of Justice of the European Communities.

On 13 June 2007, the European Commission initiated formal review proceedings concerning France by virtue of the rules on State aid set out in the EC Treaty. The European Commission will consider whether or not regulated industrial electricity tariffs constitute state subsidies to large- and medium-sized companies and, if so, whether such aid might lead to distortions in exchanges and competition in the European Union single market. The enquiry initiated by the European Commission into State aid does not bear upon regulated tariffs applicable to household customers and small businesses.

## 2. Electricity and gas Regional Initiatives

### Inset 2: The Florence and Madrid Fora

The Florence Electricity Forum and the Madrid Gas Forum were initiated by the European Commission at the conclusion of negotiations on the 1996 and 1998 directives. They are held once or twice a year at the invitation of the European Commission.

Forum **participants** include regulators, Member States, TSOs, suppliers and traders, consumers and grid and network users, and energy exchanges.

**Issues** examined include tariffs for cross-border exchanges, allocation and management of interconnection capacities, commercial and technical obstacles to creation of fully operational electricity and gas markets, and good practice for access to gas storage facilities.

During the Florence Forum of September 2004, the European Commission proposed organisation of Mini-Fora designed to encourage the expansion of regional markets paving the way for setting up a single market, which it considered difficult to create in a single step.

In early 2005, these regional meetings brought together all players concerned in development of electricity markets and cross-border exchanges in each zone identified by the European Commission.

It was decided to continue this work in the framework of Regional Initiatives that regulators were responsible for organising. These latter carried out two public consultations, one concerning electricity in the summer of 2005, and the other concerning gas in late 2005. In spring 2006, on the basis of information gathered from these consultations, they initiated a new series of meetings seeking to identify obstacles to development in each regional market, and to put forward appropriate solutions.

The Regional Initiatives constitute a fresh approach to setting up integrated electricity and gas markets, by gradual advances in grid and network interconnection, market coupling and investments, which will contribute to the achievement of the single European market.

These initiatives, however, are only a step in the process of creating an integrated European electricity and gas market. There is a need for harmonisation of mechanisms for congestion management and for convergence of market design between the various Regional Energy Markets (REMs), in order to avoid future inconsistencies. Regulators, above all those who – as in France and Germany – are involved in a number of such regions, therefore have a special responsibility in the matter, as is also the case for the European Commission, which participates in all REMs.

The framework for the three gas REMs (cf. p. 19) and seven electricity REMs (cf. p. 24) has now been formalised. The REMs operate on the basis of taskforces bringing together each region's regulators and infrastructure operators in a given geographical zone. Taskforces are organised on three levels:

- Regional coordination committees, made up of all regulators working in the same region;
- Implementation groups, combining regulators with grid and network operators and market operators these being the parties who will implement decisions taken;
- Stakeholder groups facilitating consultation of all market players.

In March 2007, a year after their official launch, ER-GEG published a report on the progress of work carried out by the Regional Initiatives.

During presentation of the report, Andris Piebalgs, European Commissioner for Energy, extended his congratulations for the progress already made in integration of regional markets, emphasising the interest that such an approach holds.

A range of priorities were identified. On the gas front, these concerned transparency of information supplied by TSOs, and development of hubs for interconnections and interoperability. On the electricity front, the

focus was on improving use of interconnections and congestion management methods, wholesale market transparency, and the balancing market.

The first concrete results have begun to appear, one example being Belgian, Dutch and French electricity market coupling. This is a new market mechanism enabling allocation of daily interconnection capacities available to the three countries, so greatly simplifying the work carried out by operators (cf. p. 28).

## IV. Organisation and coordination of European regulators

Changes in the European Community framework are of particular importance to CRE, which, while not ignoring other European institutions, constantly seeks to strengthen its relations with all major players in the energy sector, among which the European Commission and the other European regulators are of leading importance.

### 1. Joint organisation of European regulators

#### 1.1. ERGEG and CEER

Contacts with other regulators are organised, either bilaterally, on an occasional basis, or on a more regular basis through the Council of European Energy Regulators (CEER) and its institutional counterpart at the European Commission, the European Regulators Group for Electricity and Gas (ERGEG).

CEER was set up in March 2000 at the initiative of the ten national regulators existing at that time. It is an association of national energy regulators from the Member States of the European Union and the European Economic Area. It is now composed of 27 independent regulators<sup>(1)</sup> (Bulgaria has not yet been formally integrated), who hold a General Assembly once a month.

CEER's aim is to facilitate the setting up of a single competitive, effective, and stable electricity and gas market in Europe through development of a harmonised set of rules and procedures applicable to all Member States.

CEER's organisational structure comprises a General Assembly – the sole decision-making body – an Executive Board, specialised working groups and task forces active in a range of fields (including electricity and gas, the Energy Community of Southeast Europe, and international strategy), and a secretariat located in Brussels. A budget and work programme are defined every year. Decisions are taken by consensus or, failing that, by vote, applying the weighting adopted for each country in the Treaty of Nice<sup>(2)</sup>.

ERGEG was set up by the European Commission on 11 November 2003, in application of the directives of June 2003. Its purpose is to advise the Commission on and assist it with consolidation of the internal energy market by contributing to full implementation of European directives and regulations and to preparation of future legislation in the spheres of electricity and gas.

ERGEG is composed of the European Commission and regulators from the 27 Member States of the European Union. Member States of the European Economic Area and candidate countries for membership of the Union are invited as observers.

In order to implement its work programme, ERGEG relies on working groups modelled on CEER electricity and gas taskforces. Consumer-related issues are dealt with by a specialist group apart. Results of work carried out by the various working groups, which act essentially as guidelines of best practice and are usually obtained after consultation with all interested parties, are submitted for adoption to the ERGEG General Assembly, whose approval also commits the European Commission.

(1) From the 27 Member States minus Luxembourg and Bulgaria, plus Norway and Iceland.

(2) The Treaty of Nice was adopted on 26 February 2001. In conformity with the weighting rules as laid down therein, CRE has 29 votes, as do Germany, Italy and the United Kingdom.

Application of and compliance with such guidelines of best practice adopted within the framework of ERGEG are not compulsory, but operators comply on a voluntary basis.

In order to make them legally binding, the Commission could resort to a process specific to the European Community, known as comitology.

CRE is one of the most active regulators within CEER and ERGEG, and participates in most of the working groups. It chairs the International Strategy Group (ISG), set up at the beginning of 2007 and responsible for establishing priorities among the various contacts that CEER may maintain with regulators from countries outside the Union and with other regulator associations, it also takes part in ad hoc groups set up to respond to one-off issues, such as the preparation of a new European legal framework, and chairs the ERGEG customer protection taskforce. In addition, CRE co-chairs the Regional Initiatives taskforce.

## 1.2. Changes in the system

Consideration given by the European Commission to ways of improving the 2003 directives has led to its envisaging reinforcement of regulators competences.

National regulatory authorities currently have quite disparate competences and fields of action, which need to be harmonised in terms of independence, market monitoring and grid/ network investments. Without going so far as setting up a European regulator, a concept which Member States regard with little enthusiasm, their common operation should be facilitated by establishment of an entity provisionally designated "ERGEG +", able to take legally binding decisions. As a complement to extended national competences, the aim is to facilitate regulators' cross-border actions, vesting them with the power to collectively monitor European electricity and gas transmission systems, which will probably be placed under the responsibility of new entities ('ETSO +' and 'GIE +') separate from existing TSO associations and independent from them.

Legislative means of making such improvements in the system for governance of the internal energy market are currently under study, and will be the subject of the third 'legislative package' to be proposed by the European Commission in the second half of 2007.

## 1.3. Work carried out by European regulators

Independently of the Regional Initiatives presented in point V (cf. p. 19), extensive work was carried out by the regulators within CEER and ERGEG throughout 2006.

In order to improve internal energy market operation and transparency, European regulators adopted and published reports and guidelines for good practice, including:

- an analysis of the blackout of 4 November 2006 (cf. p. 31)

Given the consequences of the blackout that occurred on 4 November 2006, CRE asked ERGEG to undertake detailed analysis of the incident at European level.

CRE hoped that such analysis would bring about better understanding of how an incident of highly local origin, occurring in a limited region of Germany, was able to spread so widely across Europe. The answer to this question was to be found by joint analysis of the behaviour of all grids involved in the incident.

ERGEG's analysis was based on information reported by transmission system operators (TSOs), either directly to national regulatory authorities or through documents that they published.

The report concluded that there was an urgent need for greater cooperation between European grid operators so as to guarantee better security of supply in Europe.

The lack of incorporation of recommendations made after the blackout in Italy in September 2003 is also highlighted.

- Factoring in of experience from other Member States regarding market opening and consumer protection.

In preparation for the 1 July 2007 deadline (cf. p. 117), CRE worked within ERGEG to coordinate the drafting of guidelines for good practice on pre-contractual information, a measure designed to lend effective support to the opening of markets to household customers.

The resulting report was based on data compiled from an enquiry carried out in the 12 countries that had already opened their markets to household customers, including Spain, Great Britain and Sweden. Regulators from each country were asked to identify five relevant measures they considered to be effective aids to the opening of markets to household customers.

The report emphasised the usefulness of the ‘info-bill’ (a leaflet enclosed with the incumbent operators’ bill), informing consumers of the possibility of switching suppliers.

It also spotlighted the need to provide brochures for consumer guidance in such practical procedures as moving house and use of shopping robots, so as to help customers select the cheapest supplier.

The regulators also worked on drawing up proposals for establishment of good practice in provision of information to consumers, with recommendations concerning methods of switching suppliers, consumer protection, and price transparency.

- Transparency

In the electricity sector, the regulators have drawn up Guidelines for Good Practice on Information Management and Transparency in Electricity Markets (GGPIMT), whose aim it is to standardise and raise the level of transparency of information exchange on the electricity market.

Further information needs to be published on:

- the transmission grid – forecast electricity consumption, grid development projects and forecasts of their impact on interconnection capacities and national congestion;
- the wholesale market – volumes and prices related to OTC exchanges;
- generation – expected capability of power plants per sector, and recorded generation.

- Importance of balancing

In the gas sector, the Guidelines for Good Practice for Gas Balancing (GGPGB) set out the rules governing the balancing mechanism. The guidelines seek to remove market entry barriers, proposing definition of balancing periods and supply of services on a non-discriminatory basis.

- Unbundling of activities

Following complaints from the European Commission, included in its reports on the lack of grid/network operator independence, the regulators initiated a public consultation on draft guidelines for account unbundling. In parallel, more general guide-

lines for unbundling of grid/network activities, Guidelines on Functional and Informational Unbundling, are currently being drawn up.

- Guidelines for good practice on open seasons in the gas sector

In 2006, European regulators worked on drafting guidelines for good practice in the course of open seasons, involving consultation and tender procedures for bringing about new investments and facilitating allocation of fresh capacities.

The guidelines are intended for application to transmission, LNG and gas storage facilities.

After a public consultation carried out in December 2006, they were adopted by ERGEG in May 2007.

## 2. CRE’s relations with European Community institutions

Alongside its role within CEER and ERGEG, CRE works to consolidate its relations with the main European Community institutions.

In addition to actions jointly carried out by regulators, CRE maintains regular contacts with:

- the European Commission Directorates-General for Transport and Energy and for Competition – one example of such cooperation being provision of experts for consultation;
- Members of the European Parliament sitting on the Parliamentary Committee for Industry, Research and Energy;
- the Council of the European Union: CRE participates in coordination of the positions of French authorities and presents proposals on changes to texts to the General Secretariat for European Affairs (SGAE). It can also attend Council meetings on matters within regulator competence, alongside France’s permanent representatives in the European Union.

Such relations contribute to consolidation of French influence, as well as of the role of independent administrative authorities in European Community bodies.

In its recent annual report for 2007, the Conseil d’Etat, the highest administrative jurisdiction, expands upon European Community issues in a section entitled “French administrative authorities and the European Union. How much influence and what strategy?” It deplors the lack of influence that French administrative authorities exercise in Brussels, and suggests the setting up of a “real strategy of policy influence”, along with development of a “genuine European reflex” by French administrative authorities to negotiate directives.



The Conseil d'Etat recommends upkeep of the influence of the French independent administrative authorities within European networks: the role of the French independent administrative authorities within such networks being, for the most part, a significant one, it is essential to vest them with the means of preserving such influence, in particular as concerns legal tools supporting European cooperation.

In keeping with these recommendations, Community institutions have accorded CRE expert status, and it contributes actively to work on setting up a competitive energy market.

## V. CRE's European activities

### 1. Regional integration of gas markets

In the same way as for electricity, development of cross-border exchanges is a necessary condition for setting up of a real competitive internal European gas market likely to provide tangible benefits for end consumers. Due to France's geographical situation, setting up of the internal gas market conditions good operation of the French gas market, due to the fact that a large part of French procurements transit through European countries.

In order to contribute to integration of European gas markets and to the eventual consolidation of an internal gas market, CRE has been committed for a number of years to close cooperation with its European counterparts. Such cooperation takes two forms:

- intense involvement in the Gas Regional Initiative launched by ERGEG in 2006;
- participation in ERGEG working groups and chairing of three of them.

#### 1.1. Development of Gas Regional Initiatives régionales gaz

The Gas Regional Initiative was launched in spring 2006, modelled on Electricity Regional Initiative. It aims to facilitate integration of regional gas markets, a first, concrete step in setting up the internal gas market.

There are currently 3 gas Regional Market Projects (REMs):

- The North-West region, grouping together Belgium, Denmark, France, Germany, Great Britain, Northern Ireland and the Republic of Ireland, Sweden and the Netherlands;

- The South region, grouping together Spain, France and Portugal. As the latter country does not currently take part in work carried out in this region, relations are still of a bilateral nature;
- The South-Southeast region, grouping together Austria, Greece, Italy and the Member States of Central and Eastern Europe (Czech Republic, Hungary, Poland, Slovakia and Slovenia).

The REMs are coordinated by regulators from the countries concerned and have led to creation of themed working groups in which suppliers and gas infrastructure operators participate.

Upon proposal from CRE, improved liquidity of gas flows at interconnections was adopted as one of the priorities for the North-West and South regions. This objective requires better cooperation between neighbouring network operators and greater consistency in their practices concerning transparency, if optimal interconnection operation and development is to be achieved.

#### 1.1.1. Interconnections and primary capacity markets in the North-West region

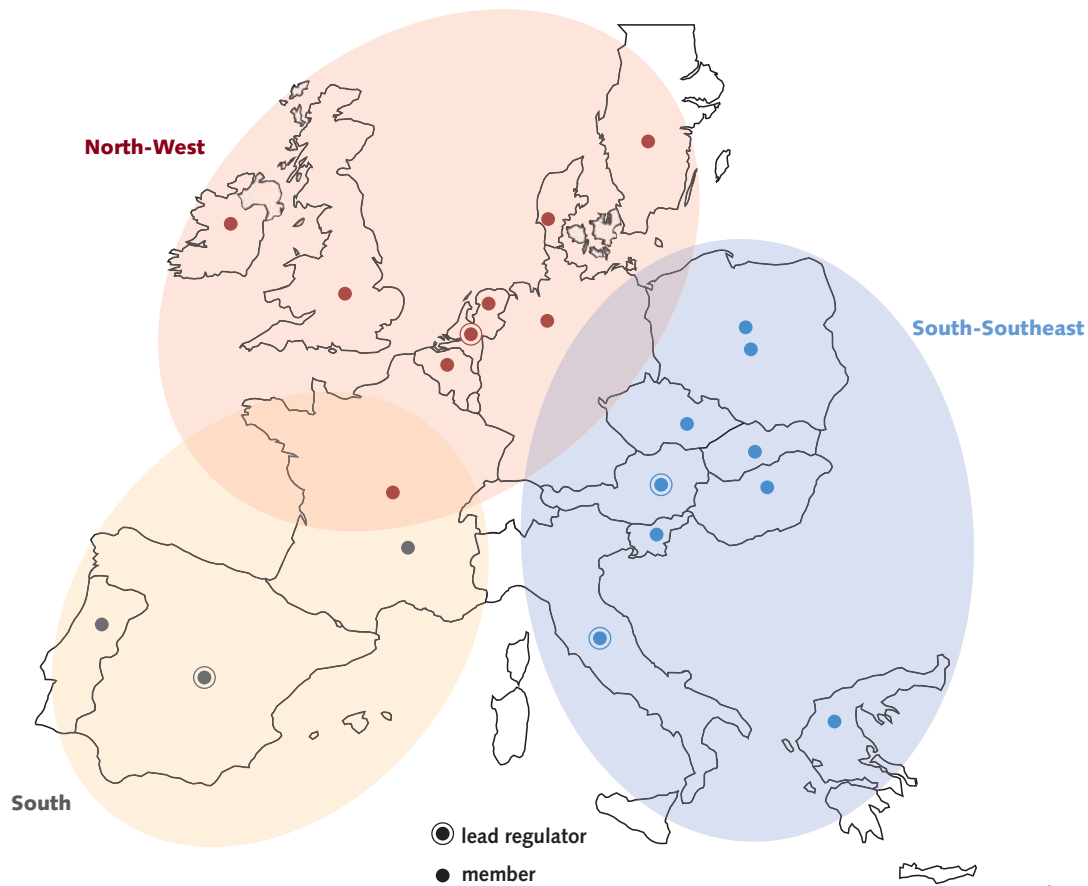
In the North-West region, CRE co-chairs the working group focusing on interconnections and primary transmission capacities (capacities allocated on the primary market to interconnections by network operators) along with the German regulator (Bundesnetzagentur, BNetzA).

The group submitted a questionnaire to the 15 transmission system operators managing the 28 cross-border interconnections between Member States in the region.

Upon analysis of the answers to the questionnaire the regulators have come to the following conclusions on:

- lack of transparency: data on capacities, rates of use and rates of reservation were only provided for seven interconnection points by neighbouring network operators;
- allocation of available capacities: the First-Come-First-Served (FCFS) principle is applied at 21 interconnection points, but is almost never coordinated between adjacent TSOs;
- contractual congestion: most of the interconnection points that provided data are contractually congested on at least one side of the border;
- congestion management procedures: there is at least one established procedure at 21 interconnection points; however, where procedures for allocating unused capacities exist, they are never coordinated by adjacent TSOs;
- capacity reservation procedures: the shorter the capacity duration is, the less reservation procedures match each other either side of interconnection points;
- new capacity allocation mechanisms: they are not identical on both sides for 92% of interconnection points;
- nomination and re-nomination procedures drawn up by Easee-gas, the gas standardisation association: they are implemented by neighbouring network operators at 20 interconnection points in the North-West region.

Figure 2: Gas Regional Initiative





All the results and analyses can be downloaded from the ERGEG website ([www.ergreg.org](http://www.ergreg.org)), under the heading 'Regional Initiatives'.

The working group assigned to interconnections set itself three objectives, based on information obtained from the questionnaire.

#### **A. Standardisation of publications on cross-border capacities and flows**

It is important to standardise information published by network operators at cross-border interconnection points, concerning:

- reserved firm and interruptible capacities available for sale;
- records of flows at these points.

Such standardisation will enable everyone to apply the Regulation 1775/2005 of 28 September 2005 bearing on access to the natural gas transmission network, and will facilitate new shippers' access to interconnection points and therefore to gas transmission networks.

#### **B. Improved coordination between TSOs at borders**

Based on data on capacities and flows, the working group will be able to:

- detect and quantify potential contractual and physical congestion;
- promote coordination of methods for resolving congestion applied by network operators: methods for allocating new capacities (investments), coordinated return of unused capacities to the market, procedures applied for capacity nomination and reservation, and methods for allocating existing capacities.

#### **C. An approach targeting eight interconnection points**

In February 2007, the regulators decided to start organising meetings devoted to eight key interconnection points for market integration in the North-West region, each to be consecrated to one of the targeted interconnection points, their aim being to solve problems specific to them. Participants include network operators and neighbouring regulators, as well as any network users wishing to attend. Among the priority interconnection points are Taisnières, on the French-

Belgian border, and Obergailbach, on the French-German border.

In May 2007, CRE organised the first meeting devoted to these priority interconnection points in Paris. It was attended by a large number of shippers, system operators, and European regulators. System operators at the Taisnières and Obergailbach interconnection points committed to improving their publications on daily flows and reserved capacities. These commitments, some of which go further than is required by the Regulation 1775/2005, should enable contractual congestion to be identified and shipper forecasts to be improved.

During the meeting, GRTgaz and Fluxys also announced a coordinated open season, and Fluxys presented a new service providing interruptible transit to France (cf. p. 77).

#### **1.1.2. Investments and interconnection access in the South region**

In the South region, five issues were selected for action – interconnection capacities, network interoperability, transparency, transposition of the Directive 2003/54/EC and application of the Regulation 1775/2005, and development of hubs – the first three being considered as priorities.

##### **A. Investments at French-Spanish interconnections**

New capacities are necessary for the planned increase in gas exchanges between France and Spain.

In February 2007, the system operators TIGF, Enagas and GRTgaz, published a joint investment programme for French-Spanish interconnections, planning a significant increase in transmission capacities at the French-Spanish interconnection points of Larrau and Biriattou. An extension in the France-Spain direction is proposed at Larrau, to raise annual capacity from 2.9 Bcm to 6 Bcm in 2010/2011. An increase to 3.6 Bcm per year had already been decided on, to become operational in 2009. In the Spain-France direction, an initial extension to 3.6 Bcm per year will be operational in 2010 and a possible extension to 6 Bcm per year in 2011 is under discussion. An extension of 0.4 to 2.2 Bcm per year is proposed in the France-Spain direction at Biriattou, and of 0.2 to 1.3 Bcm per year in the Spain-France direction.

The programme should be supported by investments in French network decongestion, including a new stage of reinforcement of the Guyenne main trunk in South West France, intended for transportation of gas in the South-North direction.

#### **B. Standardisation of data published by infrastructure operators**

Infrastructure operators in the South region do not publish sufficiently homogenous data, although such publications of gas flows for transmission systems, LNG terminals and storage facilities are necessary.

##### **Inset 3: Innovative regulator intervention**

The way in which investments in new capacities were handled in the South REM led to regulator intervention and coordination between system operators that were both unprecedented and innovative. Despite significant differences in French and Spanish legal and regulatory frameworks for investment, CRE and its Spanish counterpart CNE worked closely together to obtain cooperation from system operators concerned by French-Spanish interconnection capacities – TIGF, Enagas and GRTgaz – in presentation and submission for consultation with market players of a joint investment programme. This approach on the part of regulators was facilitated by the framework provided by the Regional Initiative.

In March 2007, the regulators published a roadmap for improvements to be made in terms of data transparency, the results of which will be posted on operator websites during the second half of 2007.

#### **C. Transmission network interoperability**

There is inadequate network interoperability in the South region, with differing capacity allocation methods, capacity nomination and re-nomination procedures, balancing rules for network users, coordination between transmission operators, and technical requirements concerning quality of gas, which is why regulators have asked the suppliers concerned to carry out a study presenting problems with capacity allocation mechanisms, balancing rules and coordination between TSOs. TIGF, Enagas and GRTgaz must propose solutions, to be approved by the regulators, and apply them under supervision by the latter.

## **1.2. CRE's contribution to ERGEG's activities**

CRE co-chairs ERGEG working groups assigned to storage facilities, open seasons and investments – all three of which have already obtained significant results in their allotted fields – and also participates in other ERGEG working groups.

### **1.2.1. Storage facilities**

In 2005, ERGEG published its Guidelines for Good TPA Practice for Gas Storage System Operators (GGPSSO). In December 2006, the ERGEG working group assigned to storage facilities, directed by CRE and the Italian regulator AEEG, finalised a report on application of these guidelines by storage system operators. The enquiry involved more than 30 storage system operators, accounting for over 80% of European storage capacity.

The report concluded that access to storage facilities was highly limited, with 11 out of the 20 largest storage system operators having fewer than five users, and that rules governing data transparency, confidentiality and non-discrimination, and the setting up of measures to resolve congestion and facilitate secondary market operations were not very widely applied.

It indicated that French storage system operators are among those applying the guidelines for good practice to best effect.

Following the report, ERGEG recommended that the European Commission enacts regulatory measures based on the guidelines for good practice and focusing on the least well applied of the above-mentioned points. This would involve making measures currently applied on a voluntary basis obligatory.

ERGEG recommended that regulator powers be standardised so that they could check the non-discriminatory nature of access to storage facilities.

In its Communication of 10 January 2007 (cf. p. 74), the European Commission announced that it would examine:

- adoption of obligatory measures to guarantee both effective access to storage facilities and development of investments;

- application of ERGEG recommendations;
- legal unbundling of storage facilities and competitive activities in vertically integrated groups.

Such measures would not interfere with the right of choice between regulated access and negotiated access to storage sites as laid down in the directive.

### 1.2.2. Open seasons

Open seasons are a market consultation procedure enabling investors to assess needs for new capacities, dimension their investments, and allocate such new capacities in a transparent and non-discriminatory manner (cf. p. 77).

Inadequate use of open seasons has adverse effects on newcomers, which is why the European Commission asked ERGEG to draw up its Guidelines for Good Practice on Open Season (GGPOS), to be applied by investors on a voluntary basis. The remit was entrusted to CRE and the Austrian regulator, E-Control, and the resulting guidelines were approved by the ERGEG General Assembly in May 2007.

They provide for two stages in every open season:

- investors in new storage capacities publicly submit investment proposals to potential infrastructure users, who are invited to apply for capacities in a non-committal manner and to propose, if need be, any modifications enabling them to subscribe to additional capacities;
- based on the answers received, investors make a second proposal asking market players to apply for capacity with financial commitment. Investors then share out the project capacity between operators submitting committed applications in a transparent and non-discriminatory manner.

The guidelines for good practice are applicable to new infrastructures and extension of existing transmission, LNG and storage infrastructures. The regulator is responsible for checking that open seasons are operated as they should be, in non-discriminatory and transparent fashion. Investors must coordinate with infrastructure operators upstream and downstream. Where investments involve cross-border infrastructures, discussions are held by the regulators of the countries concerned in order to monitor proper cooperation between neighbouring network operators.

### 1.2.3. Investments in gas infrastructures

Given the needs for investment, ERGEG has set up a working group, co-chaired by CRE and BNetzA (Germany), to harmonise ways in which investments are regulated in Europe, with a view to encouraging them.

A questionnaire sent to all European regulators drew attention to a diversity of regulator powers and practices concerning investments:

- Less than a quarter of European regulators play a part in identification of requisite investments. CRE is one of the few European regulators to have power of approval of investment programmes;
- Less than half of European regulators have already had an opportunity to cooperate with one or more of its counterparts. Where cooperation has occurred, it has taken the form of information exchange and joint meetings, but it generally remains very limited;
- Public consultations, requests made by shippers, and investment proposals are frequently used to identify requisite investments, whereas open seasons are less often employed to this end;

There were also certain points in common:

- More than half of European regulators have the power to oblige system operators to invest in new infrastructures under certain conditions;
- Two thirds of European regulators can take financial incentive measures for investments, such incentives usually taking the form of an increased rate of return on new infrastructures through tariffs for use of these infrastructures;
- Regulators have expressed a wish for increased cooperation between themselves, especially in the field of identification of requisite investments and in open seasons.

The results of the questionnaire bear witness to the need to standardise practices in this area. In 2007, CRE and Bundesnetzagentur are working on recommendations for investments subject to application for third-party access exemption (article 22 of the Directive 2003/55/EC of 26 June 2003) and for the regulated infrastructure investment scheme.

### 1.2.4. Other working groups

CRE participates in other ERGEG working groups focusing on transparency, balancing, and LNG terminals.

**A. Transparency**

In mid-2006, the ERGEG working group assigned to transparency distributed a questionnaire intended to assess levels of application of the provisions contained in the Regulation 1775/2005 on conditions for access to the natural gas transmission networks. The main finding of the questionnaire was that provisions governing transparency of reserved capacities and original flows are applied in a highly unsatisfactory manner.

In May 2007, ERGEG recommended that the European Commission amend the concerned provisions contained in the Regulation 1775/2005, and adopt new ones. It proposed to:

- do away with the rule enabling network operators to restrict publication of data on capacities and flows if they consider that such information is confidential when there are fewer than three users;
- considerably limit the application of the rule, if it is not done away with;
- align the publication system for all gas infrastructures with that in force for transmission networks;
- make technical improvements with regard to duration and frequency of publications, and relevant data to be published.

**B. Other areas of activity**

CRE contributed to finalisation of the guidelines on good practice for gas balancing, which clarify transmission network user and TSO responsibilities, and propose rules to alleviate restrictions on transmission network users.

CRE took part in a benchmark study of access to LNG terminals in European countries. A code of good practice for access to these infrastructures is in the planning stage.

**2. Regional integration of electricity markets**

Facilitating development of cross-border exchanges is a requisite condition for the setting up of an integrated, competitive European electricity market likely to provide end consumers with tangible benefits. In order to achieve this, two types of complementary measures must be taken:

- development of electricity transmission grids contributing to increased interconnection capacities;
- optimisation of the use of existing interconnection capacities.

**2.1. Development of Electricity Regional Initiative**

The aim is to encourage grid operators to better coordinate their grid calculation procedures, through continuing information exchange and standardisation of security criteria, so that congestion management better reflects the reality of physical flows.

Implementation of these three major projects requires close cooperation between regulatory authorities. The launch of the Electricity Regional Initiative by ERGEG provides excellent opportunities for progress in resolving all these issues.

**Inset 4: State of work progress in the Central-South region (France-Italy-Germany-Austria- Slovenia-Greece)**

Work carried out within the framework of this Regional Energy Market (REM) has led to significant advances in coordination and standardisation of capacity allocation methods. Since 1 January 2007, congestion at the France-Italy, Austria-Italy and Greece-Italy interconnections has been managed by a coordinated explicit auction mechanism.

The setting up of this coordinated allocation mechanism marks the first stage in a regional action plan focusing on:

- extension and harmonisation of mechanisms in place throughout the region;
- changeover to an implicit allocation method throughout the region;
- setting up of intraday exchanges.

As shown in insets 4, 5 and 6, the REMs in which CRE participates do not all progress at the same pace on all these issues, a fact often attributable to differences in market design, either between regions or within the same region. As emphasised by the European Commission in its Communication of 10 January 2007 on prospects for the internal electricity and gas market, such differences in market design may constitute significant obstacles to development of exchanges.

CRE, which takes part in four of the seven REMs, ensures overall consistency between the regions concerned. Progress made in one region must be made use of in other REMS to help foster development of the internal electricity market. Work carried out in the context of the ERGEG work programme by the Electricity Regional Initiative Working Group, co-directed by CRE, and the Electricity Market Design Working Group also aims to ensure overall consistency of the Regional Initiative and define a market design to which national markets should aspire.

#### **Inset 5: State of work progress in the Central-West region (France-Belgium-the Netherlands-Germany-Luxembourg)**

On 12 February 2007, in application of roadmaps and after consultation with market players and grid operators, regulators in the Central-West region published an ambitious action plan for integration of electricity markets in the region.

The plan identifies priorities for the region, and proposes concrete action along with an implementation schedule for each priority.

As regards development of electricity transmission grids, priorities are:

- drafting of a regional incentive scheme by November 2007, seeking to increase volumes of interconnection capacities and their use;
- drafting of a regional investment plan for the electricity transmission grid by the end of 2007.

As regards optimisation of use of existing interconnection capacities, priorities are:

- publication of a summary document by the regulators, on 1 December 2007, for assessment of progress in transparency and standardisation and, on 1 January 2008, of explicit auction rules for periodic products throughout the region;
- extension of the solution of organised market coupling on D-1 to Germany and to other regions during 2008;
- setting up of a capacity hub for continuous intraday exchanges throughout the region in 2008;
- setting up of balancing exchanges throughout the region in 2009;
- publication by the region's grid operators of a detailed report on the state of compliance of capacity calculation methods with the Guidelines for Congestion Management.

#### **Inset 6: State of work progress in the Great Britain-France-Ireland region**

Enforcement of the 'Guidelines for Congestion Management' in December 2006 resulted in a consensus on improvements to be made to allocation rules at the France-England interconnection. Two types of improvements have been identified:

- obligatory improvements resulting from alignment of the rules in force at the interconnection with the Guidelines:
  - setting up of a firm nomination deadline for periodic products and daily products, so as to enable grid operators to reallocate unused capacities (based on the so-called 'use-it-or-lose-it' (UIOLI) or 'use-it-or-sell-it' (UIOSI) rules and to carry out netting of nominated programmes,
  - setting up of an intraday allocation mechanism,
  - abolition of the reserve price,
  - optimisation of the degree of firmness of allocated capacities and nominated programmes;
- improvements resulting from the need to harmonise allocation rules at the France-England interconnection with rules in force at other interconnections in the Continental European plate:
  - introduction of hourly products at the France-England interconnection,
  - replacement of the current 'pay as bid' rule for invoicing capacity at the France-England interconnection with a rule of invoicing at the marginal price,
  - clarification and simplification of the rule for compensation in the event of reduction in capacities.

A schedule for implementation by grid operators has been agreed upon by all parties concerned, with priority given to alignment of allocation rules at the France-England interconnection with the Guidelines.

In addition, a taskforce has been set up to develop balancing exchanges within the region, based on a TSO-TSO model.

## 2.2. Development of electricity transmission grids and optimised use of interconnection capacities

### 2.2.1. Towards a joint regulatory framework

Interconnection capacities of electricity transmission grids were originally developed to ensure mutual assistance for vertically integrated electricity undertakings, often monopolies, and enable long-term contracts to be drawn up. They are not always appropriate to the increased cross-border electricity exchanges required by the setting up of a single market and by freedom to choose a supplier based in any Member State.

#### **Inset 7: Description of work conducted by ERGEG 'Electricity Regional Initiative' and 'Electricity Market Design' working groups**

##### **ERGEG working group on Electricity Regional Initiative**

The group prepared the annual ERGEG report on Regional Initiatives published in March 2007 at the time of the annual conference chaired by the European Commissioner Andris Piebalgs in Brussels on 28 March 2007. The report can be found on the ERGEG website ([www.ergeg.org](http://www.ergeg.org)).

It is now preparing a report on consistency and convergence of work carried out by the various REMS. Following this, it will also propose a strategic vision document on development of Regional Initiatives to the ERGEG General Assembly.

##### **Working group on Electricity Market Design**

The REMS are paving the way to integrated electricity markets at regional level. Achievement of this objective in each region depends on levels of coordination between all parties concerned – regulators, ministries, grid operators, electricity exchanges and market players. The working group has started to review obstacles to the development of cross-border electricity exchanges possibly resulting from differences in market design in the various Member States (levels of information accessible to market players, rules applicable to exchanges, and breakdown of costs incurred by security of supply obligations). This work will continue on into 2008.

As concerns difficulties encountered by grid operators with regard to construction of new transmission lines, the lack of certain interconnection capacities is likely to be a long-lasting problem. Both ERGEG, in its public consultation document published on 5 October 2006, and the European Commission, in its Communication of 10 January 2007 on prospects for the internal electricity and gas market insist on the need to set up a common, stable regulatory framework in Europe for cross-border grid infrastructures – a framework presupposing streamlining and simplification of national administrative procedures authorising construction of new transmission lines, along with the setting up of a structure for assessing European cross-border investment projects.

Without waiting for the setting up of such a regulatory framework, a significant coordination and transparency initiative must be undertaken to facilitate development of cross-border grid infrastructures, and regulators in the Central-West REM have asked grid operators to draw up and publish a regional investment plan to assess congestion zones and the investment initiatives required to ensure that the European transmission grid can meet current and future supply and demand needs.

The regional plan will facilitate compliance of Member States concerned with obligations contained in article 7 of the European Directive 2005/89/EC concerning measures to safeguard security of electricity supply and infrastructure investment. The regulators are planning on defining and proposing a financing scheme and incentives appropriate to such investments.

### 2.2.2. Interconnection congestion management

Alongside long-term action to be taken to foster development of interconnection capacities, use of existing capacities should be optimised straightaway, by implementation of effective, transparent and standardised rules for allocating interconnection capacities.



With this aim in mind, CRE's decision of 1 December 2005, announcing publication of roadmaps, constituted an important turning point in the management of French electricity interconnections with, since 1 January 2006:

- extension of explicit auction mechanisms to all French interconnections with Member States of the European Union;
- abolition of the right of priority access for original contracts at interconnections with Member States, taking into account the decision of the Court of Justice of the European Communities, C-17/03 of 7 June 2005.

The annual report on cross-border exchanges in 2006, published by CRE on 22 May 2007, shows how much progress has been made as a result of this decision, both in terms of access to interconnections, now open to a greater number of parties, and of more efficient use of available interconnection capacities (see inset 8).

In implementation of the roadmaps drawn up and published in collaboration with the Austrian, German, Belgian and Dutch regulators, CRE saw other significant improvements in mechanisms for interconnection congestion management, with:

- setting up of a secondary capacity market at the France-Belgium, France-Germany and France-Italy interconnections as from 1 January 2007;
- coupling of the French, Belgian and Dutch organised markets (inset 9) since 21 November 2006;
- implementation of intraday exchanges with Belgium on 1 June 2007.

It is still too early to fully assess the impact such progress is having on the development of cross-border exchanges. However, the introduction of market coupling has already increased levels of capacity use at the France-Belgian interconnection and price convergence between the markets (inset 8).

#### Inset 8: Impacts of the decision of 1 December 2005

- *Opening up to competition:* concentration indexes of capacity markets (table below) show a general increase in competition at the borders concerned by CRE's decision of 1 December 2005.

		2005		2006	
		Number of players	Leading player's share	Number of players	Leading player's share
Germany	Export	24	90%	39	23%
	Import	27	28%	36	20%
Belgium	Export	24	58%	26	26%
	Import	13	35%	21	35%
Spain	Export	27	55%	22	33%
	Import	26	20%	23	30%
Italy	Export	22	67%	23	47%

- *Better use of interconnection capacities:* in 2006, cross-border flows were more consistent with market price differentials than in 2005. The 2006 share, during a year in which net export flow at all borders was in the direction of the organised market price differential, rose compared to 2005 (table below).

	2005	2006
Germany	63%	69%
Belgium (since market coupling)	-	96%
Spain	77%	82%
Italy	77%	89%

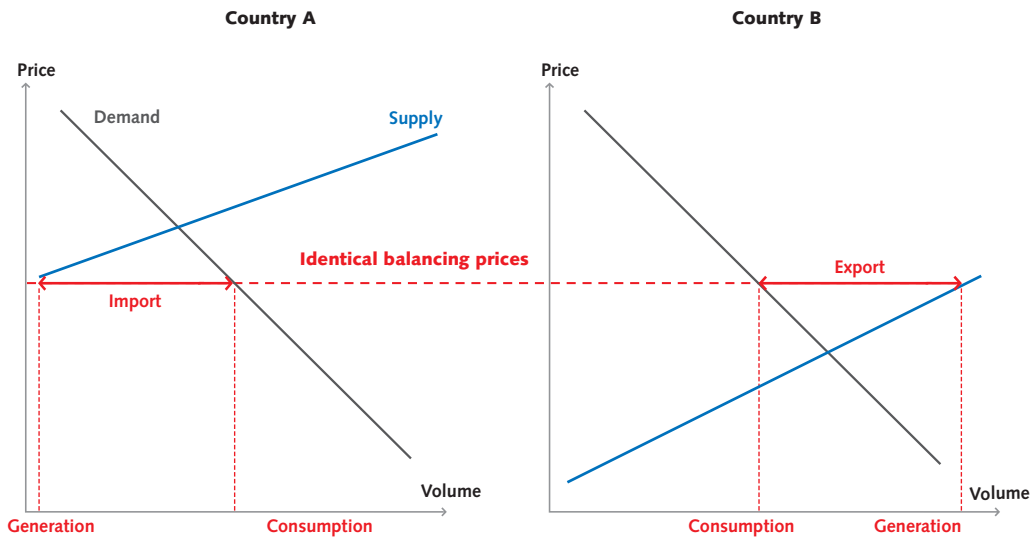


**Inset 9: What is organised market coupling?**

Organised market coupling consists of using hourly price references on organised markets in order to optimise use of interconnection capacities still available the day ahead. This mechanism enables generation capacity for coupled markets and interconnection capacities to be more efficiently used, and guarantees that all opportunities of arbitrage between coupled markets are well exploited:

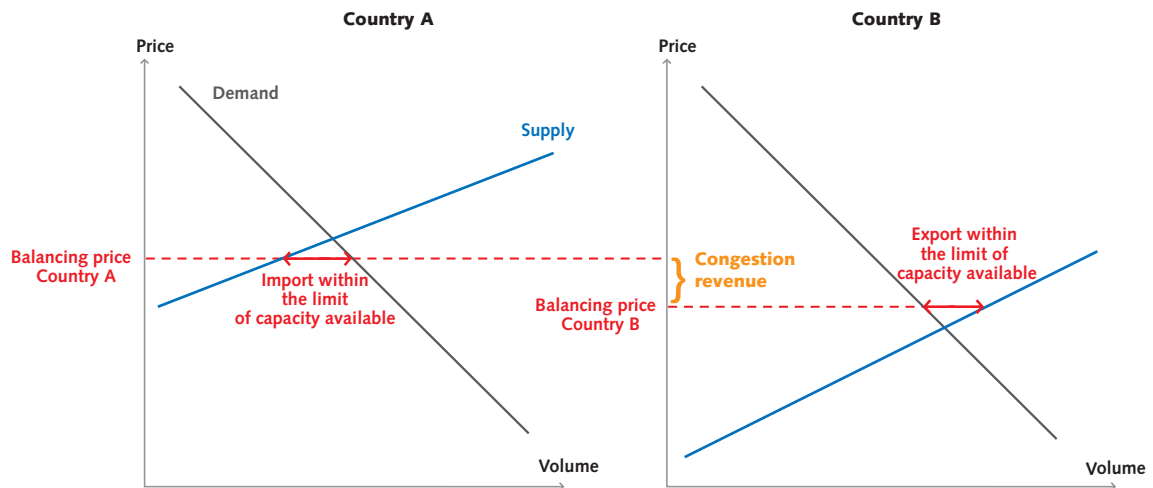
- either where interconnection capacities are sufficient up to market price convergence (case 1, below, with two coupled markets);

Case 1: Sufficient interconnection capacity to reach price balance between the two markets (without conversion):



- or where interconnection capacities are limited up to interconnection capacity saturation (case 2, below, with two coupled markets).

Case 2: Limited interconnection capacity (congestion):



Market coupling operations presuppose extensive coordination between

- grid operators, so as to guarantee the level of capacities announced to organised markets for the day ahead;
- organised markets, so as to standardise market rules for good use of capacities available;
- grid operators and organised markets, so as to guarantee efficient management of the mechanism and encourage its extension to other countries.

On the other hand, under-use observed at other continental interconnections during 2006 shows that there is still progress to be made to ensure better use of existing interconnection capacities (inset 10).

In order to achieve this aim, CRE, in collaboration with regulators in neighbouring countries, has identified two projects for the period:

**A. Ensuring compliance of mechanisms for congestion management at interconnections with requirements contained in European regulatory texts**

Work on congestion management embarked upon by European regulators comes within the framework of the European Regulation 1228/2003 of 26 June 2003 on conditions for access to the network for cross-border exchanges in electricity, and of the 'Guidelines on the Management and Allocation of Available Transfer Capacity of Interconnections between National Systems' adopted on 9 November 2006, and amending the appendix to this regulation.

- European Regulation 1228/2003 of 26 June 2003

The European Regulation 1228/2003, which came into force on 1 July 2004, states that methods for managing congestion at interconnections must be

coordinated with neighbouring grid operators, non-discriminatory, based on the market, and likely to provide market operators with effective economic signals. Such methods must fulfil requirements governing scheduling and publication of interconnection capacities and operational management (compensation of parties concerned in the event of reduction in capacity, application of the 'use-it-or-lose-it' rule, freeing up of maximum capacity available, netting of nominated flows, supervised use of revenue from auctions, etc).

- 'Guidelines on the Management and Allocation of Available Transfer Capacity of Interconnections between National Systems'

The guidelines, which came into force on 1 December 2006, clarify a number of provisions of the regulation to which they are attached, and are equally legally binding.

The requirements resulting from these two documents must be fulfilled by transmission system operators.

An assessment of how far rules governing French interconnections comply with European regulation requirements and Guidelines for Congestion Management (inset 11) highlights the points on which system operators will have to pay particular attention.

**Inset 10: Under-use of interconnection capacities remaining available on D-1 in 2006**

The table below shows capacities underused at the Belgian, German, Italian and Spanish borders. These correspond to the difference between the capacity available in this direction and the net flow transiting on the interconnection. The mean calculated here corresponds to situations in which the organised market price differential is beneficial by at least 2 €/MWh for use of the interconnection in this direction. The corresponding company loss is the product of underused capacity and the price differential. The calculation therefore does not take the effect of market resilience into account.

	Average underused export capacity (MW)	Average underused import capacity (MW)	Estimate of company loss (M€)
Germany	925	2,125	113
Belgium (since market coupling)	0	0	0
Spain	201	282	21
Italy	104	-	22

**Inset 11: Status of electricity interconnections between France and other Member States vis-à-vis the Guidelines for Congestion Management**

The table below presents the main points of non-conformance of interconnection management rules with the Guidelines for Congestion Management (appended to European Regulation 1228/2003 of 26 June 2003).

	France / England	France / Belgium	France / Germany	France / Spain	France / Italy
<b>Intraday allocation mechanism</b> (article 1.9)	No, intraday exchanges are carried out using daily nomination adjustments only	Yes, since May 2007	Yes	Yes	No, no intraday exchange possible between France and Italy
<b>Optimisation of the degree of (financial) firmness of capacities</b> (article 2.4)	No, reduction in capacity is not systematically compensated for	The rule for compensation in the event of reduction in capacities (excluding Force Majeure) stipulates compensation of 110% of the price paid. The principle of compensation based on market price differential is currently under study.			
<b>Compensation for reductions</b> (article 6.2 of the regulation)					
<b>Breakdown of capacities submitted to regulators</b> (article 2.6)	Structure of capacities according to timescales for 2006 was tacitly renewed in 2007	Yes, but submitted after initial auctions for 2007	Structure of capacities according to timescales for 2006 was tacitly renewed in 2007	Structure of capacities according to timescales for 2006 was tacitly renewed in 2007	Structure of capacities according to timescales for 2006 was tacitly renewed in 2007
<b>Non-discrimination between OTC and organised markets</b> (article 2.7)	Yes	Yes	Yes	No	Yes
<b>Abolition of reserve price</b> (article 2.9)	In practice yes, since the reserve price is set at zero but the rules are yet to be amended accordingly	Yes	Yes	Yes	Yes
<b>Firm nomination of programmes and Use-It-or-Lose-It</b> (articles 2.5 and 2.11)	No, periodic capacities are definitively nominated at the same time as daily capacities	Yes	Yes	Yes	Yes
<b>Netting of nominated programmes</b> (article 4.2)	No, for the same reason as above	No, netting is not carried out when periodic capacities are nominated before daily allocation	Yes	Yes	Yes
<b>Existence of secondary markets</b> (article 2.12)	Yes	Yes	Yes	No	Yes
<b>TSO coordination at regional level</b> (article 3.5)					
- <b>joint transmission model</b>	No, TSOs use their own grid model	No, TSOs use their own grid model	No, TSOs use their own grid model	No, TSOs use their own grid model	No, TSOs use their own grid model
- <b>Coordinated allocation</b>	No, allocation is only coordinated bilaterally	No, allocation is only coordinated bilaterally	No, intraday allocation is not even coordinated bilaterally	No, allocation is only coordinated bilaterally	No, allocation is only coordinated bilaterally
<b>No limitation of interconnection capacity to resolve internal congestion</b> (article 1.7)	Compliance under study				
<b>Transparency</b> (article 5)	Partial	Partial	Partial	Partial	Partial
<b>Use of congestion revenue</b> (art. 6.6 of regulation)	<ul style="list-style-type: none"> <li>• On the French side, auction revenue is deducted from costs to be covered by the tariff for grid use</li> <li>• On the English side, conformance of use of revenue is currently under study</li> </ul>	Yes. On both sides of the interconnection, auction revenue is deducted from costs to be covered by the tariff for grid use.			

### B. Continuing harmonisation and improvement of methods for interconnection congestion management

The main actions concerned are:

- the setting up of a single TSO-market player interface for allocation and nomination of periodic products, the main objective of this being to facilitate access of market players to interconnections;
- extension of the solution of organised market coupling on D-1, the main objective here being to optimise use of capacities available on D-1 and, in the medium term, to foster harmonisation of the role and status of organised markets in Europe;
- the setting up of a capacity hub on an intraday timescale, enabling market players to balance their portfolios continuously and reduce grid balancing needs;
- Development of balancing energy exchanges so as to reduce grid balancing costs, with introduction of greater competition close to real time, while guaranteeing grid security.

All the above improvements seek to facilitate, simplify and optimise border exchanges so as to lower the price of electricity for end consumers.

## 3. Operation of the European interconnected electricity grid and security of supply

### 3.1. CRE's report on the blackout of 4 November 2006

On 4 November 2006, a major incident on the very high voltage interconnected European grid deprived fifteen million inhabitants in Western Europe – including five million in France – of electricity for almost two hours.

The following day, given the consequences observed in France, CRE decided to carry out its own enquiry to inform French consumers of the event timeline and the exact causes of the blackout. The report on the CRE enquiry was published on 8 February 2007.

At the same time, given the European scale of the incident, ERGEG conducted an enquiry at CRE's initiative, the final report on which was published on 6 February 2007.

#### 3.1.1. Reminder of the facts

The blackout was caused by an incident on the very high voltage line in Northern Germany. Due to inappropriate corrective action taken by the German transmission system operator E.ON Netz, overload protections on the line were disconnected from the grid. A knock-on effect caused disconnection of fifteen very high voltage lines across Europe, due to successive load slow downs and resulting in three zones being separated from the continental European interconnected electricity grid.

Separation from the grid caused instantaneous imbalance between electricity generation and consumption in each zone. In France and the entire West region, the imbalance lowered the frequency from 50 to 49 Hz. In compliance with the defence plan for such situations, automatic selective load shedding of part of the consumption was necessary to prevent blackout. In France, triggering of this defence plan resulted in load shedding of almost 6300 MW of consumption at 10.10 pm, unevenly spread throughout continental metropolitan departments.

Interruptions in electricity supply lasted as long as it took European transmission system operators to obtain start-up of new means of generation and reinstate acceptable conditions for electricity system operation, supply to French consumers affected by the cut being resumed between 10.30 and 11.10 pm. Just before 11.00 pm, the transmission system operators concerned were able to reenergise disconnected lines and restore the European interconnected grid.

#### 3.1.2. Causes of the blackout

The major causes of the blackout identified in the enquiry reports are:

- operations inappropriate to the actual electricity transmission grid situation, carried out by the German TSO, E.ON Netz;
- existence of disparities between European transmission system operators in the monitoring of grid operation safety levels (especially as regards application of the 'N-1' security rule);
- lack of coordination between the same system operators for real-time management of trends in flows.

This situation resulted from the existence of technical security rules drawn up and applied, on a purely voluntary basis, by TSOs in Europe, belonging to the Union for the Coordination of Transmission of Electricity (UCTE) – rules that were not legally binding, imprecise, and subject to interpretation (the ‘N-1’ security rule, for example), as well as being incomplete, in particular as regards coordination between TSOs for real-time management of trends in flows.

These observations confirm those made by Italian (AEEG) and French regulators following the blackout in Italy on 28 September 2003. Three years on, European transmission system operators had still not learned all they might have done from this large-scale blackout.

Furthermore, the consequences of the 2006 power cut were aggravated by the behaviour of all decentralised means of generation, marked in most European countries by the random nature of disconnections and reconnections of facilities, unforeseeably contributing to increasing imbalance between generation and consumption.

### 3.1.3. Recommendations made by CRE and ERGEG

At European level, CRE agreed with the findings on European grid performance in the ERGEG report, to which it contributed. Implementation of recommendations made in this report would have prevented the 2006 incident or, at the very least, limited its consequences for consumers.

In order to strengthen interconnected grid security, there is an urgent need to draw up and adopt new, harmonised technical rules that are legally binding for transmission system operators, whose compliance with them should be subject to strict external monitoring by an authority vested with adequate powers of investigation and sanction.

The ‘peer checking’ solution recommended by some associations of electricity grid operators has revealed its limitations. The two major incidents recently observed on the European electricity grid, in Germany in November 2006 and in Switzerland in September 2003 (causing the Italian blackout) originated

in countries characterised by multiple transmission system operators and cultures traditionally based on self-regulation. The rules on control of the level of operational grid security (‘N-1’ security rule), load shedding management, and resumption of supply to consumers who have been cut off need to be clearly defined (cf. inset 12).

There should be more efficient coordination of European grid operators as regards forecasting energy flows, real-time management of such flows, deployment of operating reserves available, and emergency measures such as load shedding and load restoration.

The incident of 4 November 2006 highlights the need for decentralised generation, to contribute to operational grid security in the interest of all consumers connected to the grid. Potential solutions are that:

- requirements on stability of decentralised generation facilities, when frequency changes occur on the synchronous interconnected grid, should be more binding;
- transmission system operators should benefit from better real-time information on the performance of decentralised generation facilities so as to be able to compensate for random developments more efficiently.

#### Inset 12: ‘N-1’ security rule

UCTE rules stipulate that any event likely to result in the loss of grid components must not be allowed to interfere with the operational security of the interconnected system. In particular, it must not result in a knock-on effect of disconnection of power or in any major loss of consumption. Grid components remaining operational must be able to bear the additional load, voltage differences, and ensuing transient operating conditions.

The ‘N-1’ rule is usually applied by considering that loss of a grid component must not adversely affect operational security of the electricity system. Grid components taken into account are not the same for all transmission system operators in the UCTE.

If simultaneous loss of several grid components is of sufficient likelihood, operators are obliged to roll out the so-called ‘N-k’ criterion (k designating the number of components considered as lost at the same time).

At national level, CRE observed in its report published on 8 February 2007 that the French electricity system did much to help limit the consequences of the European electricity system power cut. Some of the rules applied by the French transmission system operator RTE could be usefully extended to Europe as a whole.

A number of inadequacies were observed in the implementation of palliative emergency measures, resulting in CRE recommending that grid operators:

- should learn all they can from feedback on load shedding system operations, so as to limit malfunctions in the future;
- contribute equally to maintaining the balance between generation and consumption when load shedding is carried out.

### 3.2. ERGEG's work on changes to UCTE operating rules

In compliance with the request made by participants in the 9th and 10th Florence Fora in 2002 and 2003, the UCTE embarked on reform of its rules to ensure operational security of the interconnected electricity system in the new context created by opening of the electricity market. This led to the drafting of an Operation Handbook, adoption of a contractual framework aiming to ensure opposability of rules between grid operators based on Multilateral Agreement, and setting up of a tool for checking grid operator compliance with the rules – the Compliance Monitoring and Enforcement Process.

Since 2004, ERGEG and the European Commission have met with the UCTE representatives on several occasions to discuss the content of the Operation Handbook and possible means of its implementation.

At the 12th Florence Forum in September 2005, ERGEG highlighted persisting inadequacies in the solution proposed by the UCTE.

During a seminar held in Bonn on 12 December 2006, attended by representatives of ERGEG and the European Commission, the UCTE embarked on the first revision of its new Operation Handbook. European regulators repeated their request for immediate

changes in operating rules so as to correct shortfalls identified after the Italian blackout in September 2003 as well as in the course of previous meetings with the UCTE. ERGEG and the European Commission emphasised the fact that the setting up of an appropriate legal framework should make such rules binding, and that monitoring of their application should be in the hands of the regulators.

The ERGEG and CRE enquiry reports on the blackout of 4 November 2006, respectively published on 6 and 8 February 2007, drew attention to the serious consequences that incomplete, imprecise and non-legally binding rules could have for operational security.

### 3.3. CRE's participation in CEER's 'Electricity Quality of Service' taskforce

In 2006, a public consultation document concerning revision of standard EN 50160, governing the limits of disturbances to voltage waves to be complied with by electricity distribution system operators, was posted on the ERGEG website by CEER's Electricity Quality of Service taskforce.

At the same time, the taskforce initiated discussions with the European Committee for Electrotechnical Standardisation (CENELEC) and proposed a number of improvements. CENELEC now seems to have given its backing to this project, and has set up three working subgroups, each with a specific priority:

- definition and classification of voltage dips and overvoltage;
- extension of the standard to high voltage and very high voltage grids;
- revision of the time interval for measuring voltage changes.

The taskforce's aims for 2007 are analysis of the results of the public consultation and extension of discussions with CENELEC.

Working together with the Florence School of Regulation (FSR), the taskforce also finalised practical guidelines for countries wishing to set up an incentive-based system of quality regulation. These guidelines will be published and distributed by the FSR.



Validation of the report on management of extraordinary events, work upon which started in 2006, is planned for 2008. The report seeks to present best practices for management of extraordinary events with a view to setting up regulation in this sphere – a long-term project requiring in-depth discussion with grid operators.

For 2007, European regulators are planning to examine the feasibility of a user satisfaction survey questionnaire standardised at European level.

Publication of the 4<sup>th</sup> Benchmarking Report on Quality of Electricity Supply, incorporating performances in 2007, is planned for early 2008, carrying on from the first three reports published in 2001, 2003 and 2005.

## 4. CRE's other European activities

### 4.1. Consumer information and protection (CPR) and retail market operations

CRE has chaired the ERGEG taskforce assigned to consumer information and protection since its founding in 2006. It also participates in ERGEG work focusing on retail electricity and natural gas market operations.

In 2006, CRE coordinated the drafting of guidelines for good practice on pre-contractual information for consumers. This involved compilation of the results of the enquiry carried out in the first 12 European countries to have opened their electricity and gas markets to household customers: Austria, Belgium (Flanders), Denmark, Finland, Germany, Ireland, Italy, Norway, Spain, Sweden, the Netherlands, and the United Kingdom.

In most of these countries, regulators provide customers with non-commercial information either alone or, if one exists, in partnership with the mediator in charge of out-of-court settlement of disputes between consumers and suppliers.

Three categories of good practice have been identified:

- consumer information services accessible by telephone, email, mail and fax. Such services have all set up websites;
- general information material – on necessary procedures, for example;
- specific information material, such as shopping robots and lists of suppliers.

Seeking to spread such good practice, ERGEG published the guidelines in January 2007, and on 20 April 2007, CRE, under the aegis of ERGEG, invited European energy regulators and mediators to workshops on consumer information.

In the first half of 2007, CRE coordinated drafting of an assessment of regulation of electricity and natural gas market prices in Europe. This document, posted on the ERGEG website ([www.ergreg.org](http://www.ergreg.org)) on 15 June 2007, also acted as a departure point for setting out of the ERGEG stance on this issue.

### 4.2. Development of an international role for regulators (ISG)

In December 2006, the Council of European Energy Regulators (CEER) General Assembly decided to terminate the activities of the working group assigned to international cooperation on training and benchmarking (ITB) and to hand over consideration of international issues to a new working group, the International Strategy Group (ISG), managed by CRE and chaired by Philippe de Ladoucette.

In order to improve efficiency and consistency of cooperation and technical support actions carried out by regulators, the ISG remit is to study CEER's overall strategy for international cooperation, make proposals regarding issues and priority actions to be taken by regulators within the limits of available resources, liaise with the European Commission Directorates-General of External Relations and Transport and Energy, and, more generally, embody CEER's international aspect. Lastly, and if required, the ISG will have to develop a training strategy tailored to the needs of members of the Council of European Energy Regulators.

The first ISG meeting, during which participants assessed work previously carried out by the ITB group, was held in Paris on 5 March 2007. It was decided to make use of this work, updating its findings on events occurring since summer 2006 (gas crisis between Russia and Belarus, proposals published by the European Commission in January 2007, accession of Romania and Bulgaria to the European Union, etc.) before laying down the bases for CEER's international strategy as from 2007.

In this context, the participants approved a list of priority actions, including a series of meetings with the competent Directorates-General of the European Commission, aimed at better identification of its priorities concerning international energy-related issues.

The Spanish National Energy Commission (CNE) and CRE were put in charge of ensuring these contacts on behalf of the group. Their representatives then spoke with members of Commissioner Piebalgs' cabinet and of the Transport and Energy (DG TREN), External Relations (DG RELEX), Enlargement (DG ENLARG), and Development (DG DEV) Directorates-General, and of the Europe Aid Cooperation Office (AIDCO).

These interviews made it possible to assess the European Commission's international cooperation policy, which is very much focused on security of energy supply, its priorities, and the numerous existing tools. Information obtained, organised by type of project and geographical zone, will enable the ISG to finalise proposals to be submitted to the CEER General Assembly at a later date and to ensure consistency between actions carried out by the various parties concerned.

Other actions taken include discussions with the International Energy Agency (IEA), joint organisation of events with North American and Latin American regulators, and technical support for countries coming under the Baku initiative (Eastern European countries around the Black Sea and the Caspian Sea).

# → CRE action at national level

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CRE contributes to proper operation of the electricity and natural gas markets, to the benefit of the consumer

CRE ensures that network and grid operators provide high-quality transportation in line with tariff levels charged

To prepare for full market opening, CRE has played a leading role in facilitating dialogue between the various players

## Summary

The gas and electricity sectors are undergoing far-reaching changes. The opening up of markets initiated by European directives has had an effect on all consumers since 1 July 2007, while the change in the scale of markets, previously national but European today, is resulting in a reorganisation of the industrial landscape.

Despite these developments, much remains to be done in final establishment of the internal energy market, against a background of questions raised by volatile energy prices.

Under the terms of its general mission, set out in

the Law of 7 December 2006 concerning the energy sector, CRE “contributes to the proper operation of gas and electricity markets, for the benefit of end consumers”.

To fulfil this mission, CRE’s competences have been extended. It now has its own competence in market monitoring, and most of its powers in the gas sector are in line with those it has in the electricity sector.

The Law has also increased the number of members of the College of Commissioners from seven to nine, with two new members representing consumers. It has established a dispute settlement and sanctions committee (CoRDIS), separate from the College itself.

### I. Guaranteeing access to grids/networks and encouraging investment

CRE is in charge of regulating the electricity and gas markets and takes account of the features specific to each of them.

Electricity is a form of energy that cannot be stored and is generated on European Union territory using generation methods entailing different costs.

Gas, on the other hand, is a form of energy that is almost entirely imported but which can be stored. Its price is to a great extent set by long-term contracts indexed on petroleum product prices.

Transmission systems and distribution infrastructures of both electricity and gas are natural monopolies, and therefore have to be regulated. Under Article 28 of the Law of 10 February 2000, CRE ensures “that conditions of access to electricity and natural gas transmission and distribution systems do not hinder the development of competition”. To fulfil this mission, it must guarantee all users non-discriminatory, transparent access, available at fair prices, and establish a favourable environment for development of transmission and distribution infrastructures, in order to supply consumers and ensure the full play of competition.

## 1. Tariffs for grid/network use

Tariffs for grid/network use are drawn up by CRE, then proposed to the Ministers for the Economy and for Energy, who can only either approve them without modification or reject them. By providing the resources necessary for their maintenance and development investments, these tariffs guarantee the autonomy of system operators.

Tariffs for the use of public electricity grids (TURPE) cover transmission and distribution grids. Application of these tariffs since 1 January 2006, has provided a means of charting changes to establish future tariffs. Grid operators should be encouraged to progressively improve efficiency, enabling reduction in tariffs for system use while maintaining high quality of service, on which CRE places particular emphasis.

In the gas sector, the new transmission tariffs proposed by CRE, which came into force on 1 January 2007, have clarified the method to be used for remunerating assets along with measures to be taken to encourage investment.

The tariffs take account of the specific features of the two gas transmission system operators established in France. In constant euros, the access tariff to the network managed by GRTgaz has fallen by 5.8% while the access tariff to the system managed by TIGF has increased by 5.2%, to cover the large-scale expenditure necessary to ensure security and on upcoming investments to strengthen the Guyenne trunk main in South-West France.

## 2. Increased rates allowed by CRE for investments

At present, gas transmission networks and LNG terminals come under a scheme of rate increases designed to encourage investment by operators. Any new facility investment made since 2004 is entitled to an increase of 125 base points for transmission infrastructures and LNG terminals. The rationale behind these provisions is a desire to encourage competition by improving gas entry and transmission capacities in France, along with the need to improve security of supply by diversifying sources.

This system of return and additional bonuses is re-examined by CRE at each new tariff proposal. The preparation of future electricity and gas infrastructure access tariffs is therefore likely to lead to modification in mechanisms for return on investment.

Investments significantly contributing to improved functioning of the gas market may be allowed a further increase of 300 base points by CRE, for a period of 5 or 10 years for transmission infrastructures. Today, CRE has better market knowledge, enabling it to refine decision-making criteria for granting this additional increase.

For LNG terminals, a bonus of 200 base points is added to the rate of return, to take account of the specific risk related to this activity.

### 3. CRE's powers of approval for TSO investment programmes

In the electricity sector, annual approval by CRE of the RTE investment programme takes into account development and renewal needs, evaluated at 10 thousand million euros by 2020.

CRE has asked that RTE investment programmes be accompanied by commitments to comply with quality of service criteria regarding electricity system security, security of supply, quality of supply, maintenance and structural renewal, connection of new customers, and removal of congestion on the grid.

As regards RTE interconnections, in 2006, RTE did not present any new project completion schedules for borders with Great Britain, Germany, Switzerland or Italy. The level of investment in increasing inter-connection capacities seems insufficient, given the prospect of the establishment of the European internal market. CRE has asked RTE to make proposals for an increase in expenditure on new interconnection infrastructures.

In the gas sector, CRE's new competence to approve transmission system operators' investment programmes is being implemented in the course of 2007, in preparation for approval of the 2008 programme.

### 4. The report on system operator independence

The independence of system operators from the integrated firms to which they belong is a structuring principle in the organisation of electricity and gas markets.

For electricity transmission, the company involved is RTE, an EDF subsidiary, while companies concerned in gas transmission, are GRTgaz, a Gaz de France subsidiary, which manages gas transmission networks across most of the country, and TIGF, a Total subsidiary, which manages the network in the Southwest.

As regards distribution, the two main distribution system operators (DSOs) are ERD, for EDF, and Gaz de France RD. The other authorities organising distribution grant service franchises to other firms or provide the service through State-run companies, such other firms or state-run companies representing a total of 160 electricity local distribution companies (LDCs) (serving 5% of the French population) and 23 gas LDCs (4% of the population).

CRE checks that system operators fulfil their obligations of non-discrimination and transparency. In November 2006, it published its second annual report on the observance of codes of good conduct and system operator independence.

The situation as regards the electricity transmission grid seemed satisfactory overall. In 2007, CRE is focusing on good governance of gas transmission system operators (TSOs).

For DSOs, in 2006, CRE concentrated on introduction of the codes of good conduct required by law and, in 2007, it is monitoring their implementation. DSOs are subject to the same European Community obligations as TSOs. After they have been established as subsidiaries, which should have been carried out by 1 July 2007, CRE will make sure that the conditions necessary for their independence have been fulfilled.



## II. Encouraging development of competition and enabling consumers to benefit from full market opening

The development of competition in the electricity and gas sectors assumes the emergence of new suppliers on the wholesale and retail markets, in competition with the former State monopolies, which still maintain dominant positions.

Wholesale markets therefore have to enable alternative suppliers to buy supplies at the best prices, while giving reliable price signals to potential investors, in order to achieve the production capacities essential for meeting growth in demand for peak and semi-baseload supply.

On retail markets, the possibility given to all consumers, since 1 July 2007, of opting for a market price contract will be an attractive one, provided that they can exercise this choice without hindrance and with full awareness of the situation.

### 1. Wholesale markets still lack liquidity

Wholesale markets include transactions carried out on organised markets, like the electricity exchange Powernext, and those carried out on the OTC market. Wholesale markets encompass purely financial trading as well as transactions resulting in physical delivery of electricity to the French grid.

French wholesale electricity and gas markets are less liquid than other European markets of comparable size.

Vertical integration of trading, generation and supply within EDF and Gaz de France does not encourage incumbent operators to operate on wholesale markets, which results in lack of liquidity on the futures market.

For suppliers who do not have their own resources, control of most physical sources of supply by former State monopolies, low import capacities and the limits of energy release programmes (Virtual Power Plant and gas release), reduce the possibility of obtaining competitive supplies on wholesale markets.

LNG terminal projects should help reduce the concentration upstream of wholesale markets. However, the projects for construction of new power plants by alternative electricity suppliers, while improving their conditions of supply, will not significantly reduce concentration at production level.

The Law of 7 December 2006 gave CRE the mission of monitoring transactions between producers, traders and suppliers on organised and OTC markets.

CRE is setting up a mechanism to monitor wholesale price formation in order to verify that it is, in fact, based on free play of competition. It is designed to detect any suspicious behaviour which could indicate manipulation, by analysing prices and decisions taken by market players.

### 2. Mixed results for opening of the market to non-household customers

Market opening has been limited for both electricity and gas: 16.5% of non-household customers, a total of 766,300 sites, had subscribed to market price contracts for electricity by 1 April 2007 and nearly 17.1% for gas, a total of 117,800 sites.

Since 2006, the dynamics of the gas and electricity sectors have been different. For electricity, the growth rate in the number of sites with market price contracts has slowed down considerably (145,000 new sites with a market price contract in the last quarter of 2005, against 64,000 in the last quarter of 2006), whereas it has accelerated for gas (12,500 new sites with market price contracts in the last quarter of 2005, against 14,700 in the last quarter of 2006), as the regulated gas tariff is close to market price levels.

For electricity, the slowdown in growth can be explained by an increase in wholesale prices, which have reached levels far above regulated supply tariffs, making it difficult for alternative suppliers to present attractive offers.

The procedures and information systems established for opening of markets to non-household consumers have worked to good effect. With 766,300 electricity sites and 117,800 gas sites in the market, CRE has recorded only around one hundred complaints a month since July 2004.

### 3. The legislative framework for market opening was completed by the Law of 7 December 2006

The Law of 7 December 2006 introduced consumer protection measures. Most of these provisions, which provide guarantees for household customers, are also applicable to small non-household customers.

As was already the case for electricity, the law sets a social gas tariff for the most vulnerable consumers.

The law stipulates that regulated electricity and gas tariffs can continue to be applied on sites which already benefit from such tariffs. Under this system, for sites where contract holders have exercised the right to change their supply contracts, the decision to opt for market price contracts is irreversible.

As the Constitutional Council had censured certain provisions of the Law of 7 December 2006 deemed contrary to community law, a provision regarding new sites was introduced under the Law of 5 March 2007 entitling sites connected to the grid before 1 July 2010 to regulated electricity tariffs.

The Law of 7 December 2006 also established the transitory regulated tariff for market adjustment (TaRTAM), which only concerns electricity, entitling non-household consumers who have subscribed to market price contracts to a price cap set at 10 to 23% above the regulated tariff applicable to their site, as long as they made their application for entitlement before 1 July 2007.

The implementation of these provisions emphasises the above-mentioned trend towards slower momentum in the opening of the market in the electricity sector than is apparent in the gas sector.

### 4. CRE was in charge of preparations for the 1 July 2007 deadline

CRE carried on discussion within electricity working groups (GTE) and gas working groups (GTG) with representatives from suppliers, distribution and transmission system operators, as well as the public authorities. This method (procedure) enabled all the elements necessary for the opening of the market to non-household customers on the 1 July 2004 to be brought together.

It has created a consumer working group (GTC) to deal with household customers' specific concerns and provide them with more information and protection.

Through such consultations, CRE can ensure that the new processes are harmonised between customers with commercial contracts and those with regulated contracts, for both gas and electricity.

CRE has drawn on information collected by the European Regulators' Group (ERGEG) regarding other European Union Member States' experience of market opening.

### 5. After 1 July 2007

CRE's preparations for the period after 1 July 2007 are based on 2 priorities: educational campaigns on market opening and prompt correction of any problems identified.

In conjunction with the Energy Mediator and the public authorities, CRE has set up a dedicated web site, [www.energie-info.fr](http://www.energie-info.fr) and a local rate phone number, 0 810 112 212, to provide concrete answers to consumers' questions.

Open markets should encourage suppliers to offer a range of innovative services to customers – concerning demand side management, for example.

Improvement in electricity supply contracts on offer to consumers depends on development of metering equipment incorporating the functions necessary to extending the range of contracts. In accordance with the provisions

of the Laws of 10 February 2000 and 13 July 2005, as well as the European energy efficiency Directive 2006/32/EC, CRE is working in conjunction with stakeholders on establishing methods for implementing this change.

### III. CRE's public service missions

CRE takes part in implementation of public service missions laid down by law.

It contributes to the policy of diversifying sources of electricity generation by taking part in implementing the procedure for invitations to tender put out by the Minister for Energy under the multi-year investment programme (PPI). It draws up draft specifications on the basis of the conditions set by the Minister for Energy, examines bids, then gives an opinion on the choice envisaged by the Minister.

The new definition of feed-in tariffs for electricity generated from decentralised sources, which came into force on 31 March 2006, has resulted in tariff adjustments which were referred to CRE for its opinion, as required by law.

Every year, CRE evaluates the public electricity service contribution (CSPE) and the unit contribution

for the following year. These costs are made up of additional expenses incurred by operators resulting from support mechanisms for renewable energy and co-generation, tariff adjustment and social provisions, as well as, from 2007 onwards, the budget for an Energy Mediator and a part of costs incurred in application of the transitory regulated tariff for market adjustment.

In October 2006, CRE presented the Minister for Energy with its proposal for the level of public service charges and the unit contribution for 2007, which was lower than in 2006. In the absence of a decree from the Minister for Energy setting the CSPE for 2007, it was automatically renewed at its 2006 level (€4.5/MWh).

Under the provisions of the Law of 7 December 2006, gas will be included as a public service. On 30 June 2007, the decree setting the special solidarity tariff for gas had not yet been published.

# I. Grids/networks and infrastructures

## 1. General information

### 1.1. Compliance with codes of good conduct and independence of electricity grid and natural gas network operators

A requisite condition for genuinely non-discriminatory, transparent and fairly priced grid/network access is system operator independence from other activities in vertically integrated energy groups in the sense of the European directives. Lack of discrimination also presupposes that system operators are totally neutral vis-à-vis the special interests of such and such categories of players – generators/producers, shippers, balancing responsible entities, suppliers, systems operators, and customers. With this in mind, and in compliance with the law, system operators have set up codes of good conduct containing measures to be taken to guarantee exclusion of any form of discrimination and application of such codes being subject to appropriate monitoring.

By virtue of the mission entrusted to CRE by the Law of 9 August 2004, the Commission monitors system operator behaviour to ensure that operators comply with obligations stipulated by the texts in force. In November 2006, it published its annual report on compliance with codes of good conduct and system operator independence. The report highlights the initiatives taken to set up codes of good conduct and check on their application, but also emphasises inadequate incorporation of recommendations on independence made by CRE in 2005, an inadequacy that weakens the French position in European debate on the best conditions to ensure independence of system operator activities.

#### 1.1.1. Grid/network operator independence

In the European directives, obligations regarding system operator independence and efficiency are expressed in the same terms for both transmission and distribution.

In application of article 45 of the Law of 7 December 2006, independence of distribution system operators (DSOs) servicing more than 100,000 customers should have been consolidated by legal unbundling of other activities of the integrated undertakings to which they belong, by 1 July 2007 at the latest. CRE has conducted hearings with all DSOs concerned, to check that their legal unbundling projects are in full compliance with the requirements of directives governing independence. It makes detailed examination of the draft statutes of new companies and checks that entities responsible for system operation are provided with appropriate physical and human resources to enable them to act in total independence from entities responsible for generation/production and supply of energy.

In compliance with article 15 of the Law of 9 August 2004, CRE will propose, if necessary, measures designed to guarantee distribution system operator independence.

Such legal unbundling will not have been carried out by 1 July 2007, but when it is, CRE will impose the same requirements on entities in charge of distribution as those for transmission subsidiaries.

Market players generally agree that the French situation as regards electricity transmission grids and gas transmission networks, as well as LNG terminals and storage facilities, is satisfactory, a situation obtained by CRE's monitoring of system operator behaviour in order to ensure compliance with obligations concerning transparency, reliability and efficiency. Investments required for grid and network viability over time, and their continuing adaptation to market trends, are of particular concern to the Commission.

CRE has had the power to approve TSO investment programmes for electricity since the Law of 10 February 2000 and for gas since that of 7 December 2006 – a power, with which CRE is one of the few European regulators to be vested, enabling it to monitor the scheduling of investments required for grid/network viability and successful market operation.

TSOs and DSOs must demonstrate greater independence in their behaviour and, as a priority, improve their governance. CRE is critical of non-compliance with independence made evident in:

- names or logos of vertically integrated undertakings;
- external communication mixing the regulated field with the competitive field;
- inadequate guarantees of senior management independence and of Communication of economically advantageous information to directors of parent companies, in which certain entities have interests in the sale of energy.

CRE's latest report on compliance with codes of good conduct and independence of electricity grid and natural gas network operators also indicated that system operator independence is based, among other things, on their ability to define their own policies on communication and purchasing of external services autonomously. Such independence should be evidenced, in particular, by the choice between in-house implementation and use of external contractors. In the latter case, contractors must be selected in compliance with non-discriminatory and transparent procedures. In more general terms, system operator independence presupposes that operators only make use of companies within their own group if they submit the most economically advantageous tenders.

In order to assess such independence, in compliance with provisions in article 6 of the Law of 9 August 2004, audits on purchasing and communication policies, and, more generally, on relations between system operator subsidiaries and parent companies, are to be conducted with TSOs in 2007.

#### 1.1.2. Compliance with codes of good conduct

Up to the end of 2006, CRE concentrated on the setting up of codes of good conduct, while in 2007, it has been focusing on monitoring their application. Significant progress has been made in this area, with system operators ensuring that their personnel were aware of their commitments, designing training and reporting tools, organising feedback, and setting up monitoring systems. In complement to this, occasion-

al CRE audits have checked that measures announced were being effectively implemented and were known to personnel, and they are planned to be repeated. Periodical meetings are held with those in charge of drafting and implementing codes of good conduct, to assess checks carried out, present changes in codes, and discuss problems encountered.

It was in this way that a case of discrimination came to be reported to CRE by a customer, and included in the report of November 2006. Since then, CRE has checked that appropriate measures have been taken by the system operator concerned – reminders of requirements in the code of good conduct were issued, and a warning letter was sent to the perpetrator. As the latter worked for a subcontractor, standard subcontractor contracts are being reviewed to prevent recurrence of such incidents in the future.

Complaints are of major concern to CRE and system operators alike. Any grid/network users believing themselves to be victims of discrimination must be able to express their grievances to system operators.

## 1.2. Account unbundling and pricing principles

### 1.2.1. Account unbundling

Account unbundling for activities carried out in the electricity and natural gas sectors is stipulated in the amended laws of 10 February 2000 and 3 January 2003 respectively.

In application of these laws, integrated operators must establish unbundled accounts for each activity developed in their sector of activity (general unbundling) and unbundled accounts for supply (supply unbundling).

In the natural gas sector, unbundled accounts must separate the activities of distribution, storage, and operation of liquefied natural gas facilities from other activities outside the natural gas sector.

In the electricity sector, integrated operators must keep unbundled accounts for generation, distribution and, where applicable, a separate account for all their other activities.

### A. CRE's new regulatory power

Since enforcement of the Law of 10 February 2000, CRE has had additional regulatory powers in the electricity sector, enabling it to stipulate allocation rules used, scope of each unbundled account activity, and principles determining financial relationships between such activities.

These additional powers were extended to the natural gas sector by the Law of 7 December 2006.

### B. Affiliation of DSOs

When they are legally unbundled, DSOs will publish company accounts. Legal unbundling of distribution system operators servicing more than 100,000 customers in metropolitan France, stipulated by the amended Law of 9 August 2004, should have taken place on 1 July 2007.

In the electricity sector, such unbundling concerns EDF, Électricité de Strasbourg, Usine Électricité de Metz, Sorégies and Régie du SIEDS and, in the natural gas sector, Gaz de France, Gaz de Strasbourg and Gaz de Bordeaux.

### C. General unbundling

- Local distribution companies (LDCs) operating in the natural gas sector

In its deliberations of 7 February 2007, CRE approved the unbundling principles proposed by local distribution companies, provided they incorporated the observations and components recapped in inset 13:

- TIGF

TIGF, a 100% subsidiary of the Total Group, carries out natural gas transmission and storage activities in the Southwest of France. The company's activities result from the untying, in early 2005, of reciprocal holdings owned by Gaz de France and Total in the natural gas sector. In March 2006, in application of the Law of 3 January 2003, the operator proposed new account unbundling principles for its natural gas transmission and storage activities.

The account unbundling principles proposed by TIGF were submitted for approval to the Competition Authority, which gave its ruling on 26 December 2006. In its deliberations of 5 April 2007, CRE approved the

#### **Inset 13: Observations made by CRE concerning account unbundling principles proposed by local distribution companies (deliberations of 7 February 2007)**

- Allocation rules for balance sheet and profit and loss account items must comply with the direct allocation principle and correspond to activity scopes. If direct allocation is not possible, fixed asset items must be charged to the activity that is their main user. Applied costs used to distribute profit and loss account items must be documented and reflect an actual breakdown of costs among unbundled activities. CRE asked local distribution companies to submit, along with their annual unbundled accounts, an auditable list of main items, broken down in compliance with applied costs, methods used and results obtained, for the calculation of such costs.
- Weighting between financial liabilities and equity capital within each activity must reflect its equity capital needs, depending on financing needs, level of risk and its own records.
- Allocation to the DSO of an integrated undertaking's communication expenses is possible within a maximum 10% limit of the operator's total outlay.
- Customer management costs must be broken down, with 20% borne by the DSO and 80% by the supplier.
- Commercial aids must be allocated to the supply activity.
- Gaz de Bordeaux, Gaz de Strasbourg, Gaz Électricité de Grenoble and Vialis must update their protocols describing financial relationships between their unbundled activities. The protocol terms applicable must be the same as those applicable to third parties, in compliance with the rules governing non-discrimination and prohibition of cross-subsidies between unbundled activities.
- Local distribution companies which transport less than 700 and more than 250 GWh of energy must draw up a list of the most significant flows between unbundled activities (services provided, internal transfers, financial loans, etc).



principles proposed, provided that the operator identified all operations whose allocation to the transmission scope could not be justified, within a third accounting scope, 'other allocations'. In addition, CRE asked TIGF to provide a detailed cost-accounting presentation of all cost items broken down by applied costs. In the future, any modification of such costs must be submitted to CRE for prior approval.

As regards the protocol describing technical services provided between TIGF transmission and storage activities, and so as to guarantee absence of cross-subsidies, the operator must justify the hypotheses taken into consideration to value such services, and their correspondence to actual costs borne in order to provide them.

#### D. Account unbundling of supply

Before promulgation of the Law of 7 December 2006, companies operating in the electricity and natural gas sectors had to keep unbundled accounts of their supply activity between eligible and ineligible customers.

Operators made proposals for unbundling supply between eligible and ineligible customers, upon which CRE deliberated after receiving approval from the Competition Authority.

The Law of 7 December 2006 now imposes the obligation of account unbundling for supply between customers having exercised their eligibility and customers who have not, to take effect as from 1 July 2007.

CRE will review operator proposals on account unbundling of their supply activity in keeping with the new scopes, in the light of observations made in the context of unbundling of eligible and ineligible customers.

- EDF

In its deliberations of 14 June 2006, CRE approved the principles proposed by EDF for keeping unbundled accounts for activities of supply to eligible customers and supply to ineligible customers, provided that valuation of energy sale prices incorporated generation costs.

- Gaz de France

In its deliberations of 20 July 2006, CRE approved the principles proposed by Gaz de France for keeping

unbundled accounts for activities of supply to eligible customers and supply to ineligible customers, provided that:

- the 'other activities' scope is split into three – eligible customers, ineligible customers, and operations not stemming from supply of end consumers;
- cost of gas delivered is broken down on the bases of the accounting cost price, adjusted by CRE's observations in its Communication of 28 February 2006 concerning the audit of Gaz de France's procurement costs;
- costs of connections and use of LNG terminals are based on a unit cost defined according to the tariffs in force for third-party access to networks (ATR) and to LNG terminals (ATTM).

- Local distribution companies operating in the natural gas field

In its deliberations of 7 February 2007, CRE indicated that proposals made by local distribution companies for account unbundling of supply between eligible and ineligible customers must be adapted and improved to comply with the obligation of unbundling between customers who have exercised their eligibility and those who have not.

Local distribution companies concerned must adapt their information systems so as to ensure detailed cost monitoring of unbundled scopes by type of customer.

#### 1.2.2. Pricing principles

CRE provides the government with proposals on tariffs for access to infrastructures that are regulated monopolies, i.e. electricity transmission and distribution grids, gas transmission and distribution networks, and LNG terminals.

##### A. Analysis of levels of operator costs covered by tariffs

###### > Legislative framework

Levels of such tariffs are set by CRE so as to cover costs borne by infrastructure operators. CRE's analysis is supported by the following legal and regulatory provisions:

- Article 4 of the Law of 10 February 2000, specifying that, for electricity, "tariffs for the use of the public transmission grid and public distribution grids applicable to users are calculated in a non-discriminatory manner so as to cover all costs borne by grid operators, including costs resulting from fulfilling public service missions and contracts";

- Article 4 of the European Regulation of 26 June 2003, specifying that, for electricity, “Charges applied by network-operators for access to networks shall be transparent, take into account the need for network security and reflect actual costs incurred insofar as they correspond to those of an efficient network operator.”
- Article 7 of the Law of 3 January 2003, specifying that tariffs for access to gas infrastructures “are set on the basis of public, objective and non-discriminatory criteria, taking into account the characteristics of the service provided and related costs. Such costs include the operating, research and development expenses required for network security and control of quality of natural gas injected or withdrawn, as well as [...] costs relating to fulfilment of public service missions”;
- Article 3 of the European Regulation of 28 September 2005, specifying, for gas, that “Tariffs, or the methodologies used to calculate them, applied by TSOs and approved by the regulatory authorities [...] reflect actual costs incurred, insofar as such costs correspond to those of an efficient and structurally comparable network operator”.

The national legal and regulatory framework defines the main categories of costs to be taken into account by CRE.

Such costs include operating costs and capital costs, which are themselves made up of depreciation of equipment and return on capital employed.

> Composition of authorised revenue (cf. figure 3)

- Capital costs

Capital employed by system operators is assessed according to two different methodologies, depending on whether gas or electricity are concerned.

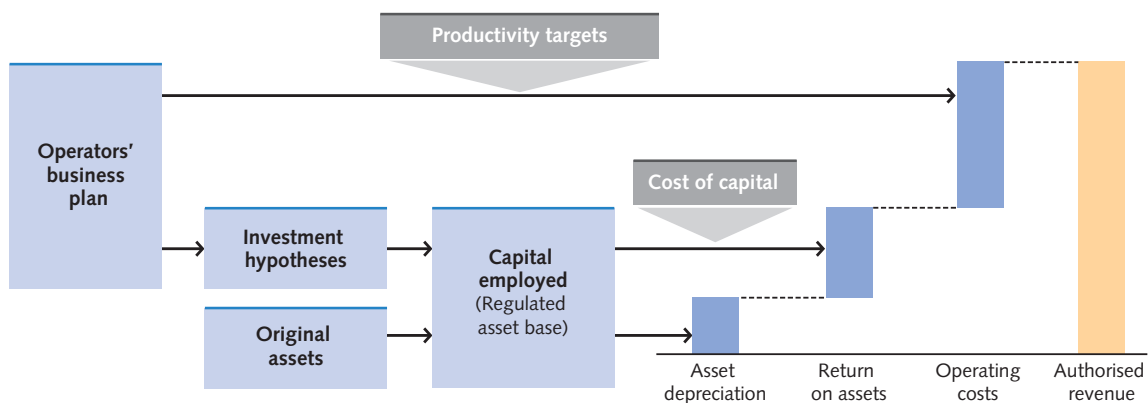
Regulated asset bases (RAB) for gas distribution and transmission and for LNG terminals are calculated according to the Hourri Commission methodology<sup>(3)</sup>. RABs are reassessed every year depending on the consumer price index (excluding tobacco) calculated by the INSEE (National Institute for Statistics and Economic Studies).

RABs for electricity distribution and transmission are defined on the basis of the net book value of the assets as posted in operators’ balance sheets.

Such assets are depreciated over their economic lifetime, and depreciation calculated by the regulator is integrated into authorised revenue.

Authorised revenue is also made up of return on the regulated asset base. Rate of return is calculated by assessing the weighted average cost of capital (WACC) within a normative financial structure. The operator’s rate of return should make it possible to finance interest charges on debt and provide return on equity capital comparable to that which could be obtained from investments with similar levels of risk. Equity

Figure 3: Composition of authorised revenue



Source: CRE

(3) In 2002, this commission was put in charge of setting the State price for transfer of natural gas transmission networks to network concession holders.

capital cost is estimated by means of the methodology known as 'capital asset pricing model' (CAPM).

In the case of gas transmission, the base rate of return has been lowered from 7.75% to 7.25%, a decrease similar to that adopted in 2006 for gas distribution network tariffs.

Gas transmission networks and LNG terminals benefit from a system of bonuses designed to encourage operators to invest. Any new investment commissioned since 2004 benefits from an increase of 125 basis points for transmission infrastructures and LNG terminals. Such provisions are justified by the determination to foster competition, as well as by improved gas entry and transmission capacities in the French territory and the need to improve security of supply by diversifying sources.

This system of return and additional bonuses is reviewed by CRE at each new tariff proposal. Preparation of future tariffs for access to electricity and gas infrastructures is likely to result in modification of ROI mechanisms.

An additional increase of 300 basis points for a period of 5 or 10 years could be allocated by CRE to the share of investments in transmission infrastructures likely to make significant contributions to improving gas market operation. Today, CRE has a better understanding of the market, enabling it to fine-tune criteria for deciding on allocation of such an additional increase.

A bonus of 200 basis points is added to the rate of return for LNG terminals, in order to take into account the specific risk related to this activity.

- Operating costs

Operating costs are estimated on the basis of budget forecasts presented by the operators at the time of tariff revisions.

European regulations support CRE's approach to assessment of the various cost categories – the levels of costs to be covered by the tariff having to be in line with those recorded by an efficient operator. An efficient operator provides the level of service required by the state of the market serviced at an optimum cost, while complying with the security standards and regulatory provisions to which it is subject, given the state of existing technologies and best management practices.

Budget forecasts for 'external consumption' and 'personnel cost' items incorporated in the tariff for the use of public electricity grids that came into force on 1 January 2006 therefore contained a productivity target in the form of an overall reduction of 3% in current euro value in the forecast costs put forward by system operators. The cost assessment basis used to calculate this overall reduction is defined as the sum of personnel costs and external consumption.

In the gas transmission tariff that came into force on 1 January 2007, operating costs covered take into account productivity hypotheses adopted by TSOs for the 2007-2008 period:

- GRTgaz proposed annual average productivity gains of 2.4% in constant euro value compared to the 2005 performance, on a cost assessment basis accounting for 62% of the TSO's operating costs. This basis corresponds to the operating costs controllable by the operator (excluding energy and expenses related to network security and maintenance) and to central costs.
- TIGF proposed productivity gains of 4% in constant euro value, but only applicable to running costs spent per person for the 2007-2008 period, which account for an average of 16% of total operating costs for the period. The Ministerial Order of 4 August 2006 governing transmission pipeline safety has had heavy financial consequences for TIGF, whose network is older than that operated by GRTgaz.

- Expenses and revenues clawback account

Certain categories of costs and revenues taken into account in the tariffs change throughout the period of tariff application, due to external factors that are difficult for operators to predict and/or control, and that may cause significant differences between the actual amounts of such costs and revenues and estimates on the basis of which the tariffs were set. This is why CRE has set up a mechanism for electricity transmission and distribution and for gas transmission to partially or fully compensate for any surplus earnings and shortfalls in costs and revenues recorded for the operators – the expenses and revenues clawback account (CRCP), which, depending on its balance, increases or decreases levels of costs to be covered by the next tariffs.

The scope of items eligible for the expenses and revenues clawback account is by definition selective.

Incorporation of cost items in the account must be strictly supervised so as not to result in excessive coverage of the risk inherent in operator activity, which must be managed by the operator and is offset by the return on capital granted by CRE.

In the tariffs in force for gas transmission and for electricity transmission and distribution, the expenses and revenues clawback account incorporates capital costs, certain operating costs (including purchase of electricity transmission and distribution losses and purchase of driving power for gas transmission) and certain operating revenues (income from electricity transmission interconnections and from subscription to gas transmission capacities, in particular), taking into account results of audits conducted by CRE.

In practice, the expenses and revenues clawback account is an extra-accounting trustee account whose balance at the end of a tariff period is redeemed against the next tariffs at a rate of interest equivalent to the rate of return on the regulated asset base in constant annual repayments.

#### > Methods used to assess operator efficiency

CRE implements two approaches to assessing operator efficiency. The top-down approach is based on comparative approaches, with benchmarking of comparable operator performance. The bottom-up (or intrinsic) approach is based on detailed knowledge of operator costs, acquired by audits and systematic analysis of operator accounts and budgets (analysis of past trends, shocks observed, identification of productivity opportunities, and foreseeable changes).

In the context of drafting new tariffs for gas transmission (ATRT 3), an external consultancy firm conducted an audit of a number of TIGF cost items on CRE's behalf. The scope of costs concerned represented 68% – 45 M€ – of gross operating costs, taken into account in the authorised revenue. The audit identified a total of 0.8 M€ unduly borne by the transmission activity to the benefit of the storage activity.

In order to define costs that might be included in authorised revenue for GRTgaz transmission, an in-depth analysis of central costs invoiced by GDF to GRTgaz was carried out at the time of the latest tariff proposal. At that time, CRE asked GRTgaz to directly assume communication costs necessary to it. The regulator indicated that, at the time of the forthcom-

ing tariff proposals, only communication expenses directly laid out by network operators would be included in costs to be covered by tariffs.

CRE conducted an audit on activities of development of the fibre optic network and sale of high points by @rtéria (an RTE subsidiary), in order to analyse the consequences of such commercialisation on levels of RTE costs to be covered by income from the tariff for grid use (cf. Inset 14).

Strict compliance with account unbundling obligations is necessary to prevent any risk of cross-subsidies between competitive activities and regulated activities. In 2007, in order to ensure such compliance, CRE is planning an audit of 2006 distribution activities accounts (ERD, Gaz de France RD and EGD), in the context of their affiliation. The audit will check compliance with the account unbundling principles approved by CRE, and that the accounts of new affiliated companies reflect the economic reality of distribution activities entrusted to them by law.

#### Inset 14: Results of the @rtéria audit

@rtéria was set up in 2002 to sell RTE's surplus fibre optic capacity and high points to local authorities and telecom operators. These infrastructures facilitate deployment of a broadband Internet access network and bridging of the digital divide for mobile telephones. In its deliberations of 1 December 2005 on RTE's investment programme for 2006, CRE decided to analyse "the consequences, as regards preservation of grid user interests, of such commercialisation on levels of RTE costs to be covered by income generated by application of the tariff for grid use".

Consequently, CRE examined the RTE 2005 accounts – audited in the first half of 2006 – affected by these activities. CRE held hearings with RTE and @rtéria on 23 November 2006 and, in its deliberations of 7 December 2006, made the following observations:

- Commercialisation of the electricity transmission grid through the subsidiary @rtéria must benefit grid users in the form of reduced tariffs;
- @rtéria operating profit, decreased by the return on equity capital at the rate in force, will be deducted from the upcoming tariffs for use of transmission grids;
- Fibre optic capacity sold by @rtéria to third parties that was not deducted from RTE's regulated asset base covered by TURPE 2 will be rectified by TURPE 3 (0.9 M€ for 2006 and 1.2 M€ for 2007);
- In the second half of 2007, CRE will review contractual relations between RTE and @rtéria in order to check compatibility of development of @rtéria's activities with preservation of transmission grid user interests.

**B. Changes planned in the regulatory framework**

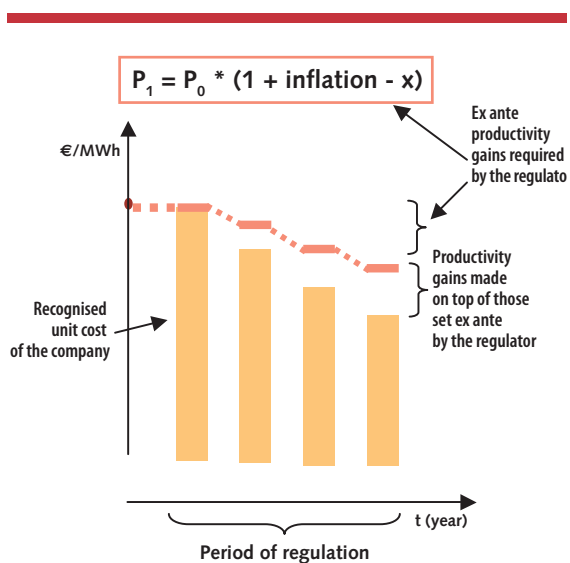
Increasingly specific knowledge of operator costs, along with experience acquired from application of the various tariffs proposed by CRE since its founding, now makes it

**Inset 15: Various modes of tariff regulation**

CRE reckons that progress can still be made in productivity gains and, in order to achieve this, is studying the possibility of changing the regulatory framework.

There are two main modes of tariff regulation. The first one <sup>(1)</sup> consists of covering recognised accounting costs, including return on capital. This prevents the regulated entity from receiving undue income by taking advantage of its monopolistic position. There is, however, a drawback to this mode of tariff regulation – it in no way encourages the regulated entity to make productivity gains, as tariffs are systematically adjusted so as to cover recognised costs.

In contrast, the second approach, known as ‘incentive-based regulation’, consists of rewarding companies making productivity gains. In concrete terms, tariff levels are separated from costs observed during a regulation period <sup>(2)</sup>. Changes to the tariff are then set, depending on performance targets to be achieved. If costs recognised at a later date are different from such targets, the company keeps a part of the balance, which can be positive if real productivity gains are greater than the target set by the regulator.



Source: CRE, based on 2006 data provided by DSOs and TSOs

**Incentive-based regulation of quality**

One of the risks to be taken into account in setting up incentive-based tariff regulation is that of deterioration in quality, especially as regards continuity of supply. Grid and network operators might well be tempted to reduce that part of their expenses <sup>(3)</sup> contributing to quality, rather than make genuine productivity efforts resulting in better cost-effectiveness. The regulator must therefore ensure that grid and network operators provide their users with a level of quality in keeping with the level of tariff received.

(1) Known as cost plus or rate of return.  
 (2) Such a period usually lasts for between three and five years.  
 (3) For example, investment, maintenance and operations spending.

possible to set up increasingly incentive-based regulation.

The general principle behind such incentive schemes consists of assigning operators a revenue trajectory based on analysis of their costs to be recovered over a predefined period, and make them bear a substantial part of the effects of underperforming or overperforming against this forecast. Naturally, the operator is then motivated to achieve and exceed these targets, so revealing its level of cost-effectiveness. An essential aspect, therefore, of such guidelines is gradual extension of the period of validity of the tariff formula (cf. inset 15).

This is why CRE gave thought to adapting the tariff framework to such targets, by taking account of work carried out to analyse operator efficiency.

**1.3. Settlement of disputes**

**1.3.1. Settlement of disputes guarantees grid and network access**

In compliance with the settlement of dispute procedure provided for by article 38 of the Law of 10 February 2000, CRE may be notified by any interested party of any dispute related to access to public electricity transmission and distribution grids, natural gas transmission and distribution infrastructures, and LNG and natural gas storage systems.

After hearing both parties, CRE rules within two months. At the same time, it may take out a preliminary injunction, if it is called upon to do so. Its decisions can be contested at the Paris Court of Appeal, which may order a stay of execution under certain circumstances provided for in the texts.

**1.3.2. Less resort to this procedure**

The significant drop in numbers of dispute settlements, already noted in the previous report where they fell from twenty-one to four, has been confirmed.

One settlement of dispute (Sipperec versus EDF decision of 5 October 2006) and two cases of discontinuance (Compagnie du Vent versus EDF and RTE decision of 12 July 2006, and Semaux versus EDF decision of 10 May 2007) occurred between 1 July 2006 and 30 June 2007.

There are two main reasons for this significant drop in resort to settlement of disputes.

The first is CRE’s action in previous years. Based on its decisions, the regulator has defined the scope of application of texts and respective roles of the different parties concerned. Moreover, when the Paris Court of Appeal received referrals, it confirmed CRE’s analysis



in most of the cases. The Paris Court of Appeal's decision of 23 January 2007, concerning the dispute between Gaz de France and Altagaz of 23 January 2007, is a perfect illustration of this. The body of jurisprudence thus built up clarifies texts, and their application no longer seems to raise problems.

The second reason is that, in the event of litigation, embarking on the procedure has a dissuasive effect, and solutions are found upstream, as demonstrated by the two withdrawals of complaints mentioned above.

### 1.3.3. Content of cases handled

- The decision of 12 July 2006, enacting the discontinuance by Compagnie du Vent, followed on from the Paris Court of Appeal referring this case back to CRE. In its decision of 30 May 2006, the Court of Appeal considered that the injunction pronounced by the decision of the settlement of dispute of 27 September 2005 concerning the Compagnie du Vent (described in the previous annual report) could not be applied to EDF/RD but to the transmission grid, i.e. RTE, the latter being the sole party able to implement it. The effect of the Court of Appeal's referral was to ask CRE to rule on the requests made to RTE by the Compagnie du Vent. Since the Compagnie du Vent had obtained satisfaction in the meantime, it withdrew the complaint.
- On 5 October 2006, CRE ruled on the dispute brought by the electricity and communication networks union (SIPPEREC) against EDF concerning Communication of metering data.

Firstly, CRE considered that SIPPEREC was qualified to make a referral as it constituted a group acting as coordinator of the group, when this mission was ratified by deliberations of the assemblies of district councils belonging to this group. Then, considering the content, CRE reckoned that EDF could not refuse SIPPEREC's requests for Communication of metering data on a monthly basis, according to subscribed power.

This settlement of dispute was referred by EDF to the Paris Court of Appeal.

- In its ruling of 23 January 2007, the Paris Court of Appeal confirmed CRE's analyses in its decision on settlement of the dispute between Altagaz and Gaz de France on 8 March 2006.

The decision sustained amendment of contracts and protocols for access to Gaz de France storage facilities to make the price of transferring stored gas transparent and non-discriminatory, whatever the time of year, and so obliging the storage system operator (in this case Gaz de France) to organise trans-

fer of quantities of gas contained in the tanks under transparent conditions and at a price reflecting the cost of stock constitution, which was not specifically stated by law.

Henceforth, thanks to this jurisprudence, any new gas supplier can find out the exact price of gas purchases, and draw up its offer under competitive conditions.

### 1.3.4. Legislative innovation: setting up of the Dispute Settlement and Sanctions Committee (CoRDIS)

The creation of CoRDIS by the Law of 7 December 2006 fulfils legislative intent to satisfy the requirements of article 6.1 of the European Convention on Human Rights (ECHR).

CoRDIS is composed of four magistrates: two Councillors of State appointed by the Vice-President of the Conseil d'Etat, and two Councillors from the Supreme Court of Appeal appointed by the President of the Supreme Court of Appeal. The Chairman of the committee is appointed from among its members by decree.

So far, CoRDIS has only had once case referred to it, which resulted in discontinuance.

## 2. Electricity grids

### 2.1. Franchise technical specifications

#### 2.1.1. Adoption of standard technical specifications for public electricity transmission grid franchise

Provided for by article 12-II of the Law of 10 February 2000, the new standard technical specifications for public electricity transmission grid franchise were adopted by decree in the Conseil d'Etat of 23 December 2006, and published in the Official Journal on 30 December 2006.

As stipulated in the above-mentioned article, the Minister for Energy referred the draft version to CRE for approval. In its unfavourable opinion of 2 March 2006, CRE highlighted incorrect application of European Community texts and inadequate protection of grid user interests. The Government corrected a number of defects in the decree pointed out by CRE, without, however, following all the recommendations of 2 March 2006.

The decree concerned standard technical specifications, without immediate legal effect for the public transmission system operator and grid users. For effective application of the provisions of such standard technical specifications, the State as franchising au-



thority and RTE as franchisee must sign a new franchise agreement (or an amendment to the existing agreement) including applicable technical specifications identical to the standard technical specifications.

Signing of these applicable technical specifications will have an impact on the rights and obligations of the public electricity transmission system operator (TSO), RTE, on the rights and obligations of grid users, and on CRE's missions (cf. inset 16). As most of the provisions contained in the technical specifications for the general supply grid currently in force are obsolete, the applicable technical specifications must be signed as soon as possible in order to secure the TSO's legal position.

#### **Inset 16: Extension of CRE's missions concerning the basis of standard technical specifications for public electricity transmission grid franchise**

With the new standard technical specifications for the public electricity transmission grid, CRE's missions in the areas of approval, decision-making and information have been extended.

##### **Power of approval**

This power covers three areas:

- Approval of procedures for handling requests for connection to the public transmission grid from users and public distribution grids, previously defined by the TSO after consultation with representatives of the various categories of users and representatives of public distribution system operators;
- Approval of templates for grid access contracts drawn up by the TSO. It should be pointed out that the template for the contract concluded between RTE and DSOs is not directly concerned by this approval. However, this template must be included in the technical reference documentation and is therefore submitted to CRE prior to its publication. This will enable Commission departments to conduct a preliminary review, similar to that already carried out in application of CRE's decision of 7 April 2004;
- Approval of rules for calculating total transfer capacities and reliability margins, as well as those governing capacity allocation.

##### **Decision-making power**

CRE lays down the methods for exchanging metering information required for carrying out the missions mentioned in article 15 of the Law of 10 February 2000 in cases of differences of opinion between public distribution system operators and franchisees.

##### **Obligation of information**

The new standard technical specifications oblige the TSO to provide CRE with information. The TSO must submit the following items to CRE:

- Annual report on application of connection procedures;
- TSO policy on renewal of metering equipment;
- Technical reference documentation, and results of consultation with representatives of the various categories of users.

In addition, the TSO makes the following items available to CRE:

- Detailed and summary reports listing public transmission grid structures;
- Maintenance and renewal policies, along with reports on their application.

#### **2.1.2. The need for a new version of the technical specifications for public distribution grid franchise**

Drafting of a new model of technical specifications for public distribution grid franchise is necessary for two reasons.

Firstly, franchise technical specifications and settlement of services provided by electricity distribution companies must be aligned with legislative and regulatory provisions governing the electricity sector in France, and take into account full market opening as from 1 July 2007.

Secondly, signing of the applicable technical specifications for the public electricity transmission grid renders obsolete the reference, made by the franchise agreement for public electricity distribution service in articles 16, 19 and 22, to a number of provisions in the technical specifications for the general supply grid governing high voltage supply of customers. Supply of such customers will no longer benefit from the same legal security in the absence of any system contained in technical specifications precisely defining user rights and duties.

#### **2.2. Balancing mechanism**

Article 15-II of the Law of 10 February 2000 states that "the public transmission system operator shall at all times ensure balance of electricity flows on the grid, as well as security, safety and effectiveness of this grid, taking into account any grid-related technical constraints."

In order to carry out this mission in keeping with non-discriminatory and transparent procedures bringing competition into play between sources of supply, a balancing mechanism was set up on 1 April 2003 by RTE under CRE supervision. By virtue of article 15-II of the Law of 10 February 2000 "the Commission de Régulation de l'Énergie shall approve, prior to implementation, rules for presenting programmes and balancing bids and offers as well as criteria for choosing from among balancing bids and offers submitted to the public transmission system operator".

Article 15-IV of the same law states that "the public transmission system operator [...] may, given observed deviations from programmes [...] and balancing-related costs, ask users concerned for financial compensation or allocate this to them. The Commission de Régulation de l'Énergie shall approve methods for calculating imbalances and financial compensations".

All such rules and methods are grouped together in “Rules on programming, the balancing mechanism, and recovery of balancing charges” (hereafter known as the Rules) published by RTE after CRE’s approval.

Since implementation of the balancing mechanism, the Rules have been updated every year to incorporate experience feedback and market players’ observations. Modifications introduced have made it possible to:

- increase the flexibility provided to market players for scheduling of their physical and commercial positions;
- improve competition by enabling foreign players to submit balancing bids and offers to RTE;
- raise the efficiency of electricity system operation, while preserving operational security;
- improve transparency for balancing bidders and balancing responsible entities, from whom balancing-related costs are recovered;
- ensure financial balance between costs and revenues of the balancing mechanism.

The new version of the Rules, which will come into force on 1 September 2007, incorporates two modifications requested by CRE’s deliberations of 17 March 2005 and by its Communication of 22 March 2006. These modifications concern:

- balancing of balancing responsible entities suffering from generation problems;
- transfer of responsibility from RTE to the generators for sending generation schedules to power plants at 4 pm the day before.

Insofar as it will foster competition and the setting up of the internal electricity market, development of balancing exchanges will constitute the main focus for CRE’s work in this field for the coming years.

The balancing mechanism makes an essential contribution to security of supply by ensuring immediate generation-consumption balance at a frequency of 50 Hz, solving congestion, and also by generating pricing signals orientating investments in generation.

In 2007, a security of supply taskforce was set up within CEER, cochaired by CRE and the Austrian regulator E-Control, with the following items on its agenda:

- setting up of a platform for exchange between regulators of information on security of supply in Europe;
- publication of a Europe system adequacy forecast, complementing currently available reports, which are essentially compilations of national visions;
- recommendations on generation adequacy;
- compilation of international practices on flexibility of demand.

**2.2.1. Feedback from the first 4 years of balancing mechanism operation**

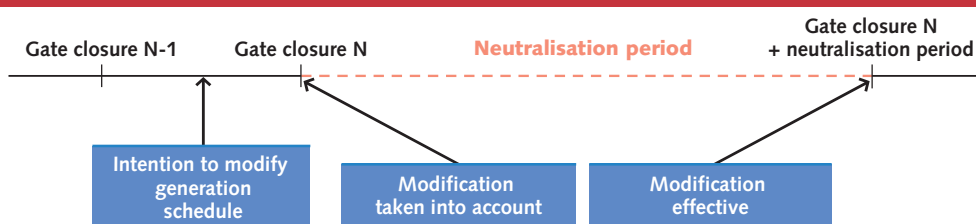
**A. Improved flexibility for market players concerning scheduling of their physical and commercial positions**

Proper electricity system operation is ensured by uninterrupted maintenance of the generation-consumption balance at rated frequency of operation of electrical equipment connected to the grid (50 Hz in France within the UCTE interconnected zone). In France, as RTE is the only party with an overview of this balance, it ultimately acts to maintain it by using the balancing mechanism.

Consequently, generation scheduling obeys the rules governing the ways in which market players can modify their positions. On the one hand, there are gate closures, intervals of time during which it is possible for generators to submit modifications to their generation schedules, and, on the other hand, there exists a neutralisation period, as from the end of the gate closure, to take into account the reality of technical operating requirements. Modification of generation schedules only takes effect after this neutralisation period (cf. figure 4).

Since start-up of the balancing mechanism on 1 April 2003, flexibility offered to market players as regards generation scheduling has continued to grow thanks to an increase in the number of intraday gate closures from 6

**Figure 4: Gate closures and neutralisation period for generation scheduling**



Source: CRE

to 24, and to reduction in the neutralisation period from 3 to 2 hours (cf. figure 5).

Scheduling of commercial transactions is more flexible as it does not affect the overall generation-consumption balance. Since 1 September 2006, the neutralisation period governing block exchanges has been abolished.

**B. Improved competition due to foreign players being able to submit balancing bids and offers to RTE**

Right from start-up of this mechanism, CRE had asked to develop balancing exchanges with neighbouring countries in order to foster competition in the supply of balancing energy. Swiss players have been participating in the French balancing mechanism since 1 April 2003. Foreign participation was extended to England and Spain in October 2004, to Germany in October 2005, and to Italy in April 2006.

There have been mixed results, depending on the borders in question. Whereas no bid or offer from England and Spain has been taken up since the beginning of 2006, Swiss players and, to a lesser extent, German players have carried out a significant share of balancing operations (cf. figure 6).

**C. Strengthened efficiency of supply and demand balancing management**

Maintenance of generation-consumption balance at a frequency of 50 Hz is based on three categories of resources, which come into play successively:

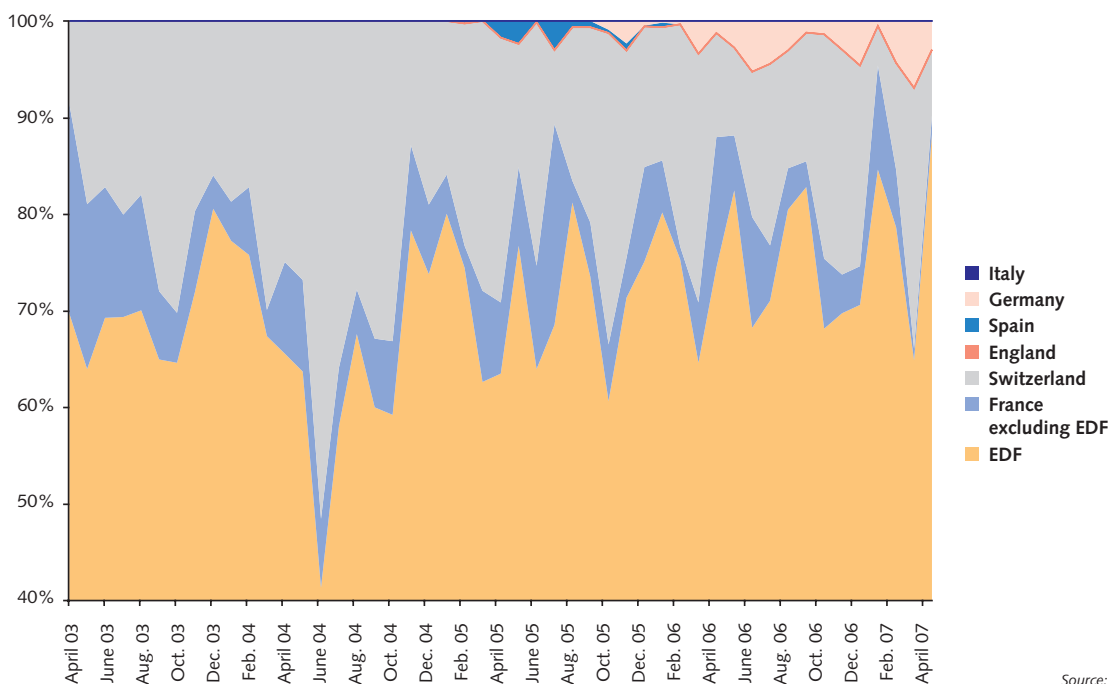
- Automatic primary reserve, spread out over the entire UCTE grid, and whose purpose is to prevent deviation from frequency due to a generation problem or unexpected change in consumption;

**Figure 5: Changes in numbers of intraday gate closures and in the neutralisation period**

	Number of intraday gate closures	Neutralisation period
<b>April 2003</b>	6	3 hours
<b>July 2004</b>	7	3 hours
<b>April 2005</b>	12	2 hours
<b>March 2007</b>	24	2 hours

*Source: CRE*

**Figure 6: Market players' participation in the balancing mechanism (share of upward activated balancing energy)**



- Automatic secondary reserve, specific to each TSO control area, the purpose of which is to restore frequency to 50 Hz and interconnection exchange programmes to their scheduled level;
- Manual tertiary reserve, or balancing mechanism, whose purpose is to absorb persistent generation-consumption imbalance as cost-effectively as possible in order to restore activatable primary and secondary reserves.

Primary and secondary reserves are grouped together under the term ‘frequency control ancillary services’ and are subject to contract with generators giving rise to payment of a fixed premium and, in the case of the secondary reserve, of a variable part in proportion to net energy injected. Such costs are recovered by RTE in the tariff for the use of public electricity grids.

As regards the tertiary reserve, 1,500 MW of power (1,000 MW of fast reserve deployable in less than 13 minutes and 500 MW of additional reserve deployable in less than 30 minutes) is covered by contract, the costs of which are recovered by a payment from

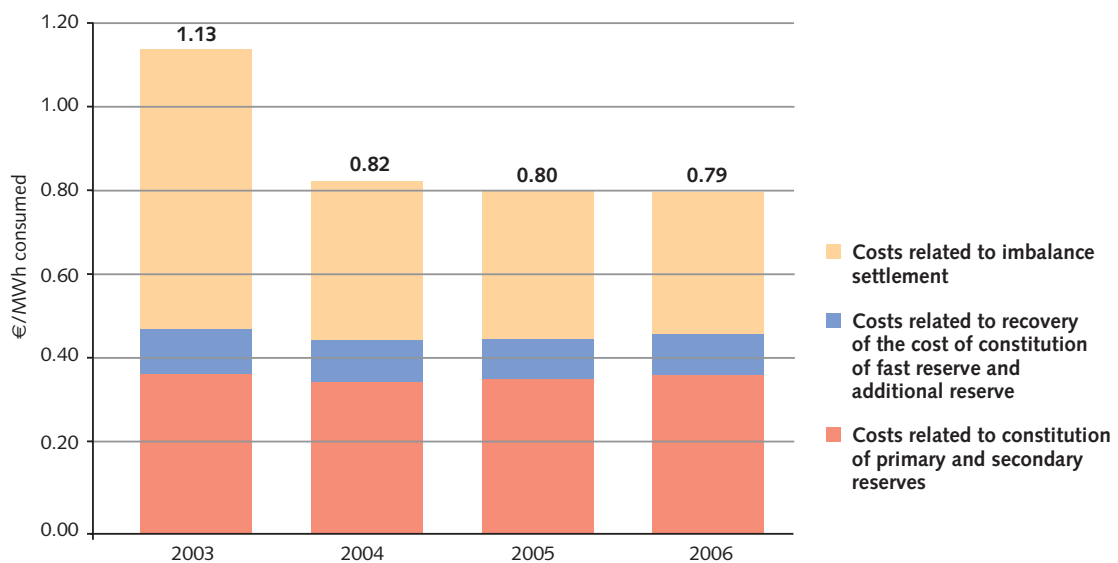
balancing responsible entities proportional to their physical withdrawal. The rest of the capacity offered on the balancing mechanism does not receive any payment related only to its provision. Suppliers of this part of balancing energy are paid according to energy actually provided. Balancing costs are recovered through invoicing of imbalances.

Since start-up of the balancing mechanism, there has been a significant drop in balancing costs due to physical withdrawal: they represent the balancing cost in the electricity bill (cf. figure 7).

**D. Sustained operational security of the electricity system**

Since its start-up on 1 April 2003, the balancing mechanism has effectively demonstrated its resistance to problems. Modifications made to increase flexibility for market players and improve the system’s cost-effectiveness have not affected this resistance. Despite difficult periods on the French electricity system, immediate injection-withdrawal balance has always been maintained at national level. Such difficult periods, often characterised by high prices on the Powernext day-

**Figure 7: Annual trends in costs related to system balancing**



Source: CRE

ahead and high negative imbalance settlement prices (the latter being by definition higher than Powernext prices), correspond to (cf. figure 8 and inset 17):

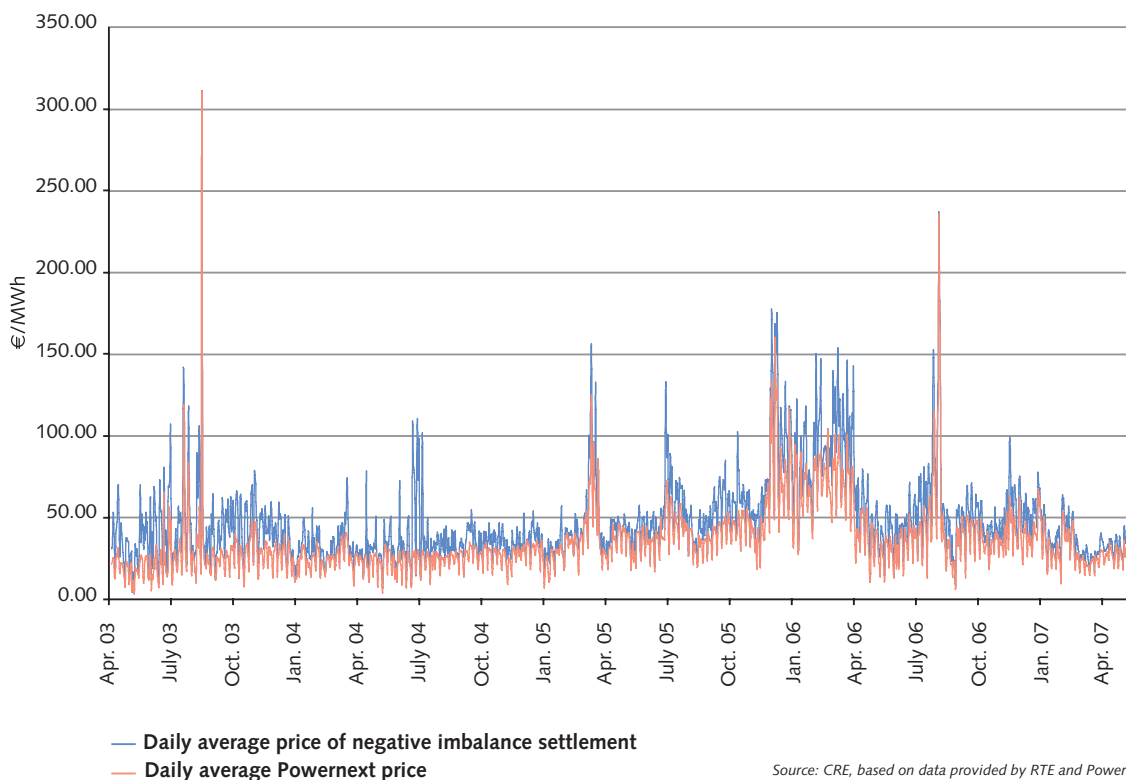
- the heatwave in the summer of 2003;
- decreased generation resulting from strikes held by EDF employees in June 2004;
- the cold spell from late February to early March 2005;
- high temperatures and strikes in the second half of June 2005;
- the prolonged cold spell in winter 2005/2006;
- the heatwave in the second half of July 2006.

**E. Improved transparency for balancing bidders and balancing responsible entities, from which balancing-related costs are recovered**

Since start-up of the balancing mechanism, transparency for balancing bidders and balancing responsible entities, from which latter balancing-related costs are recovered, has improved.

The second version of the rules, published on 1 July 2004, governing scheduling, the balancing mechanism and recovery of balancing costs, lays down processes for managing economic precedence and allocating balancing-related costs, as well as methods for managing the system in the event of a lack of bids and offers.

**Figure 8: Trends in negative imbalance settlement prices and Powernext day-ahead prices since start-up of the balancing mechanism**



Since October 2004, RTE has posted a monthly report on the balancing mechanism on its website, with progressively increased content. In addition to information on system needs, prices, characteristics of activated bids and offers, and balancing of costs and revenues of the balancing mechanism, the following are also included:

- Financial settlements for congestion absorption (since March 2006);
- Costs of counterbalancing, i.e. additional costs generated by balancing against the system tendency

#### **Inset 17: Impact on the balancing mechanism of the large disturbance in European Power supply on Saturday 4 November 2006**

The incidents occurring during the evening of 4 November 2006 resulted in significant deployment of the balancing mechanism, aimed at reinstating supply to disconnected consumers. Reserves available on the mechanism were deployed by RTE to increase generation and progressively stop load shedding of consumption. Proper balancing mechanism operation and availability of adequate reserves made it possible to restore electricity supply to all French consumers affected by the power cuts in under two hours.

##### **Event timeline:**

- Before the incident, the situation on the balancing mechanism was normal. The price of negative imbalance settlement was 51 €/MWh;
- At 10 pm, the volume of rapid reserves available was 5,500 MW;
- At 10.10 pm, the incident caused load shedding of 6,260 MW of consumption on the French grids;
- At 10.15 pm, RTE requested 2,800 MW of rapid reserves from the balancing mechanism;
- At 10.20 pm, RTE requested 1,140 MW of rapid reserves from the balancing mechanism;
- At 10.30 pm, RTE authorised restoration of supply to around half of the consumers affected by the load sheddings;
- At 10.40 pm, RTE again requested 1,000 MW of reserves and authorised reconnection of supply to the other half of the consumers affected by the load sheddings;
- At 11.10 pm, electricity supply was restored to all French consumers affected by the power cuts;
- During the load shedding period, the imbalance settlement price, calculated on the basis of the price of balancing offers taken up, was 65 €/MWh.

resulting from unforeseeable needs and dynamic stress on generation groups (since March 2006);

- Energy activated per border and per day within the context of assistance contracts with foreign TSOs, which are only used by RTE in the event of total depletion of bids and offers available on the balancing mechanism (since July 2006).

#### **F. Financial balance preserved between balancing mechanism expenses and revenues**

It is difficult to obtain financial balance between balancing mechanism expenses and revenues naturally. Three combined phenomena come into play:

##### **> Counterbalancing**

RTE has generation and cross-border exchange schedules at its disposal, transmitted to it by market players along with consumption forecasts. As such programmes are likely to be modified, RTE must resolve uncertainty over what action to take in order to maintain system balance.

In addition, such action is restricted by technical conditions for the use of balancing bids and offers submitted by market players, which are dictated by flexibility of power plants and requirements for interconnection use. These requirements are expressed in terms of deployment lead times (times required to obtain increases or decreases in power requested by RTE) and minimum duration of use (nuclear power generation, for example, must comply with 2-hour steps).

RTE may have to activate balancing against system tendency, voluntarily for economic optimisation, or involuntarily in cases of unforeseeable needs. Such counterbalancing incurs additional costs for the balancing mechanism.

##### **> Netting of imbalances of balancing responsible entities**

RTE benefits from the netting of imbalances of balancing responsible entities. Action taken by RTE seeks to absorb the net imbalance of the system, while balancing responsible entities are invoiced for the imbalance settlement price based on their individual imbalances. Therefore, the sum of imbalance



volumes invoiced is greater than the sum of balancing volumes deployed at RTE's request. In 2006, the imbalance volume invoiced to balancing responsible entities exceeded the balancing volume deployed by around 40%.

> Revenue from activation of reserve exchange contracts between TSOs

In order to ensure electricity system security, RTE has concluded reserve exchange contracts with neighbouring TSOs. Such contracts are normally intended only to be implemented in the event of an emergency, and therefore only give rise to limited financial exchanges. However, the contract between RTE and National Grid, the British transmission system operator, is frequently applied by the latter to absorb congestion and imbalance on its grid, so generating positive financial flows to the balancing-imbalance account.

In order to maintain balance between expenses and revenues of the balancing mechanism the regulator may use two variables: payment proportional to physical withdrawal and factor k.

The purpose of payment proportional to physical withdrawal is to recover fixed costs related to RTE contracts for rapid and additional tertiary reserves. Contract costs are known in advance and have been stable since start-up of the balancing mechanism (around 45 M€ per year). Revenue depends solely on physical withdrawal. Initially set at 0.11 €/MWh, payment proportional to physical withdrawal was lowered to 0.09 €/MWh on 1 April 2005

Factor k adjusts the imbalance settlement prices, which are based on the weighted average price of balancing bids and offers activated (cf. figure 9).

Factor k has fallen three times since 1 April 2003, going down from 0.2 in 2003 to its current value of 0.05 (cf. figure 10).

**Figure 10: Trends in factor k since start-up of the balancing mechanism**

1 April 2003	0.2
1 July 2004	0.18
1 April 2005	0.15
1 July 2006	0.05

Source: CRE

However, this significant drop was not enough to balance expenses and revenues related of balancing mechanism in a sustainable manner.

This is why, in its deliberations of 17 March 2005, CRE asked RTE to pay back the surplus accumulated in the balancing mechanism account in 2003 and 2004, so as to limit the positive balance in the account, closed as at 31 December 2004, to 10 M€ excluding items related to the costs of constitution of the rapid reserve and recovery of such costs. This amounted to repayment to balancing responsible entities of 34 M€ at the beginning of 2006, after final data on imbalances of balancing responsible entities was obtained.

The new version of the Rules, which came into force on 1 July 2006, introduced two modifications:

- Surplus accumulated is repaid to balancing responsible entities on a yearly basis, at CRE's request. This provision led to repayment, in early 2007, of the 68 M€ surplus accumulated in 2005;
- Modification of processing of costs and revenues generated from foreign grid operators' activation of assistance contracts with RTE, previously fully accounted in the account. Energy exchanged in the context of such contracts is henceforth processed in the account in the same way as imbalances of balancing responsible entities.

**Figure 9: Method for calculating the imbalance settlement price**

	Upward trend	Unchanged	Downward trend
Positive imbalances	Px	Px	Min (PMPb / (1+k); Px)
Negative imbalances	Max (PMPb * (1+k); Px)	Px	Px

With Px: day-ahead price on Powernext  
 PMPb: weighted average price of offers activated downwards  
 PMPb: weighted average price of offers activated upwards

Source: CRE

### 2.2.2. Trends expected in 2007

The 2007 version of the Rules, which should come into force in September 2007, forms part of the strategy governing changes in the balancing mechanism since its start-up on 1 April 2003. It incorporates two significant modifications, in compliance with requests made in CRE's deliberations of 17 March 2005 and in its Communication of 22 March 2006.

In its deliberations of 17 March 2005, CRE asked RTE to "propose to it in December 2005, after consultation with participants in the CFMA (Balancing Mechanism Operation Commission), changes to be made to the balancing mechanism over the next few years to develop its ability to encourage cost-effective behaviour among parties without any adverse effects on operational security, and to make it compatible with the balancing mechanisms of European countries, with the aim of improving electricity market integration".

After collecting the opinions of the various participants in the balancing mechanism and of

market players concerned by imbalance settlement, RTE's reply made it possible to draw up a list of additional work, defined in CRE's Communication of 22 March 2006. Two significant modifications to the Rules were in this list. It concerns:

> Balancing of balancing responsible entities suffering from generation problems

At the beginning of 2006, there were still 12 intraday gate closures for generation scheduling combined with a 2-hour neutralisation period, so that market players could take up to 4 hours to rebalance their position after a generation problem. At the end of March 2007, the number of gate closures was increased to 24, thus reducing the maximum time required by market players to rebalance their position to 3 hours.

As from 1 September 2007, the neutralisation period applicable to generators suffering from generation problems will be reduced to 1 hour, with maximum time required by market players to rebalance their positions after a generation problem reduced to 2 hours.

> Sending of generation schedules to power plants by the generators themselves

Sending of generation schedules to power plants is normally the generator's responsibility, but, for historical reasons, this is currently done by RTE for a number of generators, including EDF.

This practice is incompatible with reduction of the neutralisation period to less than 2 hours, (excluding generation problems), which is why CRE, in its Communication of 22 March 2006, asked RTE to define, along with French generators, the provisions and deadlines required for generators to transmit generation programmes notified by RTE to power plants.

Application of this modification to the Rules is a complex business. Generators are only due to start sending all schedule modifications to power plants as from 2009. An intermediate stage is planned, however. As from 2008, day-ahead generation schedules, defined at 4 pm the day before and possibly adjusted by RTE balancing orders, will be sent to power plants by the generators themselves. Modification of processing of the programmes on D-1 will be incorporated into the 2007 version of the Rules. Responsibility for all intraday re-declarations should only become effective in 2009.

As soon as responsibility for sending generation schedules to power plants has been fully transferred to generators, the 1-hour neutralisation period, which will be applied to generators affected by generation problems as from 1 September 2007, could then be rolled out to all generators, if such a change is deemed appropriate.

### 2.2.3. Development prospects for balancing exchanges

As the French balancing mechanism has proved its effectiveness, development of cross-border electricity exchanges is now the main focus of CRE's work on balancing. As highlighted by the conclusions of the 13th Florence Forum, held in September 2006, integration of balancing of mechanisms is a necessary step in the setting up of the internal electricity market.

Both Electricity Regional Initiatives and ongoing work within ERGEG are means to achieve this end.

Development of balancing exchanges features in the work programme of the Electricity Regional Initiatives in which CRE participates. Work on balancing exchanges is already underway for two of it.

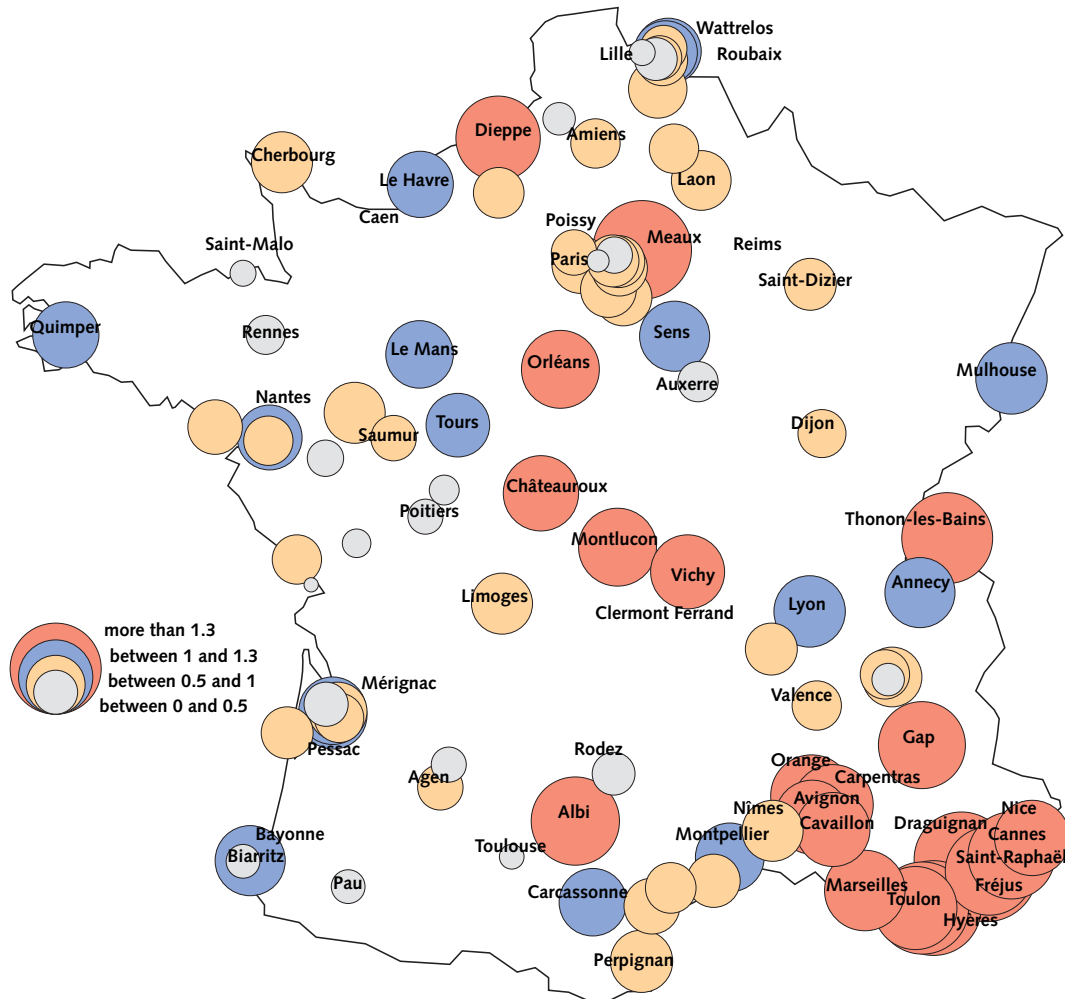
- An action plan has been drafted as part of the Centre-West initiative, including the following stages for balancing:
  - On 1 July 2007: TSOs should have submitted a detailed study on the setting up of intraday commercial exchanges taking into account possible interaction with balancing exchanges;

- On 1 June 2008: TSOs will submit a detailed study on the setting up of balancing exchanges throughout the region;
- On 1 July 2008: the Regional Coordination Committee (RCC), grouping together regulators from the five countries concerned, will publish the TSOs' proposal and invite all parties concerned to take part in a public consultation on the subject;
- On 15 October 2008: the RCC will publish its position, taking into account remarks made by market players in their contributions to the public consultation, and will embark on the actions required for its implementation;
- On 1 March 2009: balancing exchanges will be in force throughout the region.

- A working group assigned to balancing was set up at the beginning of 2007, as part of the 'France, Great Britain and Ireland' Regional Initiative, with the aim, as regards the France-England interconnection, of facilitating reciprocal access to balancing markets and development of exchanges.

CRE also participates in the ERGEG Electricity Market Taskforce, which looks into issues related to integration of balancing mechanisms. On 6 December 2006, after public consultation, ERGEG published a document entitled 'Guidelines of Good Practice for Electricity Balancing Markets Integration', presenting initial recommendations for successful integration of balancing mechanisms. The document will be supplemented by considerations concerning intraday mar-

Figure 11: Annual average frequency of long power cuts in major French towns (> 20,000 inhabitants) per user connected to low voltage supply, attributable to any cause – 2005 results



Source: CRE



Figure 11 illustrates the frequency of long power cuts per user connected to the low voltage supply and per municipality of more than 20,000 inhabitants.

Out of the total number of municipalities studied, forty experienced fewer power cuts in 2005 than in 2004 and fifty-five experienced more, with two municipalities recording identical performance.

As an average over the years 2004 and 2005, Orléans, Montluçon, Vichy and a significant number of municipalities in the PACA region recorded the worst performances, with an average frequency greater than 1.3 long power cuts per user. Orléans and Montluçon experienced a significant drop in the number of long power cuts per user between 2004 and 2005.

Thirteen municipalities in the PACA region, including Nice, Marseille, Cannes, Orange, Avignon and Toulon, experienced increases in numbers of power cuts between 2004 and 2005, a deterioration attributable to load shedding occurring in 2005 on the bulk transmission grid, which does not provide the East of the PACA region with a satisfactory level of security of supply. The sharp rise in loads in the area, combined with the absence of a new 400 kV link between Manosque and Nice, explains the high frequency of long power cuts throughout the area at all voltage levels. The PACA region is a sensitive area, especially the departments of Var and Vaucluse, and over the next few years CRE will particularly survey performances as regards continuity of electricity supply in this region.

Figure 12 illustrates frequency of long power cuts per user connected to the low voltage supply and per syndicate (departmental syndicates, inter-municipality syndicates, federations, and municipal councils). The municipalities in figure 11 are independent franchises, and therefore do not belong to the syndicates in figure 12. Areas suffering from lack of continuity of supply in figure 11 complement those observed in figure 12.

Out of the total number of syndicates studied, 51 experienced improvement in frequency of power cuts between 2004 and 2005 and 36 deterioration. As an average of 2004 and 2005, syndicates located in Lot, Creuse, Ardèche and Haute-Marne recorded an average frequency greater than 1.75 long power cuts per user per year. However, there was improved performance for the latter between 2004 and 2005.

The Drôme syndicate experienced poor performance in 2004 and 2005 (1.98 and 2.40 long power cuts), attributable to specific climatic events (storms in 2004, and sticky snow in 2005) that adversely affected quality.

The Var syndicate experienced average frequency of long power cuts of 2.16 and recorded deterioration in performance between 2004 (1.76 long power cuts) and 2005 (2.56 long power cuts). The Vaucluse syndicate also experienced significant deterioration in performance between 2004 (0.64 long power cuts) and 2005 (1.60 long power cuts). These components confirm the results of the study conducted in the municipalities.

**2.3.2. Quality of transmission grid**

Data collected by CRE relating to performance of the public electricity transmission grid is broken down into four areas:

- description of customers and rate of grid unavailability;
- continuity of supply and voltage quality;
- quality of operator service, including management of complaints and commitments related to the quality approach;
- checking of users' duty of care.

RTE transmits this information annually or quarterly to the seven-region network in the grid operator's territorial organisation. It is illustrated in figure 13.

Table 1 indicates the equivalent duration of power cuts per RTE region in 2002, 2003, 2004 and 2005, attributable to any cause (AAC) and excluding exceptional events (EEE).

RTE region	AAC (min)	EEE (min)
Normandy Paris	1.99	1.53
East	3.97	1.46
Rhône-Alpes Bourgogne	3.97	2.88
West	4.44	2.99
Southwest	4.86	3.73
Southeast	5.18	3.71
Northeast	5.62	4.23

Source: CRE (2007)

On the public transmission grid, the Northeast, Southeast and Southwest regions experienced the worst quality of supply on average over 4 years, an analysis confirming that carried out on distribution grids for the two regions in the South of France. The poor results in the Northeast transmission region do not have as significant a knock-on effect on the region's distribution grids.

These figures do not include load shedding of consumption decided on by RTE, which may account for a high proportion of power cuts experienced by grid users. In 2005, the HTA public distribution

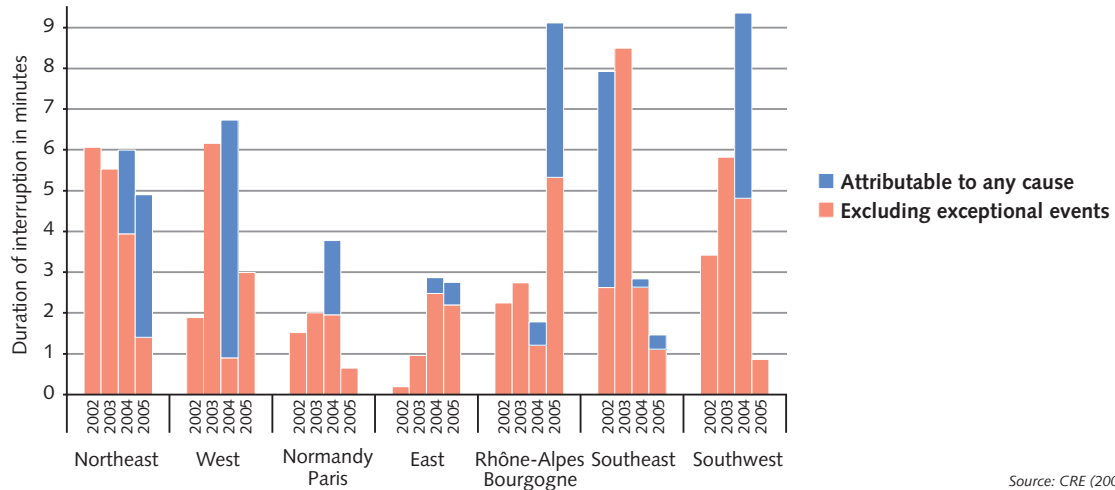
grids in the Southeast region experienced 45 minutes of interruption to supply because of recurring incidents on the public transmission grid.

**2.3.3. Aims of quality monitoring**

Activity reports provide CRE with reliable information on public grids performance, comparable on a year-to-year basis, as illustrated by figure 14. Such information enables CRE to:

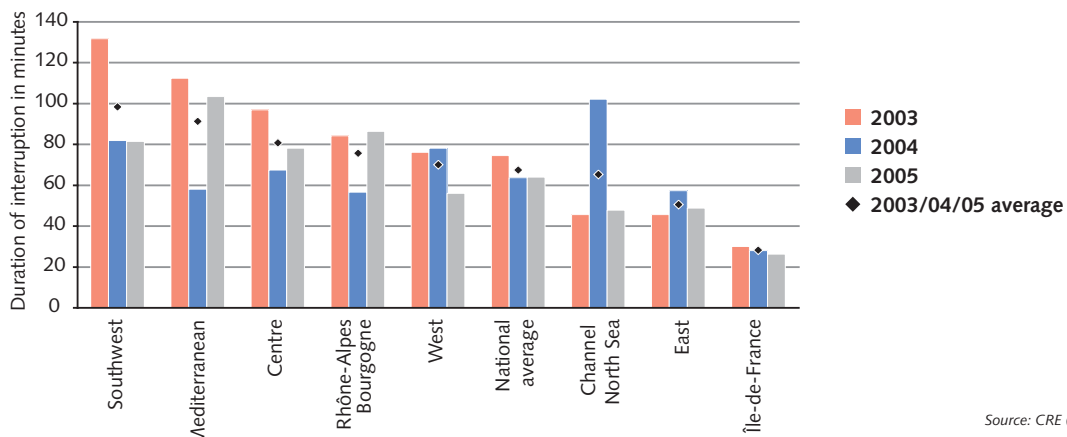
- check trends in indicators for each franchise and so prevent any local deterioration in quality from one year to the next;

**Figure 13: Trends in equivalent power cut duration per region on the RTE public transmission grid**



Source: CRE (2007)

**Figure 14: Regional comparison of annual average duration of long power cuts on distribution grids operated by ERD (customers connected to low voltage supply, attributable to any cause)**



Source: CRE (2007)



- determine parameters of economic mechanisms for incentive-based regulation of grid operators with regard to quality. Such regulation is envisaged for the upcoming tariff for grid use;
- assess quality targets of draft regulatory texts soon to be submitted to CRE for advice;
- Incorporate results in international benchmarking carried out by CEER.

Setting up of this report with the main local distribution companies is underway.

### 2.4. General technical requirements for connection of users to public electricity grids

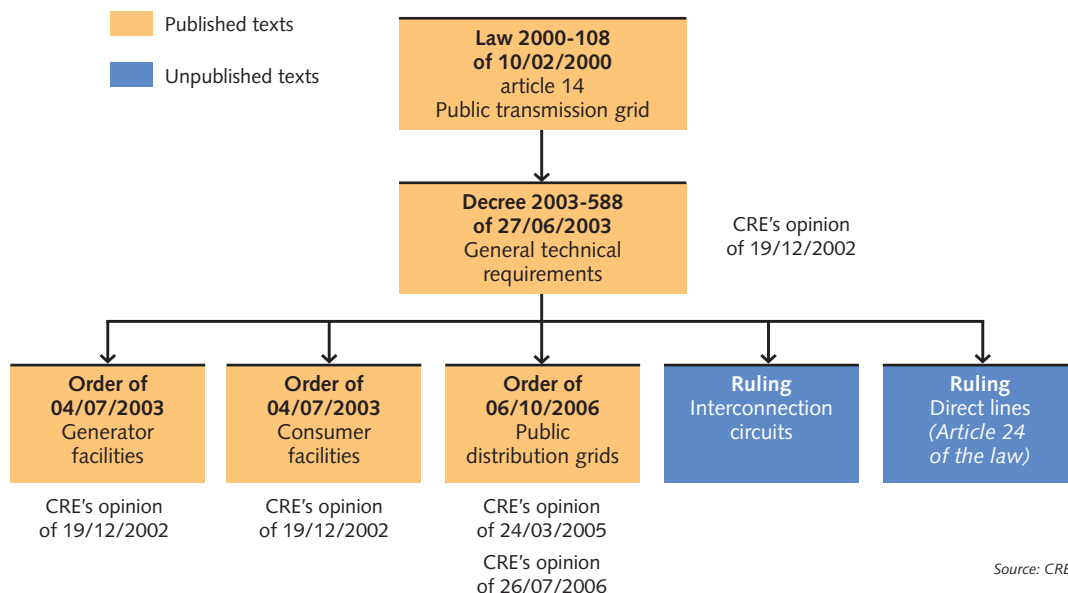
Technical design and operation requirements for connection to public transmission and distribution grids with which grid user equipment must comply, in application of articles 14 and 18 of the Law of 10 February 2000, have been completed. The regulatory framework for connection to public electricity grids is illustrated in figures 15 and 16.

With improved understanding of requirements applicable to them, public grid users can now make rational technical and economic choices for connection of new equipment.

The Ministerial Order of 6 October 2006 governing such technical requirements complements the regulatory framework for connection to the public transmission grid. However, the Government has not taken account of the four main criticisms contained in CRE's opinions of 24 March 2005 and 26 July 2006:

- too great a number of components left for agreement between parties, whereas access must be regulated and not negotiated;
- absence of a QA plan for the protection system, contrary to what is stipulated for users other than distribution grids;
- absence of regulatory obligation concerning transit of reactive power to the delivery point;

Figure 15: Legal framework for connection to the public transmission grid



- limitation of the extent of the appendix governing exceptional operating conditions and voltage dips.

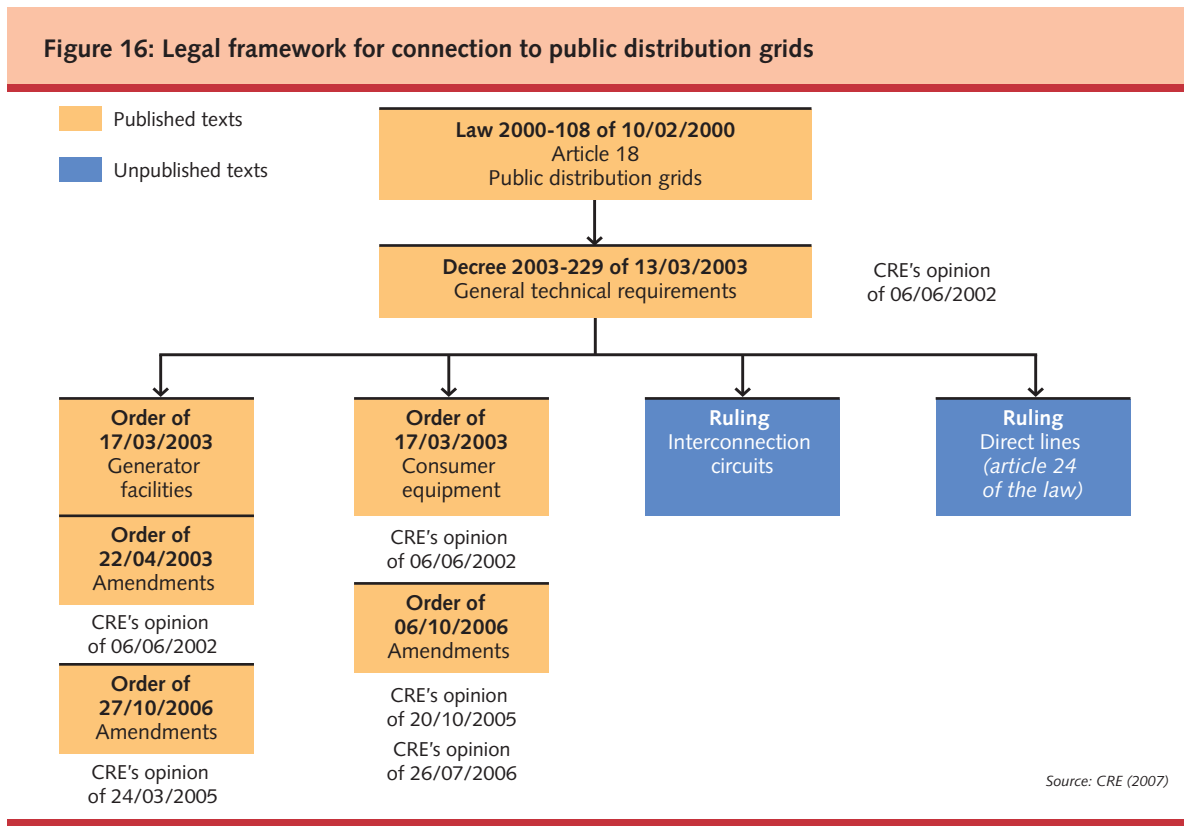
An initial Ministerial Order of 6 October 2006 (CRE's opinions of 20 October 2005, and 26 July 2006) complements the provisions of the Ministerial Order of 17 March 2003 governing conditions for connection of consumption equipment. It maintains the conditions for supply of high loads and improves support of the electricity system by consumption equipment including loads connected to public distribution grids and generation groups integrated on the same sites.

Modifications regarding participation of generation groups directly connected to public grids during exceptional operating conditions of frequency and voltage, resulting from article 19 of the Ministerial Order of 6 October 2006 governing connections of public distribution grids, improve support of the

electricity system. Modification of the limitation of voltage surge to 5% is the result of standardisation between the various Ministerial Orders of 17 March 2003.

The Ministerial Order of 27 October 2006, on the draft of which CRE issued an opinion on 24 March 2005, complements the provisions of the Ministerial Order of 17 March 2003 governing conditions for connection of generation facilities. It improves support of the electricity system by generation groups of power greater than 5 MW, connected to public distribution grids during periods subject to exceptional operating conditions of frequency and voltage.

These new texts will contribute to improved grid operational security and transparency of rules applicable to users (generators, consumers and distributors).



## 2.5. Technical reference documentation by public electricity grid operators

Regulations in force are unable to cover all technical measures pertaining to public electricity transmission and distribution grids, which is why, on 7 April 2004 and basing itself on article 37 of the Law of 10 February 2000, CRE decided to oblige public electricity grid operators to publish technical guidelines.

### 2.5.1. Technical reference documentation by public electricity TSOs

In compliance with article 35 of the standard technical specifications for public electricity transmission grid franchise, “the public transmission grid franchisee shall communicate to CRE and the Minister for Energy, prior to publication, technical reference documentation and results of consultation with representatives of the various categories of grid users”.

Technical guidelines for the public transmission grid form part of such technical reference documentation. The means employed to draw them up, stipulated in CRE’s decision of 7 April 2004, are confirmed by the new standard technical specifications.

### 2.5.2. Information gathered from CRE’s public consultation of 5 May 2006

On 5 May 2006, CRE initiated a public consultation designed to measure the consequences of setting up technical guidelines and the interest manifested by public grid users. The consultation enabled users to communicate problems encountered with their public electricity grid operators concerning interpretation and application of these documents and, if necessary, propose areas for improvement in the system.

CRE’s Communication of 22 March 2007 presented the information collected from this consultation, including the interest manifested in improvement of procedures for handling connection requests.

Users pointed out that the technical guidelines are essential documents for explanation of grid operator practices. They also indicated that they had taken considerable part in discussions organised by grid operators (mainly ERD and RTE) prior to publication of documents constituting technical guidelines.

However, contractual and financial technical aspects of conditions for connection and access to public transmission and distribution grids were criticised by contributors, mainly with regard to studies on connection to the public distribution grid. Opinions were less critical as regards transmission, but the low number of connection requests under review during the consultation period renders the sample less significant than in the distribution field, and contributions must be reviewed in the light of further consultation focusing on a larger sample.

Users stated that feedback from day-to-day use of the technical guidelines was still limited. The main criticisms expressed by users concern the form of the texts:

- perplexity, faced with the highly technical content;
- fear of bestowing prescriptive power on grid operators not granted by regulations.

## 2.6. Contracts for public electricity grid access

### 2.6.1. Modifications made by the standard technical specifications for electricity transmission grid franchise

The new standard technical specifications for electricity transmission grid franchise stipulate that contract templates for public transmission grid access must henceforth be approved by CRE. Such templates must be included in the technical reference documentation and published.

Contracts between RTE and DSOs are not directly submitted to the regulator for approval. However, they must be included in the reference technical

documentation and are therefore subject to prior review by CRE.

CRE will shortly state conditions under which it will study proposals, along with its expectations for the new access contract templates, which must transpose European Community and national requirements guaranteeing fair grid access.

#### **2.6.2. Publication of the RTE-LDC contract template**

In 2006, several rounds of negotiations between RTE and local distribution companies resulted in publication of a version of the contract template without participation from distribution system operators. A new version of the contract template, drawn up together with CRE and with wide consensus from distributors, was published in December 2006. So far, 15 local distribution companies as well as ERD have signed contracts conforming to this template.

However, a few continuing differences of opinion have been identified and reported in a joint RTE and LDC document, and these points need to be resolved in 2007, in order to improve RTE's, distribution system operators' and grid users' legal security.

#### **2.6.3. Revision of DSO-supplier contracts**

With the opening of the market on 1 July 2007, it was necessary to adapt existing DSO-supplier contract templates. A working group was set up within GTE 2007, bringing together RTE, distributors and suppliers, and with CRE participation, its mission being to identify priorities for adaptation of templates, taking into account the requirements of the Law of 7 December 2006 and consumer types of customers concerned, and to make operational proposals for contract amendments.

To ensure that the household customer market is opened under good conditions, the DSO-supplier contract templates must be drawn up based on a sim-

ple and robust legal template for relations between suppliers, grid operators and customers, a need that is fulfilled by the mandate. Contract templates must facilitate supplier customer management and provide for opposability of processes and commitments between the various parties concerned.

#### **2.6.4. Revision of connection agreements and operating agreements**

Access contract templates were drawn up and published by distribution system operators for application of tariffs for the use of electricity grids, effective as from 1 January 2006.

CRE continues to work, alongside ERD in particular, on other documents within the scope of contractual grid access – connection agreements and operating agreements – with the aim of simplifying them, checking consistency with access contracts and adapting them to the type of user likely to subscribe to them.

#### **2.7. Electricity grid tariffs: towards more incentive-based regulation?**

In compliance with the European Directive of 26 June 2003, activities of electricity generation, commercialisation, transmission and distribution are unbundled in France. As natural monopolies, activities of management of transmission and distribution infrastructures are subject to tariff regulation.

Tariffs proposed by CRE seek to achieve several objectives. Firstly, the tariff structure must provide for non-discriminatory third-party grid access so as to introduce genuine competition between the various market players. Secondly, CRE protects end consumer interests by checking trends in tariff levels while ensuring fair operator return.

Since its founding, CRE has issued two tariff proposals, enforced on 1 November 2002 and 1 January 2006 respectively. In the context of forthcoming tariff pro-

posals, further progress could be made by explicitly encouraging operators to improve the quality-price ratio of services provided to end consumers, so combining improved end consumer satisfaction and operator interests.

During the last change, tariffs for the use of low voltage electricity grids recorded a significant drop of 8%, to the benefit of consumers, while tariffs for medium and high voltage grids remained stable.

Productivity gains imposed by CRE on grid operators greatly contributed to this change. Another significant innovation in the tariffs which came into force on 1 January 2006 was the setting up of an extra-accounting trustee account, the expenses and revenues clawback account (cf. p. 48). This tool enables grid operators to benefit from coverage of a number of risks related to changes in factors beyond their control and difficult to predict.

The first fifteen months of enforcement of the new tariff demonstrated how useful this tool was. Auction revenues are the most difficult to forecast, due to volatility of European market price differentials. Feedback from 2006 only confirmed the unforeseeable nature of such income, with the difference between forecast revenues and actual revenues amounting to 228 M€ for that year, a trend which should continue on into 2007. Offset of this positive balance should have a significant impact on upcoming tariff levels.

CRE's eventual aim is to set up a more incentive-based mode of tariff regulation, and a number of projects are underway to this end.

Firstly, better understanding of the changing profile of grid operator costs is deemed necessary, and, in its

deliberations of 21 December 2006, CRE asked RTE to conduct a study of past changes in unit investment costs.

Consideration has also been given to the advantages and effects of setting up incentive-based regulation of quality.

## 2.8. Electricity metering systems

Several major electricity distributors across the world have already extended installation of upgraded, remotely managed metering systems to their mass customers. Equipment concerned ranges from several hundred of thousands to several million units (ENEL in Italy, PPL in the USA and Vattenfall in Sweden, among others). Numerous projects are also being developed (Endesa in Spain, ACEA in Italy, and Swedish and Californian distributors among others), and virtually all electricity meter manufacturers now offer upgraded systems of remotely managed meters and metering data.

In order to assess the opportunity for mass introduction of upgraded metering in France, and basing itself on technical specifications proposed by the GTE 2007, CRE commissioned an independent study, the results of which were published in February 2007.

The study shows that, even if the economic advantage of upgraded metering systems is neutral or only slightly positive for the public distribution system operator, the impact on electricity supply and generation costs could be significant.

Gains in terms of supply would result from improved customer relations (abolition of billing based on estimated indexes, fall in numbers of complaints and

phone calls, possibility of billing a part of non-technical losses, and reduction in numbers of unpaid bills) – a factor that was the driving force behind legislative changes recently introduced in Sweden.

The study shows that, for generation, the upgraded metering system can usefully contribute to control of consumption peaks and therefore to reduction in average generation costs, a factor that played a determining role in decisions recently taken in California and Ontario, and was one of the reasons behind the USA's Energy Policy Act of 2005.

In France, this aspect also drew legislators' attention: paragraph IV of article 4 of the Law of 10 February 2000, taken from the Law of 13 July 2005, stipulates that "public transmission and distribution system operators shall implement systems enabling suppliers to offer their customers different prices, depending on the time of year and day, encouraging grid users to limit consumption during periods when consumption by all consumers is at its highest". The text vests CRE with the power to propose a decree to the Government ruling on methods of its application, in particular as concerns the means of bearing the financial costs of the system.

The study shows that consumers should also benefit directly from upgraded metering, insofar as it makes switching suppliers simpler and so decreases supply prices, due to improved conditions of competition. It also points out that consumers can reap indirect benefits from upgraded meters, their presence being no longer required for simple operations such as meter reading and modification of subscribed power, or for termination of contract and reconnection.

In order to achieve such results, there is an immediate need to define the framework governing grid operator deployment of systems for remotely managing meters and metering data. With this end in mind, CRE, in its Communication of 6 June 2007, emphasised the fact that any planned deployment of upgraded metering systems must improve conditions for electricity market operations and enable grid operators to minimise their costs. In the same document, CRE laid down its guiding lines for upgraded metering of low voltage electricity.

These components will act as the basis for the draft decree in the Conseil d'Etat provided for by article 4 of the Law of 10 February 2000, to be proposed by CRE to the Government for management of deployment of systems for remotely managing meters and metering data in the low voltage range.

This involves the metering system planned by ERD (cf. p. 120):

- The pilot project must be considered as an experiment and, as such, will be subject to assessment, after which the system could be deployed on a mass scale, depending on CRE's decision;
- The experiment will be jointly prepared and tracked by distribution system operators, consumers and suppliers within the context of the Consumer Working Group (GTC);
- A review board, chaired by CRE, will be responsible for checking compliance with the guiding lines contained in its Communication and for assessing the experiment, once it has been completed.



### 3. Regulation of gas networks and infrastructures

#### 3.1. Gas infrastructures

There are 4 types of gas infrastructure in France:

- Transmission systems

Two gas TSOs operate in France: GRTgaz, a Gaz de France subsidiary, and TIGF, a Total subsidiary. The GRTgaz network is made up of 31,000 km of pipes and is divided into 4 balancing zones. The TIGF system is made up of 6,000 km of pipes in the Southwest of France and has only one balancing zone.

- Distribution networks

There are 23 distribution system operators (DSOs): Gaz de France Réseau de distribution, which has a 96% market share in terms of quantity of gas distributed (some 340 TWh a year) and 22 local distribution companies (LDCs), which distribute around 14 TWh a year, including 10 TWh distributed by the 2 largest, Gaz de Strasbourg and Régaz (Bordeaux).

- LNG terminals

Up to 1 July 2007, two LNG terminals have been operational, one in Fos Tonkin, the other in Montoir-de-Bretagne. They belong to Gaz de France and are managed by the Major Infrastructure Division (DGI).

The Fos Tonkin terminal, commissioned in 1972, has regasification capacity of 7 Bcm per year. It can accommodate ships of up to 74,000m<sup>3</sup>.

The Montoir terminal, commissioned in 1980, has regasification capacity of 10 Bcm per year. It can accommodate ships of up to 200,000m<sup>3</sup>.

A new LNG terminal is being built in Fos Cavaou set for commissioning in the first half of 2008. It belongs to Société du Terminal Méthanier de Fos Cavaou (STMFC), in which Gaz de France has a 69.7% stake and Total 30.3%. It has regasification capacity of 8.25 Bcm per year, 10% of which is dedicated for short-term contracts for third-party shippers.

- Underground storage facilities

In France, there are two underground storage system operators:

- Gaz de France DGI has 12 storage sites in 6 groups, spread across the whole of France aside from the Southwest area, and which represent capacity of 106 TWh – 79% of storage capacity in France;
- TIGF has 2 storage sites in the Southwest, with capacity of 27 TWh – 21% of storage capacity in France.

#### 3.2. Gas infrastructure utilisation

Gas infrastructure utilisation figures for 2006 and the first months of 2007 show the following main trends:

- A lively gas market

Several indicators illustrate its momentum. Firstly, use of gas has increased in France. In 2006, 122 municipalities connected up to the gas distribution system (initial connection), an increase of just over 1% in the number of municipalities connected, making a total of 25.7% of French municipalities and 76% of their inhabitants connected to natural gas.

There was also a rise in the number of shippers on gas networks and infrastructures (see table 2). Third-party shippers are widely spread out geographically and at the end of January 2007 were operating at 82% of the transmission-distribution interface points (PITD). However, there are still fewer third-party shippers on LDC networks than on the Gaz de France network, with only 5 LDCs out of 22 having two or more active shippers.

With the exception of HTaisnières, marketable capacity at gas interconnections has been fully subscribed.

- Increasing use of LNG

2006 saw a noticeable increase in the use of LNG terminals: there was a 7% rise in quantities unloaded at Fos Tonkin (62 TWh unloaded in 2006 against 58 TWh in 2005) and 15% at Montoir (98 TWh unloaded in 2006 against 85 TWh in 2005). These

figures correspond to a utilisation rate of physical re-gasification capacity of 75% for Fos Tonkin and 82% for Montoir, the highest rates in Europe.

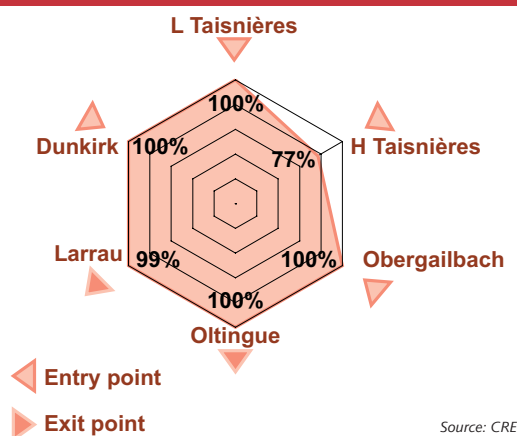
Alongside this increase, there has been a rise in the number of shippers – on 1 May 2007, 6 shippers had contracts for access to French LNG terminals, against 2 in 2005.

Five third-party shippers' vessels were unloaded at the two French terminals in 2006, against only 1 third-party unloading operation in 2005.

- Early filling of storage facilities before the winter

The number of users of French storage facilities has increased significantly: 8 suppliers subscribed to storage capacity with TIGF in 2006 and 2007, against 6 in 2005; 21 suppliers subscribed to storage capacity with Gaz de France DGI in 2007, against 16 in 2006 and 6 in 2005.

**Figure 17: Capacity reservations as of 31 January 2007, for the first half of 2007**



Source: CRE

As a result of the gas shortage at the end of the 2005–2006 winter, which was more severe than usual, suppliers took precautionary measures for the winter of 2006–2007 (cf. figure 17), filling their storage facilities to maximum levels very early. However, temperatures were unusually mild and the quantity of gas stored remained high, leading to low market prices.

### 3.3. Gas network and infrastructure tariffs

Article 7 of the Law of 3 January 2003 stipulates that decisions on tariffs for the use of transmission networks, distribution networks and LNG terminals are to be taken jointly by the Minister for the Economy and the Minister for Energy, on the basis of a proposal by CRE.

For transmission and distribution, the Law of 3 January 2003 sets a maximum period of 2 months between CRE's tariff proposal and the Government's approval or refusal.

#### 3.3.1. New tariffs for the use of gas transmission networks

New tariffs for the use of natural gas transmission networks came into force on 1 January 2007. CRE proposed them to the Government on 10 November 2006, after consultation with all parties concerned.

This is the third set of gas transmission tariffs proposed by CRE, after those of:

- July 2003, which led to an average reduction of 7% in tariffs and introduced "entry-exit" pricing on the main system;
- October 2004, with stable tariffs and a reduction in TSOs from 3 to 2, and in balancing zones from 8 to 5.

**Table 2: Number of shippers on gas networks and infrastructure on 1 April 2007**

	Transmission		Storage facilities		Terminals		Distribution	
	GRTgaz	TIGF	DGI	TIGF	Fos	Montoir	GDF RD	ELD
<b>Total number</b>	27	8	21 *	8	3	5	11	26 **

\* Including GRTgaz.

\*\* Including the 22 suppliers with a historical supply monopoly.

January 2007 tariffs, expressed in current euro value, are down by 2.1% for GRTgaz (5.8% in constant euro value) and up by 9.2% for TIGF (+ 5.2% in constant euro value). The increase in TIGF tariffs is due to growth in security-related expenditure and the steep rise in investments, mainly incurred by reinforcement of the Guyenne trunk main. Taking into account the relative sizes of the two TSOs, average natural gas transmission tariffs in France are down overall by 1% in current euro value.

#### A. Gas transmission tariffs

The main points of the tariffs are as follows:

- operating costs forecast by TSOs covered;
- fall in rate of return on capital employed;
- current investment incentives maintained;
- introduction of an error correction mechanism.

Details are provided on page 48.

#### B. Structure of gas transmission tariffs

The overall tariff structure, with 5 balancing zones, is maintained, as are the principles of 'entry-exit' pricing on the main network and 'distance' pricing on the regional network. The main changes, based in particular on feedback on previous tariffs and CRE's consultation of market players, are designed to prepare for the coming deadlines for the French natural gas market:

- Fall in link capacity charges between balancing zones

GRTgaz has begun investment in creation of a large-scale North balancing zone in France in 2009, by merging the present North, East and West zones. With this end in view, the link capacity charges which will then disappear have been reduced by 30%. Exit charges from GRTgaz to TIGF have likewise been reduced by 30%, in order to encourage gas movement between the two networks.

- Equalisation of exit charges for the main network

Main network exit charges will be standardised at around 30 €/MWh, whereas they previously ranged from 4 €/MWh to 60 €/MWh in 2007.

This will only be applied as from 1 January 2008, to give market players time to adapt to the change. It takes account of the highly interlinked structure of the main network and ensures consistency between transmission tariffs and regulated retail tariffs.

- A specific tariff for large-scale consumers

A specific rate has been introduced for large-scale gas consumers located close to gas entry points into France. In practice, this rate mainly concerns gas-fired power plants.

Main network entry and exit charges are halved if consumers agree to interruptions in certain specific situations (cold spells and absence of gas at the entry point concerned). This clause avoids shippers having to make costly investments which would be necessary if these sites had to be supplied under all conditions.

- Reduction in H to L gas conversion prices

New shippers do not have L gas (gas with low calorific value). To service the North of France, supplied with L gas, they have to subscribe to the GRTgaz conversion service. Halving of the price of H gas to L gas conversion will ensure more competition in this area, which accounts for around 10% of French consumption.

#### C. Prospects for coming tariffs for transmission network use

Since GRTgaz North, East and West balancing zones are set to be merged on 1 January 2009, transmission tariffs will have to be revised at the same time.

In the first half of 2007, CRE started work on coming transmission tariffs, which will involve a far-reaching change in their structure:

- Emergence of two gas hubs in France

The merger of the North, East and West balancing zones into a single North zone will result in deep-reaching changes in the structure of transmission tariffs. This merger, announced by CRE in 2004 and long awaited by market players, should lead to more stable tariffs after 2009.

On 21 March 2007, CRE asked TIGF and GRTgaz to set up a working group to prepare for improvements in transportation in the South of France as from 2009. The working group presented its proposals and analyses to CRE, on 31 May.

- Multi-year pricing with incentives

A stabilised tariff structure in France as from 1 January 2009, as well as increasingly accurate information on the two operators' costs, should lead to transmission tariffs being valid for longer periods of time.

CRE is also planning to alter the tariff framework to introduce incentive-based tariffification.

In 2007, the main lines of the future structure will be drawn up after dialogue with operators and market players.

In 2008, a more incentive-based tariff system encompassing the productivity targets assigned to operators will be developed in detail. An analysis will be carried out to determine whether this type of regulation mode should be introduced and if so, its scope.

### 3.3.2. Prospects for future tariffs for use of LNG terminals

On 31 October 2005, CRE proposed a new system of tariffs for the use of LNG terminals to the Government, which officially came into force on 1 January 2006.

It offers 2 output services:

- a continuous service for shippers unloading at least one cargo a month;
- a band service for shippers unloading one cargo a month at most.

In addition, a specific spot tariff has been introduced for shippers subscribing at the last minute (from the 20th of month M-1 for unloading in month M).

The tariff will encourage new shippers to use French LNG terminals, as will introduction of provisions for their operation when several shippers are present at the same time and the fall of around 20% in spot cargo tariffs. 5 spot cargoes were unloaded for third-party shippers in 2006, against 1 in 2005.

It is planned to introduce a new tariff for the Fos Tonkin and Montoir terminals at the commercial start-up of Fos Cavaou terminal (1<sup>st</sup> half of 2008). In its tariff proposal, in addition to services and levels, CRE will:

- take envisaged changes into account (extension of the Montoir terminal, and the fall in subscriptions recorded at Fos Tonkin);
- consider a changeover to a multi-year tariff system with incentives;
- improve 'use it or lose it' (UIOLI) rules.

CRE is also preparing a tariff proposal for the Fos Cavaou LNG terminal for the same deadline to be drawn up in line with the tariff for existing terminals.

### 3.3.3. Prospects for future tariffs for the use of distribution networks

Current tariffs for the use of distribution networks were proposed by CRE on 26 October 2005 and came into force on 1 January 2006. Their structure is more stable than that of the tariffs previously proposed by CRE, and the difference between LDC tariffs and the Gaz de France Réseau de Distribution tariff is smaller.

With the natural gas supply market fully opening to competition on 1 July 2007 and the legal unbundling of DSOs, there was uncertainty surrounding changes in DSO costs. The tariffs were therefore designed to be applied as from 1 January 2006 for around two years.

CRE is at present working, together with all DSOs and other market players, on setting new tariffs for the use of distribution networks.

Given the stable structure of tariffs for the use of distribution networks, CRE is examining the possibility of a multi-year pricing system with incentives

For this type of pricing system, the following 2 points need to be clarified beforehand:

- the impact that establishment of DSOs as subsidiaries and restructuring of gas distribution activities will have on the scope of DSO activity and its costs;
- maintaining quality of service. Care should be taken that productivity improvements required of DSOs do not result in a deterioration in quality of service.

### **3.4. Access to natural gas underground storage facilities**

#### **3.4.1. Terms and conditions for natural gas underground storage facilities**

The European Directive of 26 June 2003 leaves the choice between regulated access and negotiated access for underground storage facilities to Member States. France opted for negotiated access, under the Law of 9 August 2004.

The Law of 3 January 2003, amended by the Law of 9 August 2004, transposes the provisions on access to storage facilities stipulated by the European directive of 26 June 2003. It requires all suppliers operating on the French market to have gas in stock before the winter in proportions set out by the Decree of 21 August 2006. The law also stipulates that storage capacity shall be transferred to the new supplier in the event of a customer switching supplier. The method of transfer is defined in the above-mentioned decree.

The Ministerial Order of 7 February 2007 governing profiles and storage fees supplemented the regulatory system for third-party access to storage facilities.

Furthermore, a rule for all suppliers, guaranteeing sale of stored gas at a price reflecting the cost of stock constitution was introduced, as a result of CRE's settlement of the dispute between Altergaz and Gaz de France. It is now definitively in force, as the Paris Court of Appeal confirmed CRE's decision in its ruling of 23 January 2007.

This series of provisions ensures that all suppliers building a portfolio of end consumers in France will have the storage capacity they need.

#### **3.4.2. Tariffs for the use of natural gas underground storage facilities**

Natural gas underground storage system operators published the new storage offers for the gas (fiscal year 2007/2008) on their web sites, in January 2007 for TIGF and February 2007 for Gaz de France DGI.

The tariff proposed by TIGF rose by 6% on average (it had increased by 10% in April 2006), while that of Gaz de France DGI was up by around 9% (it had increased by 6% in April 2006).

CRE has no authority over these tariffs. However, it notes that operators did not justify these tariff increases and is concerned about the difficulty of forecasting trends in prices for access to storage facilities over the next few years.

### **3.5. Coordination between gas infrastructure operators**

Pour garantir la non-discrimination dans l'accès aux infrastructures, il est nécessaire d'assurer que l'accès aux infrastructures se fasse de manière non-discriminatoire. To ensure that there is no discrimination in infrastructure access, the different segments of the French gas supply chain (transmission, distribution, underground storage facilities and LNG terminals) are now managed separately and independently. In 2006, a major project was undertaken by the Gas Working Group (GTG 2007) to redefine and clarify interface rules between infrastructure operators and improve compatibility of information systems.

The tariffs for the use of gas transmission networks which came into force on 1 January 2007 facilitate coordination between natural gas infrastructure operators, and shippers can now use the infrastructure as a whole under the best terms and conditions.

### 3.5.1. Introduction of a system of standardised subscriptions for transmission capacity to distribution networks

In a fully open market, this system requires each shipper to subscribe to the transmission capacity necessary to supply its customers on distribution networks in the event of cold spells. Under this system, TSOs automatically assign PITD delivery capacity to each shipper, according to its portfolio of customers supplied downstream of the PITDs. The way it operates is described in detail in 'System of standardised subscription to PITD transmission capacity' posted on <http://www.gtg2007.com>

### 3.5.2. Optimisation of interfaces between transmission networks and LNG terminals

Pricing rules at interface points between transmission networks and LNG terminals have been refined, guaranteeing all shippers transmission capacity availability corresponding to their regasification capacity on an LNG terminal, within the limits of network capacity.

### 3.5.3. Optimisation of interfaces between transmission networks and natural gas underground storage facilities

Pricing rules at interface points between transmission networks and natural gas underground storage facilities have been refined, guaranteeing all shippers transmission capacity availability corresponding to the injection and withdrawal capacities they have at a storage group, within the limits of network capacity.

### 3.5.4. Standardised operation at interconnections between GRTgaz and TIGF

Pricing rules applicable to GRTgaz and TIGF transmission networks have been standardised to facilitate movements of gas between the two networks: marketing of the same types of capacity and better coordination on either side of the interconnections

between the two transmission networks (publication of capacity data in a single format and coordinated work programmes).

In 2007, CRE is continuing the task of improving coordination between gas infrastructure operators. Under the Law of 7 December 2006, CRE will, as necessary, set out the rules for the use of regulated networks and infrastructures and the missions of gas infrastructure operators.

## 3.6. Balancing mechanism

### 3.6.1. Background

Physical balancing of gas transmission networks plays an important role in the smooth running of the market and security of supply for end consumers.

To ensure proper overall network balance, all shippers are under an obligation to balance their gas injections into the network (imports, production and purchases at gas exchange points (PEGs)) and their withdrawals (consumption by their customer base, exports and sales to PEGs).

TSOs achieve physical balancing of transmission networks by using underground storage facilities (as part of a service between TSOs and storage system operators), while shippers are charged for their imbalances on the basis of gas prices at the Zeebrugge hub.

Although this mechanism enables TSOs to fulfil their obligations, it has two drawbacks:

- since the prices invoiced for shipper imbalances have no correlation with the cost of balancing, they do not reflect the real situation of French networks and do not send shippers the right economic signals;
- balancing does not help to improve the liquidity of the French wholesale market.

In the first half of 2006, CRE carried out a public consultation on the development of the balancing mechanism. In its deliberations of 21 June 2006, CRE asked GRTgaz and TIGF to enter into consultations with all market players, in order to examine whether balancing rules should be progressively changed over to a system based on market transactions.



These deliberations also established that changes in balancing rules are to be laid down by CRE on the basis of TSO proposals.

**3.6.2. Balancing rules on the GRTgaz network**

On 28 November 2006, GRTgaz sent CRE a proposal for changes in the balancing rules on its network, basing itself on consultations with market players carried out from July to November 2006. GRTgaz proposed the following changes:

- as from 1 April 2007, part of GRTgaz’s daily balancing needs to be covered by purchases/sales on the market, allowing a daily balancing price to be set;
- as from 1 July 2007, ‘daily balancing services’ (SEJ) to be replaced by a new optional tolerance offer, sponsored by GRTgaz, and implementation of measures to help shippers improve balancing management;
- as from 1 September 2007, invoicing of a part of shippers’ daily imbalance at the daily balancing price.

In its deliberations of 7 December 2006, after holding hearings with shippers, CRE approved the new balancing rules proposed by GRTgaz, and asked the latter to continue discussions with market players, regularly factoring in feedback on implementation of the new balancing rules and proposing any alterations if necessary.

However, as a result of computer difficulties, GRTgaz postponed the deadlines for implementation: the first stage started on 12 April 2007 and the second and third stages will begin on 1 July 2007 and 1 September 2007, respectively.

In order to ensure that balancing is financially neutral, GRTgaz has introduced an income statement for balancing, including the costs and revenues related to this mechanism.

**3.6.3. Balancing rules on the TIGF network**

On 7 December 2006, CRE once again asked TIGF to organise a consultation on balancing with its network users.

On the basis of this consultation, which began early in 2007, TIGF proposed temporary extension of the current balancing system, under which the shippers use storage facilities to balance their injections and withdrawals, and undertook to improve the allocation imbalance management mechanism.

**3.7. Development of gas infrastructures**

**3.7.1. New LNG terminal projects and planned extensions**

With the development of LNG, there have been a large number of LNG terminal construction projects worldwide (see table 3).

**Table 3: LNG terminal projects announced in France in 2006**

Project sponsor	Site	Capacity	Commissioning
<b>4Gas (Carlyle Group)</b>	Le Verdon (Autonomous Port of Bordeaux)	6 to 9 Bcm per year	2011-2012
<b>EDF</b>	Autonomous Port of Dunkirk	6 Bcm per year	2011-2012
<b>Endesa</b>	Le Verdon (Autonomous Port of Bordeaux)	6 Bcm per year	2011-2012
<b>Gaz de Normandie (66.66% Poweo /33.34% CIM)</b>	Antifer (Autonomous Port of Le Havre)	9 Bcm per year	2011-2012
<b>Shell</b>	Fos-sur-Mer (Autonomous Port of Marseille)	8 Bcm per year	2015

Source: CRE

In December 2006, Gaz de France also announced a project for extension of the Montoir LNG terminal, in accordance with commitments made by Suez and Gaz de France to the European Commission, under the merger project. Two scenarios are being examined:

- commissioning of a regasifier which would increase terminal capacity from 10 Bcm per year to 12.5 Bcm per year, in 2011;
- construction of a fourth tank which would increase terminal capacity to 16.5 Bcm per year, in 2014.

The choice of scenario will depend on market response at the end of the open season procedure, for which Gaz de France issued a call for subscriptions on 27 December 2006.

The decisions to be taken for all these projects will have a major influence on operation and design of the French gas market.

CRE is working on principles to be established to encourage the investment necessary to meet market needs.

### 3.7.2. Interconnections

#### A. Obergailbach

The Obergailbach entry point, linked to Germany through the Megal gas pipeline, mainly serves to transport gas from the Russian production fields.

At present, the firm entry capacity sold amounts to 430 GWh/d. At the end of 2004, Megal shareholders decided to develop exit capacity on the German side. Consequently, in May 2005, GRTgaz organised a market consultation to determine the need for additional entry capacity on the French side.

As a result of this, GRTgaz decided to reinforce the Obergailbach entry point to offer firm entry capacity of 550 GWh/d at the end of 2008 and 620 GWh/d at the end of 2009.

#### B. The Fluxys/GRTgaz open season

The Taisnières entry point is connected to two gas pipelines located in Belgium and is used to import gas from Norway and the Netherlands. Analysis of subscriptions and flows at this point highlights the access difficulties experienced by new entrants, even though the full capacity of the infrastructure is not reserved on the French side (see inset 18).

#### Inset 18: Open season

Security of supply and setting up of a competitive market require the development of gas infrastructure capacity corresponding to operators' needs and allocated on a non-discriminatory basis. An open season is a transparent call for subscriptions designed to achieve these two targets.

At the 11<sup>th</sup> Madrid Forum, which was held on 20 and 21 February 2007, the European Commission emphasised the need for a study of the role that open seasons could play in Europe. ERGEG then proposed to carry out such a study and formed a working group, cochaired by CRE and the Austrian regulator (E-Control). It was necessary for CRE to take part in this working group, in particular because of the large number of open season projects planned for 2007, in France and at its borders.

After considering the main open seasons organised in Europe and North America in recent years, CRE and its Austrian counterpart proposed a code of good practice, submitted for public consultation in December 2006, then presented to the parties concerned at a workshop in March 2007.

The code of good practice was approved at the ERGEG General Assembly on 10 May 2007. It will next be passed on to the European Commission, which could use it in the preparation of its third legislative package (see p. 32).

Consequently, the shippers Fluxys and GRTgaz undertook to find solutions to the difficulties identified. Some initial measures were presented at a gas interconnection workshop, held at CRE on 11 May 2007 as part of the ERGEG Regional Initiatives.

In addition, for the longer term, on 26 April 2007, GRTgaz and Fluxys made a coordinated announcement of the start of a consultation on additional capacity needs for gas transit from Belgium to France. Interested shippers have until 31 July 2007 to notify their non-binding requests and until 30 November 2007 to put in their binding requests. Based on the results of this consultation, GRTgaz and Fluxys could, if necessary, decide to increase interconnection capacity, to be made available on the market on 1 November 2011. The GRTgaz and Fluxys consultations will take place under the respective supervision of the French and Belgian regulators.

In the second half of 2007, an 'interruptible transit' service will be proposed by Fluxys to enable shippers to transport gas from Belgium to France.

#### C. France-Spanish interconnections

On 6 February 2007, as part of the ERGEG South Regional Initiative, Enagas, GRTgaz and TIGF presented a forecast investment plan for development of interconnections between France and Spain by 2010-2011.

The plan, which assumes prior completion of phases 2 and 3 of the Guyenne trunk main and reinforcement of the Larrau interconnection point, provides for physical imports of gas from Spain to France of around 3 Bcm in 2010 and 5 Bcm in 2011.

In parallel, TSOs will work with the relevant regulators to design transparent, non-discriminatory allocation methods for the capacity thus created.

### 3.7.3. Gas TSOs' investment programme

Ensuring the investment essential for connecting new entry points and eliminating congestion in France has been one of CRE's priorities for many years.

The forecast multi-year investment plan (PPI) in the gas sector, published by the Government on 5 March 2007, is based on an annual increase of 2.1% in national natural gas consumption over the next ten years. This growth will result mainly from the commissioning of gas-fired power plants in France. Gas infrastructures must be developed accordingly, so as to ensure security of supply for end customers and make it possible to introduce competition between the different sources of foreign supply.

**A. CRE's powers extended to approving TSO investments**

TSO investment programmes must meet their statutory obligations (continuity of supply, safety standards governing transmission facilities, and environmental standards), as well as satisfying gas shippers' needs, at the lowest cost.

The Law of 7 December 2006 extended CRE's power – bestowed by the Law of 10 February 2000 – of approving TSOs' investment programmes for the electricity transmission grid to the gas sector.

It should also be pointed out that article 6 of the Law of 3 January 2003 enables CRE to send TSOs letters of formal notice to carry out necessary improvements to their networks “if they are economically justified or if a potential customer indicates that it undertakes to pay for them”.

**B. Tariff framework fostering TSO investment**

In the first transmission tariff it proposed in July 2003, CRE set up a tariff framework fostering investment for start-up of projects necessary for improved French

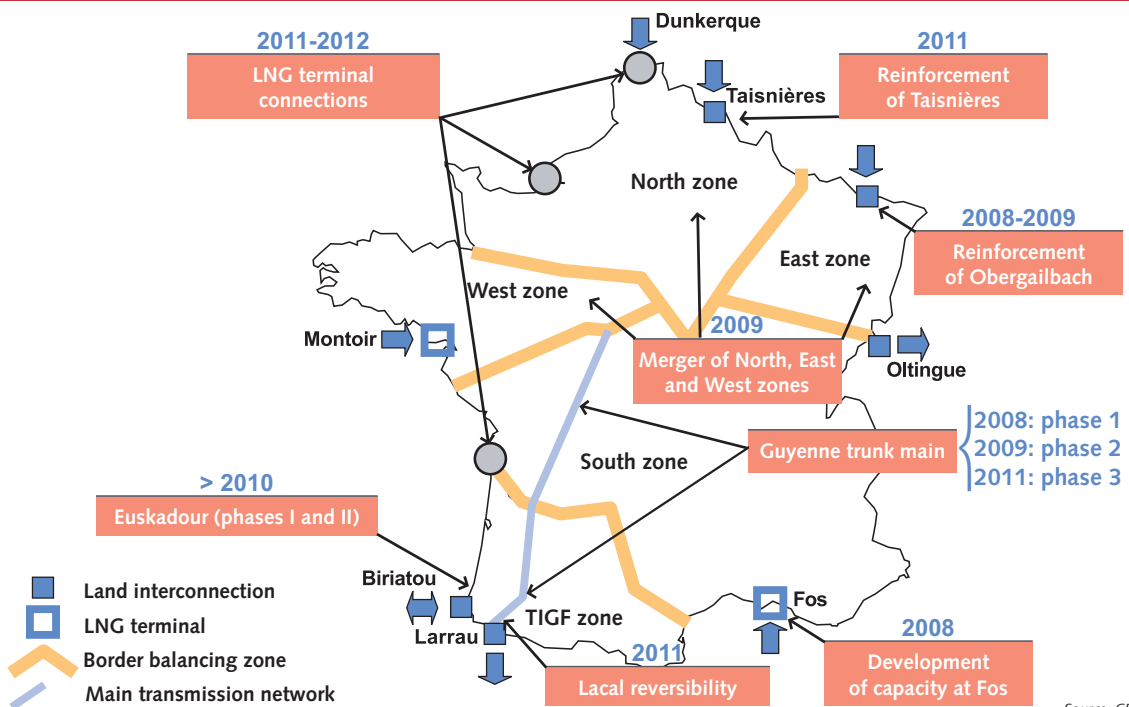
gas market operation: first phase of the Euskadour pipe and reinforcement of the Guyenne trunk main in the Southwest, connection of the Fos Cavaou terminal, increased entry capacity at Obergailbach and elimination of congestion in the North of France (see. figure 18).

This system of investment incentives is applied to transmission tariffs in force since 1 January 2007. The real base return on investments is set at 7.25% before tax. A systematic bonus of 125 base points is allocated to new transmission network investments carried out after 2004. If CRE so decides, a further bonus of 300 base points can be applied, for 5 or 10 years, for investments improving market operations.

In addition, transmission tariffs in force since 1 January 2007 include two changes improving integration of TSO investments:

- full cover of capital costs of future TSO investments through the expenses and revenues clawback account mechanism;
- return on current capital expenditure taken into account for calculation of capital costs.

**Figure 18: Priority investments identified in the 1<sup>st</sup> multi-year forecast gas investment plan (PPI) published in March 2007**



Source: CRE

**C. Higher rate of return for decongestion of the gas transmission network in the North of France**

On 12 December 2006, CRE received a request from GRTgaz for a higher rate of return, for 10 years, for the 152.4 M€ project to develop entry capacity at Obergailbach and for the 318.2 M€ project to decongest the North zone of France.

In its deliberations of 8 February 2007, CRE indicated that a higher rate of return must be considered as an incentive for TSOs to make investments that they are not required to make as part of normal network operation. It is only applicable to projects which are deemed necessary to allow or foster more competition on the French market in the long term, but for which, at the time of the study, there is not sufficient certain demand, lasting and quantifiable by market signals, for transportation (cf. figure 19). Furthermore, it will not be automatically granted and applications must be examined on a case-by-case basis against the criteria mentioned above.

In the light of the above, CRE decided to grant a rate of return increased by 300 base points for a period of

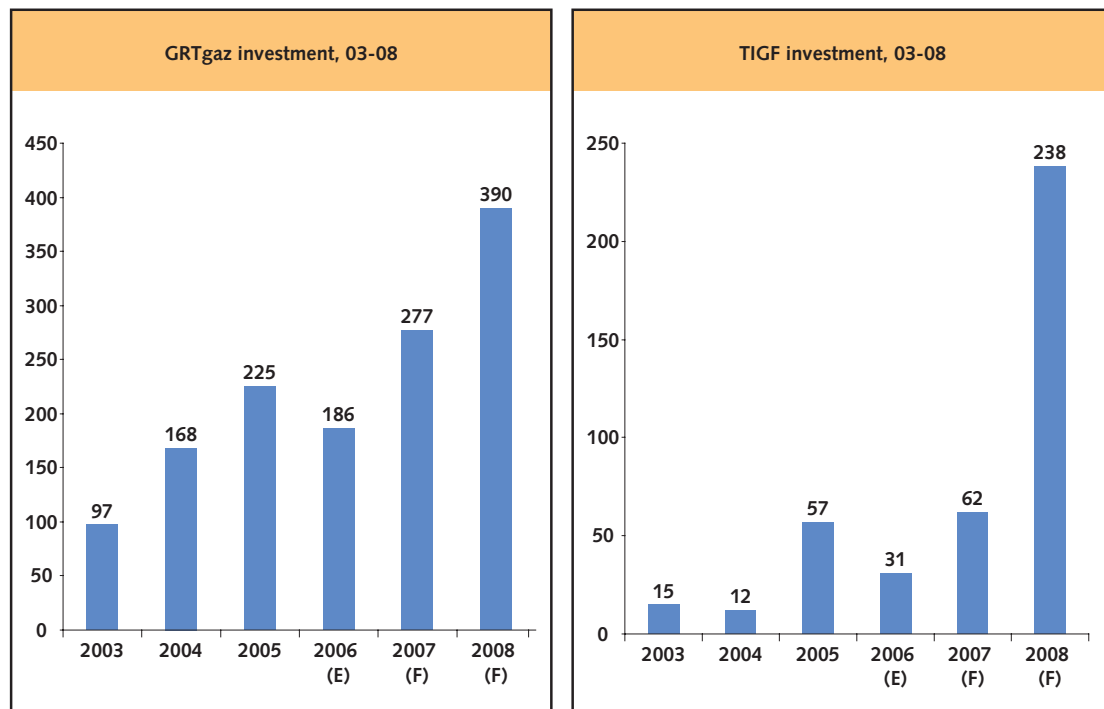
10 years for the GRTgaz 280 M€ investment programme to decongest the gas transmission network in the North of France. Under this programme, the single North balancing zone will be established as from 1 January 2009.

Suppliers bringing liquefied natural gas into the West, gas into the North (mainly Norwegian and Dutch gas) and East (Russian gas) of France will therefore be able to freely service a consumption zone of around 350 TWh a year. This increased competition between the different sources of gas will foster emergence of a large-scale hub within the future North zone.

End consumers will thus have access to more competitive offers from a greater number of suppliers.

However, CRE decided not to grant a higher rate of return for investments made for the reinforcement of the entry capacity at Obergailbach. These investments, which will provide balancing of entry capacity into France with exit capacity developed on the German side, comes under the TSO's normal activities and will be remunerated in the same way as other GRTgaz investments.

**Figure 19: Investment fostered by tariff incentive framework**



(E) Estimated

(F) Forecast

Source: CRE

## II. Markets

### 1. Changes in the regulatory and legislative contexts of electricity and natural gas markets

Outre la possibilité de privatiser Gaz de France, la  
Besides the possibility of privatising Gaz de France, the Law of 7 December 2006 aligned the French legislative framework with the European Directives of June 2003 in preparation for opening of the market to household customers, imposed pricing measures, and bestowed new missions on CRE.

Conformity with the directives was brought about by three main changes:

- The law stipulated that all consumers of electricity and natural gas will be eligible as from 1 July 2007
- It imposed measures for consumer protection, in conformity with Appendices A of the directives, stipulating:
  - the content of contractual and pre-contractual information that suppliers must make available to consumers,
  - regulation of the date upon which termination of a contract at the customer's initiative comes into effect, and costs entailed therefrom,
  - minimum notice to be given when modifications are to be made to contractual conditions,
  - suppliers' obligation to offer customers a single contract, with an appendix containing the clauses governing supplier-distributor relations.

All such provisions are applicable to household customers and almost of them to small non-household customers (subscribing to electrical power of 36 kVA or less and consuming less than 30,000 kWh of natural gas per year).

- It appointed an Energy Mediator, responsible for recommending solutions to disputes between consumers and suppliers of electricity and natural gas, and to help in drafting information on electricity and natural gas consumer rights. Disputes concerning fulfilment of contracts between suppliers and household or small non-household customers may be submitted to the mediator.

As regards pricing, the law imposed the transitory regulated tariff for market adjustment (TaRTAM – see inset 19) and the special solidarity tariff for gas. It also laid down conditions for application of regulated retail tariffs as from 1 July 2007 (see inset 20).

A customer holding a market contract can benefit from the TaRTAM to the site(s) for which he has requested it from his supplier before 1 July 2007. The TaRTAM can be no more than 25% higher than the regulated retail tariff, excluding tax, applicable to a consumption site with the same characteristics. The tariff is applicable for a maximum period of 2 years as from the date of the request, and is set by an order issued by the Minister for Energy on 3 January 2007.

Upon request, household customers with the right to the special social tariff for electricity can also benefit from a special solidarity tariff applied to supply of natural gas and services connected to it.

#### **Inset 19: The transitory regulated tariff for market adjustment (TaRTAM)**

The Law of 7 December 2006 imposed a transitory market tariff. A customer holding market contract can benefit from the TaRTAM to the site(s) for which he has requested it from his supplier before 1 July 2007. The tariff is applicable for a maximum period of 2 years as from the date of the request. It was set by order of the Minister for Energy on 3 January 2007, and is equal to the regulated sales tariff exclusive of tax, increased by 23% for green tariffs, 20% for yellow tariffs, and 10% for blue tariffs.

Comparison of the supply part of the TaRTAM with forward prices for 2007 and 2008, upon which market contracts for medium and large sites are based, shows that the great majority of such sites previously holding market contracts have resorted to the TaRTAM, leading to a decrease in supplier switching in these segments. Alternative suppliers have stopped recruiting new customers, fearing that they would then request application of the TaRTAM, and reckoning that they have no guarantee of being fully compensated for the difference between the retail price stipulated in the contract and the level of the supply part of the TaRTAM.

Costs borne by suppliers, resulting from implementation of this tariff, are financed by the CSPE to a maximum of 0.55 €/MWh, and by contributions due from generators using nuclear and hydroelectric plants with a power rating greater than 2000 MW – EDF and CNR – to a maximum of 1.3 €/MWh.

Each year, CRE must provide the Minister for Energy with a proposal concerning costs due to TaRTAM, on the basis of appropriate accounting, the rules for which it has itself defined, and also concerning the unit contribution involved.

The Decree of 4 May 2007, bearing on compensation of suppliers, stipulates that these latter be compensated each quarter on the basis of their declaration of estimated costs borne over the quarter in question. If it is positive, the difference between recognised costs for year n and compensation received is incorporated into recognised costs for year n+2. If it is negative, the supplier must reimburse the excess sum received before 31 March of year n+2.

**Inset 20: Conditions for application of regulated sales tariffs**

- Regulated contracts for both gas and electricity exist for household and non-household customers alike.
- Any customer holding a regulated contract for a site may maintain it for that site.
- Any customer holding a market contract for a site may no longer hold a regulated contract for that site (non-reversibility principle).
- Any customer moving into a previously occupied site may hold a regulated contract if the previous occupant held a regulated contract.
- Any customer moving into a newly created site (new building):
  - may request a regulated electricity contract as long as the site has been connected to the grid before 1 July 2010;
  - may not hold a regulated contract for gas.

A decree drawn up by the Conseil d'Etat will stipulate conditions for application of this tariff.

The law extended CRE's missions, entrusting it with the task of assisting in successful operation of the electricity and natural gas markets for the benefit of end consumers, and conferring upon it direct competence in monitoring of wholesale electricity and natural gas markets. This new mission enables CRE to monitor transactions on wholesale markets, whether organised or OTC, as well as mechanisms for price formation on such markets.

New pricing measures mean new missions for CRE. It will give an opinion on the solidarity tariff for gas and provide the Minister for Energy with an annual proposal concerning costs resulting from it and the unit contribution involved. In the case of the TaR-TAM, CRE will provide the Minister for Energy with proposals for costs connected to the tariff, on the

basis of appropriate accounting, the rules of which it has itself defined, and the unit contribution due from generators operating nuclear and hydroelectric plants with power rating greater than 2,000 MW.

**2. Electricity markets**

**2.1. The French market value chain and physical balance sheet**

**2.1.1. Generation, trading and supply activities are open to competition**

The commercial value chain for electricity (see figure 20) may be divided into four stages: generation, trading, transmission / distribution, and supply to end consumers.

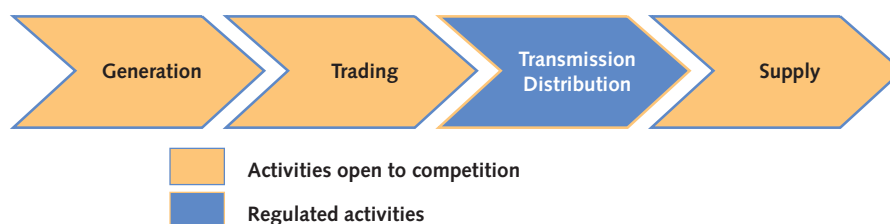
Generation of electricity has been open to competition since the Law of 10 February 2000 came into force. Any company may generate electricity in France, for:

- sale on wholesale and retail markets;
- consumers, wholly or in part, for their own needs;
- sale to EDF or to local distribution companies (LDCs) in the context of the purchase obligation system;
- export.

In France, generation of electricity is dominated by EDF, which has 85% of generation capacities. Four other generators operate high power facilities, together representing 6% of existing capacity. The remaining 9% is made up of small generating plants operated by:

- a large number of independent generators, mostly selling the electricity they generate to EDF, in the context of purchase obligations;
- industrial companies, which consume the electricity they generate.

**Figure 20: The commercial value chain for electricity**



Source: CRE



Trading consists of exchanging large volumes of electricity on the wholesale market. Some sixty operators are active on the French wholesale market, and there are three types of player:

- the five main generators; these generators have end consumers, and make use of the wholesale market to resell all or part of the electricity they generate, or purchase electricity in addition to what they generate themselves, in order to supply their end consumers;
- non-generating suppliers operating on the market to cover consumption by their end consumers; ten or so non-generating suppliers are active on the French wholesale market;
- traders, who have no generation facilities and no end consumers, but purchase and resell to take advantage of opportunities provided by price levels in France and Europe; some forty traders are active on the French wholesale market.

Generators, along with a number of non-generating suppliers, have developed trading activities, generally managed independently of generation and supply activities.

Transmission and distribution activities are managed by public grid operators. Access to French grids is open to third parties and is regulated. RTE, an EDF subsidiary, manages the one French transmission system, while the distribution system is managed by ERD, and by 160 LDCs.

Supply means sale of electricity to end consumers, i.e. to customers who actually use electricity without re-

selling it. This activity is open to competition, except for sale to household customers, who will have to wait until 1 July 2007 to be able to choose their supplier. 17 companies supply electricity in France.

**2.1.2. The French market remains very much an export market**

The French market's physical balance sheet continues to show a high export balance. In 2006, electricity exports accounted for 16% of national generation volume.

Figure 21 shows French electricity suppliers' procurements and outlets in 2006.

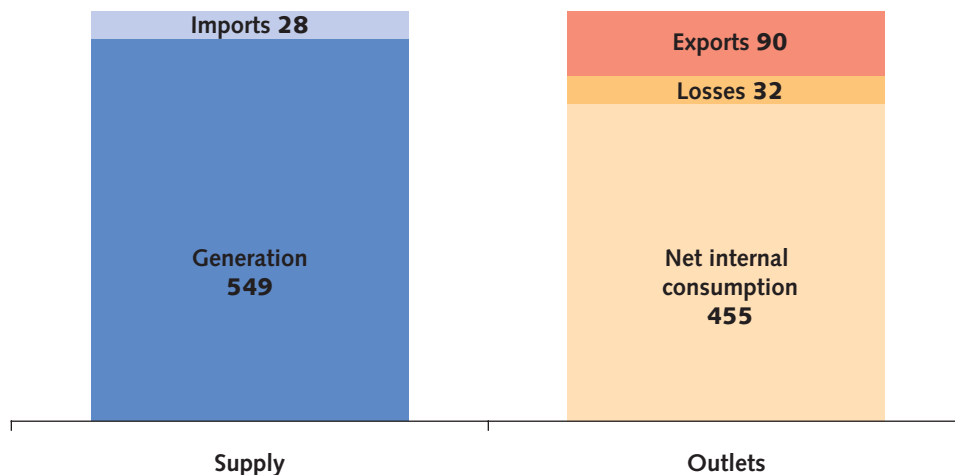
**2.2. Electricity generation in France**

**2.2.1. French generation is largely nuclear powered, but hydroelectric and conventional thermal systems continue to play a major role in the supply/demand balance**

Means of generation may be divided into two categories:

- plants where generation is arbitrable. Operation of these plants depends on demand, market prices, variable generation costs, technical constraints, and, in the case of hydroelectric facilities, water stock levels. Such plants include nuclear power plants, the most powerful conventional thermal plants, and large hydroelectric facilities, the so-called 'lake', 'pondage' and 'pumping' plants;

**Figure 21: Physical balance sheet for the French market in 2006 (TWh)**



Source: CRE based on data provided by RTE

- plants where generation is non-arbitrable. Such generation is either 'fatal' (mainly 'run-of-river', wind turbine and biomass), or determined by the economic conditions of purchase obligation contracts (mainly cogeneration).

In 2006, total installed power in French electricity generating facilities amounted to 116 GW. Figure 22 shows capacities for each category of means of generation.

Nuclear generation accounts for 55% of installed power, with low variable costs, and is the major means of French generation (78% in 2006). However, electricity generated by conventional thermal plants and by hydroelectric plants is essential in ensuring the balance of supply and demand on the French market throughout the year – in particular during peak demand periods.

**2.2.2. Generation remains highly concentrated**

In 2006, electricity generated by the EDF Group, which operates the majority of facilities, accounted for 86% of national generation, to which must be added volumes acquired from independent generators through

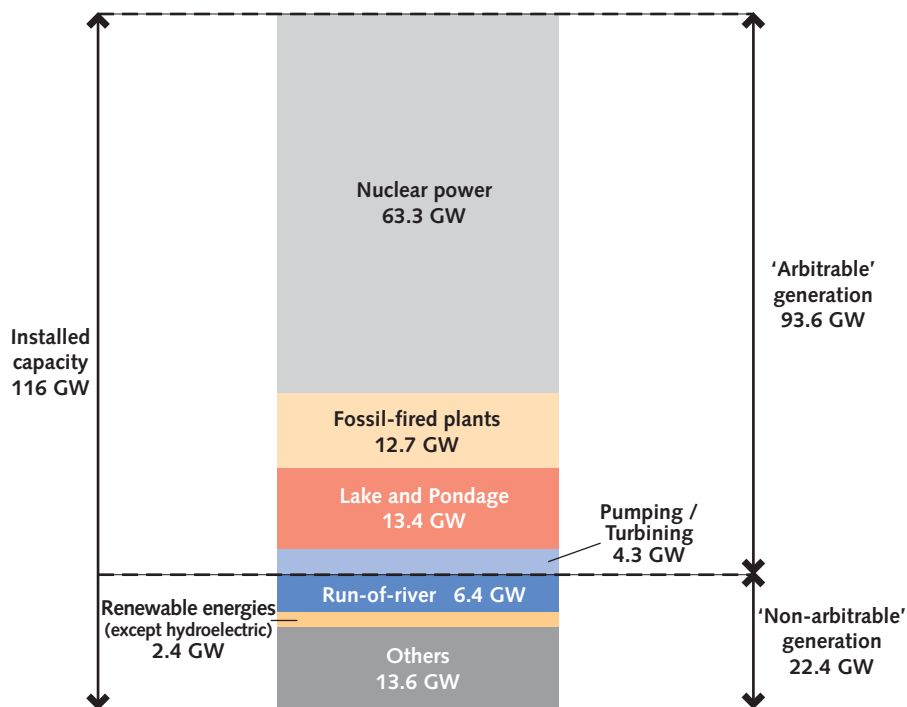
the purchase obligation mechanism, i.e. around 4.5% of national generation in 2006.

The four main alternative operators generating in France are:

- Electrabel-Suez, which has the use of CNR's and SHEM's hydroelectric systems, and an interest in EDF's Tricastin and Chooz nuclear power plants. In 2006, the group was responsible for 3% of national generation;
- Endesa, which operates the Endesa France (SNET's trade brand) coal-fired plants. In 2006, the group was responsible for 1.5% of national generation;
- Total, which operates France's largest cogeneration plant. In 2006, the group was responsible for 0.3% of national generation;
- Gaz de France, which operates a combined cycle gas turbine. In 2006, the group was responsible for 0.3% of national generation.

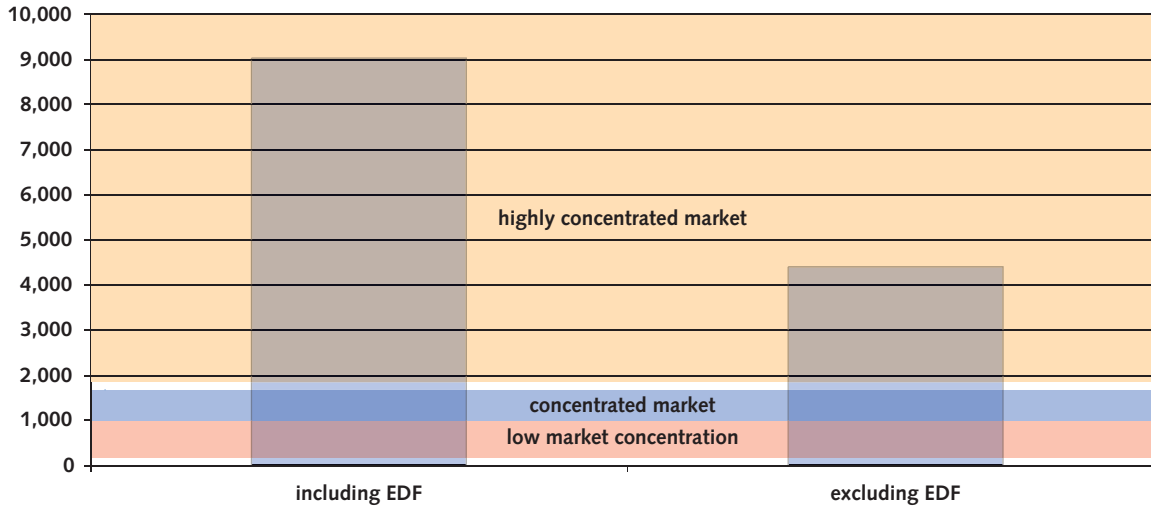
Figure 23 (see p. 84) illustrates the concentration of French generation. The Herfindahl-Hirschman Index (HHI) measures market concentration – the more concentrated a market, the higher the HHI (see inset 21).

**Figure 22: Installed generation capacity in France**



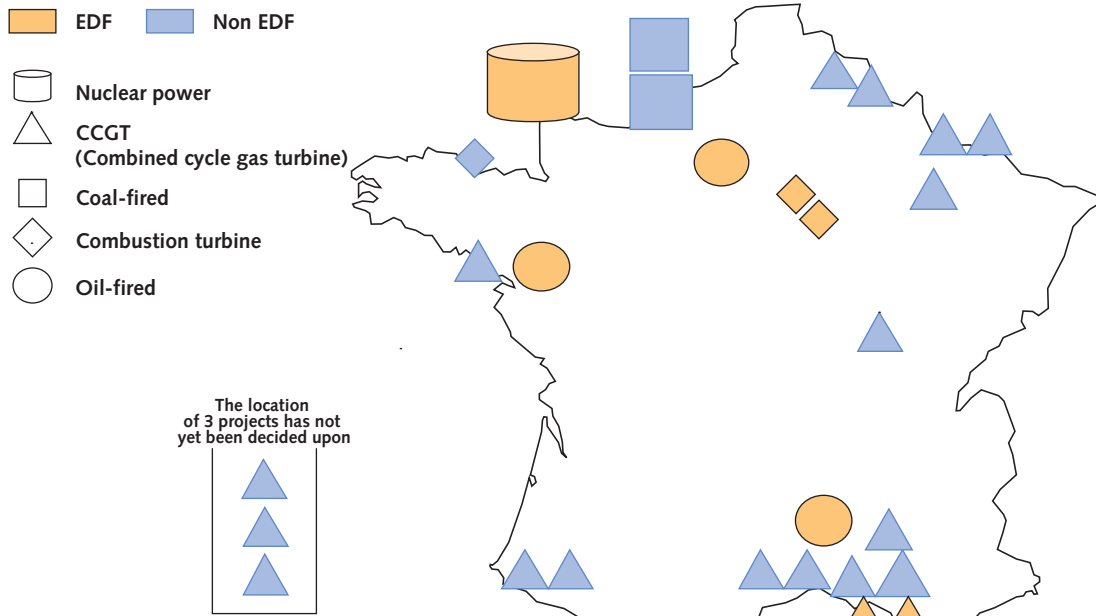
Source: CRE, based on data provided by RTE

Figure 23: Concentration index (HHI) of electricity generation (in energy, 2006)



Source: CRE, based on data from RTE

Figure 24: Projects announced in France for generating plants of over 100 MW



Source: CRE

### Inset 21: Measurement of concentration of the wholesale market

The Herfindahl-Hirschman Index (HHI) indicates the degree of market concentration.

The HHI is equal to the sum of the squares of operators' market shares. The more concentrated a market, the higher the HHI. In general, a market is considered to be of low concentration if its HHI is below 1,000, and highly concentrated if it is above 1,800.

Given the specific features of the electricity and gas markets, the index should only be used with caution as an indicator of degree of competition, as concentration and competition are not connected as directly as on most other markets. In certain circumstances of strained supply-demand balance, an operator with a limited market share may have sufficient market power to be able to influence prices.

#### 2.2.3. Existing projects for new plants will lead to no significant reduction in generation concentration

Figure 24 shows the main projects announced in France for new means of generation, to become operational in 2012 at the latest, and representing a total capacity of over 14 GW. For the most part, projects concern combined cycle gas turbines (CCGT), but projects for oil- and coal-fired plants are also planned. Although it is uncertain whether some of them will be completed, others are already at the construction stage.

Over 9 GW are in the hands of alternative operators, all active on the retail market – Endesa, Poweo, Gaz de France and Electabel. However, even if all projects are completed, EDF's market share at the end of 2012 will still account for 80% of installed capacity. In addition, alternative operators' projects are for so-called 'semi-base' facilities, while EDF still operates almost all 'base' plants.

#### 2.2.4. VPPs are only a partial answer to generation concentration

VPPs are virtual generation capacities auctioned periodically by EDF. The system was imposed by the European Commission in its decision of February 2001 authorising EDF to take a 34.5% interest in the German electricity company EnBW.

Since September 2001, EDF has held quarterly auctions giving its competitors access to 6000 MW of capacity. Since September 2006, EDF has only been offering optional products. Bidders pay a fixed premium to reserve power, and pay a strike price for each Mwh withdrawn. Such auctions enable definition of the fixed monthly premium.

Two kinds of VPP exist, with differing exercise prices:

- Base VPPs: their strike price approximates the variable cost of electricity generated by EDF's nuclear power plants, a price that rose from 8 to 9 €/MWh at September 2006 auctions;
- Peak VPPs: these aim to reflect the economic operation of a mix of semi-baseload and peak power plants. Their strike price changes with each auction, according to a formula which is not State regulated, but monitored by the European Commission. It stood at 50 €/MWh at the March 2007 auctions.

In September 2006, after agreement from the European Commission, EDF made a number of modifications to its initial commitment: it no longer sells firm products (PPAs) and has introduced a base product for a period of 4 years, offered for a one-year trial period beginning in September 2006.

VPPs help reduce the effects of generation concentration:

- by obliging EDF to put energy at the disposal of alternative suppliers on the futures market: In 2006, VPPs accounted for 58% of their injections;
- by increasing wholesale market liquidity.

Nevertheless, as CRE indicated in its Communication of March 2006, the mechanism is only a partial answer to concentration, mainly due to the system of allocating capacities by auction – premiums paid by buyers align VPP cost prices with market prices. VPPs do not, therefore, constitute a source of supply comparable to a generation plant.

The European Commission's decision stated that the VPP system could only be done away with upon reasoned request from EDF, and provided that the French electricity market had developed in such a way as to "provide a sufficient number of other sources of supply for quantities offered by EDF for sale by auction". On 30 June 2007, EDF had not requested that the system be abolished.

### 2.3. Cross-border exchanges

#### 2.3.1. The export balance is stabilising

With an export balance of 63.3 TWh in 2006, representing almost 12% of national generation, France is Europe's leading exporter of electricity.

Following major expansion between 1980 and 1995, at a time when French nuclear power plants were increasing their power output, the export balance has settled to between 60 and 75 TWh. Since 2002, there seems to have been a trend towards decrease, but the export balance has remained stable since 2004 (see figure 25).

Although the annual export balance remains generally positive, detailed analysis reveals contrasting situations for each interconnection between France and its neighbours.

In 2006, France was a net exporter to all interconnected countries except Germany. During the last 5 years, the greatest change was recorded at the Italian border (see figure 26), where exports have decreased and imports were effected during particularly strained periods – the first quarter of 2006 and, exceptionally, in July 2006. Exports to Spain and Belgium are also on the decrease, though less steeply.

In 2006, the net balance of exchanges with Germany was on the import side. It is nevertheless worth noting that after having increased between 2002 and 2005, imports from Germany decreased in 2006.

#### 2.3.2. Auctioning of capacities has led to a reduction in concentration of cross-border trading

Up until 2005, interconnection capacity allocation was based on a priority list, with almost all capacities reserved for EDF.

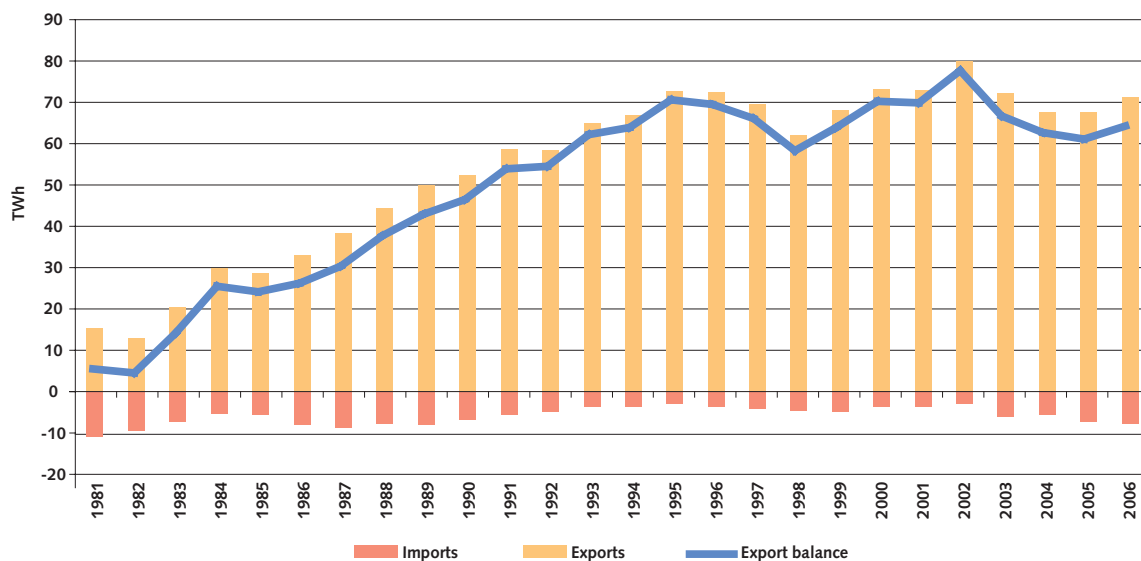
In 2006, the allocation mechanism was modified at almost all borders, with capacities thenceforth being allocated by an auction system.

The change seems to have improved market players' use of interconnection capacities for carrying out daily arbitrages, with increased correlation between decisions to import or export and price differentials on day-ahead markets.

The change in the allocation system has also led to major reduction in EDF's export market share, leading to significantly less concentration as measured by the HHI (see figure 27).

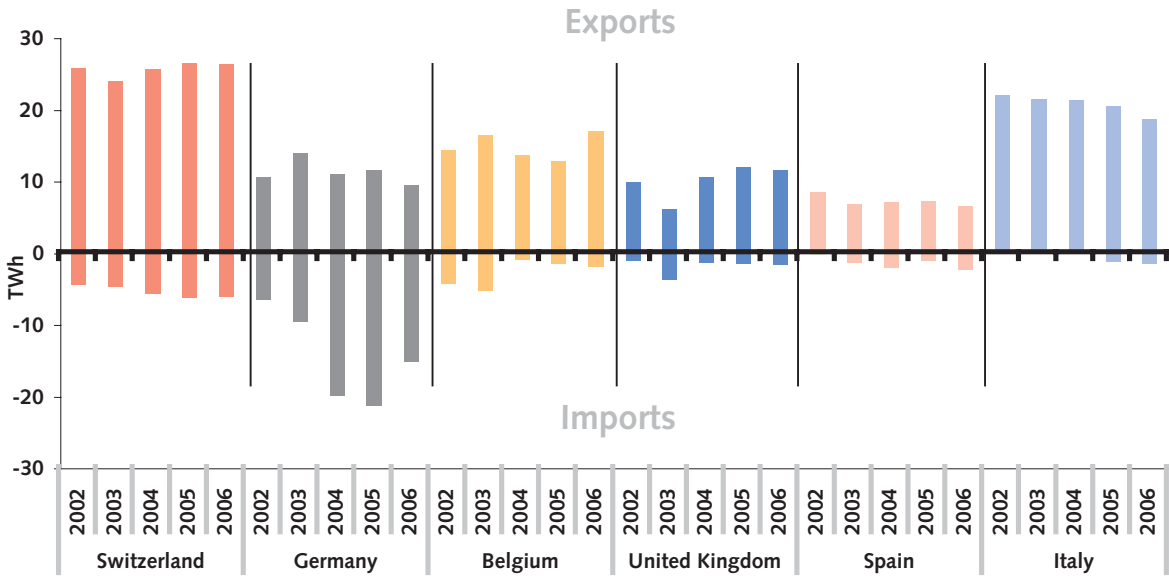
Export concentration remains high, however, with a reduced number of players predominating at each interconnection.

Figure 25: Electricity imports and exports in France since 1981 (DGEMP data)



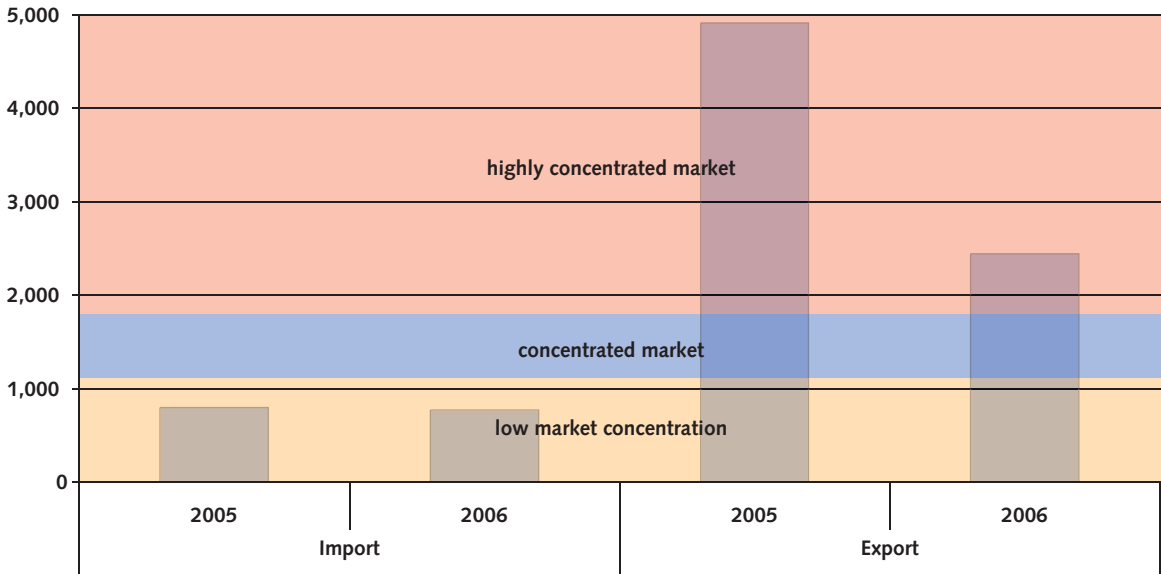
Source: DGEMP, CRE, based on data provided by RTE

Figure 26: French electricity imports-exports by border



Source: CRE, based on data provided by RTE

Figure 27: Concentration index (HHI) of electricity exchanges at borders (France, 2005-2006)



Source: CRE, based on data from RTE



**2.3.3. Coupling of French, Dutch and Belgian day-ahead exchanges has led to frequent alignment of spot prices**

The Belpex exchange started up on 21 November 2006, enabling coupling of the three Dutch, Belgian and French organised spot markets. The system replaced explicit allocation of daily capacities at inter-connections between France and Belgium and between Belgium and the Netherlands (see Page 27).

Market coupling between APX, Belpex and Powernext has led to price equalisation on the three organised markets during hours when available inter-connection capacities between France, Belgium and the Netherlands are sufficient.

Since implementation of coupling:

- French and Belgian hourly prices have been equal 83% of the time;
- French, Belgian and Dutch hourly prices have been equal 60% of the time.

**2.4. Trading in France**

**2.4.1. OTC transactions still dominate the French wholesale market**

There are two possible places of exchange on wholesale markets: electricity exchanges and the OTC (over-the-counter) market (see inset 22).

**Inset 22: The wholesale electricity market**

The wholesale electricity market is the virtual meeting-place for electricity generators, suppliers and traders. It covers purely financial exchanges as well as transactions regarding physical delivery of electricity of the French grid. Some sixty operators are currently active on the French wholesale market.

Timescales on offer range from forward delivery (forward market: delivery within a given future period, timescales going from the following week to several years), to short-term (spot market: purchases the day before for delivery the following day) to intraday (for delivery in the hours following the transaction). Two product types are involved on forward markets: base (delivery round the clock, seven days a week) and peak (delivery from 8 am to 8 pm, Monday to Friday). On short-term markets, hourly products are also exchanged (delivery at a given hour of a given day).

The most common forward products on the French market have annual or monthly timescales, the offer and demand being much more important for baseload products than peakload.

An electricity exchange is an organised, anonymous market offering standardised products, with a central counterparty to avoid credit risks. An organised market allows a transparent price reference to emerge.

Bilateral contracts are signed on the OTC markets. Such transactions may be concluded without a middleman, or via brokers or trading platforms. Prices on the OTC market are not made public.

In France, most spot product exchanges are carried out on the Powernext organised market. In contrast, most forward product exchanges are made OTC.

**2.4.2. Activity on the French wholesale market continues, but remains limited**

**A. Volumes delivered continue to grow**

Real activity on the wholesale market has been in sharp decline since June 2006 (see figure 28). Extreme volatility of prices during the spring and summer of 2006 was one reason for this downturn in liquidity (downturn in CO<sub>2</sub> prices, a heatwave, and an unforeseeable downturn in oil prices). Regulatory uncertainties connected with the drafting of the Law of 7 December 2006 also raised questions among certain market players. The complexity of implementing the TaRTAM (see Page 80) only added to their reluctance to position themselves on the French market.

Point D on page 90, illustrates the effect that this decline in activity has had on Powernext Futures liquidity.

Nevertheless, in 2006, deliveries between wholesale market players in France, reflecting transactions concluded in the past rather than activity on the French wholesale market, continued to increase in 2006.

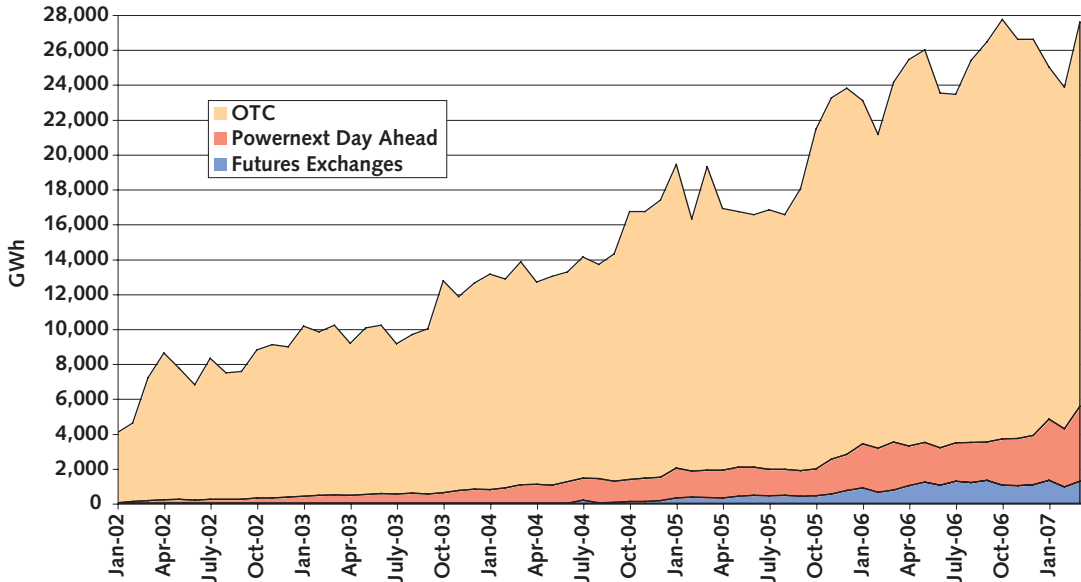
**B. Activity continues to be restricted by the French market's strong vertical integration**

Figure 29 shows energy flows between the different upstream and downstream segments of the French wholesale market in 2006.

Due to internal transfers of electricity between EDF's generation and supplying activities, volumes exchanged on the wholesale market remain limited compared to national consumption.

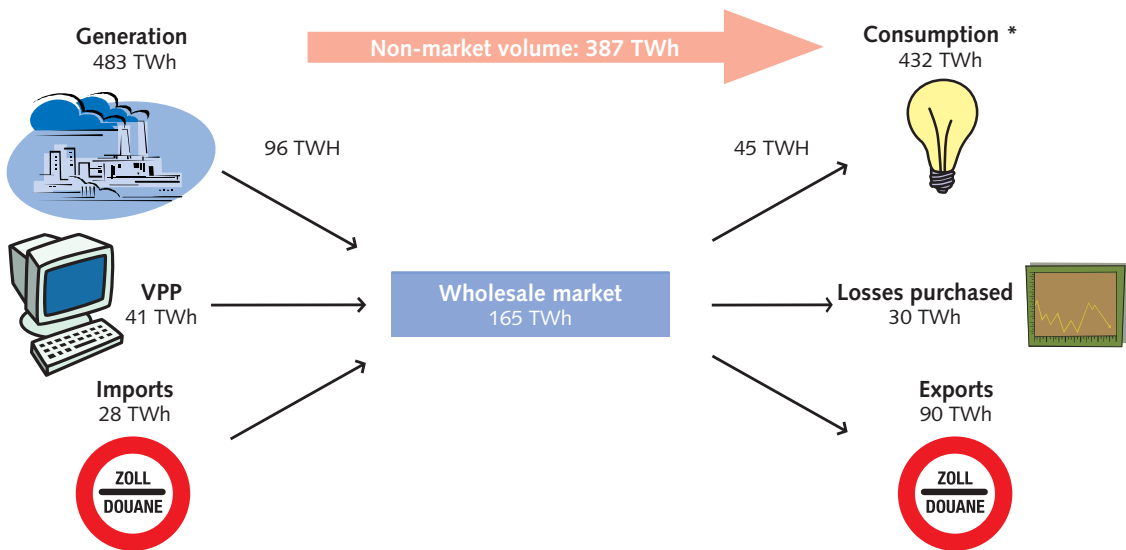
In 2006, market transactions accounted for only 20% of electricity generated and 10% of consumption.

**Figure 28: Delivery volumes on the French wholesale market**



Source: CRE, based on data from RTE, Powernext, and EEX

**Figure 29: Upstream and downstream activities on the French wholesale market in 2006 (as seen from the transmission grid)**



\* Consumption by customers connected to RTE and net deliveries to distribution grids

Source: CRE, based on data from RTE; sum of hourly balances

**C. Concentration of exchanges remains low**

On 15 April 2007, 101 balancing responsible entities were active on the French wholesale market, including 55 on Powernext Spot and 26 on Powernext Futures.

Figure 30 illustrates the concentration of the various segments of the French wholesale market.

The trading segment is less concentrated than upstream and downstream segments. This, however, is simply a consequence of EDF's high level of vertical integration between generation and supply. Most volumes generated and supplied by the group do not pass through the wholesale market.

**D. Powernext is the only organised market active in France**

Activity on Powernext Spot is increasing, with essentially seasonal variations. Total volume traded in 2006 rose by more than 50% in comparison with 2005.

Activity on Powernext Futures was on the increase up until May 2006, when it went into sharp decline, a downturn in liquidity connected to the concurrent steep decrease in activity on the French whole-

sale market as a whole (see Page 89). Total volume traded on Powernext Futures in 2006 nevertheless rose by more than 33% in comparison with 2005 (see figure 31).

In 2005, the German electricity exchange EEX launched an organised market enabling forward products to be exchanged and delivered to France. After initial growth in volumes, activity on EEX France has been non-existent since August 2006.

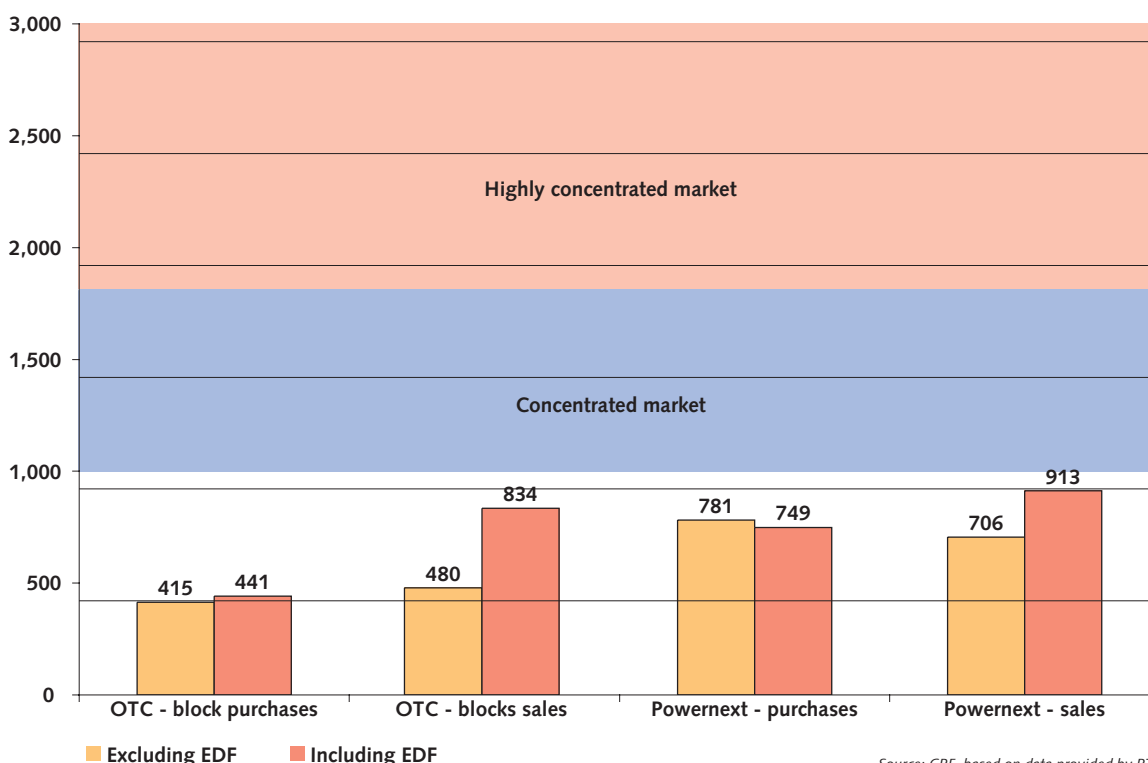
**2.4.3. On average, wholesale prices are stable, but volatility is increasing**

**A. The spot market has been marked by a succession of contrasting periods**

Spot (or day-ahead) prices are market prices for delivery of electricity the following day, and are influenced by tensions on the French electricity market and on neighbouring electricity systems, and also by fuel prices, which account for a major part of a power plant's variable costs.

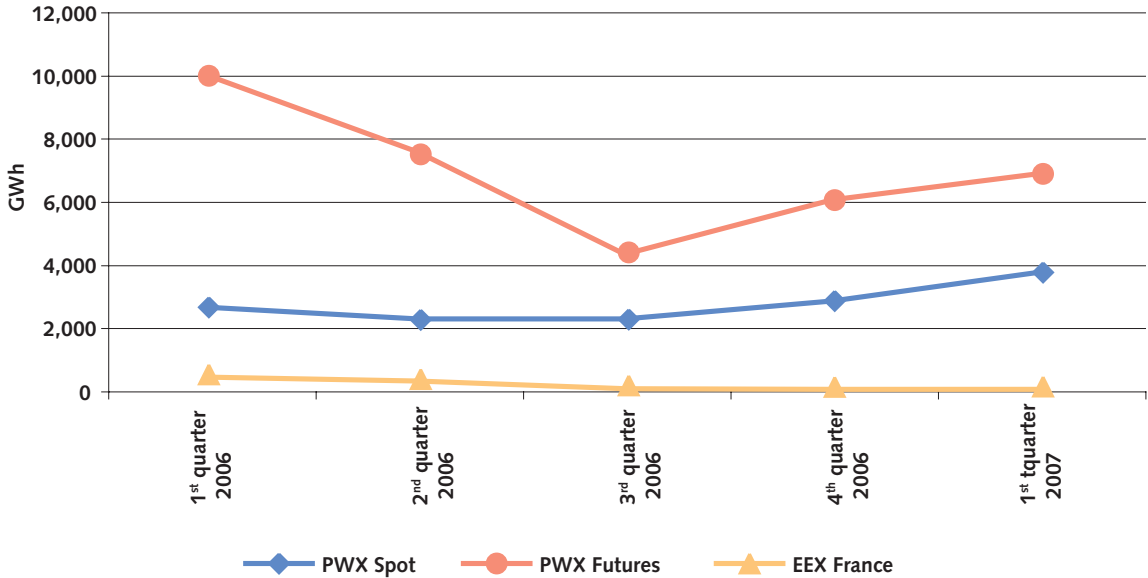
Such short-term prices are highly volatile, due to the impossibility of storing electricity.

**Figure 30: HHI concentration index – wholesale market –2006**



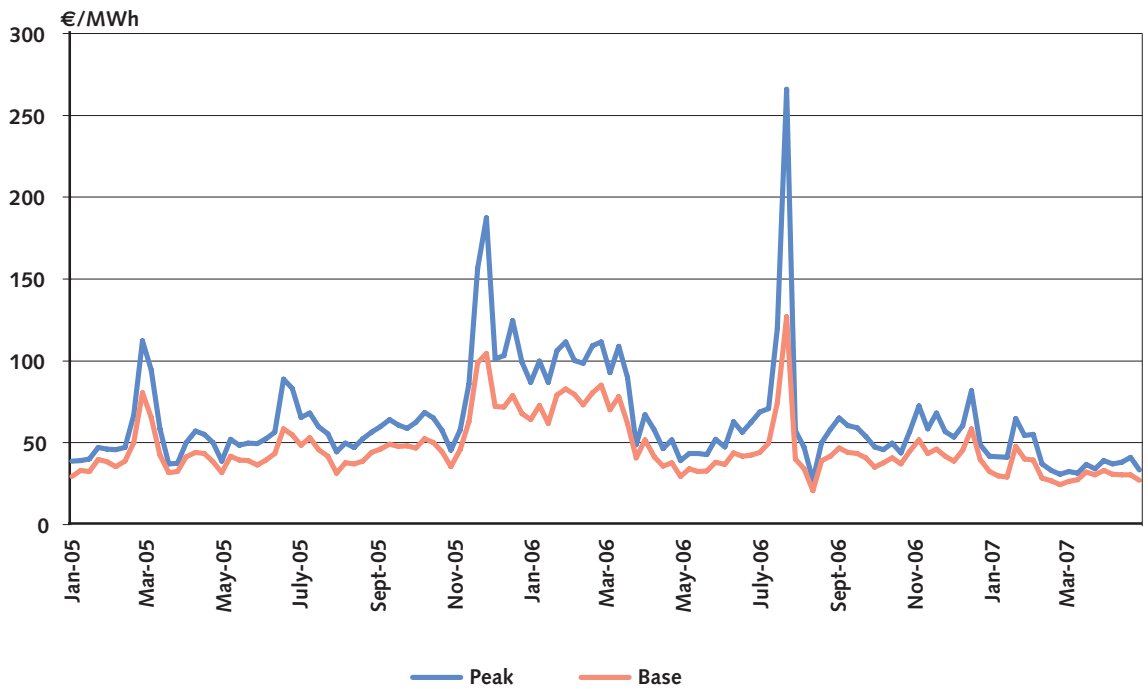
Source: CRE, based on data provided by RTE

Figure 31: Average monthly volumes exchanged on French electricity exchanges (PWX spot, PWX Futures and EEX France)



Source: CRE, based on data provided by Powernext, and EEX

Figure 32: Weekly averages for spot prices on Powernext



Source: Powernext

The main causes of volatility are climatic conditions (cold weather increases consumption, and absence of wind means a downturn in wind generation in Germany) and supply problems (power plant failure, or reduced interconnection capacity) (see inset 23).

Figure 32 shows the evolution of spot prices on Powernext since January 2005. Spot price levels in 2006 were slightly higher than in 2005 – the annual average for 2006 spot prices on Powernext stood at around 49 €/MWh for baseload and 69 €/MWh for peakload, as against 47 €/MWh for baseload and 64 €/MWh for peakload in 2005.

Volatility of spot prices on Powernext increased in 2006, with prices often reaching very high or very low levels. The hourly price rose above 100 €/MWh for 427 hours in 2006, as against 349 hours in 2005. In contrast, the hourly price was below 10 €/MWh for 301 hours in 2006, as against 127 hours in 2005.

Since April 2006, the market has been marked by:

- a period of low spot prices during the spring of 2006;
- record high prices in the second half of July, with hourly prices often above 300 €/MWh, and reaching 1,000 €/MWh at hour 12 on 26 July;
- low prices since August 2006, due to mild temperatures and the positive situation of French nuclear and hydroelectric generation.

The heatwave that began towards the end of July 2006 caused major tensions on the French system. Use of air-conditioners increased consumption, and availability of thermal plants decreased as temperatures rose in the rivers used for cooling.

As the heatwave spread across most of Europe, French cross-border markets came under considerable strain. French demand could not be met with further imports, and prices on the French market rose dramatically.

Figure 33 shows the evolution of spot prices on major European markets since January 2005. The annual average prices on Powernext were the second lowest of all markets monitored in 2006, after those on NordPool.

The French market was more expensive than other European markets, only during periods of greatest

strain, during the winter of 2005/2006 and the July 2006 heatwave. Only the German market recorded higher prices than those in France during the heat wave.

Variations in German and French prices remained closely correlated, with German prices remaining higher than French prices, above all during the second half of 2006, supported by high spot prices on NordPool.

British prices were extremely high during the first quarter of 2006, due to a steep increase in spot prices for gas. They decreased afterwards, but stayed higher than French prices.

Spanish prices decreased during the year, as a result of improvement in Spain's hydroelectric power situation. In addition, the application of a decree bearing on compensation of suppliers selling to customers who were still on the regulated tariff led to an artificial drop in prices between March 2006 and January 2007.

Italian prices were much higher than French prices throughout the year, except during the July heatwave.

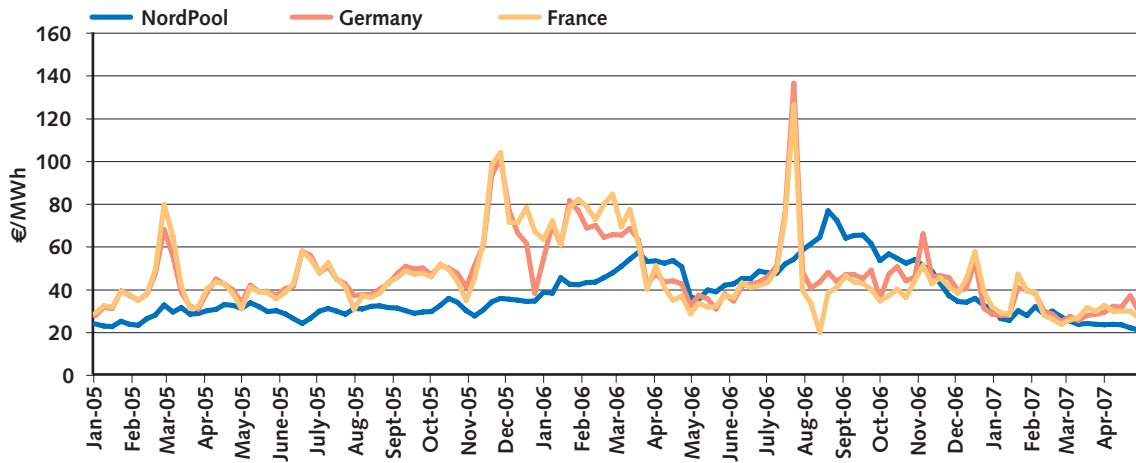
#### **Inset 23: Impact of wind power generation on French market prices**

Wind power generation depends on meteorological conditions, and can vary dramatically and unforeseeably from one day to the next.

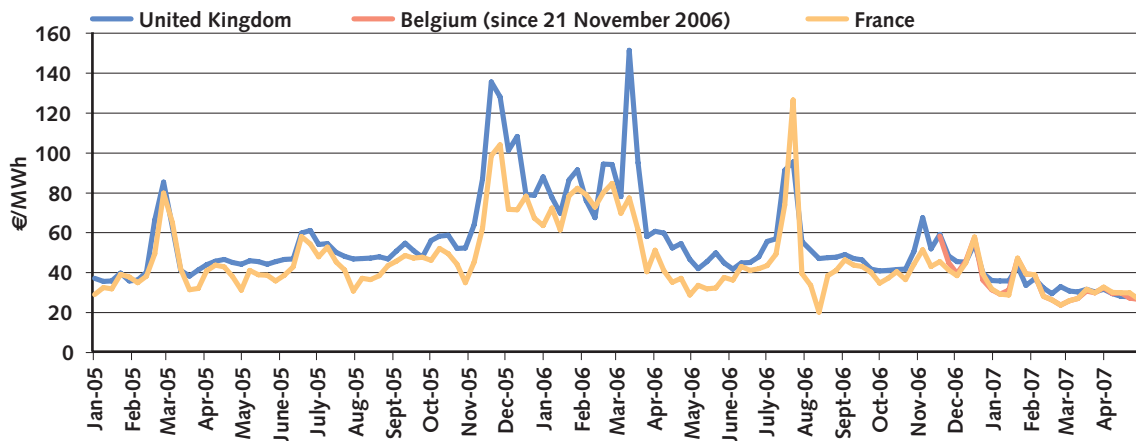
Wind power generators therefore have to purchase or sell large volumes of energy each day on the day-ahead market. In Germany and Spain, where wind power is a major ingredient in the energy mix, generation problems lead to massive simultaneous purchases or sales on day-ahead markets, increasing price volatility on these markets.

As the French market is interconnected with the German and Spanish markets, the French day-ahead price may, in principle, be influenced by volatility arising from wind generation problems in the two countries. Market players, for example, consider that hourly prices close to 0 €/MWh, recorded on Powernext Day Ahead, are the direct result of surplus wind power generation in Germany. Such surpluses oblige generators to sell large volumes at whatever price on the German and neighbouring markets.

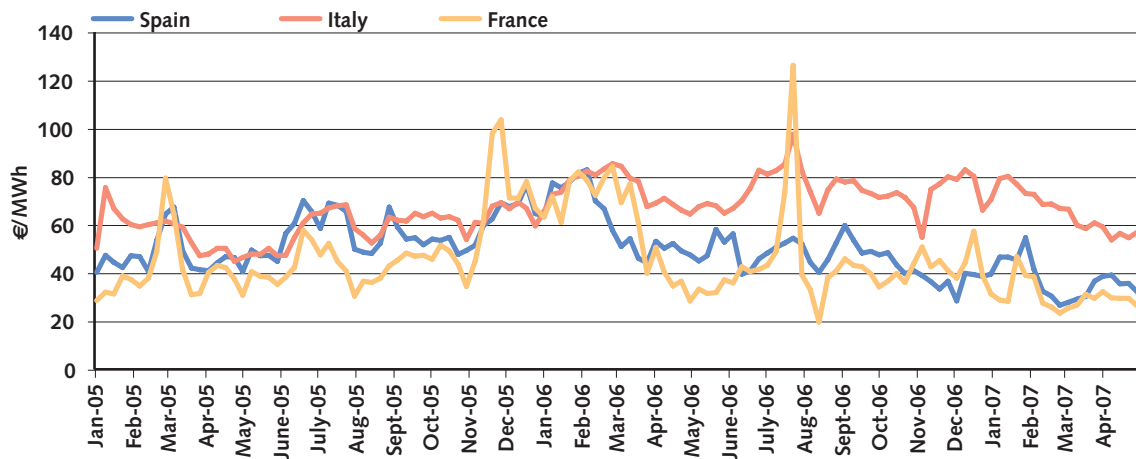
Figure 33: Weekly averages of European spot prices



Source: NordPool, EEX, and Powernext



Source: Platts, Belpex, and Powernext



Source: OMEL, IPEX, and Powernext



### B. Forward prices have been particularly volatile

Forward prices correspond to the purchase or sale of electricity in advance, for coming months, quarters or years.

Forward prices reflect average hourly prices expected for the future period in question. Factors influencing forward prices are anticipated changes in factors determining spot prices such as changes in supply and demand and prices for fuels and CO<sub>2</sub> emission quotas for the delivery period in question.

Figure 35 shows the evolution of annual forward (Y+1) base prices on Powernext since January 2005. The price level in 2006 for 2007 was higher on average than in 2005. Nevertheless, prices at the end of the year were comparable to those at the beginning.

Since April 2006, the market has been marked by extreme variability in forward prices:

- sudden drop of prices in late April 2006, following a collapse of CO<sub>2</sub> prices;
- price increase in July 2006, due to the heatwave;
- a steep downturn in late summer 2006, due to the downturn in oil prices, then again since November 2006, due to the mild winter;
- increase in prices since March 2007.

French annual forward prices, which had been higher than 2006 German prices since early 2005, have been lower since late October 2006.

This change is partly due to price increases on Nord-Pool, which pushed German prices up, and partly to mild weather over the period (see figure 35):

- high temperatures led traders to lower the risk premium for winter forwards. Traditionally, the premium is higher in France than in Germany, due to high sensitivity of French demand to low temperatures;
- mild weather conditions also gave rise to expectations of a hot summer. As the German system used to be more sensitive to periods of warm weather, it contributed to an increase in German summer forward prices in comparison with French prices.

## 2.5. Sale of losses to grid operators

### 2.5.1. Purchases of grid losses by grid operators contribute to French market liquidity

Electricity transported on transmission and distribution grids is subject to losses that must be compensated by grid operators. Such losses depend on the physical volume passing through grids, grid topology, and temperature conditions. In 2006, they amounted to 30 TWh.

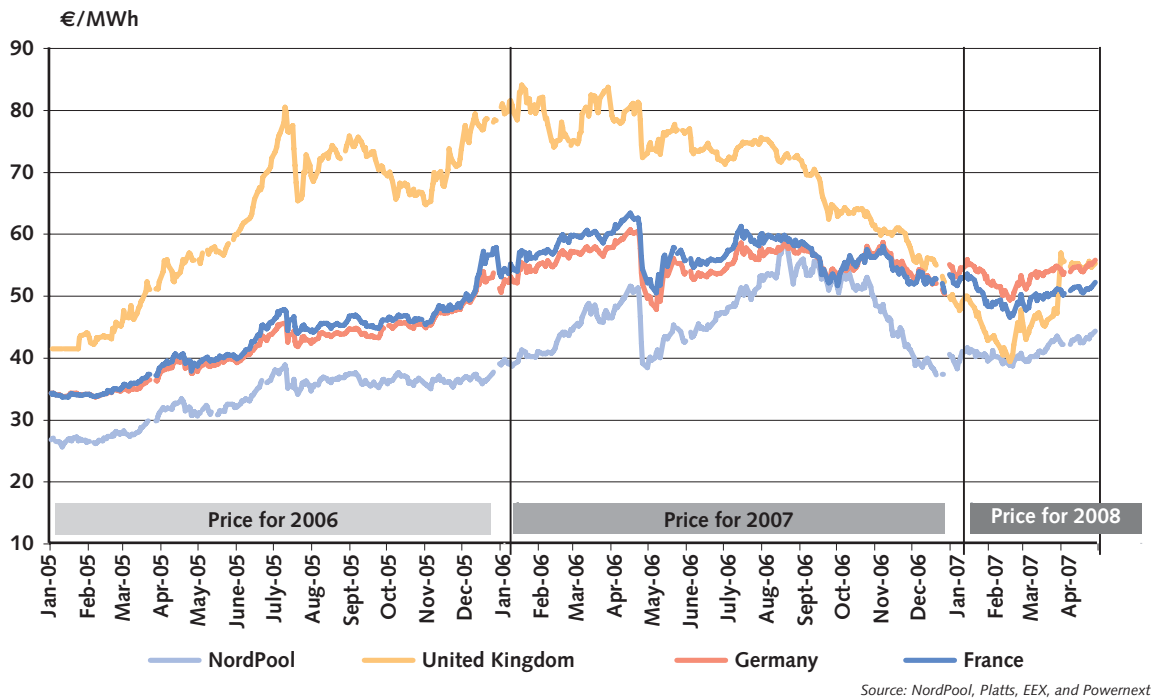
RTE and EDF are obliged to procure the energy necessary to compensate for such losses, in line with competitive, non-discriminatory and transparent procedures. To do so, they put out regular calls for tender, acquiring energy mainly through forward products. Optional products enable them to meet risks related to uncertainties in their forecasts.

Supply of losses contributes to French market liquidity. In 2006, RTE withdrew 11.7 TWh and ERD 18.4 TWh. In comparison, over the same period, volumes sold to consumption sites by operators other than EDF amounted to 43.5 TWh.

Figure 34: Annual forward prices on Powernext



Figure 35: European annual forward prices



**2.5.2. Sales of grid losses to grid operators are concentrated**

In 2006, RTE purchased losses from 26 suppliers, and ERD from 21 suppliers.

However, sales of losses remain concentrated (see figure 36). In 2006:

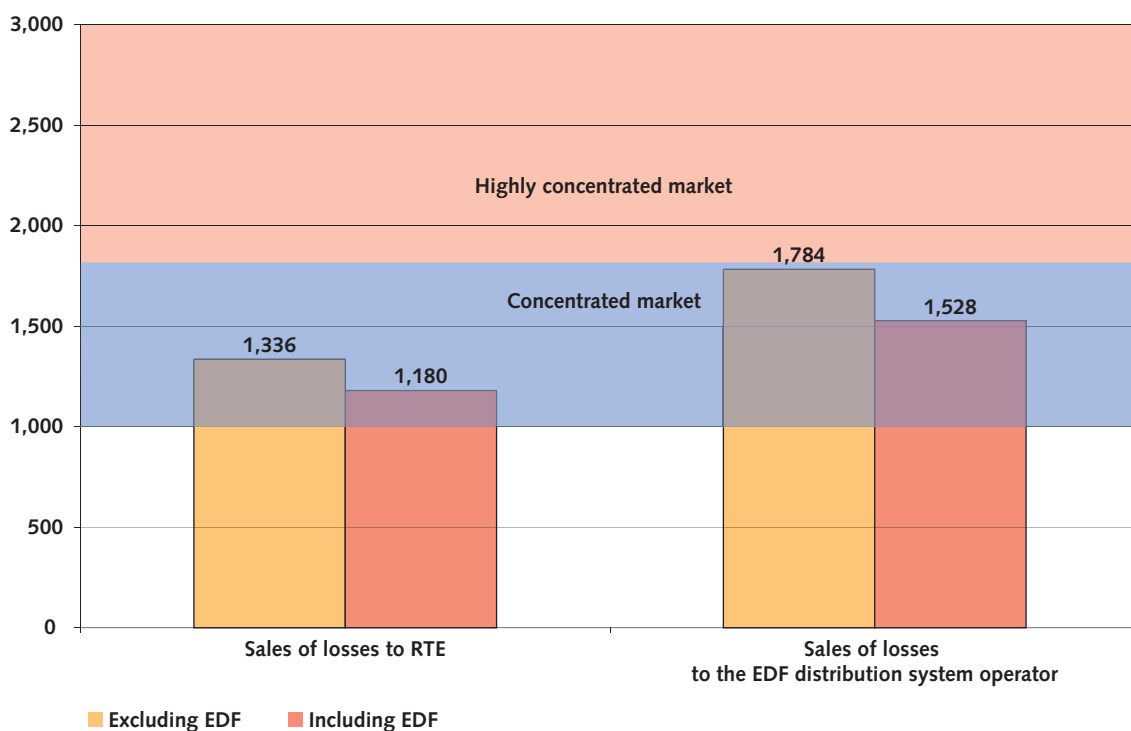
- RTE purchased 46% of their losses from its three largest suppliers;
- ERD purchased 60% of their losses from its three largest suppliers.

**2.6. Retail markets: state of market opening and changes in regulated retail tariffs**

France’s energy sector industries contribute 2.5% to the GDP. Just over half of the jobs in this sector are in the electricity industry. France is a net exporter of electricity, and only the electricity industry has a negative energy bill.

French electricity consumption has increased greatly over the last 30 years, a result of increases in consumption by the household/tertiary sector (see figure 37). Between 1978 and 1990, consumption increased more rapidly than economic activity, with electricity playing an ever more important role in the country’s economy.

**Figure 36: HHI concentration index – sales of losses –2006**



Source: CRE, based on data from RTE

Since the beginning of the 1990s, electricity consumption has been rising at a pace closer to that of GDP. During the past five years, the annual growth rate of electricity consumption has been around 1.5% (internal consumption not adjusted to climatic variations). However, in 2006 French consumption decreased slightly to stand at 478 TWh.

Since 1 July 2004, all non-household customers together with local authorities – a total of 4.7 million sites, accounting for 69% of electricity consumption – have been able to choose their electricity supplier (see inset 24). Since 1 July 2007, all consumers – over 33 million sites – have been free to choose their electricity supplier.

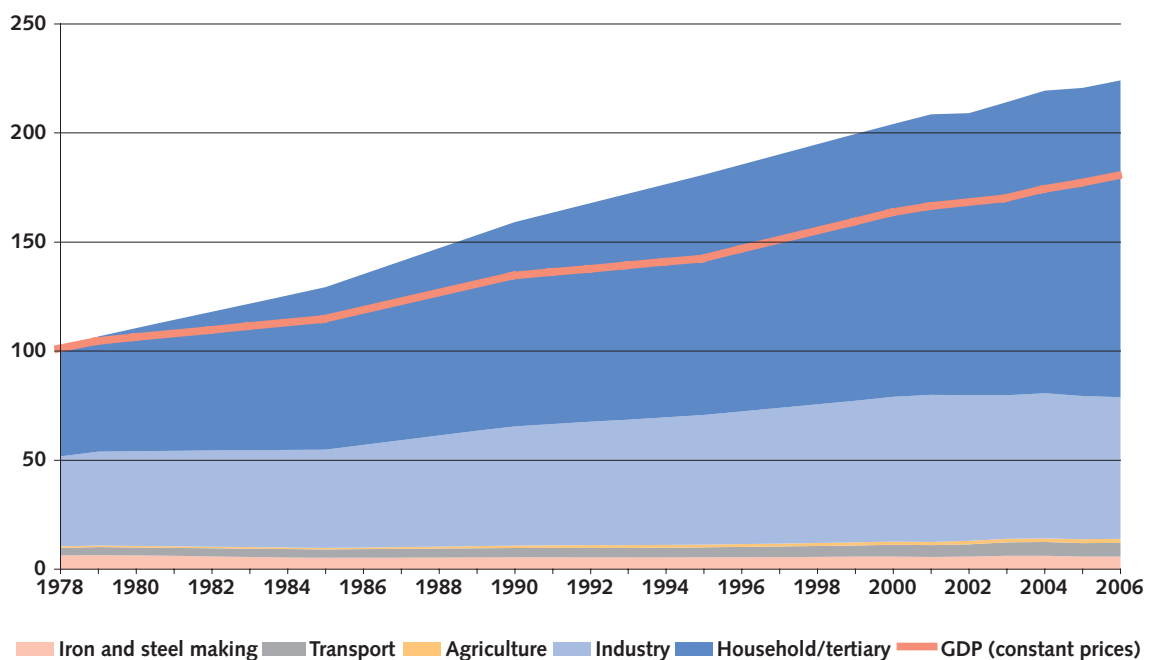
### 2.6.1. Prices on offer to customers

#### A. Two types of contract

Since 1 July 2004, all non-household customers have had the choice between two types of contract:

- regulated retail tariffs, offered by incumbent suppliers (EDF and the 160 local distribution companies), which are set by the government following an opinion from CRE. Only customers who have not subscribed to a market contract can benefit from these tariffs.
- market contracts, proposed by all suppliers, who are free to set prices themselves.

Figure 37: Electricity consumption per sector and economic activity – base 100 in 1978



Source: CRE, based on data from INSEE and the Observatoire de l'Énergie (Energy Survey Unit)

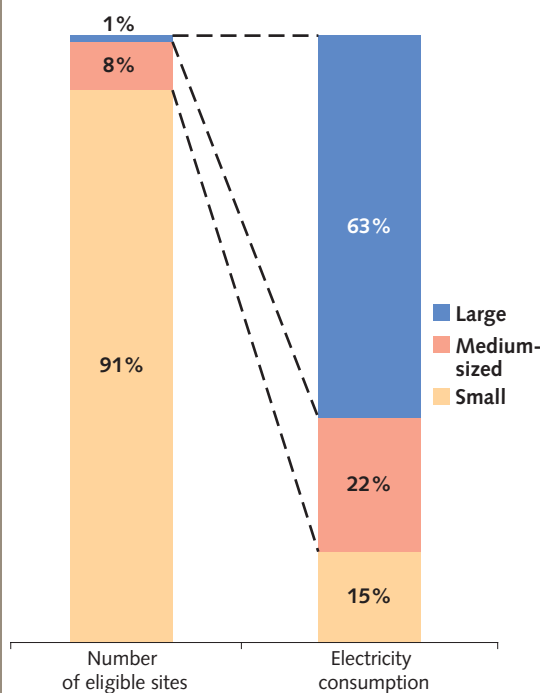
**Inset 24: CRE segmentation of non-household customers**

**Large sites:** sites connected to high voltage supply with subscribed power of 250 kW or more. These are industrial sites, hospitals, hypermarkets, and large office blocks, and account for 1% of total number sites, but 63% of non-household site electricity consumption.

**Medium-sized sites:** sites connected to high voltage supply with subscribed power of less than 250 kW, and low voltage sites with subscribed power of 36 kVA or more. Such sites include, for example, SME premises, and account for 8% of the total number of sites and 22% of non-household site consumption.

**Small sites:** sites connected to low voltage supply with subscribed power lower than 36 kVA. Such sites correspond to the non-household mass market (liberal professions, skilled tradesmen, etc.), and account for 91% of the total number of sites, but only 15% of non-household site consumption.

**Distribution of consumption for non-household sites**



Source: CRE, based on data from distribution system operators and RTE (2006 data)

Market contracts differ according to customer segment. For large and medium-sized sites, the offer price is generally based on wholesale market prices (see figure 38).

For small customers, prices are set in relation to the regulated tariff, with various offers depending on the supplier (see figure 39):

- a cheaper supply agreement and an equivalent energy price;
- an equivalent supply agreement and a low energy price;
- a more expensive supply agreement and an equivalent energy price.

Since 1 July 2007, household customers have had the same choice.

**B. Gap between the supply part of tariffs and market prices**

- Market contract prices are comparable to the supply part (generation + marketing) of the regulated retail tariff, obtained by deducting the transportation part, calculated on the basis of the tariff for use of public electricity grids.
- Since January 2004, market contract prices for large and medium-sized sites, based on wholesale market prices, rose above the supply part of regulated tariffs. Despite drops in prices recorded on the wholesale market, market contract prices for this segment are still higher than the supply part of regulated tariffs.

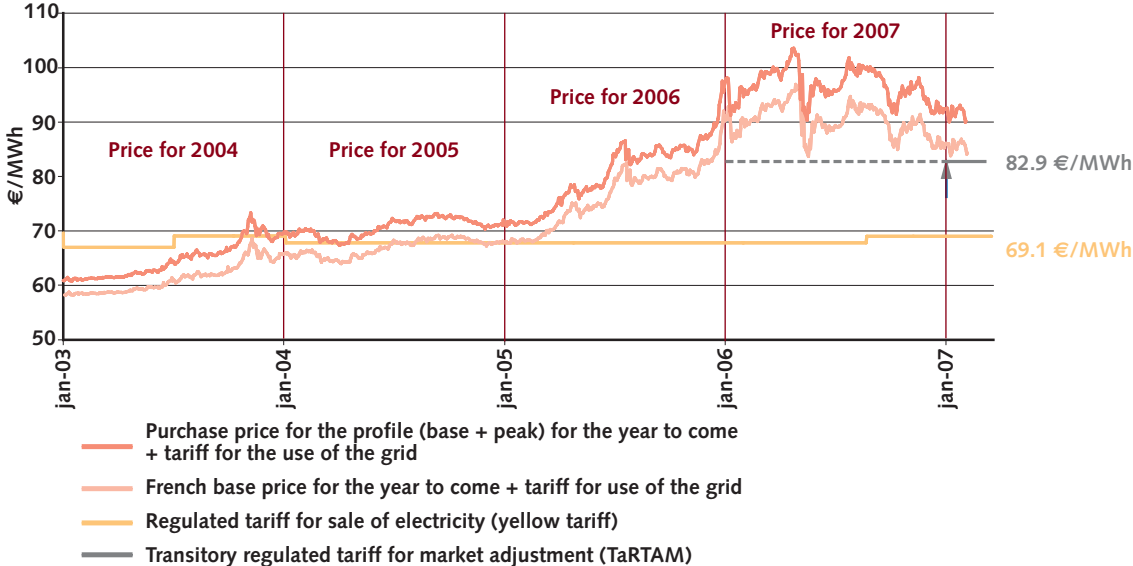
The difference is increased by a supply part for retail tariffs applied to such sites that does not always reflect the real cost of supply, and may sometimes even be negative.

**C. Transitory regulated tariff for market adjustment (TaRTAM)**

The TaRTAM is set by an Order issued by the Minister for Energy on 3 January 2007, and is equal to the regulated retail tariff exclusive of tax, increased by 23% for green tariffs, 20% for yellow tariffs, and 10% for blue tariffs (see Page 80)

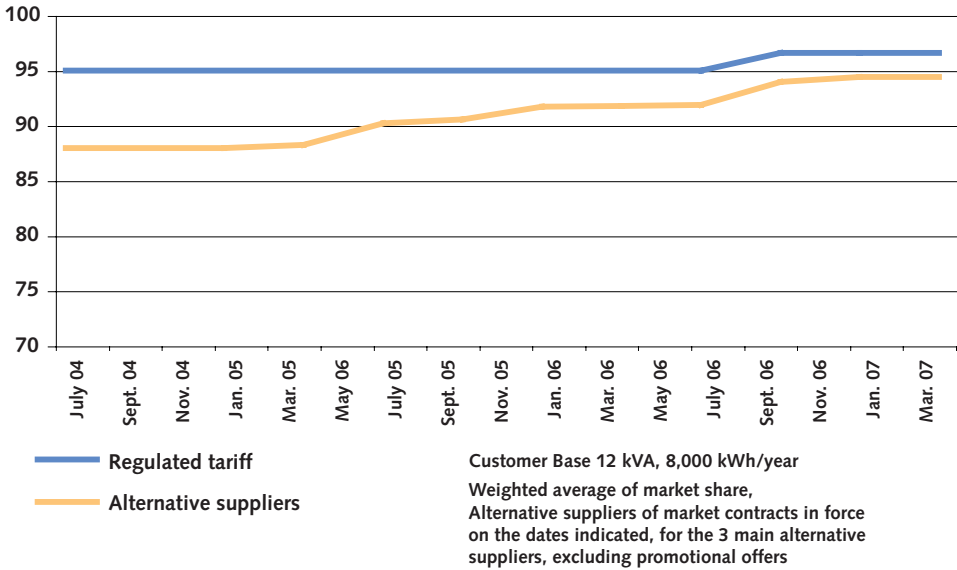
Comparison of the supply part of the TaRTAM with futures prices for 2007, on which market contracts for medium-sized and large sites are based, shows that most of such sites previously holding market contracts have switched to the TaRTAM.

Figure 38: 'Medium-sized company' sites



Source: CRE, April 2007, based on EDF data – Platts – Powernext

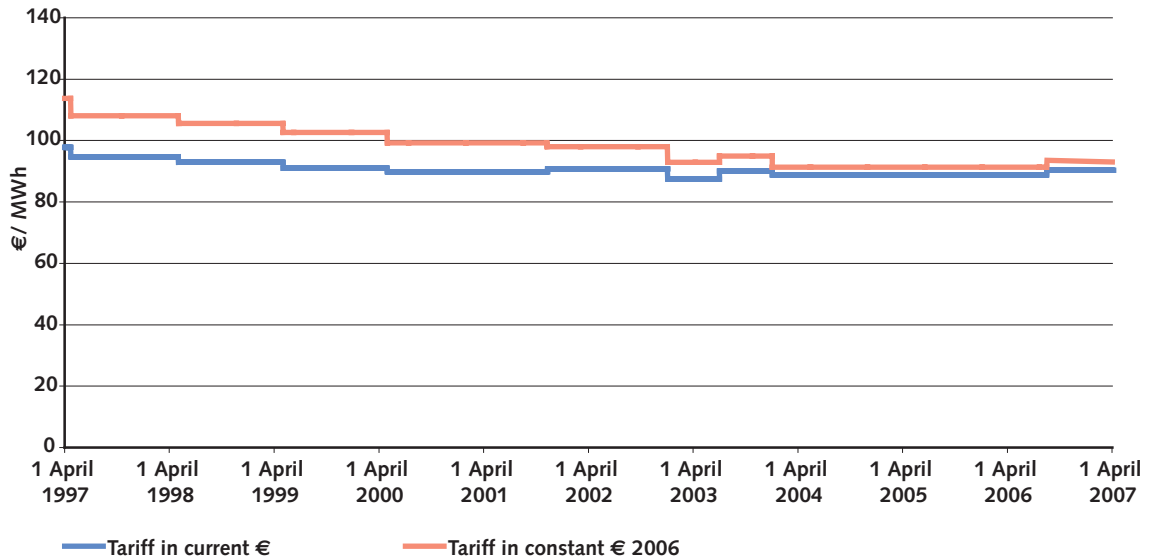
Figure 39: Small non-household sites, prices exclusive of tax, in current euro value



Source: data published by suppliers – CRE analysis

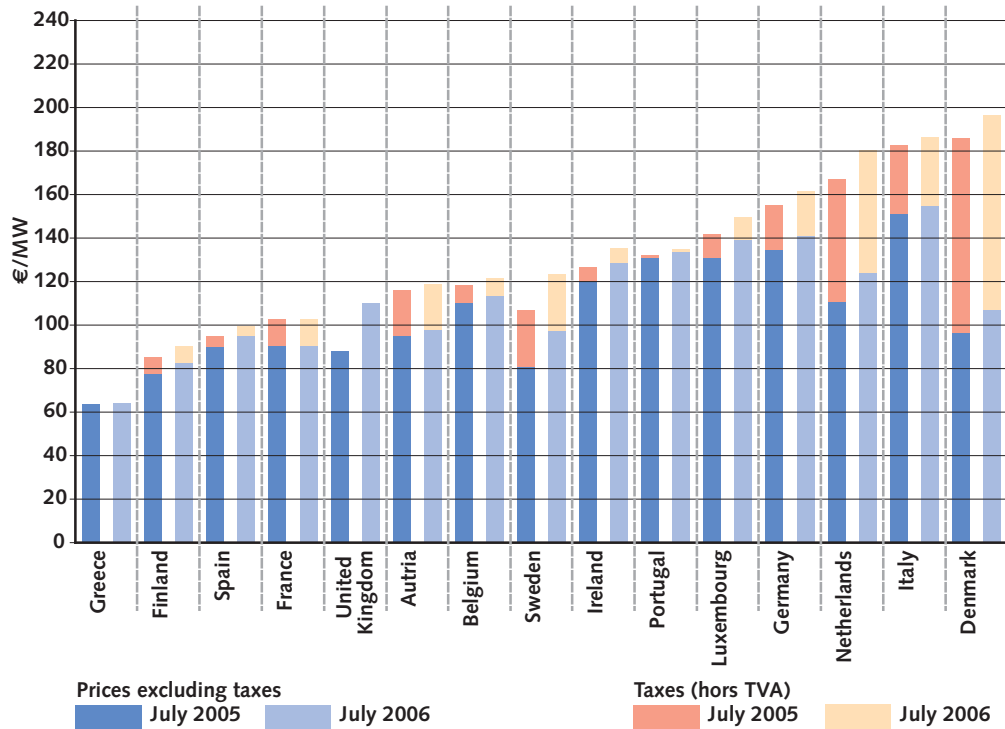


**Figure 40: Changes in the regulated retail tariff of electricity to household customers (exclusive of local taxes, CSPE, and VAT)**



Source: EDF, CRE calculations 2006

**Figure 41: Price of electricity for household customers in Europe (excluding VAT)**



Standard Eurostat customer: - Consumption: 3,500 kWh  
- of which night time consumption: 1,300 kWh

Source: Eurostat, July 2005 and 2006

#### D. Increase in regulated sales tariffs on 15 August 2006

In July 2006, regulated retail tariffs of electricity to household customers in France (exclusive of VAT) were below EU-15 average prices (102.9 € MWh in comparison with 132.1 €/MWh).

On 9 August 2006, CRE gave its opinion on the projected changes in pricing.

In order to give an opinion on regulated price levels for sale of electricity, CRE based its analysis on a financial model based upon information received from EDF and used to estimate income from supply at regulated tariffs to the various customer segments.

Basing itself on results supplied by the model, CRE considered that:

- the supply part of blue tariffs covered the supplier EDF's costs and also allowed investments necessary

#### **Inset 25: Covering of costs by regulated retail tariffs for the sale of electricity**

The Law of 10 February 2000 states that regulated tariffs should cover all costs borne by EDF in this context, i.e.:

- transport costs (covered by the tariffs proposed by CRE for use of the grids);
- supply costs, composed of:
  - total costs of generation by national facilities (fixed investment costs and operating costs),
  - commercial costs (marketing and sales);
  - customer management costs (customer services, billing, debt recovery, unpaid bills, etc).

In order to pronounce upon the exact increase necessary in regulated tariffs, CRE needed cost-accounting data for each tariff, a requirement that is now incorporated into the Law of 7 December 2006.

to the activity to be financed, especially given the 2006 drop in the tariff for use of the public grid;

- for green and yellow tariffs, the proposed increase would not enable such objectives to be achieved.

On 15 August 2006, regulated retail tariffs of electricity increased by an average of 1.7%, the previous increase having been in July 2003. In the case of blue tariffs, regulated retail tariffs have fallen by around 20%, in constant euro value, in the last 10 years (see figures 40 and 41).

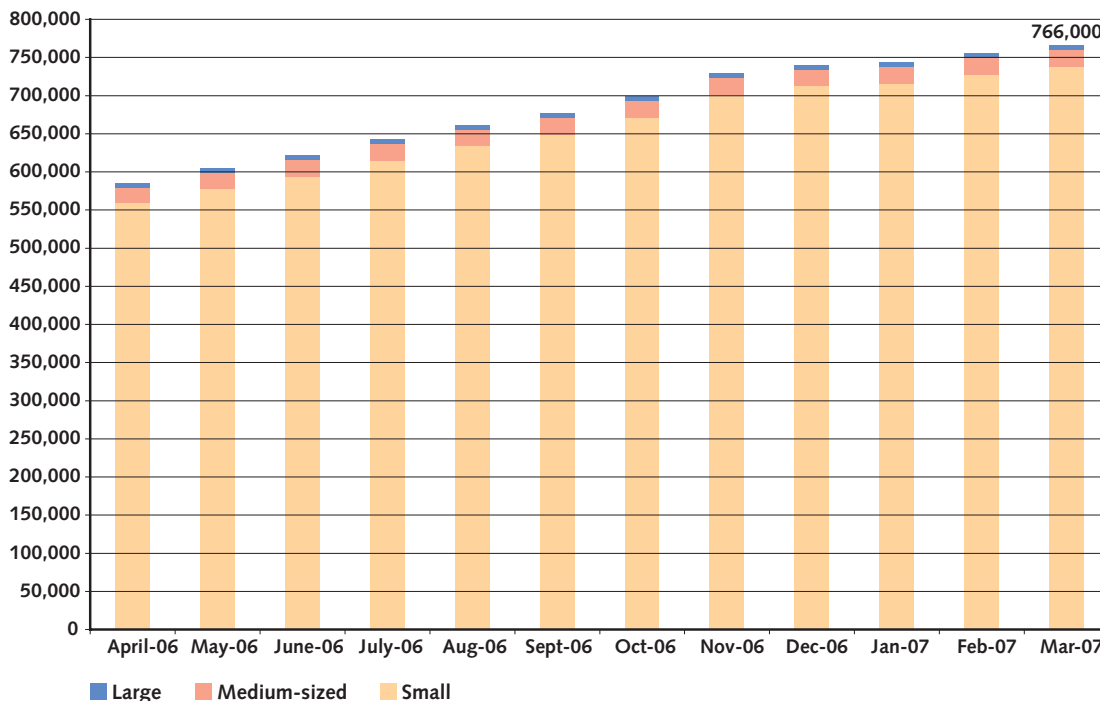
#### **2.6.2. Slackening off of sales at market prices**

On 1 April 2007, almost three years after market opening to all non-household customers and local communities, 766,000 sites held market price contracts (see figure 42), over 95% of them being small sites. Over the last quarter of 2006, the number of sites holding market price contracts rose by 64,000, as against 145,000 in the last quarter of 2005. This slackening off in sales of market price contracts resulted from two factors:

- a tariff scissor effect, the victims of which were alternative suppliers active on the wholesale market – where the price has almost doubled since 2004 – who, in order to attract customers, had to sell at a price lower than the regulated tariff, which only increased by 1.7% over the same period;
- a slackening off in market contract placement by the supplier EDF.

The creation of the TaRTAM led to customers returning temporarily to a regulated retail tariff (cf. p. 80). In addition, at the time of its implementation the TaRTAM resulted in fewer supplier switches in the large and medium-sized site segments. A number of alternative suppliers stopped recruiting new customers, fearing that they would go on to request the TaRTAM, and reckoning that they had no guarantee of being fully compensated for the difference between retail prices provided for in the contract and the level of the supply part of the TaRTAM.

Figure 42: Number of sites holding market price contracts



Source: CRE, based on data from distribution system operators and RTE

2.6.3. A highly concentrated market

On 1 April 2007, 17 alternative suppliers had at least one portfolio customer (see Table 4). Small and medium consumers have less of a choice than large consumers, which is also the case for customers in areas served by LDCs where only one or two suppliers usually operate.

Alternative suppliers' market shares remain low: among the 16.5% of non-household sites holding market price contracts, only 6.4% have chosen an alternative supplier (see figure 43). The consumption

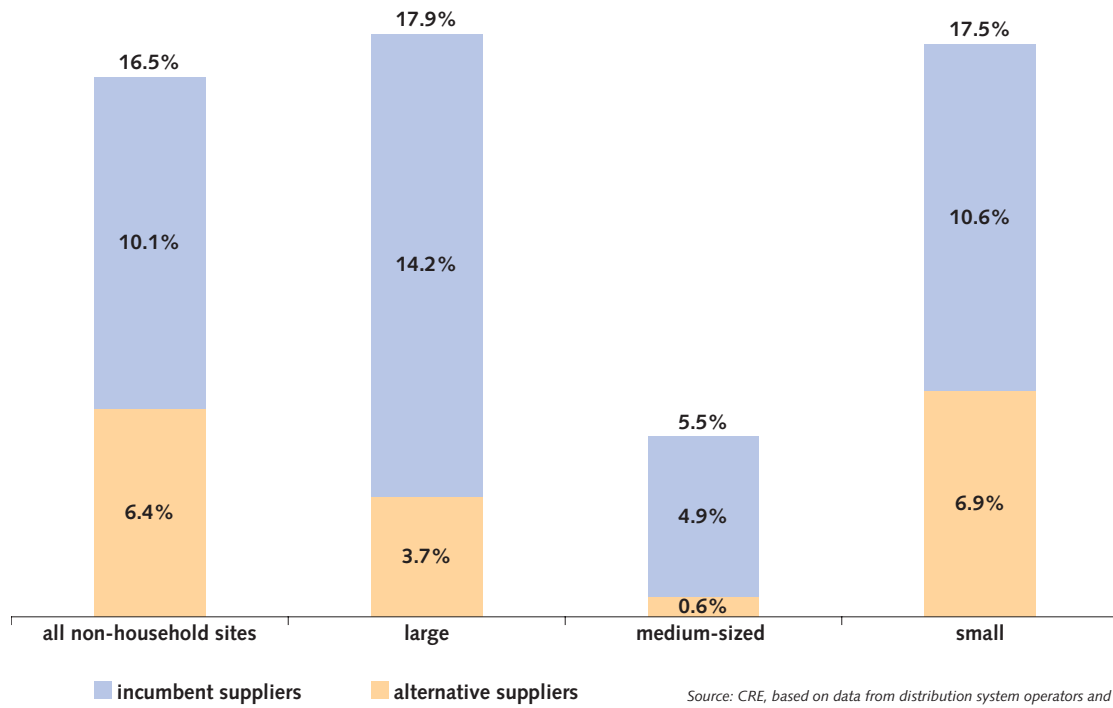
share of eligible sites supplied by alternative suppliers is 12.4% (see figure 44).

Table 4: Number of alternative suppliers on the market

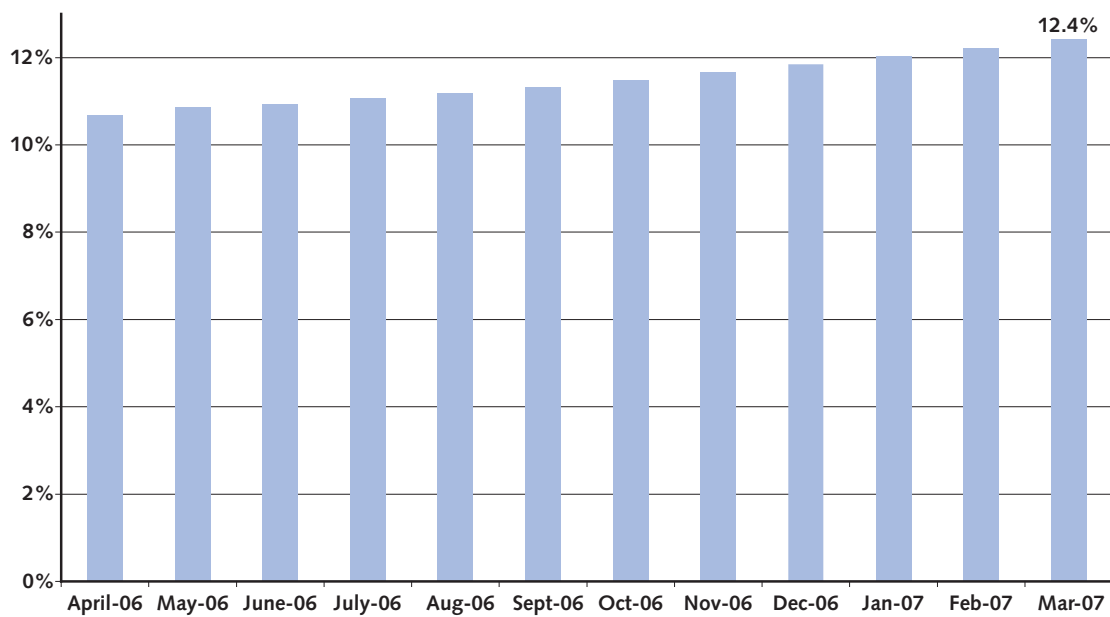
	All sites	Large	Medium-sized	Small
Number of active alternative suppliers	17	15	6	6

Source: CRE, based on data from distribution system operators and RTE

**Figure 43: Percentage of non-household sites holding market price contracts on 1 April 2007, in relation to total number of eligible sites**



**Figure 44: Consumption at non-household sites served by alternative suppliers**



### 3. Natural gas markets

#### 3.1. The French gas market: value chain and physical balance sheet

##### 3.1.1. Production, trading and supply activities are open to competition

There are five stages in the commercial value chain for natural gas: production, trading, transmission / distribution, storage and supply to end consumers (see figure 45).

The company Total accounts for more than 96% of French production. The volumes produced are very low compared with national consumption.

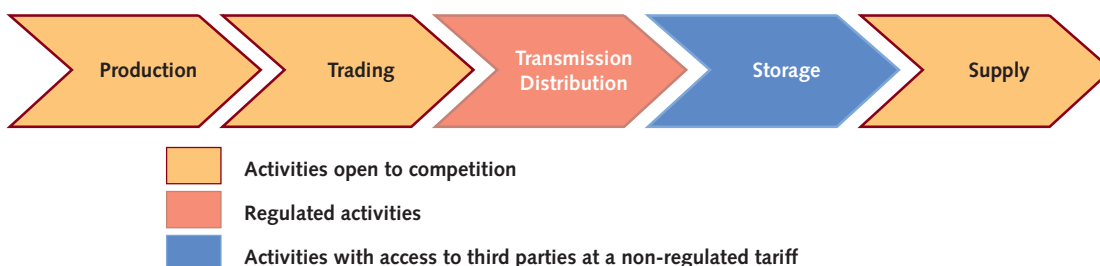
- The operators

Trading consists in exchanging large volumes of gas. Around twenty operators are active on the French wholesale market. There are two different types of player:

- suppliers operating on the market to cover consumption by their end customers and to take advantage of the flexibility of their supply contracts,
- traders, who do not have end customers but buy and resell gas to benefit from opportunities linked to price levels in France, Europe and on the short-term LNG market.

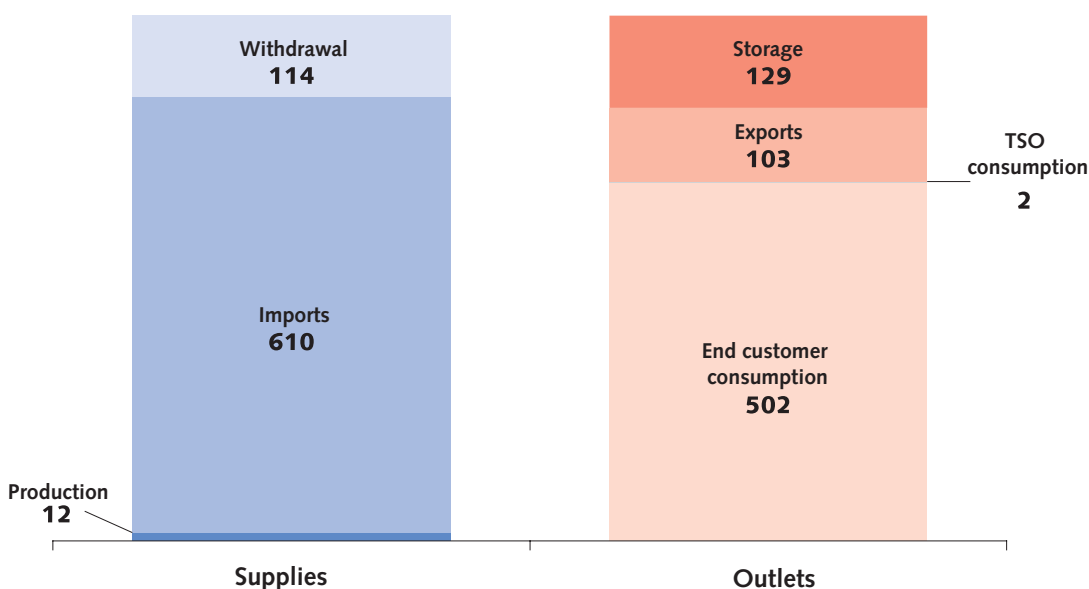
Some suppliers have developed a trading activity, generally managed independently from supply activities.

Figure 45: The commercial value chain for gas



Source: CRE

Figure 46: French market results for 2006 (TWh)



Source: CRE, based on data from GRTGaz and TIGF

Most of the volumes currently supplying the French market are covered by long-term import contracts with international producers.

The transmission and distribution activity is handled by public network operators. Access to French networks is open to third-parties and is regulated. GRTGaz, a subsidiary of Gaz de France, and TIGF, a subsidiary of Total, manage two separate zones of the French transmission network. The distribution network is managed by Gaz de France Réseau de Distribution, and by 23 local distribution companies.

France opted for the possibility, provided in the Directive of 26 June 2003, of allowing third-party access to storage facilities to be negotiated rather than regulated. Storage facilities are managed by Gaz de France (DGI) in the GRTGaz zones and by TIGF in its zone.

'Supply' means sale of gas to end customers, i.e. customers who actually consume the gas rather than reselling it. This activity is open to competition, except for sale to household customers, who will have to wait until 1 July 2007 before they can choose their supplier. 17 companies operate as suppliers in France.

**3.1.2. Imports are primarily used for supplying end customers and transits**

French consumers are supplied almost entirely by imports. French production volumes have been dropping regularly and, in 2006, represented only 2.6% of internal consumption. Figure 46 represents French gas suppliers' sources of supply and outlets in 2006.

**3.2. Entry-exit exchange points**

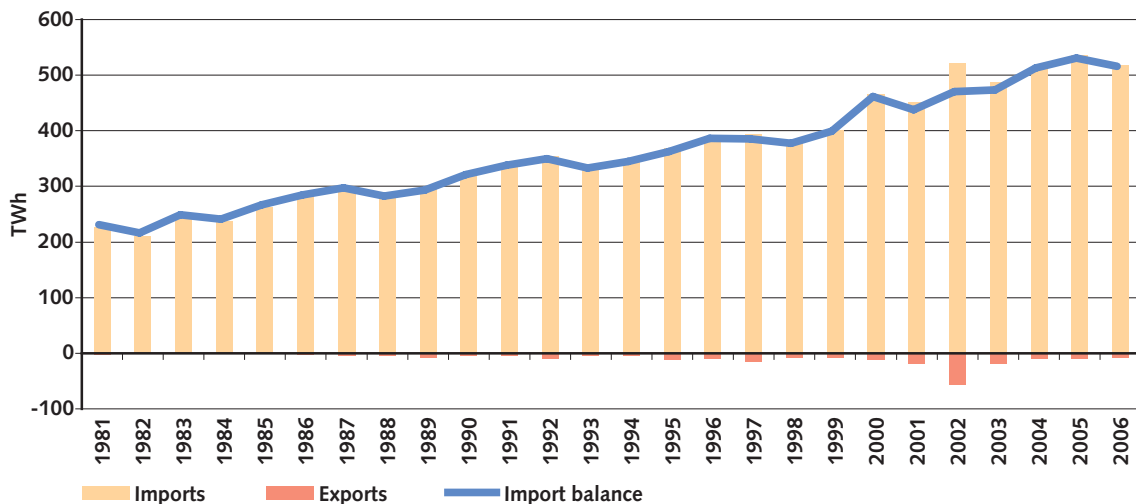
**3.2.1. French imports have decreased**

Due to decreasing internal consumption, net volumes of gas imported into France dropped by 2.9% between 2005 and 2006.

17% of gas imported into France is exported under transit contracts or in the frame of arbitrages on the short-term markets.

Figure 47 shows changes in French imports and exports since 1973.

**Figure 47: French gas imports and exports since 1973 (excluding transit)**



Source: DGEMP



**3.2.2. Incumbent operators manage most of the cross-border flows**

Gaz de France and Total hold almost the entire capacity of gas entering France. As at 31 December 2006, the two incumbent operators had reserved 89% of import capacities for 2007.

These reservations allow Gaz de France and Total to handle the lion's share of gas imports. In 2006, 88% of the gas imported into France was imported by Gaz de France, whereas 6% was imported by Total

90% of exports in 2006 were effected by Gaz de France

Figures 48 and 49 present the volumes imported and exported by French operators.

**3.2.3. In the medium-term, LNG could become a significant alternative supply source**

Initially, the increased entry capacities due to be put into service over the next three years (including commissioning of the Fos-Cavaou LNG terminal and increased entry capacities at Obergailbach) will have only a limited effect on the concentration of French supplies:

- 90% of the capacity at the Fos-Cavaou LNG terminal (8.25 Bcm per year), due to be commissioned during the last quarter of 2007, has been reserved for the long term by Gaz de France and Total;

- just one alternative operator has made a long-term booking of significant entry capacities at Obergailbach, benefiting from the capacity increase due to be implemented in 2009 (5 to 6 Bcm per year).

In the medium term, five LNG terminals could be commissioned between 2011 and 2012 at four sites: one at Dunkirk, one at Le Havre, two at Verdon and one at Fos-sur-mer. These projects, conducted by competitors of Gaz de France and Total, would constitute a significant supply source for alternative operators since their accumulated import capacity would be at least 30 Bcm per year, i.e. roughly 40% of foreseeable French consumption by 2012. These capacities are likely to:

- assist security of supply to alternative suppliers;
- assist wholesale market liquidity by intensifying competition between various gas import sources.

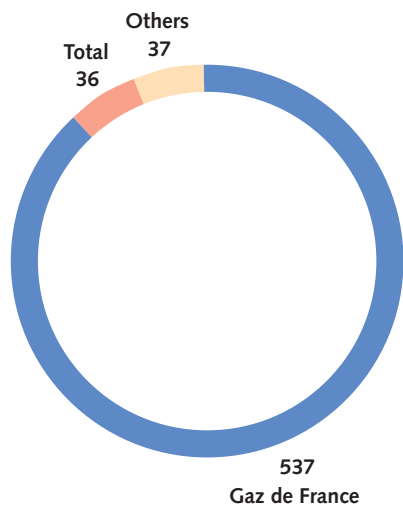
Details of how access to French LNG terminals is regulated are given on Page 70.

**3.3. Trading in France**

**3.3.1. The French wholesale market is an over-the-counter market**

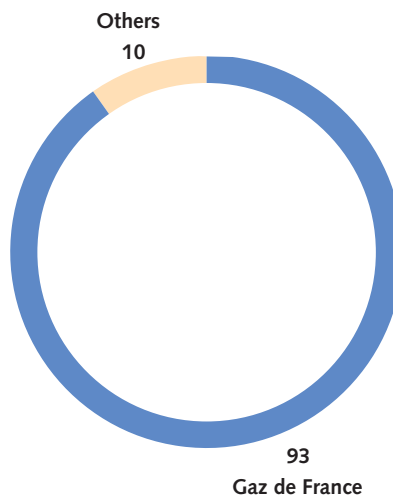
Gas exchanges in France are handled as over-the-counter transactions, as there is no organised gas market in France.

**Figure 48: French gas imports in 2006 (TWh)**



Source: CRE, based on data from GRTGaz and TIGF

**Figure 49: French gas exports in 2006 (TWh)**



Source: CRE, based on data from GRTGaz and TIGF

There are two different types of transaction:

- exchanges carried out at gas exchange points (PEGs): the gas volumes are transferred between balancing zones of the two counterparts in one of five transmission balancing zones; the buyer has total control of the gas he obtains and may sell it, transport it to another zone, or export it;
- exchanges carried out at a distribution network entry point (transmission-distribution interface point – PITD): these flows are not reversible as the buyer cannot use the volumes acquired to supply his customers in the distribution zone concerned.

**3.3.2. French wholesale market activity continues to develop but at a limited rate**

**A. Delivered volumes are increasing**

Volumes delivered between operators on the French market increased considerably during the second half of 2006, from 14 TWh exchanged during the fourth quarter 2005 to 26 TWh during the fourth quarter 2006.

Figure 50 illustrates the particularly strong increase in the North and East zones where delivered volumes more than doubled during the year. The North gas exchange point therefore became the leading exchange point on the French market, with 9.6 TWh of gas delivered during the fourth quarter 2006.

The merging of the North, West and East zones planned for 1 January 2009, will cancel gas transmission costs between one zone and another and therefore assist the development of a more liquid French market.

**B. Activity is still held back by the high level of vertical integration of the French market**

Volumes exchanged on the wholesale market remain relatively low compared with national consumption. The concentration of imports and high level of vertical integration between import and supply activities contribute to this low level of liquidity. Most of the gas imported or consumed in France is not traded on the wholesale market but is internally transferred within integrated groups.

**C. Exchanges remain highly concentrated, but alternative suppliers' activity is increasing**

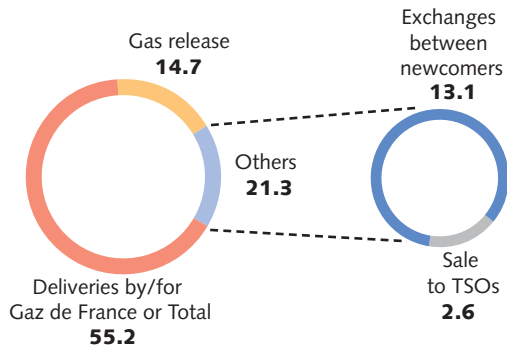
The volumes exchanged on the French market in 2006 remain highly concentrated. 83% of volumes delivered between operators in 2006 was sold or bought by Gaz de France or Total, with only 17% of deliveries resulting from transactions between new entrants to the market. Figure 51 (see Page 108) provides details of deliveries nominated at the various gas exchange points in 2006.

**Figure 50: Deliveries at exchange points (excluding gas release delivery)**



Source: GRTgaz, TIGF

**Figure 51: Deliveries between operators on the French wholesale market in 2006 (TWh)**



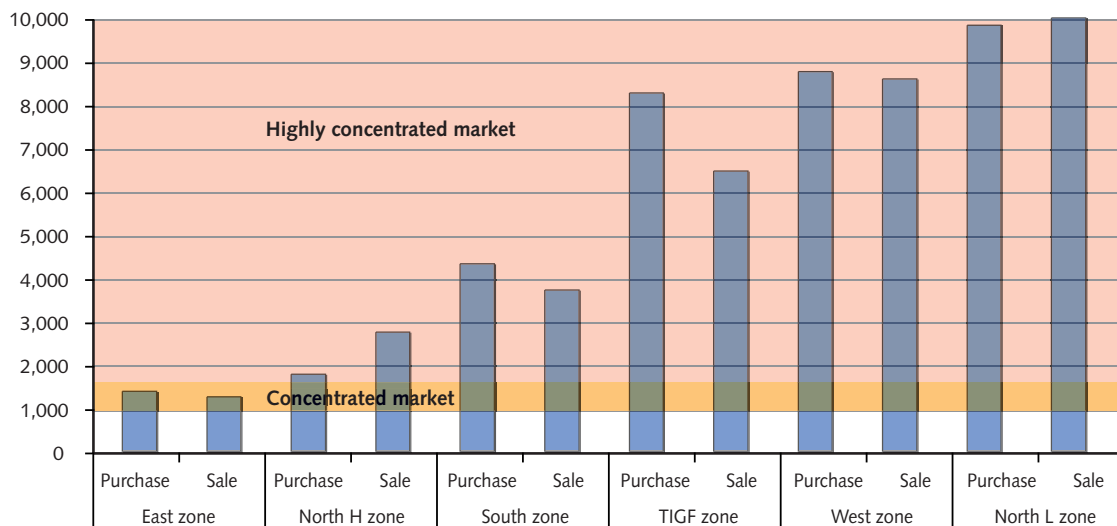
Source: CRE, based on data from GRTGaz, TIGF, Gaz de France, and Total

Figure 52 illustrates the concentration of purchases (withdrawals) and sales (deliveries) at the 6 gas exchange points. The most liquid gas exchange points (North and East) are also the least concentrated. The concentration index used is the Herfindahl-Hirschman Index (HHI – see inset 21, Page 85).

Despite concentrated, or highly concentrated, deliveries at gas exchange points, the alternative operators' share increased in 2006, rising from 15% in the fourth quarter of 2005 to 23% in the fourth quarter of 2006. Figure 53 shows that volumes handled by alternative operators have doubled since August 2006.

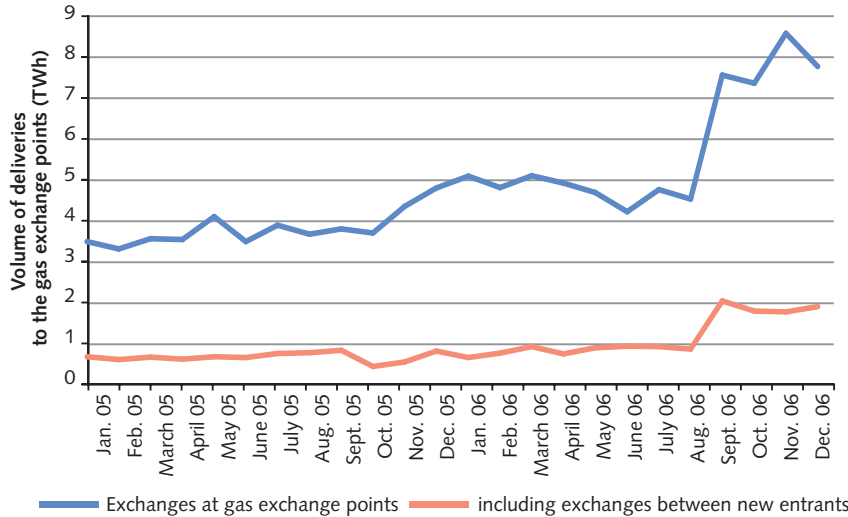
In addition to low liquidity, the French wholesale market is also characterised by a low number of traders. 15% of deliveries recorded in 2006, however, were made by an operator that was not active on the end customer supply market.

**Figure 52: Concentration index (HHI) for deliveries to gas exchange points in 2006 (excluding gas release deliveries)**



Source: CRE based on GRTGaz, TIGF, Gaz de France, Total

Figure 53: Newcomer activity on the wholesale market (excluding gas release)



Source: CRE, based on data provided by GRTgaz, TIGF, Gaz de France, and Total

3.3.3. Gas prices have been highly volatile

A. Gas prices in Europe

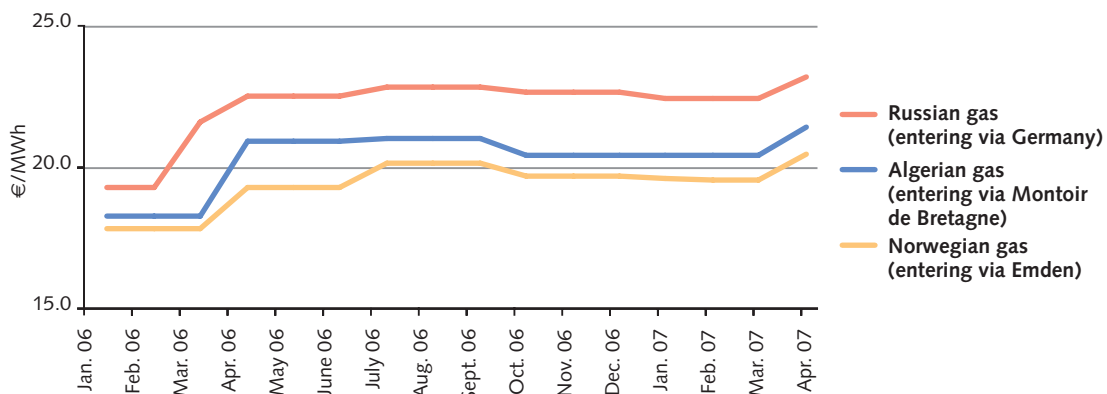
- Long-term contract prices

In continental Europe, around 90% of gas is purchased within the framework of long-term contracts. The prices of these contract prices are indexed to domestic fuel oil and heavy fuel oil prices quoted in dollars and, in some cases, on the dollar/euro parity. Upturns and downturns alike lag by a few months, and are smoother than, those of petrol products.

Contract prices are not divulged but are the subject of estimates published by specialist firms. They increased considerably at the start of 2006 (see figure 54). Since then they have stabilised at a high level.

In April 2007, prices of Algerian LNG entering via Montoir de Bretagne, and Russian and Norwegian gas entering via Germany reached 21.5, 20.4 and 23.3 €/MWh respectively. The Troll contract delivered to Zeebrugge increased by 22% in 2006.

Figure 54: Long-term contract prices – Western European Border



Source: CRE, based on Heren

• Hub prices

In Europe, three hubs propose reference prices for wholesale gas exchanges. Given the strength of the British market (very high liquidity and high number of players), prices established at the National Balancing Point (NBP) notional hub in the United Kingdom are guideline prices for other European hubs. In continental Europe, the two most important hubs are the Zeebrugge physical hub in Belgium and the Title Transfer Facility (TTF) in the Netherlands.

Spot day ahead prices established at these hubs are the prices resulting from gas supply and demand for delivery the following day (see figure 55). The various forward prices correspond to delivery on one of several standard timescales (month, quarter, half-year, year).

Other hubs have been created in continental Europe, including BEB in Northern Germany, PSV in Italy and Baumgarten in Austria, but their liquidity still remains very low. The development of French hubs (gas exchange points) is dealt with below.

- Spot prices

During 2006 and the start of 2007 spot prices were highly volatile. The start of 2006 was marked by a sudden price rise (80 €/MWh on 14 March 2006 on the NBP and at Zeebrugge) due to supply prob-

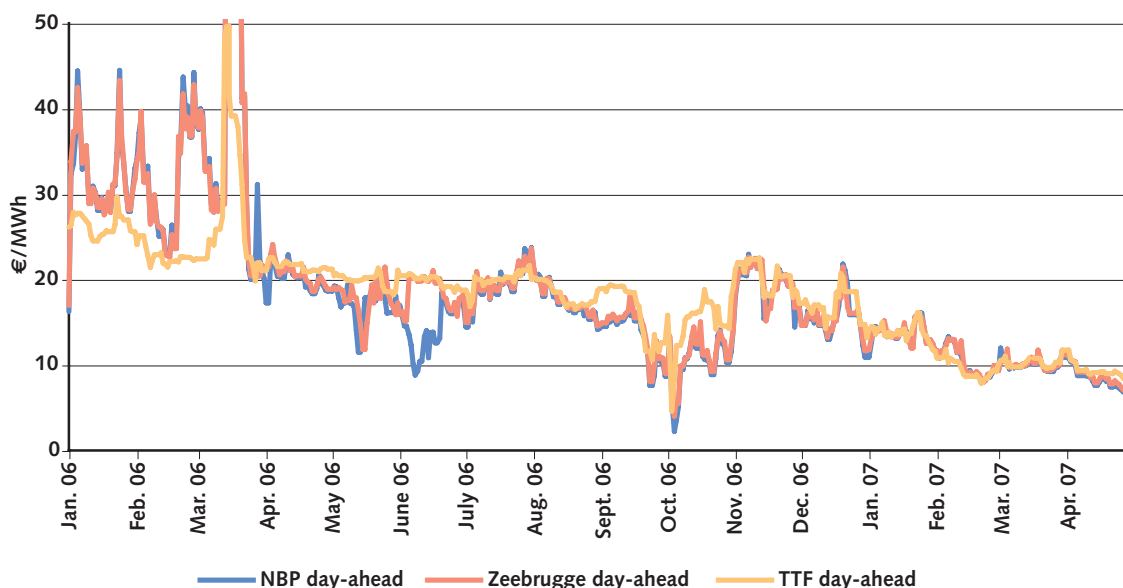
lems on the British market (decline in North Sea production since 2004, under-use of British import infrastructures, especially the IUK interconnector, and the explosion at the Rough storage site) and fears concerning the supply to the entire European market (gas crisis between the Ukraine and Russia).

From April 2006, prices dropped considerably, then remained stable during the summer (normal summer conditions) before temporarily sinking to 5 €/MWh in the United Kingdom in October 2006. After rising to 20 €/MWh during November and December 2006, European spot prices dropped again to around 10 €/MWh in April 2007, a level that had not been seen since mid-2004.

This price stabilisation at a low level is explained by:

- the setting up of new import capacities to the United Kingdom which corrected the bottlenecks that existed in gas transmission, i.e. earlier than anticipated opening of the new Langeled pipeline with a capacity of 20 Bcm per year, which imports Norwegian gas, the commissioning of the BBL pipeline with a capacity of 15 Bcm per year and a capacity increase on the Interconnector in the Zeebrugge-Bacton direction, from 16.5 to 23.5 Bcm per year;
- the recommissioning of Rough and the arrival of cargo ships at the Isle of Grain LNG terminal at the end of 2006 and start of 2007;
- mild winter temperatures.

Figure 55: Day-ahead prices for the three European spot markets during 2006-2007



Source: CRE, based on data provided by Platts

During the winter 2006-2007 there was therefore a surplus of gas on the markets.

Due to low spot prices and high levels of long-term contracts, market prices remained lower than those of contracts during the 2006-2007 winter.

- Forward prices

At the start of 2006, gas year forward prices at the NBP reached very high levels, up to 50€/MWh. On average, they are markedly higher than long-term contract prices. This situation penalised new suppliers who did not have long-term contracts (see figure 56).

From April 2006, annual quotation dropped considerably, returning to the levels observed in 2002 and 2003. Prices decreased from 33€/MWh to roughly 20€/MWh at the end of March 2007 a drop explained by the arrival of new gas sources in the United Kingdom and the influence of spot prices on the annual forward contracts. The downturn in petrol product prices also forced down the annual forward prices.

Perception of the British gas market has changed. Players seem more confident about gas supply during the winter 2007-2008 in the United Kingdom, given the new import capacities already in place or

planned for the future. All these factors have absorbed a significant portion of the risk premium for annual forward prices.

**B. Gas prices in France**

Two types of price exist side-by-side in France: long-term import contract prices and market prices.

Most of the gas volumes imported into France are delivered under long-term contracts. In particular, these contracts set:

- the price of the gas withdrawn by the buyer: this price includes transmission to the French entry point and is generally indexed to the price of various petrol products;
- the flexibility of gas withdrawal: take-or-pay clauses stipulate the minimum and maximum volumes that can be imported during a day, year or even period of several years.

Suppliers who have long-term contracts are supplied at a fixed price. They have considerable flexibility with regard to the volumes they can buy under such contracts. They can take advantage of this market flexibility –for both purchases and sales – according to the withdrawal price stipulated in their contracts, French market prices, neighbouring market prices and the state of their stock.

**Figure 56: Changes in the gas year forward price on the NBP**



There is no organised gas market in France, and therefore no transparent market price reference. The only price index available is an evaluation of transaction prices for delivery in the North zone put out by the Argus agency – only published since December 2005, and therefore of unproven reliability.

Figure 57 compares the spot price trend for European markets and the estimated price for long-term contracts.

### 3.4. Gas sales to network operators

Transmission system operators consume gas as fuel to operate equipment – including a number of compression stations – and also during work on pipelines or new gas connections in addition to which, there are also leaks on the networks.

The spot price on the French market is subject to variations generally similar to those at the Zeebrugge

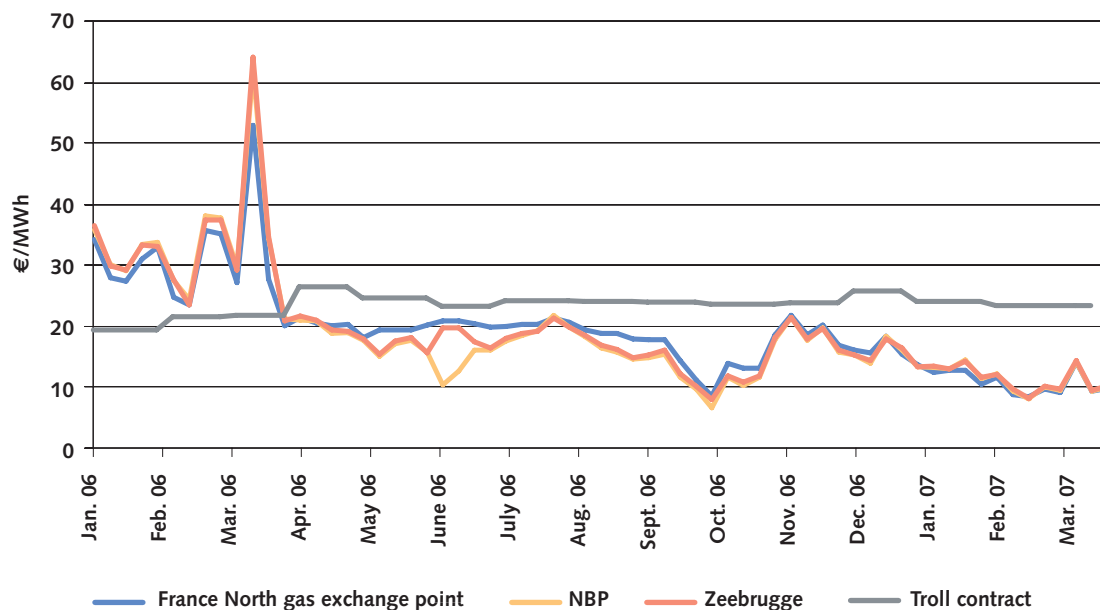
hub. However, these prices are not equal. French prices were lower than Zeebrugge prices up to April 2006 and have also been lower since mid-December 2006.

Since April 2006 market prices have been lower than the estimated long-term contract price. Throughout this period, therefore, French suppliers with long-term import contracts have had incentives to limit the use of such contracts, and to buy gas on French and European markets.

GRTGaz and TIGF are required to follow competitive, non-discriminatory and transparent procedures to obtain the energy they need for their consumption. To this end, they organise regular calls for tender.

These are very modest purchases compared with the total volume of the supply activity. In 2006, GRTGaz withdrew 2.7 TWh, and TIGF 0.3 TWh.

Figure 57: Gas spot prices in France and Europe (weekly average)



Source: Argus, and Platts



### 3.5. Retail markets: extent of opening and changes in regulated retail tariffs

France's energy sector industries contribute 2.5% to the GDP. Within this sector, the gas industry has a positive energy bill as France is a net importer of gas. The growth in consumption over the last 30 years is linked to increased consumption in the service and household sectors and, to a lesser extent, to an increase in industrial needs.

As can be seen in Figure 58, natural gas consumption in France was closely linked to economic activity during the early 1990s. It then grew more rapidly than the latter, with an annual average growth rate of 3% since 1995. In 2006, French consumption reached 511 TWh. Since 1 July 2004, all non-household customers and local authorities, i.e. 688,000 sites accounting for 75% of natural gas consumption, have

been able to choose their natural gas supplier. Since 1 July 2007, all consumers, i.e. 12 million sites, have been free to choose their natural gas supplier.

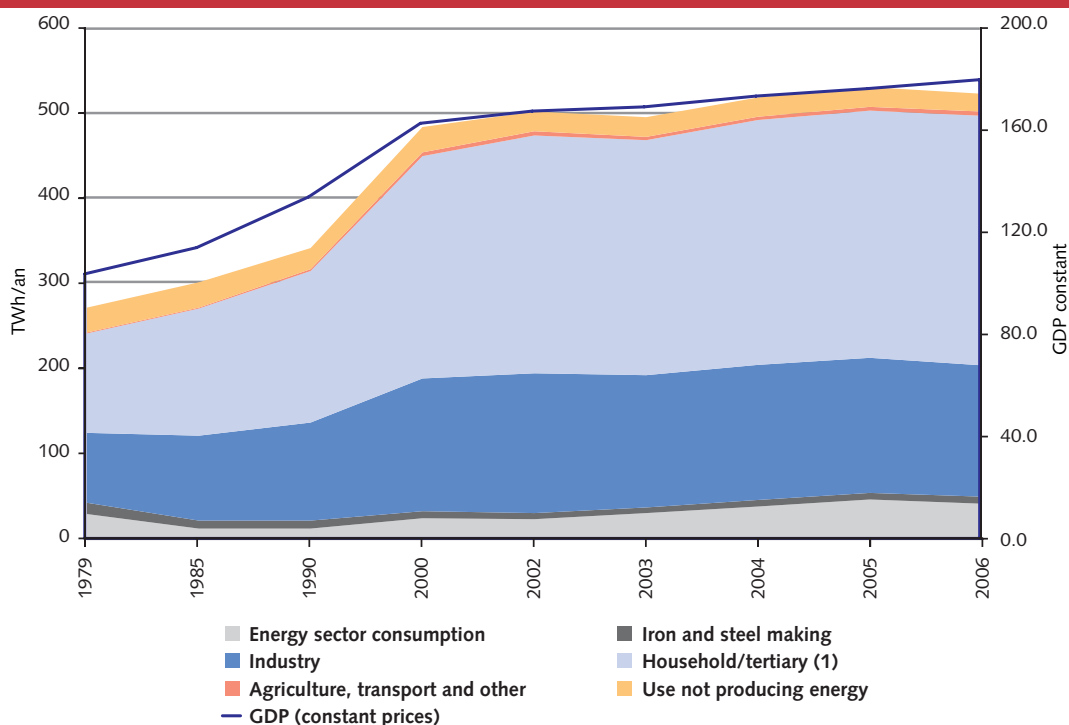
#### 3.5.1. Prices proposed to customers

Since 1 July 2004, all non-household customers have had the choice between two types of contract:

- regulated retail tariffs (see inset 27), offered by incumbent suppliers (Gaz de France, Tegaz and the 23 local distribution companies) which are set by the government following CRE's opinion. Only customers who have not subscribed to a market contract can benefit from these tariffs;
- market contracts, proposed by all suppliers, who are free to set the prices.

Market contracts vary according to customer segment. For sites connected to transmission networks,

Figure 58: Natural gas consumption per sector and economic activity



(1) Climate-corrected data.

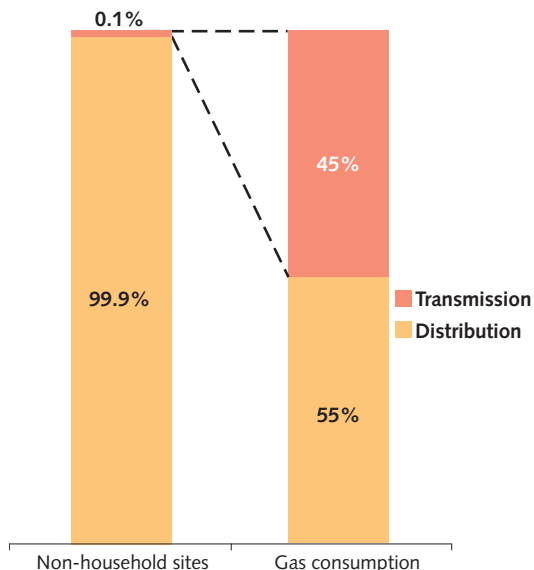
Source: CRE based on the Energy Survey Unit, Ministry of the Economy, Finance and Industry

**Inset 26: Non-household customer segmentation adopted by CRE**

The non-household customer market is divided into two segments:

- Customers connected to the transmission network: these are primarily industrial sites belonging to all sectors (iron and steel producers, paper producers, chemical industries, etc). This segment represents 0.1% of the number of non-household sites, but 45% of non-household gas consumption;
- Customers connected to the distribution network: these sites belong to the non-household mass market (small industries, SME/SMLs, skilled tradesmen, businesses, etc). This segment represents 99% of the number of eligible sites but only 55% of non-household gas consumption.

**Distribution of consumption over non-household sites**



Source: CRE, based on 2006 data provide by DSOs and TSOs

prices are generally based on wholesale market prices. For small customers, the price is defined with respect to the regulated tariff, with a variety of offers depending on supplier:

- cheaper subscription and an equivalent energy price;
- cheaper subscription and a cheaper energy price;
- an offer exactly matching the tariffs.

Since 1 July 2007, household consumers have had the same choice.

**Inset 27: Regulated natural gas retail tariffs**

Regulated natural gas retail tariffs include

- the cost of gas supply;
- the cost of use of transmission and distribution networks (where applicable);
- the cost of using storage facilities (to cope with seasonality of consumption);
- the costs of marketing.

Regulated retail tariffs are proposed by incumbent suppliers and are set jointly by the Minister for the Economy and the Minister for Energy following CRE's opinion.

**Subscription tariffs:**

These tariffs apply to gas consumers directly connected to the transmission network and customers connected to a distribution network who consume more than 4 GWh per year. Such customers have been eligible since 1 July 2004, in the context of total opening of the market to non-household customers.

Incumbent suppliers proposing subscription tariffs are Gaz de France, TEGAZ, and certain local distribution companies within their service area, especially Gaz de Strasbourg, Gaz et Électricité de Grenoble and Gaz de Bordeaux.

**Public distribution tariffs:**

These tariffs concern all consumers (non-household and household alike) connected to a distribution network and consuming less than 4 GWh per year. Incumbent suppliers proposing public distribution tariffs are Gaz de France and 23 local distribution companies within their service area, the largest of which are Gaz de Bordeaux, Gaz de Strasbourg, Gaz et Électricité de Grenoble and Vialis.

**3.5.2. Changes in regulated gas retail tariffs**

Changes in regulated gas retail tariffs must reflect changes in gas supply costs and suppliers' own costs.

The formula reflecting changes in gas supply costs depends on the supply portfolio of each supplier.

Regulated gas retail tariffs are revised 4 times a year (on 1 January, 1 April, 1 July and 1 October), except for Gaz de France public distribution tariffs, for which the revision frequency has not been set since May 2006, since when Gaz de France public distribution tariffs have not changed. A government decision ruled out any change to these tariffs before 1 July 2007 (see figure 59).

**A. Public distribution retail tariffs**

Regulated tariffs for public distribution by local distribution companies all increased between April and October 2006 because of the increase in petrol product prices, which had an impact on local distribution companies' supply costs.

The subsequent drop in the price of such products began to induce a downturn in public distribution tariffs in January 2007 for some local distribution companies.

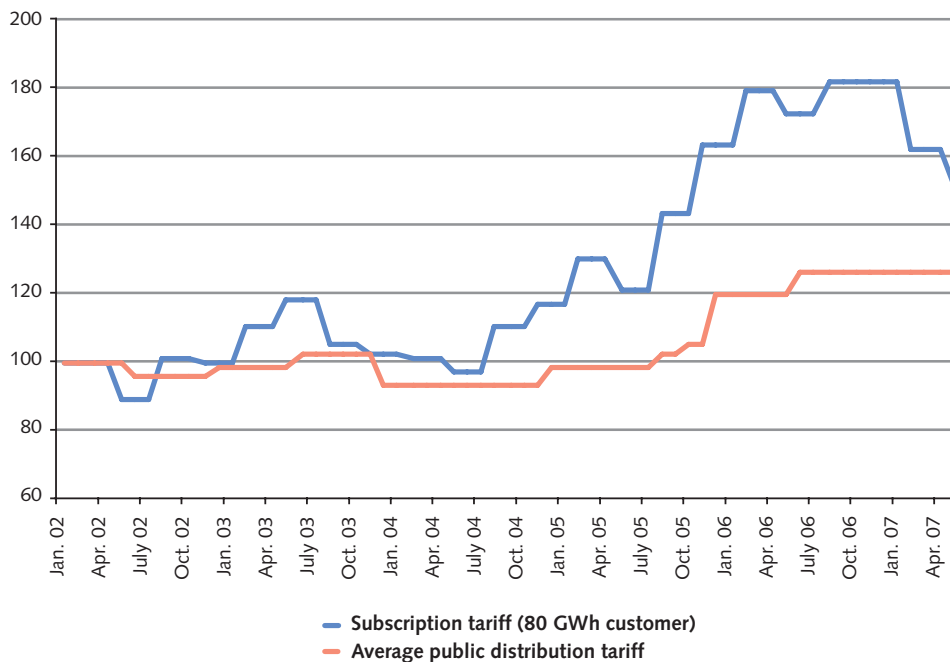
Between July 2006 and May 2007, CRE returned 3 unfavourable opinions on the 62 public distribution tariff scales submitted, as the requested change did not reflect the change in costs. The local distribution companies concerned modified their tariffs to comply with CRE's opinions.

**B. Subscribed retail tariffs**

The drop in the price of petrol products since September 2006 had an impact on Gaz de France subscription tariffs in January 2007 (-2.85 €/MWh) and April 2007 (-1.63 €/MWh).

Between July 2006 and May 2007, of the 14 tariffs scales proposed, CRE returned an unfavourable opinion on one scale submitted by a local distribution company, because the requested change did not reflect changes in its costs. At the request of the Min-

**Figure 59: Changes in Gaz de France regulated tariffs (base 100: January 2002)**



Source: CRE

ister for the Economy, Finance and Industry, the local distribution company concerned applied the scale it had submitted.

**3.5.3. Increase in market price sales**

On 1 April 2007, almost three years after market opening to all non-household customers, 117,800 sites held market price contract (see figure 60). Over the last quarter of 2006, the number of sites holding market price contracts increased by 14,700, as against 12,500 sites during the last quarter of 2005. This increase in sales of market price contracts resulted from the arrival of new alternative suppliers on the gas retail market, and especially on the small non-household consumer market.

**3.5.4. A highly concentrated market**

On 1 April 2007, 15 alternative suppliers had at least one customer in their portfolio (see table 5). Most suppliers are positioned to supply customers connected to the transmission network, which consumes the greatest quantities of natural gas. Some suppliers, after acquiring experience in the activity, have ex-

tended it to include customers connected to the Gaz de France distribution network. In areas served by local distribution companies, alternative suppliers are virtually non-existent.

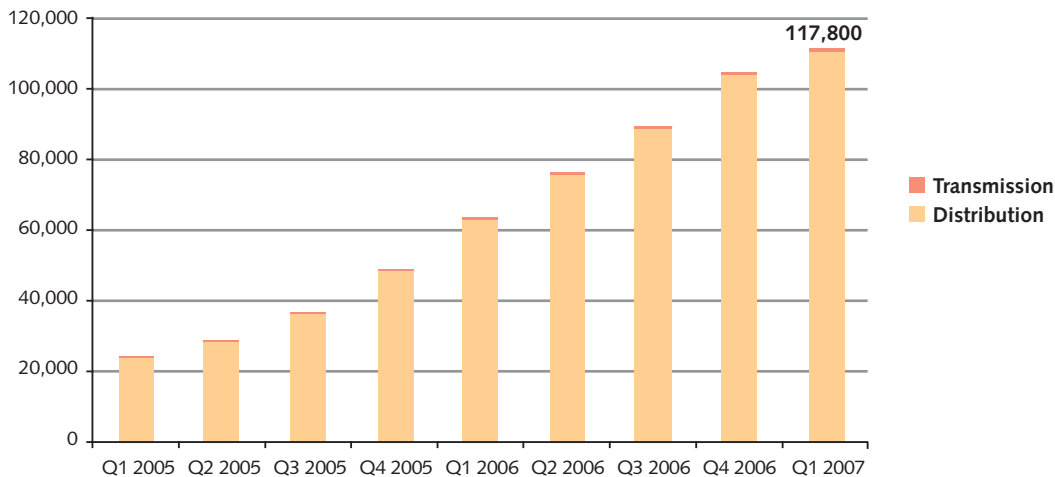
Market shares remain low: among the 17.1% of non-household sites holding market price contracts, only 7.4% have chosen an alternative supplier (see figure 61). The consumption share of non-household sites supplied by alternative suppliers is 15.4% (see figure 62).

**Table 5: Number of alternative suppliers on the market**

	All sites	Transmis- sion	Distribu- tion
<b>Number of active alterna- tive suppliers</b>	9	12	12

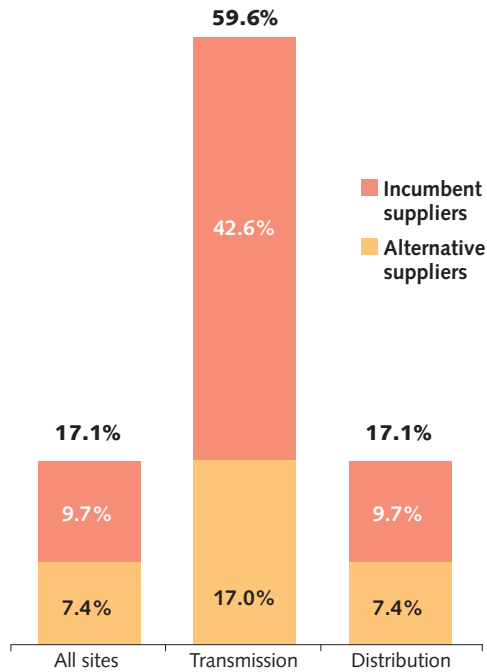
*Source: CRE, based on data provided by DSOs and TSOs*

**Figure 60: Number of sites holding a market price contract**



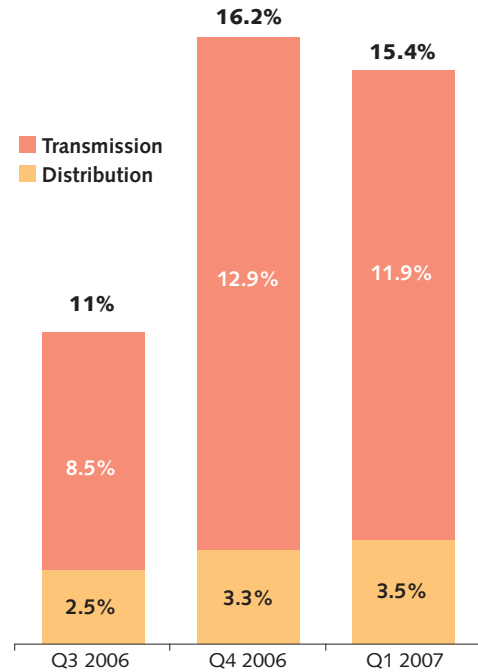
*Source: CRE, based on data provided by DSOs and TSOs*

**Figure 61: Sites holding a market price contract on 1 April 2007**



Source: CRE, based on data provided by DSOs and TSOs

**Figure 62: Share in consumption of non-household sites supplied by alternative suppliers**



Source: CRE, based on data provided by TSOs

## 4. Preparation for full market opening on 1 July 2007

### 4.1. Continuation of work on improvement of practical means of operation

CRE has carried on its role as a guide and facilitator for a sound dialogue between customer representatives, suppliers and operators, within the GTE (Electricity Working Group), GTG (Gas Working Group) and GTC (Consumer Working Group).

The main objective of this work was to define the practical means in open markets, and its results may be presented under 3 main headings: relations between stakeholders, final definition of processes, and adaptation of information systems.

Task forces will pursue discussion beyond 1 July 2007, in order to follow up on application of means of market operation defined within working groups, and to organise feedback to propose improvements.

#### 4.1.1. Relations between customers, suppliers, and system operators

##### A. Discussion on consumer information and protection

The GTC has produced thirteen educational leaflets giving household customers information enabling them to make fully informed choices as from 1 July 2007, and which are available at [www.energie-info.fr](http://www.energie-info.fr) (cf. p. 124).

The GTC has drawn up standardised models for presentation of offers, the use of which by suppliers is

being promoted by consumer associations, to ensure that consumers benefit from comparable information when it comes to choose a supplier.

Reliability and transparency of methods for estimating consumption are of main importance in the open market. CRE has noted that, in compliance with the request it made in its Communication of 14 September 2006, the main operators have published their methods for estimating consumption.

#### B. Adaptation of contracts

Contracts for use of grids/networks, which suppliers must sign with DSOs, were drawn up before 1 July 2004, for market opening to all non-household customers.

Rereading of contracts was necessary before 1 July 2007, in order to:

- decide how they needed to be adapted so as to conform with the new legislative framework, the Consumer Code, and changes in procedures decided upon within discussion groups;
- define DSOs' commitments towards suppliers and customers;
- assess the possibility of bringing about improvements requested by suppliers.

Rereading of contracts resulted in a number of recommendations being communicated to DSOs in order to adapt of their contracts and, on 30 April 2007, EDF Réseau Distribution and Gaz de France Réseau Distribution published draft changes to their contracts.

#### C. Analysis of special customer situations

Working groups focused on two cases:

- unsolicited switch, for which a procedure has been defined allowing the customer to switch back to the former supplier's contract
- customers without suppliers, for whom a procedure has been laid down enabling the three following situations to be dealt with: a new occupant who has not signed a contract with a supplier, a customer who has been disconnected at his own initiative but is still an occupant, and a customer whose has been disconnected at the supplier's initiative but who is still an occupant.

Although these are not directly connected to the problematics of opening markets, working groups have also defined procedures for dealing with fraud and unpaid bills, taking care that such procedures are in line with existing legal and regulatory provisions.

#### 4.1.2. Final definition of processes.

##### A. Finalisation of procedures connected with the 'customer pathway'

In conformity with CRE's Communication of 14 September 2006, system operators have provided suppliers with detailed specifications of key procedures to do with the 'customer pathway'<sup>(4)</sup>, in order that priority be given to incorporating such procedures in information systems.

Working groups focused on three main areas of activity:

- description of other possible events along the 'customer pathway', such as start-up of a non-disconnected site, start-up of sites where supply has been maintained, requests for technical intervention, and synchronisation of DSO's interventions in electricity and in gas;
- feedback on application of procedures defined for opening markets to non-household customers, and their adaptation to full market opening on 1 July 2007;
- the consequences of the provisions of the Law of 7 December 2006 bearing on the energy sector.

Working groups have also paid special attention to description of suppliers' means of access to technical and contractual data, which are held by DSOs. As regards gas, procedures have been finalised. As regards electricity, modification of the Decree of 16 July 2001 bearing on protection of commercially sensitive information is expected, to allow communication of customer's consumption records to a supplier that has just concluded a contract with a customer.

##### B. Rules for profiling and for flow settlement

Flow settlement is a system operator's allocation to a supplier of energy consumed by its customers. It relies partly on profiling to estimate consumption curves for customers equipped with index meters (cf. inset 28), which are only read twice a year.

(4) The 'customer pathway' covers all phases of interaction between customer and supplier or distribution system operator (DSO). In practice, each key process in market opening (supplier switching, start-up, disconnection and connection) gives rise to a specific 'customer pathway'.

Settlement mechanisms set up by system operators in 2004 for market opening to non-household customers have undergone improvement following feedback from the parties concerned.

As it considers metering data communicated by DSOs as having major consequences for suppliers as regards flow settlement, CRE pays close attention to its quality.

The Commission's work programme for the second half of 2007 includes definition of objectives and indicators for monitoring quality of metering data communicated by DSOs, and is set on tracking its progress.

In electricity as in gas, governance of profiling systems is under discussion, with market players working towards definition of rules for managing the range of profiles. The debate is ongoing.

**4.1.3. Adaptation of information systems (IS)**

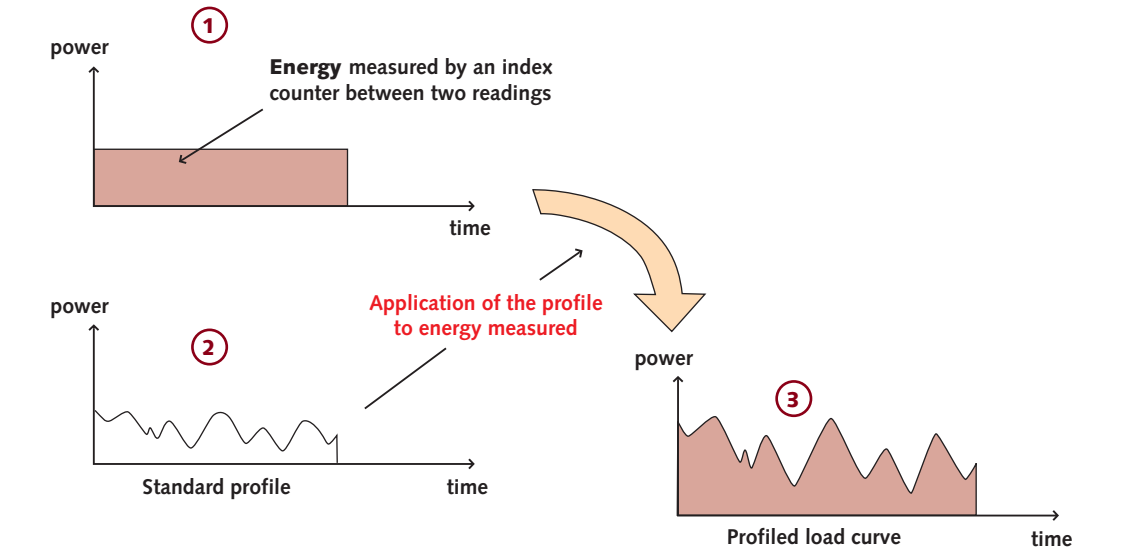
**A. Deployment of new IS**

New operational rules for open markets have meant revision of system operators' IS, which have a central part to play.

**Inset 28: Profiling method**

Profiling consists of attributing a profile [2] to an energy [1] in order to obtain the theoretical cost curve per half-hour of customers equipped with index meters. Profiling has an essentially

statistical value: profiles reflect the consumption of a group of customers, rather than of each customer individually.



Source: CRE



CRE wished to ensure that DSOs' information systems were well prepared for full market opening on 1 July 2007, and would enable implementation of procedures defined by the discussion groups concerned.

Between July and November 2006, CRE had an audit carried out on ERD's customer management IS.

Auditing of ERD's IS led to the CRE Communication of 8 February 2007, in which it made recommendations to ERD's benefit.

These focused on three areas – IS efficiency, prevention of discrimination, and improvement of dialogue – and will be closely tracked by CRE, in accordance with the schedule defined in the Communication.

Major areas for vigilance are:

- difference in treatment of the incumbent supplier EDF and other suppliers, resulting in ERD's heavy reliance on existing applications;
- IS operational efficiency in management of clients that have exercised their eligibility, which could be improved (increased automation and set-up of monitoring procedures);
- means of dialogue, currently seen as highly unsatisfactory by suppliers.

In electricity as in gas, CRE took note of the efforts and major human and financial resources that the main system operators had devoted to preparing themselves for 1 July 2007. A number of DSOs however, including ERD, were not ready to automatically apply all the principles defined in CRE's Communications of the 10 January and 14 September 2006.

#### **B. Efforts towards homogenisation between DSOs**

Work carried out by Electricity and Gas Working Groups gave LDCs access to the information necessary to bring their own IS into line with national DSOs' information systems. Consistency is an essential factor in facilitating development of suppliers. Existence of differing technical or contractual systems from one DSO to another is an obstacle to entry on to the market.

#### **C. Interoperability tests**

Taking into account the increased volume of transactions connected with the opening of the household customer market, market fluidity depends on automation of information flow between DSOs and suppliers.

To ensure this, CRE ascertained that the main system operators were holding interoperability tests between their IS and those operated by suppliers.

Tests continued until the end of May 2007 for gas, and June 2007 for electricity.

#### **4.1.4. Changes in metering systems to the benefit of consumers**

Changes in metering systems, the introduction of remote management in particular, may benefit consumers in a number of ways:

- billing based on real rather than estimated consumption, so dispensing with the necessity of being present when the meter is read, or of having to send in meter readings;
- eventual reduction of costs for use of distribution systems;
- remote maintenance not requiring the customer's presence;
- a wider range of offers on the part of suppliers;
- improved control of energy demand.

The Directive of 5 April 2006 bearing on energy efficiency encourages Member States to foster development of advanced metering solutions. However, the cost/profit ratio of an overall change in metering systems is yet to be adequately assessed. In order to help guide thinking on this issue, CRE had a technico-economic study carried out by a consultant, the results of which were presented to participants in the Consumer Working Group (GTC), in March 2007.

The study enabled assessment of the cost of changing over to advanced metering systems, depending on their level of sophistication (index, no cost curve, remote management, prepayment, facilitation of home automation functions, etc.), and of various means of deployment. It would appear that the cost of such a project – estimated in the study as standing at between 4 and 6 thousand million euros – does not greatly depend on the meters' degree of sophistication, besides which, there is significantly greater benefit to the consumer if the upgraded meter (and the quantity and quality of information it delivers, both of key importance) can be partly credited for the reduction in energy consumption expected during the coming decades. Assessment of such indirect benefits is still uncertain, however.

Taking into account the financial issues involved and potential benefits to the end consumer, and following ERD's announcement of a large-scale metering system project, CRE, in its Communication of 6 June 2007,

and after discussion with market players, laid down its guiding lines on future changes in the low voltage electricity metering system (cf. p. 68).

## 4.2. Consumer information and protection

### 4.2.1. Main results of the survey carried out on non-household customers

In late 2006, CRE carried out a survey on marketing opening as viewed by non-household customers, two and a half years after the 1 July 2004. The survey was conducted by the BVA Institute, taking a representative sample of 1502 non-household customers (establishments of all sizes in public and private sectors alike), and sought to assess their awareness of market opening and of the players involved, the perception they had of it, and contacts that they had had with

suppliers. It will be carried out a second time in late 2007, in order to provide a barometer of opinion.

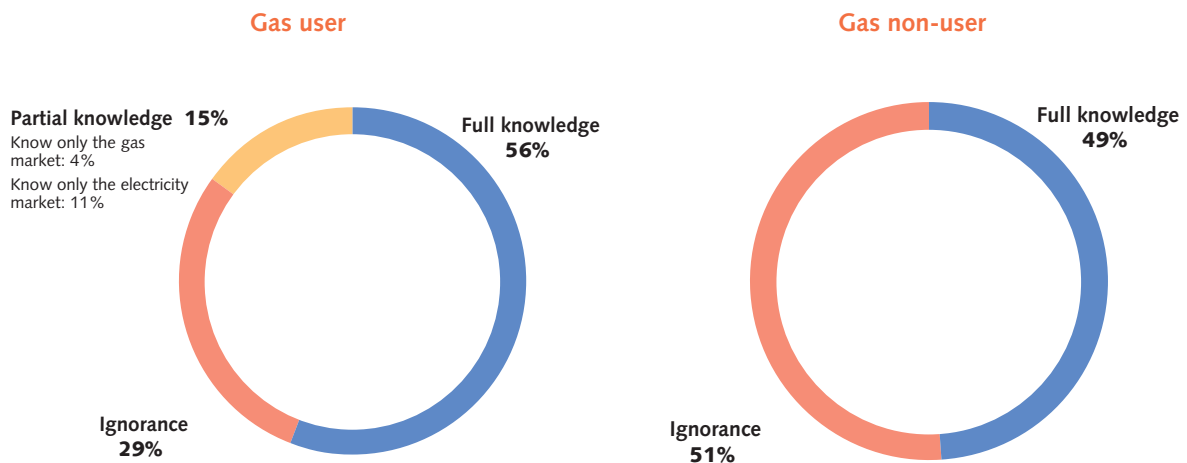
#### A. Awareness of market opening

Around half the customers knew that supplier switching was possible (cf. figure 63). The larger the company, the better it was informed: while around 52% of companies with fewer than 10 employees were aware of the possibility, the rate rose to 77% for companies with over 100 employees.

55% of customers thought they were poorly informed about the opening of markets to competition, and over 80% stated that they did not know how to go about switching supplier. Nevertheless, around two thirds knew that no cost was involved in switching supplier, and over three quarters knew that this did not involve changing electricity or gas meters.

**Figure 63: Awareness of market opening**

*“Do you think that your company has the possibility of switching electricity or gas supplier?”*



**Full knowledge** = use electricity only, and know that the electricity market is open OR use gas and electricity, and know that both markets are open.

**Partial knowledge** = Use electricity and gas, and only know that one of the two markets is open.

**Ignorance** = Use electricity only, and do not know that the electricity market is open OR use electricity and gas, and are unaware of the opening of either market.

Source: BVA survey on behalf of CRE (December 2006)

**B. Perception of market opening**

Two thirds of clients saw market opening as a good thing (cf. figure 64), while only 12% thought it was bad for their company. In the eyes of most customers, opening of the energy market would not have a negative effect on quality of service provided to the customer (only 19% feared it would deteriorate). 45% of them thought that it would enable them to reduce their energy bill, while only 9% believed that it would increase it.

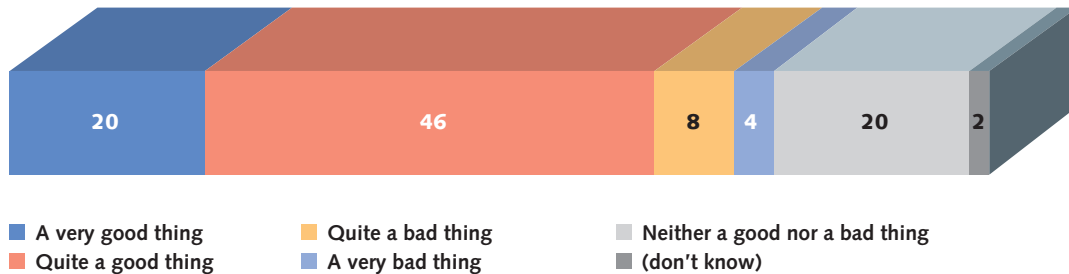
**C. Contacts with suppliers and attitudes to change**

One in four customers was able to name a supplier other than his own (cf. figure 65). During the previous year, 35% of customers had had contact with their present electricity suppliers, and 44% with their present gas suppliers (at the customer's initiative in 2 out of 3 cases). Furthermore, a third of customers

had received information from competing electricity or gas suppliers (by telephone, post, email, or through a visit from a marketing representative). Only 7% of customers for electricity and 12% for gas had personally sought information on offers from suppliers besides their own.

Around 15% of customers aware of market opening expressed the intention of switching suppliers in the following 6 months, the same holding true for both gas and electricity. Price was the essential motive for supplier switching, with two thirds of customers that had already switched having done so because of more attractive price offers. Customers who announced their intention of continuing with their existing supplier did so mainly because they were ignorant of competitive offers, were satisfied with their present supplier, or did not have the time to go through the necessary procedures.

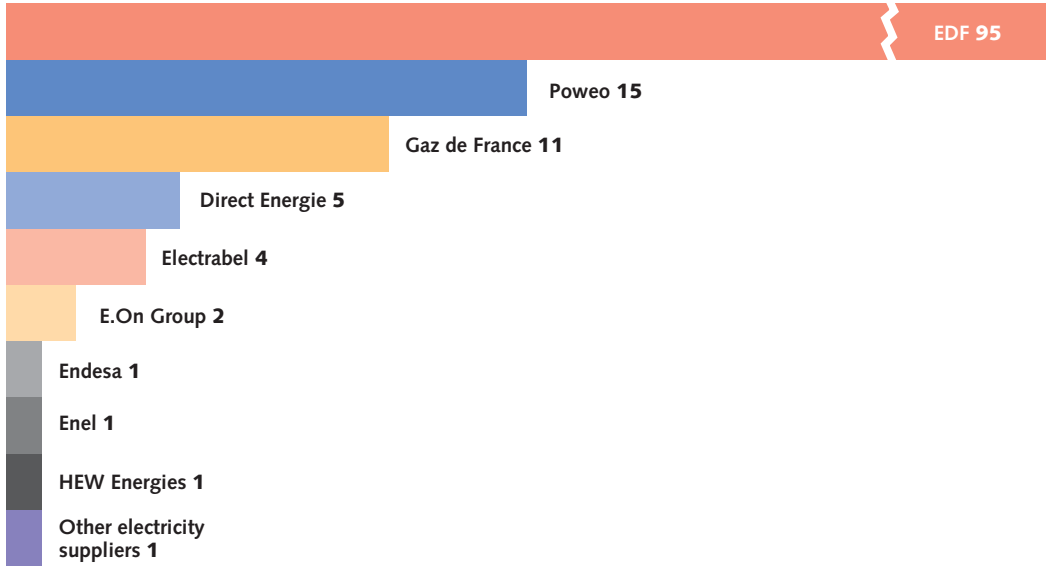
**Figure 64: Perception of market opening**  
 "Overall, for your company or within the context of your non-household activity, the opening of the electricity and natural gas markets is..."



Source: BVA survey on behalf of CRE (December 2006)

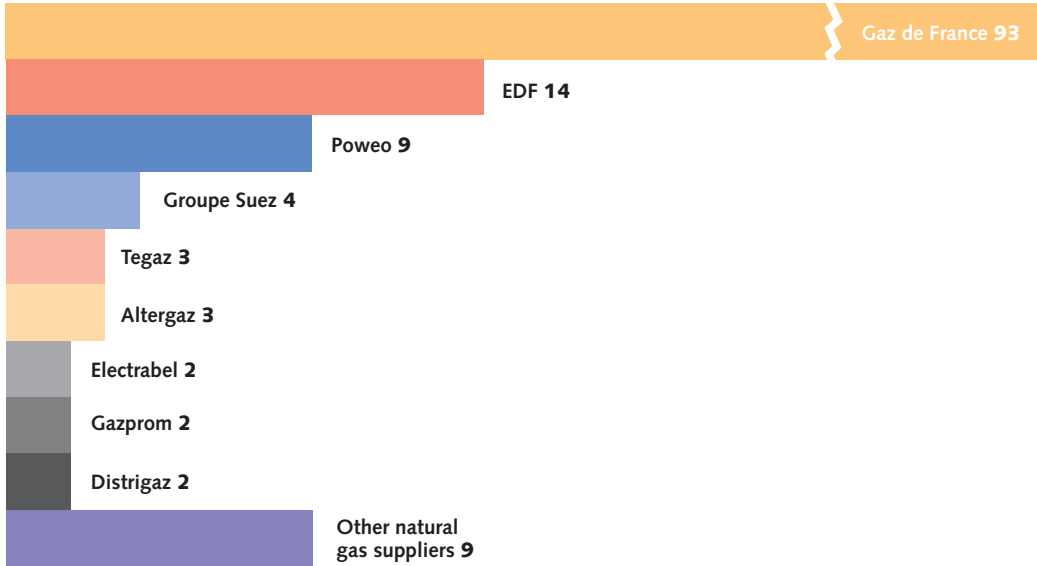
Figure 65: Supplier recognition

Brand recognition rate for electricity suppliers



Don't know / Unaware of other suppliers besides their own: 73%.  
On average, non-household customers who immediately came up with other suppliers could cite 1.4 names.

Brand recognition rate for suppliers of natural gas



Don't know / Unaware of other suppliers besides their own: 73%.  
On average, non-household customers who immediately came up with other suppliers could cite 1.5 names.

Source: BVA survey on behalf of CRE (December 2006)

4.2.2. Information tools available to consumers

A. Websites

On 23 May 2007, CRE unveiled an information website aimed at household consumers, designed in collaboration with the Energy Mediator and the Government. The site, [www.energie-info.fr](http://www.energie-info.fr), presents basic information on customer procedures (moving house, connection, termination of contract, information on suppliers, choice of contracts, etc) as well as on consumer rights. Leaflets corresponding to the various stages in the ‘customer pathway’ can be downloaded, with content guiding the consumer through a range of procedures. It was designed to provide access to clear, easy-to-understand information, independent of suppliers (cf. inset 29).

As concerns non-household customers, much has been added to the consumer pages at the [www.cre.fr](http://www.cre.fr) website. In March 2006, CRE included a search engine for electricity and gas suppliers on the French market, now the site’s most consulted section, with over 6,000 hits a month. Internauts can obtain a list of suppliers adapted to their consumption profile. A new “Consumers’ questions” rubric has also been added, in order to provide answers to the most frequent questions asked by small non-household consumers, and taking account of the practical aspects of market opening. Most questions in this section were drawn up on the basis of questions from consumers

received by CRE, and answers supplied take a practical, operational approach.

Apart from this, non-household customers can find a ‘Consumers’ guide to electricity and natural gas consumption’ on the [www.cre.fr](http://www.cre.fr) site, a rubric that has been updated following voting in of the Law of December 2006.

B. Answers to non-household customers’ questions

Since July 2004, CRE has received questions and complaints from non-household customers, mostly from small non-household consumers. Such customers are referred to CRE by DSOs and suppliers active on the market when these latter are not in a position to provide them with information (cf. figures 66 and 67).

Between May 2006 and March 2007, CRE received almost 3,700 questions from eligible customers, related to the opening of the electricity and gas markets. The most common topics were knowledge of suppliers operating on the French market, practical means for organisation and operation of the French market, and methods of switching supplier, getting connected, and implementing start-ups.

CRE has received some 1,500 complaints from non-household customers regarding suppliers and system operators. Such complaints involve misleading and

Inset 29: [www.energie-info.fr](http://www.energie-info.fr) homepage



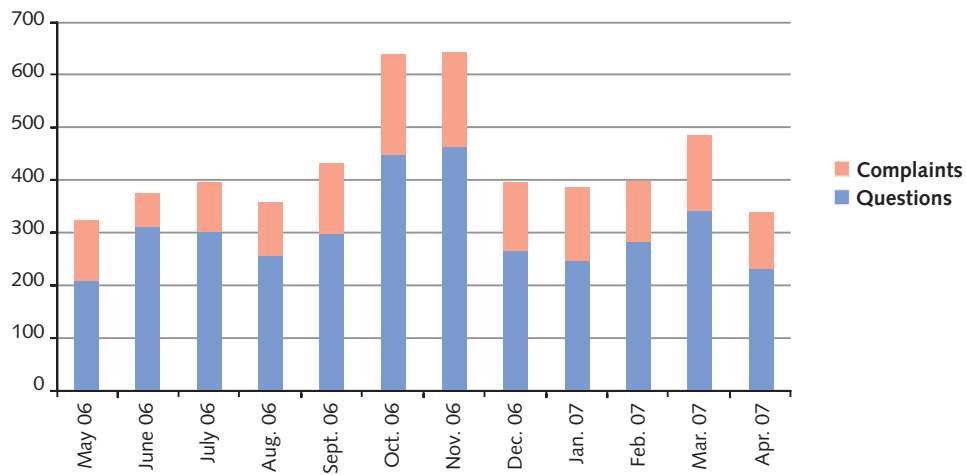
pressurising practices of suppliers' sales representatives, problems encountered when terminating contracts, quality of suppliers' customer services, as well as methods for billing and using estimated consumption indexes. In general terms, contact with non-household customers made it apparent that these latter had little knowledge of how to exercise eligibility or how to choose a supplier.

**C. The consumer information department**

With market opening, it is essential that consumers be provided with reliable, objective information on market operation and on their rights.

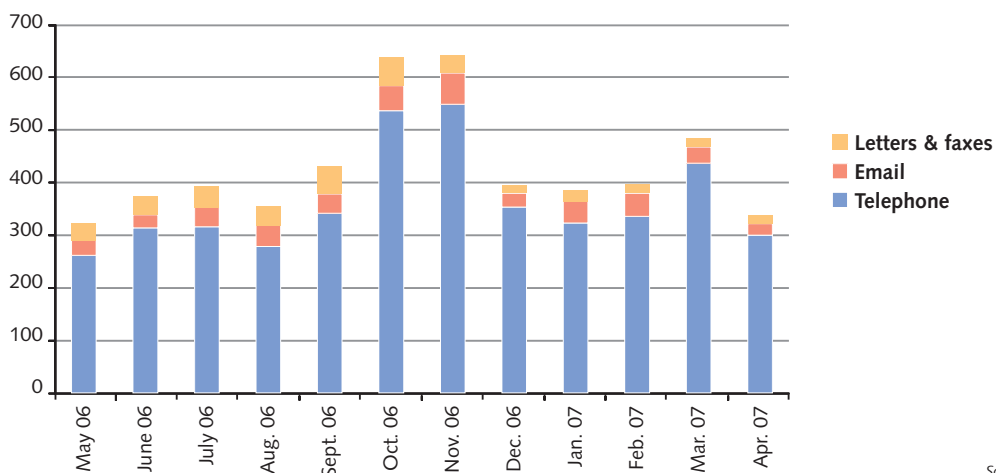
On 18 June 2007, in collaboration with the Energy Mediator, CRE set up a consumer information department, contactable at 0810 212 112 (local call rate).

**Figure 66: Customer contacts with CRE directly concerning market opening, by type**



Source: CRE

**Figure 67: Customer contacts with CRE directly concerning market opening, by means of communication**



Source: CRE

The information department is open from Monday to Friday from 9 am to 8 pm, and on Saturdays from 9 am to 5 pm.

Household and small non-household consumers can contact the information department for answers to their questions on opening of the energy market, practical procedures, and their rights.

The department also advises consumers, helping them in the handling of disputes with suppliers and system operators.

## 5. Market monitoring

The Law of 13 July 2005 confirmed CRE's mission as regards market monitoring, but limited it to monitoring of transactions on organised markets and cross-border exchanges. The decree laying down conditions for application of its provisions has never been issued.

The Law of 7 December 2006 bearing on the energy sector entrusted CRE with the mission of monitoring transactions between generators/producers, trad-

ers and suppliers on the electricity and gas wholesale markets.

Monitoring of a market consists of checking that prices result from free play of competition. It is a matter of analysing prices and players' decisions in order to detect any apparent suspicious behaviour indicative of manipulation.

Effective monitoring reassures participants, encouraging increased transactions and reinforcing the market's ability to give apposite price signals.

To monitor electricity and gas wholesale markets, CRE periodically gathers information from market players concerning their activity on the wholesale market and their technical and economic constraints. Such information enables detection of possible anti-competitive practices, such as retention of capacity, excessively high or low prices, or attempts to manipulate prices on organised or OTC markets.

If CRE detects any criminal behaviour, the law stipulates that its Chairman must refer the matter to the Competition Authority.

# III. The public electricity and natural gas service

The public electricity service comprises three missions:

- development and operation of public transmission and distribution grids;
- supply of electricity in the national territory to customers who have not exercised their eligibility, at regulated retail prices, and emergency supply of electricity to other customers;
- balanced development of electricity supply.

CRE participates in implementation of the second and third missions, which are the subject of this section, by carrying out the following tasks:

- it implements the procedure for calls for tender put out by the Minister for Energy as a means of achieving the aims of the multi-year investment programme;
- upon referral from the Minister, it advises on feed-in tariffs set up in order to develop renewable energies and cogeneration;

- each year, it assesses public electricity service costs for the following year, along with the corresponding unit contribution. Such costs result from support given to cogeneration and renewable energies, tariff equalisation in non-interconnected territories, and social measures in force since early 2005.

Under the provisions of the Law of 7 December 2006, public service must also cover gas. On 30 June 2007, the decree setting the special solidarity tariff for gas had not yet been published.

## 1. Support systems for electricity generation: cogeneration and renewable energies

Promotion of renewable energies, instituted by the Directive of 27 September 2001, is a priority in the European energy policy. Renewable energies help to reduce the effects that energy consumption has on the environment and to ensure the security and diversification of sources of supply.



The Law of 10 February 2000 provides for two systems of support for electricity generation: calls for tender (article 8) and purchase obligation (article 10). For the first, CRE implements the procedure for calls for tender put out by the Minister for Energy, drawing up technical specifications based on conditions laid down by the Minister, examining bids, and giving its opinion on the choice envisaged by him. For the second, it gives opinions on purchasing conditions defined by the Minister.

### 1.1. Calls for tenders

On 7 September 2006, CRE was commissioned by the Minister for Industry to draft technical specifications regarding a call for tender for electricity generation facilities using biomass energy, the second call for tender in the biomass sector. Total target capacity was 300 MW, composed of 80 MW for facilities with unit power of between 5 and 9 MW, and 220 MW for facilities with power superior to 9 MW. Selected candidates will be awarded a contract for purchase of electricity generated at the price they propose, for a period of 20 years. Conditions set by the Minister regarding the call for tender stress the importance of facility energy performance and of the quality of the supply plan. Weighting of the price criterion is much lower in comparison with the previous call for tender.

A maximum of six months after reception of bids, planned for August 2007, CRE will send the Minister a review sheet for each project, including an assessment of costs based on application of criteria set out in the technical specifications, and a summary report. Finally, it will issue an opinion on the choice of candidates envisaged by the Minister.

In January 2005, the previous call for tender led to permits to operate being granted to 15 facilities, for a total power of 216 MW. The average price of selected bids was set at 86 €/MWh for 15-year contracts.

### 1.2. Purchase obligation

On 7 June 2006, CRE was asked to give an opinion on four draft orders modifying purchase obligation conditions for electricity generated by facilities using biogas, mechanical wind energy, solar energy and geothermal energy, and, on the 6 February 2007, on a draft decree modifying conditions for purchase of electricity generated by hydropower plants using water from lakes, rivers, and the sea.

In its opinions of 29 June 2006 and 15 February 2007, CRE verified that return on fixed capital in the facilities did not exceed normal return on capital, this having been set on the basis of return observed in companies operating in the sector in question.

As regards the biogas sector, CRE issued an unfavourable opinion on the envisaged tariff, as it would result in too high a return on equity capital, after taking account of the fiscal systems currently in force, in particular as it concerns plants using dump biogas. Bearing in mind that capture of dump biogas is a legal obligation in the processing of waste, CRE judged that, in application of the 'polluter-payer' principle, corresponding costs, which made up a major part of electricity generation costs, could not legitimately be passed on to electricity consumers.

CRE also issued an unfavourable opinion regarding the wind power sector. It considered that tariffs, rising steeply even though use of this particular system was increasing more rapidly than for any other, led to return on projects and equity capital far greater than the level deemed necessary to encourage investment, and therefore gave a disproportionate amount of support to the sector.

CRE's opinion was also unfavourable with regard to the photovoltaic sector. It considered that the base tariff envisaged for national use was reasonable in terms of return, but that it was overvalued in Corsica, in Overseas Departments, and in Mayotte. In these areas, increase in solar resource along with fiscal advantages were in general sufficient to compensate for recorded increases in costs. It also considered that the level of the premium for integration into the building applicable in metropolitan France was unjustified in comparison with corresponding additional costs, taking into account the very limited technical requirements necessary to benefit from it.

In the case of the geothermal sector, CRE's opinion was favourable as regards tariffs to be applied in Overseas Departments. In metropolitan France, it considered that the support system was inappropriate to the single project envisaged, taking its experimental nature into account.

For the hydropower sector, CRE issued a favourable opinion on the tariff envisaged for new facilities in metropolitan France, as long as degressive tariffs were introduced in line with producible quantities, and

that a lower tariff was applied for renovated plants, in a legal framework conforming to European Community rules.

The recommendations made by CRE in the opinions it issued were not taken into account in the published orders.

## 2. Public electricity service costs

Every year, CRE assesses total public electricity service costs for the coming year, along with the number of kWh subject to contribution, and the resulting unit contribution (CSPE – public electricity service contribution).

The CSPE finances the following public service costs:

- Additional costs incurred by cogeneration and renewable energies (purchase obligations, purchase contracts prior to the Law of 10 February 2000, and calls for tender);
- Additional costs incurred by electricity generation in non-interconnected territories (ZNI): Corsica, the Overseas Departments (DOM), Mayotte, Saint-Pierre-et-Miquelon, and the Breton Islands, Molène, Ushant and Sein;
- Costs borne by suppliers related to implementation of the social tariff and to system set-up for persons in precarious situations.

The public electricity service contribution (CSPE) is levied in proportion to electricity consumption in France. The Law of 10 February 2000 provides for:

- exoneration of contributing kWh for self-generators, to a total of 240 GWh;
- a cap for the CSPE of 500,000 € per consumption site;
- in the case of industrial companies consuming over 7 GWh a year, a cap equal to 0.5% of their added value.

In October 2006, CRE sent the Minister for Energy its proposal regarding the level of public electricity service costs and the unit contribution (CSPE) for 2007, which was lower than that for 2006. However, in the absence of an order fixing the CSPE for 2007, the 2006 CSPE (4.5 €/MWh) was reapplied for 2007, in application of the Law of 13 July 2005.

In late January 2007, CRE published a Communication on public electricity service costs for 2007. The CSPE in force enables such costs to be financed,

along with that part of the costs borne by suppliers that apply the TaRTAM (transitory regulated tariff for market adjustment), financed by the CSPE (0.55 €/MWh) in compliance with the Law of 7 December 2006 (see TaRTAM inset).

### 2.1. Costs for 2005 were over 180 m€ lower than forecast

In 2006, CRE calculated public electricity service costs actually borne by operators during 2005 (cf. figure 68). These costs were evaluated on the basis of operators' reports based on appropriate accounting checked by their auditors, or, in the case of local government companies, by the public accountant. The accounting rules had been updated by CRE in December 2005.

CRE checked that EDF and Électricité de Mayotte (EDM) correctly operate the means of generation and electricity systems in non-interconnected territories, and that the physical and financial data presented by EDF and local distribution companies (LDCs) are consistent with purchase contracts.

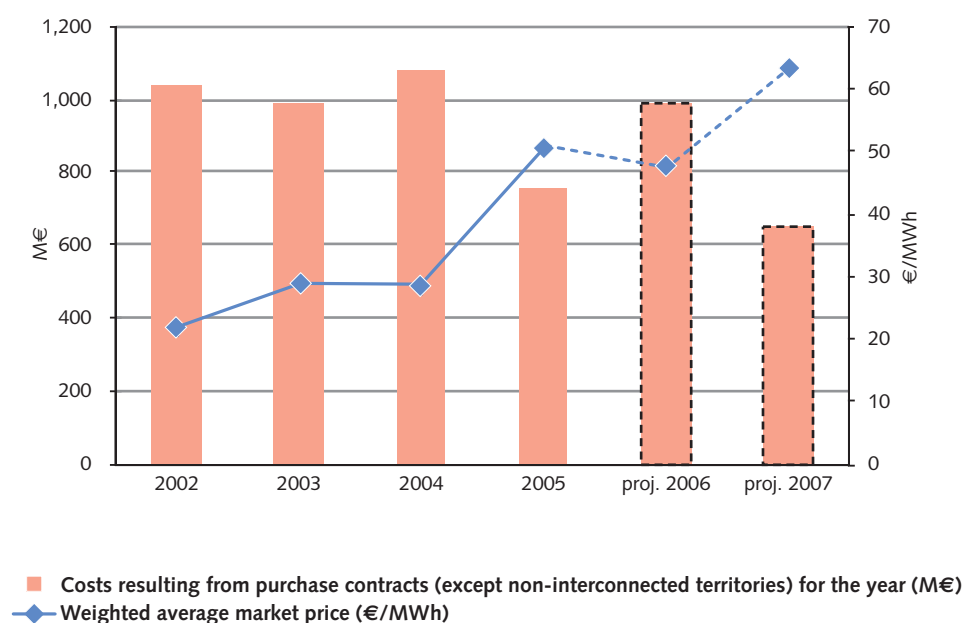
Costs recognised for 2005 came to 1362.0 M€, comprising 1337.0 M€ for EDF, 14.6 M€ for the LDCs and 10.4 M€ for EDM. They were significantly lower than the 2004 forecast of 1543.9 M€, due to the steep rise in market prices observed in 2005, compared to the forecast (weighted average of + 15.5 €/MWh), and lower rates of subscription to the social tariff than expected.

### 2.2. 7% rise in projected costs for 2007 compared with those recognised for 2005

Projected costs for 2007 were assessed on the basis of costs recognised for 2005 and suppliers' forecasts.

For 2007, the average purchase tariff forecast for cogeneration stands at 105 €/MWh for facilities that have not switched into electric system disposal mode, in comparison with the average tariff of 95 €/MWh actually recorded in 2005. This increase is the direct result of measures introduced on 1 November 2005 by article 82 of the 2006 Finance Act, an article that provides for compensation, by the CSPE, of additional costs allocated to modification of contractual arrangements related to variability in prices of fuels used in cogeneration facilities. The modifying amendments approved by the Minister for Energy led to partial removal of the cap for return on gas, to 92.5% of the reference price (an increase of 35% in comparison with the initial cap).

**Figure 68: Changes in costs due to purchase contracts (except non-interconnected territories) for year n / changes in weighted average market price**



Additional costs due to purchase contracts are equal to the difference between purchasing costs and valuation at electricity market prices of volumes purchased. Increases in market prices recorded since 2005 have been greater than that of the average purchase tariff for cogeneration. These factors combined have led to a decrease in additional costs on purchase of cogeneration. Similarly, despite the increase in volumes generated from renewable energy sources, additional

costs resulting from purchase contracts to do with such volumes have decreased in 2007, in comparison to 2005 (cf. figures 69 and 70).

A steep rise in additional costs is expected in non-interconnected territories in 2007, in comparison with 2005, due to increases in fuel prices (+ 38%) and in end user consumption (+ 8%) (cf. table 6).

**Table 6: Comparison of projected costs for 2007 with costs recognised for 2005**

	Costs recognised for 2005 (M€)	Projected costs for 2007 (M€)	Justification for changes
<b>Purchase contracts *</b>	773.8	667.6	Increase in cogeneration purchase tariff of 10 €/MWh, compensated by a rise in weighted average market prices of 13 €/MWh
<b>Tariff equalisation **</b>	564.8	730.1	Increase in consumption (+ 8%) and in fuel prices (+ 38%)
<b>Social measures</b>	23.4	64.3	Development of social tariff benefits
<b>Total</b>	1,362.0	1,462.0	

*Source: CRE*

\* Excluding non-interconnected territories (ZNI) and Mayotte.

\*\* Additional costs for generation + additional costs for purchase contracts in non-interconnected territories and Mayotte.

Application of tariff equalisation in non-interconnected territories is now the main source of public electricity service costs. Additional costs in these regions should rise steeply in the years to come, due to:

- increase in the rate of return on capital employed in new generation investments in non-interconnected territories (the Order issued by the Minister for Energy on 23 March 2006 set the rate at 11%, whereas, from 2006 onwards, return on regulated activities will be based on a 7.25% rate);
- a probable continued increase in consumption.

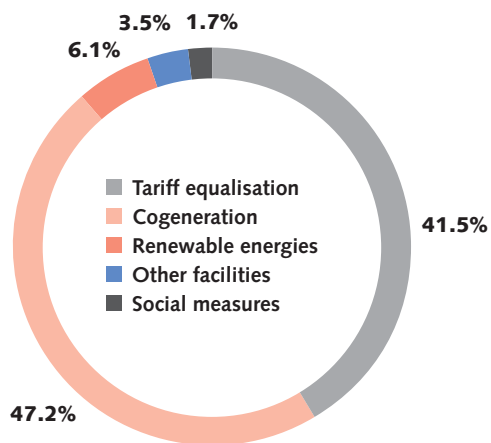
Costs resulting from social measures have greatly increased during 2007

**2.3. Projected costs for 2007 are down by 19% in comparison with 2006.**

Projected costs for 2007 comprise projected costs for 2007 and any difference between recognised costs and contributions collected in 2005 (cf. inset 30).

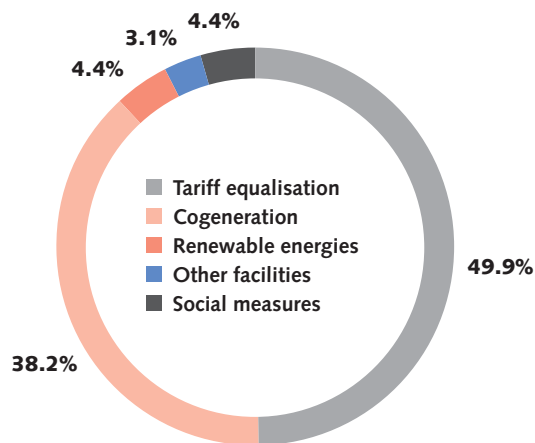
On 13 October 2006, CRE sent the Minister for Energy its proposal regarding projected costs and unit contribution for 2007, with a lower figure of 3.4 €/MWh, as against 4.5 €/MWh in 2006. Projected public electricity service costs for 2007 come to 1,317.6 M€ (cf. table 7).

**Figure 69: Breakdown by origin of costs recognised for 2005**



Source: CRE

**Figure 70: Breakdown by origin of projected costs for 2007**



Source: CRE

Table 7: Composition of projected public service charges for 2007 per operator

	A: projected costs for 2007 (cf. p. 129)	B: costs recognised in 2005 (cf. p. 129)	C: projected costs for 2005	D: projected costs for 2005	E: contributions collected for 2005 (cf. p. 132)	F: outstanding costs for 2002, 2003 and 2004	Public service costs for 2007 A+(B-C)+(D-E)+F
Électricité de France	1,419.0	1,337.0	1,514.2	1,704.1	1,664.2	-3.8	1,277.9
Local distribution companies	16.8	14.6	21.0	23.8	22.6	0.0	11.6
Électricité de Mayotte	26.2	10.40	8.7	7.3	7.3	0.0	27.9
<b>Total</b>	<b>1,462.0</b>	<b>1,362.0</b>	<b>1,543.9</b>	<b>1,735.2</b>	<b>1,694.1</b>	<b>-3.8</b>	
						Caisse des Dépôts et Consignations management expenses	0.235
						<b>Total projected costs for 2007</b>	<b>1,317.6</b>

Source: CRE

## Inset 30: Projected costs for 2007

According to article 6 of the amended Decree 2004-90 of 28 January 2004, projected costs for 2007 are:

$$PC_{07} = PC'_{07} + (CR_{05} - CC_{05}) + {}_{02,03,04} \text{balance} + CDCME_{07}$$

with:

$CP_n$  = projected costs for year n (such costs enable calculation of the CSPE for year n)

$CP'_n$  = projected costs for year n only

$CC_n$  = costs recognised for year n

$CR_n$  = contributions collected for year n (for 2005, CR included financial revenues resulting from fund management in that year)

${}_{02,03,04} \text{balance}$  = additional costs for 2002, 2003 and 2004, declared in 2006, free of new contributions recovered for these years between 30/6/05 and 30/6/06

$FGCDC_{07}$  = Caisse des Dépôts et Consignations management expenses for 2007 (incorporating the difference between management expenses recognised and projected management expenses for 2005)

## Calculation of costs recognised for 2005:

Projected costs for 2005, financed by the 2005 CSPE, comprised projected costs for 2005 only, increased by the difference between recognised costs and contributions recovered in 2003:

$$CP_{05} = CP'_{05} + (CC_{03} - CR_{03})$$

Recorded costs for 2005 are therefore:

$$CC_{05} = CC'_{05} + (CC_{03} - CR_{03})$$

with  $CC'_{05}$  = costs recognised for 2005

$$\text{only, } CC_{05} = CC'_{05} + CP_{05} - CP'_{05}$$

This leads to the result:

$$CP_{07} = CP'_{07} + (CC'_{05} - CP'_{05}) + (CP_{05} - CR_{05}) + {}_{02,03,04} \text{balance} + FG CDC_{07}$$

**This formula is used in table 7 to calculate costs for 2007.**

### 2.4. The CSPE remains stable in 2007

The Minister for Energy did not issue an order setting the public electricity service contribution for 2007. Consequently, the CSPE for 2006 (4.5 €/MWh) was reapplied for 2007, in application of article 54 of the Law of 13 July 2005.

The portion of the 2007 CSPE financing projected public electricity service costs for 2007 stands at 3.4 €/MWh. This sum is evaluated on the basis of projected national consumption of 458 TWh for 2007 (excluding losses), minus the 75 TWh exoneration volume (16% of national consumption) (cf. figure 71).

The portion of the 2007 CSPE helping to finance costs connected to the TaRTAM comes to a maximum of 0.55 €/MWh, in compliance with the Law of 7 December 2006 (cf. inset 19, p. 80).

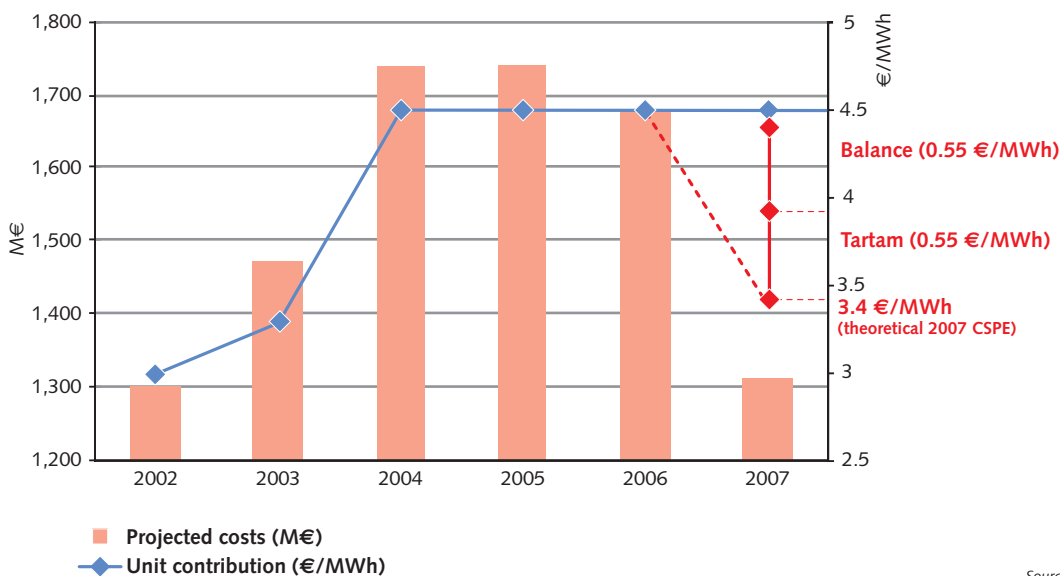
The cash balance of the 2007 CSPE of 0.55 €/MWh will be connected by the CDC. The corresponding collected amount (circa 200 M€) may decrease the 2009 CSPE.

## 3. Collection of public electricity service contributions

### 3.1. Collection of the 2005 CSPE in line with forecasts

Public electricity service contributions for 2005 were billed by EDF until December 2006 (consumption for December 2005). A few 2005 contributions to the CDC were collected after 31 January 2006, the final regulatory deadline, owing to negligence on the part of a number of contributors.

**Figure 71: Trends in total projected costs / trends in unit contribution**



Source: CRE

Collection of contributions for 2005 was closed on 31 December 2006. Sums collected were lower than sums to be collected – i.e. projected costs for 2005 – by only 7 M€. The insignificance of the difference is due to:

- accurate projection of the numbers of contributors to the CSPE for 2005;
- the care taken by CRE to ensure that all contributors pay the CSPE due.

### 3.2. Collection of the 2006 CSPE underway

Collection of the public electricity service contribution for 2006 is in progress: EDF, ERD and RTE have not completed invoicing for 2006, and not all contributors to the CDC have paid up (self-generators and consumers supplying themselves with electricity without using public grids <sup>(5)</sup>), although the final deadline was set at 31 January 2007.

All LDCs bearing costs in 2006 have been fully compensated.

Table 8 presents the number of sites declaring their 2006 CSPE to the CDC. Numbers of self-generators and consumers concerned remains stable.

## 4. CRE action regarding the TaRTAM

In compliance with the Decree of 4 May 2007 governing compensation of costs connected with the TaRTAM, CRE proposed that the Minister for Energy should consider a unit contribution for 2007 that would partly finance such costs. It estimated costs borne by suppliers during the first quarter of 2007 on the basis of their declarations. Suppliers will be compensated for such costs in July 2007. For future quarterly periods, the decree provides for suppliers being compensated within 15 bank opening days following the end of each quarter (cf. inset 19, p. 80).

Table 8: Number of sites that have declared their CSPE to the CDC

	2003	2004	2005	2006 1 <sup>st</sup> half
Number of self-generators that have declared to the CDC	133	144	143	140
Actual number of payments *	30	31	45	53
CSPE paid (M€)	2.2	3.6	3.7	3.67
Number of consumers that have declared to the CDC	97	115	123	120
Actual number of payments **	70	84	139	132
CSPE paid (M€)	5.2	7.6	7.5	8.22

\* Self-generators can benefit from exoneration of 240 GWh and the 500,000 € cap.

\*\* Consumers can benefit from exoneration of 240 GWh from a generator supplying them on the same site and from the 500,000 € cap.


(5) Not already having paid their CSPE to a third party.



# → Appendices

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The Law of  
7 December 2006  
extended CRE's  
competencies

CRE is responsible  
for **monitoring**  
**wholesale**  
**markets**

CRE contributes  
to **implementation**  
of **public energy**  
service provisions

# I. How CRE works

## 1. CRE's competences and organisation in the new context of the Law of 7 December 2006

The Law of 7 December 2006 relating to the energy sector was adopted following a lengthy parliamentary debate whose agenda included privatisation of Gaz de France.

In addition to this provision, the new law enables the European Directives of 26 June 2003 to be transposed in their entirety, especially the measures relating to full opening of the electricity and natural gas markets to competition as from 1 July 2007. It established the principle of free choice of electricity and gas supplier for all customers, imposed legal unbundling of distribution system operators serving more than 100,000 customers and also enabled instruments to be set up to provide the best consumer protection.

The law maintains regulated tariffs on sites already benefiting from them. It introduced a transitional regulated tariff (TaRTAM) for market adjustment over a period of two years for non-household electricity consumers, and created a special gas solidarity tariff based on the model already existing for electricity.

These developments were accompanied by major changes in CRE's competences and organisation.

### 1.1. CRE's competences

The Law of 7 December 2006 relating to the energy sector redefined and extended CRE's competences.

Under this law, CRE "contributes to proper operation of electricity and natural gas markets, to the benefit of end consumers. In particular, it ensures that conditions for access to electricity and natural gas transmission and distribution systems do not hinder the development of competition. It monitors electricity and natural gas transactions carried out between suppliers, traders and generators / producers, transactions carried out on organised markets, and exchanges at cross-border points. It checks the consistency of offers made by suppliers, traders and

generators / producers, and their economic and technical constraints"<sup>(6)</sup> (see inset 31).

Two major areas of competence were entrusted to CRE by the Law of December 2006:

- Fulfilling CRE's wishes as expressed in previous activity reports, the law now entrusts it explicitly with monitoring of transactions carried out on organised and non-organised wholesale markets;
- Some of CRE's areas of competence in the electricity sector were extended to gas. For example, the law entrusted CRE with the power to approve investment programmes established by natural gas transmission system operators. It also granted CRE a supplementary regulatory power in application of article 37 of the Law of 10 February 2000.

CRE's general mission is to assist correct operation of the electricity and natural gas markets. Consequently, it monitors implementation and observance of clear, transparent rules affording consumers the means to take full advantage of competition, and giving new suppliers the possibility of entering the market.

In this context:

- CRE monitors conditions of access to grids/networks and gas / electricity infrastructures

CRE's mission is to guarantee fair access to the gas and electricity public transmission and distribution systems, liquefied natural gas (LNG) installations and gas storage facilities. Competition can only operate if all energy suppliers have transparent and non-discriminatory access to all grids/networks, structures and installations in the energy transportation chain through to the end consumer. To accomplish this, CRE makes tariff proposals to the Government for use of transmission and distribution grids/networks.

CRE ensures that the grids/networks are developed and operated correctly, approving transmission system operators' investment programmes for both electricity and natural gas. It also approves the principles

(6) Article 5.1 of the Law of 7 December 2006

**Encadré 31 : CRE's powers**

Power to approve investment programmes for electricity and gas transmission systems;

Supplementary regulatory power for electricity and gas:

- conditions for connection to grids/networks,
- conditions for using grids/networks;

Power to set the rules for account unbundling:

- between supply, transmission and distribution activities,
- between supply to customers who have exercised their eligibility and those who have not,
- concerning charges assignable to gas and electricity solidarity tariffs,
- concerning charges linked to the transitional regulated tariff for market adjustment (TaRTAM) which concerns only electricity;

Power to assess electricity public service charges and organisation of calls for tender decided by the Minister for Energy for the construction of new means of electricity generation;

Power to propose tariffs for the use of energy transmission and distribution grids/networks, for access to LNG installations and for associated services provided by electricity grid operators;

Power of inquiry, formal notice and sanction in the event of infringement of legislative or regulatory provisions or failure to comply with CRE's decisions;

Quasi-jurisdictional power to settle disputes relating to access and use of grids/networks and infrastructures.

**Encadré 32 : Four types of CRE deliberations**

- Decisions: deliberations notified to the parties and possibly published. These decisions are imposed on the persons concerned, who will be liable to sanctions if they fail to comply with them.
- Proposals: deliberations addressed to the Government, which the latter may only ratify or reject as a whole, without the possibility of modifying them (tariffs for access to grids/networks and public service charges). They are made public when the Government's decision is published in the Official Journal.
- Opinions: deliberations addressed to the government concerning draft texts. CRE's opinions are not binding on the Government. They are made public when Government texts are published in the Official Journal.
- Communications: deliberations in which CRE makes known its position on a subject within its field of competence.

of legal and account unbundling between transmission, supply and distribution activities, publishing an annual report on compliance with codes of good practice and the independence of gas and electricity system operators.

- CRE monitors the markets

CRE is responsible for monitoring transactions carried out on organised and non-organised wholesale markets, and for monitoring exchanges at cross-border points.

Market monitoring consists of checking that prices are genuinely formed on the basis of competition. By analysing prices and market players' decisions CRE seeks to detect any suspicious behaviour that could result from manipulation. Effective monitoring reassures parties involved, encouraging increased transactions and making the market a stronger source of apposite price signals. Confidence in price formation is also a determining factor for investors and contributes to security of supply on the French market.

- CRE participates in implementing provisions relating to the public energy service

These provisions consist of:

- purchase obligations imposed on operators in the context of promoting cogeneration and renewable energies, in the case of electricity;
- geographical equalisation of tariffs at national level for electricity, and within each operator's service area for gas;
- the special 'social' tariff for electricity and the special 'solidarity' tariff for gas.

**1.2. CRE's organisation**

CRE's composition was changed by the Law of 7 December 2006. It is now composed of a College of Commissioners, a Dispute Settlement and Sanctions Committee (CoRDIS), and departments run by a Managing Director under the authority of the Chairman.

The law requires the Chairman of the College to be appointed by decree on the basis of his qualifications

in legal, economic and technical fields, after Parliamentary Committees competent in energy matters have given their opinion <sup>(7)</sup>.

### 1.2.1. Composition of the College of Commissioners

The College consists of:

- the Chairman of the College, appointed by decree following an opinion given by Parliamentary Committees competent in energy matters;
- two Vice-Chairmen, appointed by the President of the French National Assembly and the President of the French Senate;
- two members appointed respectively by the President of the French National Assembly and the President of the French Senate;
- a member appointed by the Chairman of the Economic and Social Council;
- a member appointed by decree;
- two representatives of electricity and natural gas consumers, appointed by decree

Members of the College of Commissioners are independent: their office is incompatible with any elected mandate and any interests held in an energy-sector company. They have a six-year non-renewable mandate.

### 1.2.2. The Dispute Settlement and Sanctions Committee (CoRDIS)

A Dispute Settlement and Sanctions Committee (CoRDIS) was created by the Law of 7 December 2006. It is distinct from the College of Commissioners and exercises CRE's competences in matters of dispute settlement and sanctions (articles 38 and 40 of the Law of 10 February 2000). It comprises two Councillors of State appointed by the Vice-President

of the Conseil d'Etat (Pierre-François Racine and Jean-Claude Hassan) and two Councillors of the Supreme Court of Appeal, appointed by the First President of the Supreme Court of Appeal (Dominique Guirimand and Jacqueline Riffault-Silk), all four appointed for 6 years. The Chairman of the Committee, Pierre-François Racine, was appointed from among the members by decree.

## 2. CRE activity in figures

Between 1 June 2006 and 31 May 2007, CRE held 207 formal or informal sessions, comprising 55 formal sessions giving rise to deliberations (opinion, proposals, decisions or communications) and 152 informal sessions. There are two reasons for the increase in the number of informal sessions over the period: proximity of the 1 July 2007 deadline and adoption of new work methods.

The number of opinions increased because of tariff changes requested by local distribution companies.

The number of communications and decisions increased slightly compared to the previous reference period.

The number of hearings remained stable, with 137 as opposed to 136 for the elapsed year. There were three dispute settlements. Since being set up in March 2007, CoRDIS has met to deal with one discontinuance.

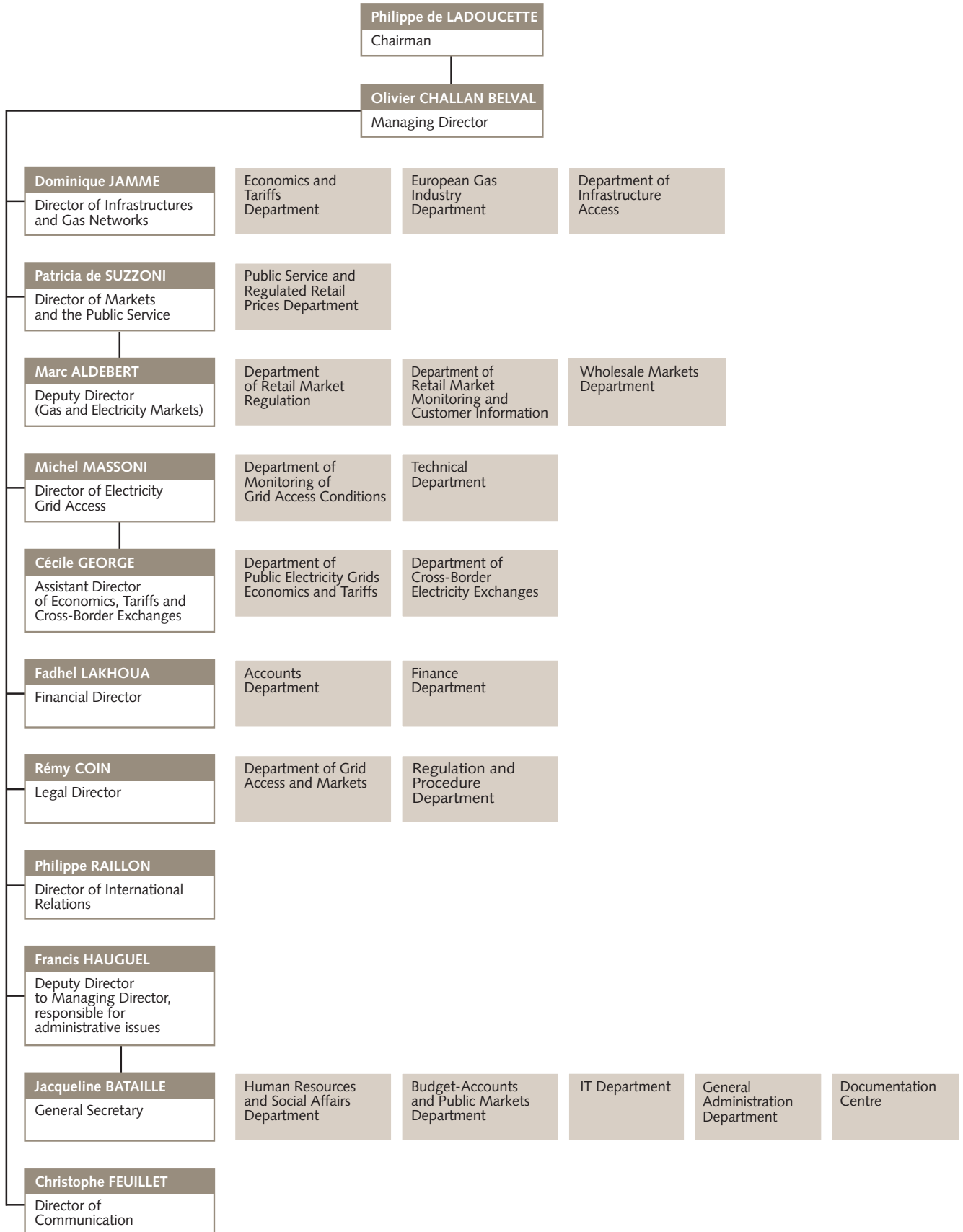
All CRE deliberations are posted on its website. Its opinions and proposals addressed to the Government are published in the Official Journal of the French Republic at the initiative of the Ministers for the Economy and Energy.

Table 9: CRE activity in figures from 1 June 2006 to 31 May 2007

	Gas	Electricity	Total 2006-2007	Total 2005-2006
Number of opinions	77	17	94	65
Number of communications/recommendations	3	7	10	6
Number of decisions (proposals, regulatory decisions excluding dispute settlements)	6	15	21	15
Number of hearings	65	72	137	136
Number of public consultations	1	0	1	7
Number of dispute settlements		3	3	4

(7) Article 5-1, paragraph 6 of the Law of 7 December 2006

Figure 72: Department organisation chart



### 3. Organisation and resources

#### 3.1. Organisation of departments

The organisation of CRE departments is shown in Figure 72.

The issues involved in full opening of the electricity and gas markets on 1 July 2007 have led CRE to reorganise its monitoring activities by placing all questions concerning electricity and gas markets under the same directorate – the Markets and Public Service Directorate (DMSP) – and have also led to the setting up of a ‘Consumer Department’ within the Directorate in order to prepare the framework for operational management of consumer relations for the 1 July 2007 deadline.

In addition, the importance of developing electricity grid interconnections between Member States has led to the creation of the Cross-Border Exchange Department within the Directorate of Access to Electricity Grids.

Finally, CRE has transformed the Communication Department into a fully-fledged directorate. In the context of full opening of the electricity and gas markets, CRE has strengthened its ability to communicate to all consumers.

#### 3.2. Budgetary resources

CRE’s human and financial resources are encompassed in the State budget adopted by Parliament. The allocation of resources for financial year 2006

was carried out for the first time in a budgetary context defined by the Constitutional Bylaw on Financial Acts (LOLF), which reformed the organisation and management of the state budget.

CRE’s resources are now encompassed in the Economic Development and Regulation mission as part of the programme for Regulation and Securing of Exchanges of Goods and Services, in which it embodies the Energy Market Regulation and Monitoring activity.

The 5% increase in operating loans (excluding personnel loans) granted in 2006 and 2007 proved to be insufficient in 2006. For 2007 it has already proved insufficient to enable CRE to meet the challenges of full market opening in addition to the extension of its missions as set out in the Law of 7 December 2006.

This new context will have to be taken into account for readjustment of resources, in compliance with the European directives requiring Member States to provide their regulatory authorities with the resources they need to fulfil their obligations “in an efficient and expeditious manner”.

#### 3.3. CRE department personnel

The number of full-time CRE employees (excluding the College and CoRDIS) rose from 107 at the end of 2005 to 117 at the end of 2006 and should reach 126 by the end of 2007.

At the end of 2006, 91% of employees were executive category. 47% of staff were female and 53% male, with an average age of 39 (see Figure 73).

Figure 73: Age pyramid

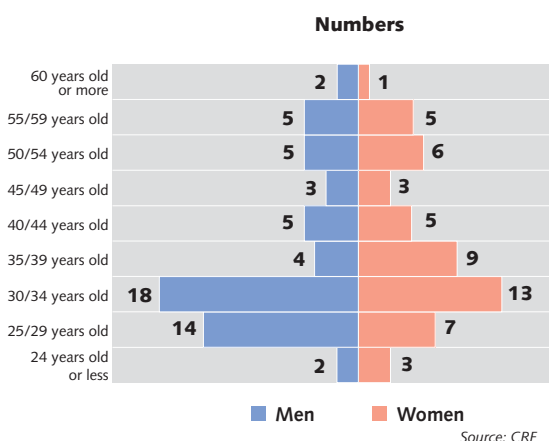
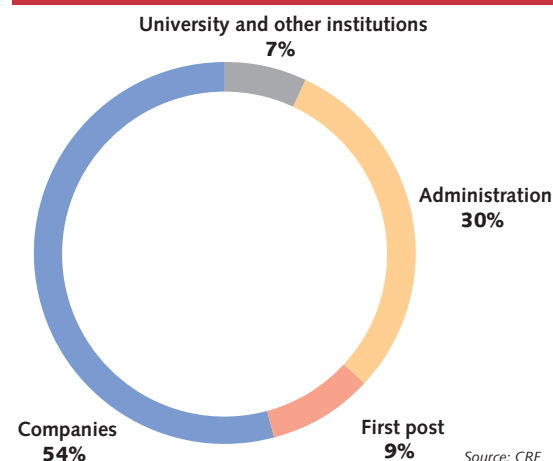


Figure 74: Origin of personnel



The staff comprises 81% employees under contract, more than one third of whom come from energy sector companies, and 19% civil servants. The wide-ranging background of the staff (companies, consultancies, universities, other regulators, international organisations, etc), their level of technical ability and the wealth of their experience are sources of expertise and competence in CRE departments (Figure 74).

CRE's recruitment policy targets experienced managerial staff, immediately operational in the responsibilities entrusted to them. In 2006, project managers had an average 8 years' experience prior to recruitment. Only 9% of employees were recruited for their first job.

CRE's pay policy recognises professional ability (level of training and experience acquired), level of responsibility held and efforts made by each employee to meet the objectives set for them. In 2006, average gross salaries including bonuses were as follows: 32,000 € for non-managerial staff, 33,000 € for middle management, 49,000 € for heads of department and project managers, and 102,000 € for directors.

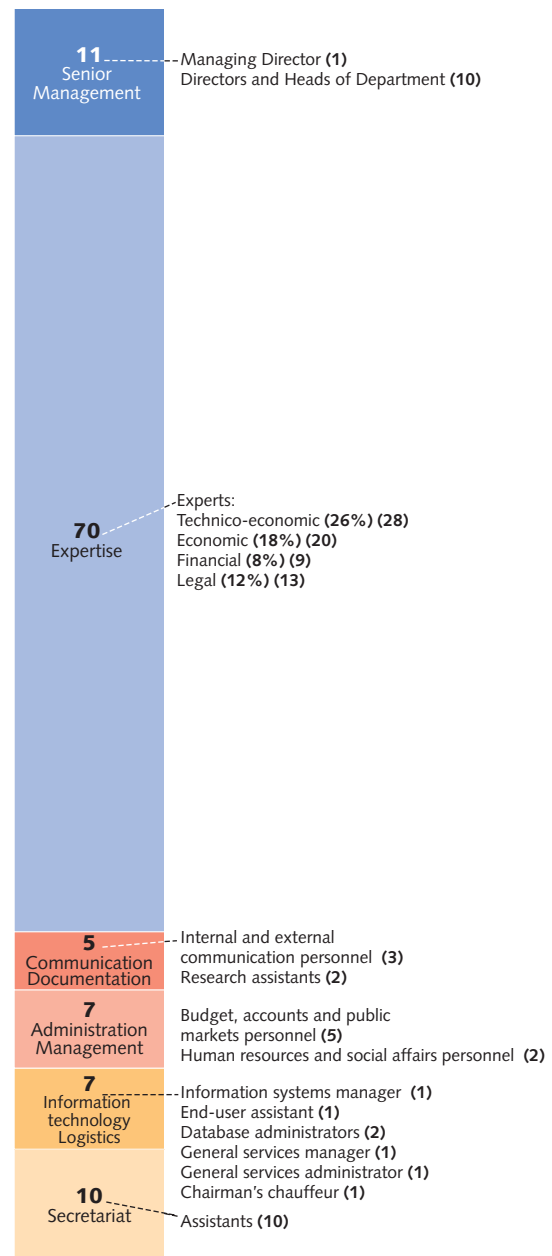
82% of CRE staff are assigned to regulatory functions, while 18% provide support functions (administration, communication, information technology, documentation, etc) (see Figure 75).

CRE's continuing training policy aims to:

- develop specific skills required for regulatory activities;
- improve personal efficiency (IT and foreign languages);
- support career plans, including acquisition of qualifications, linked to CRE's activities.

In 2006, 60% of CRE's staff participated in one or more training courses.

**Figure 75: Breakdown of staff by function**



Source: CRE



## II. Glossary

- Common definitions (electricity / gas)
- Definitions specific to gas
- Definitions specific to electricity

● **Access protocol:** internal agreement, equivalent to the grid access contract, governing access, within EDF, to the EDF-Generation and EDF-Distribution transmission grid.

● **Account unbundling:** obligation required of integrated companies to keep separate balance sheets and statements of results for generation (electricity), transmission, distribution (electricity and gas), storage (gas) and other activities. These accounts, as well as the principles governing their preparation (allocation rules, account scopes, and financial relationship between activities) appear in appendices to operators' annual accounts.

● **Avoided costs:** when an operator is obliged to buy a quantity of electricity as part of purchase obligations imposed by the public authorities, this quantity takes the place of energy which it could have procured for itself (generation and purchase). The resulting savings constitute avoided costs.

● **Balancing mechanism:** mechanism enabling a transmission system operator to balance generation and consumption at any time using additional quantities of electricity supplied by generators or available through reductions in consumption due to consumer savings.

● **Balancing responsible entity:** any operator who is committed to RTE, through a balancing contract, to settling the costs of imbalances observed at a later stage between electricity injected (by generators within the perimeter) and electricity consumed (by consumers within the perimeter).

● **Balancing zones:** geographical zone of the main transport network, in which the shipper must maintain daily balance between gas supply and consumption.

● **Base:** constant part of grid load over a given period. A base product corresponds to supply of an electricity block throughout a period (for example: from 00.00 to 24.00 for a daily base product).

● **Capacity netting:** a system operator action taking into account firmly nominated trade flows in each direction in order to deduce supplementary capacity.

● **Cogeneration:** simultaneous production of heat and electricity. The output from cogeneration plants is substantially better than it would be if they produced only electricity.

● **Combined cycle electricity generating plant:** thermal power plant, usually running on gas-fired turbines, where electricity is generated at two consecutive levels: firstly by gas combustion in the turbines, and secondly by using energy from the product of the gas combustion process in boilers, which supply heat to steam turbo-generators. This process provides high levels of thermal efficiency (55 to 60%, compared with just 33 to 35% for conventional thermal power plants).

● **Combined cycles:** see Combined cycle electricity generating plant.

● **Compression station:** industrial facility where gas is compressed in preparation for transmission via pipelines.

● **Congestion:** state of saturation of an electricity line or gas pipeline which prevents operators from transporting or distributing all quantities injected or withdrawn, given network characteristics and performance level of its equipment.

● **Connection:** action allowing a user to be physically connected to a grid/network.

- **Connection structures:** pipelines and installations connecting an end consumer or a distribution network to a gas transmission or distribution system. These connection facilities consist of one or more of the following components: pipelines, delivery station and distribution system extension.

- **Continental plate:** grouping of European electricity grids (Germany, Austria, Switzerland, the Benelux countries and France), where the degree of interconnection is sufficient to allow fluid physical exchanges.

- **Control area:** geographical area where the electricity transmission grid is managed by a single operator. There is a single control area in France, but other countries may have several.

- **Conversion:** the GDF transmission network has two separate zones: the H zone supplied with gas of high calorific value (H gas) and the L zone, supplied with gas of low calorific value from Groningen (L gas). The two gases are not interchangeable. Gaz de France therefore offers a conversion service enabling shippers to exchange resources they own in the H zone against L gas.

- **Conversion point:** virtual points attached to the North H and North L balancing zones respectively, where the conversion service between these two zones is carried out.

- **Cross-subsidies:** use of the resources of an activity to benefit another activity under conditions that do not reflect those governing market relations between two separate companies.

- **Delivery contract:** contract signed between a distribution system operator and an end consumer or other distribution system operator, relating to:

- **Delivery point:** a point on a transmission or distribution network where a transmission or distribution system operator makes gas available to a shipper, end consumer or other network operator.

- **Delivery station:** facility located downstream of a transmission or distribution network, providing one or more of the following functions: expansion, regulation or metering. A delivery station is used to deliver gas to a distribution network or end consumer.

- **Electricity block:** quantity of electrical power transiting via the grid at a constant power level (for example: a 24-hour block corresponds to a base product).

- **Electricity supplier:** in electricity demand, there are four types of consumption:

- 'base' electricity supply (or 'ribbon'), which is generated or consumed permanently throughout the year;
- 'semi-base' supply, with highest generation and consumption during the winter season;
- 'peak' supply, corresponding to periods of greatest generation and consumption during the year;
- 'lace' supply, which supplements 'ribbon' supply.

- **Electricity transmission and distribution grid:** system designed for transmission and transformation of electricity between power plants and consumption sites. It consists of electrical lines which provide links at given voltage levels and substations which include voltage transformers, connection and cut-off devices, measuring instruments, instrumentation and control equipment and means of clearing reactive energy.

There are three system hierarchies:

- bulk transmission and interconnection grid which routes large quantities of energy at 400 kV or 225 kV over long distances, with a low level of losses;
- regional distribution systems which distribute energy at the regional level, supplying the public distribution grid and large industrial customers at 225 kV, 90 kV and 63 kV;
- 20 kV and 400 V distribution grids which supply end consumers with medium voltage (SME-SMI), or low voltage (domestic customers, tertiary sector and small industries).

- **Eligible customer:** electricity or gas consumer authorised, for supply of one of its sites or for retail of energy, to apply to one or more electricity or gas suppliers of its choice.

- **Entry-exit tariffs:** tariff system applied on gas networks in many European countries (Great Britain, the Netherlands, Italy and France). It consists of splitting capacity subscriptions at entry and exit points on the main network, and invoicing the two transmission components (entry and exit) separately.

- **Entry point:** a point on a transmission or distribution network where a transmission or distribution shipper makes gas available to a transmission or distribution system operator under the terms of a transmission or distribution transportation contract signed with them.
- **Exit point:** a point on a natural gas transmission network used as an interface between a main transmission network and a regional transmission network.
- **Exit zone:** geographical grouping of delivery points belonging to the same balancing zone and having the same exit tariff.
- **Fixing:** system for setting the price of a product (e.g. hourly block on Powernext) by crossing aggregate supply and demand curves in order to determine the price and balancing volume. This mechanism is used, for example, on Powernext for the negotiation of hourly products.
- **Florence Forum (electricity) and Madrid Forum (gas):** periodic meetings, created at the initiative of the European Commission, bringing together, for electricity and gas respectively, government representatives, regulators, TSOs, generator/producer associations, users and consumers under the aegis of the European Commission.
- **Gate closure:**
  - in relation to generation programming and the adjustment mechanism: latest time for submitting, modifying or withdrawing a balancing offer or for redeclaring the generation programme, performance levels and technical constraints of a group;
  - in relation to interconnections: latest time for registering either interconnection capacity requests (allocation) or acquired capacity nominations.
- **Gas exchange point:** a point on a transmission network where the transmission system operator manages exchanges of gas between shippers.
- **Gas release:** obligation required of a supplier to release, for a given period, part of his gas resources to other suppliers. The purpose of this operation is to allow competition to develop, pending new infrastructures that will establish the conditions necessary for a more diversified supply.
- **Gas quality:** all physical characteristics (pressure, temperature, gross and net calorific values, and Wobbe index) and chemical characteristics (amount of methane, propanes, butanes, nitrogen and other inert gases) of a distributed natural gas.
- **Gas storage facility:** all facilities allowing a gas reserve to be set up, in gaseous form (underground storage facility) or in the form of LNG (storage in surface tanks).
- **HTA:** High voltage A – voltage level between 1 and 40 kV.
- **HTB:** High voltage B – voltage level between 40 and 130 kV.
- **IFA 2000 :** France-England interconnection, with a maximum power rating of 2,000 MW direct current.
- **Imbalances:** within a given perimeter, difference between total quantities injected and total quantities withdrawn.
- **Integrated electricity company:** vertically or horizontally integrated undertaking. A horizontally integrated undertaking is one carrying out at least one of the functions of generation, sale, transmission or distribution of electricity, as well as an activity outside the electricity sector. A vertically integrated undertaking is one carrying out at least two functions in the electricity sector: generation, transmission or distribution of electricity.
- **Interconnected grid/network:** grid/network comprising several transmission and distribution grids/networks linked together by one or more interconnections.

● **Interconnection:** equipment used to connect two electrical grids or pipelines connecting two gas transmission networks.

● **Liquefied natural gas (LNG):** Natural gas brought to the liquid state by cooling to minus 160 degrees C, to allow it to be transported in LNG ships.

● **LNG tanker:** ship transporting liquefied natural gas (LNG) in its tanks.

● **LNG terminal:** facility used to receive and store liquefied natural gas (LNG) and ship it to the main transmission network after regasification.

● **Local distribution company:** a non-nationalised company which distributes electricity and gas within a given area. Some local distribution companies are also generators.

● **Main, regional and distribution gas network:**

- the main transmission network is a set of large-diameter, high-pressure pipes linking interconnection points to neighbouring networks, underground storage facilities and LNG terminals, and to which the regional transmission networks, distribution networks and high-consumption industrial consumers are connected;
- the regional transmission network is the part of the transmission network used to transport natural gas to the distribution networks and high-consumption end-consumers connected to them;
- the distribution network is a set of medium- and low-pressure transmission pipes supplying gas to end consumers and possibly to other gas distribution networks.

● **Metering:** measurement of the various characteristics of electricity or gas in order to determine the amount of energy produced or consumed.

● **Metering or estimation point:** a point on a transmission or distribution grid/network where a quantity of energy is determined using meters or estimations.

● **Modulation:** term referring to the difference between a customer's actual gas consumption pattern and the pattern corresponding to a regular withdrawal over the year of the customer's average daily consumption. Consumption variations (daily, weekly or seasonal) are generally covered by underground storage facilities, to which customers and their suppliers have access, either direct (in countries where regulated or negotiated third-party access to storage facilities is possible) or in the form of a load-balancing service (as is the case in France).

● **Modulation service:** service offered in addition to the transmission/transportation contract in order to provide optimum management of irregular gas consumption by customers on a daily, monthly or seasonal basis. This service is provided at a virtual point, known as a load-balancing point, within each balancing zone of the transmission network.

● **Multi-year investment planning:** under French law, objectives set by the Minister for Energy for distribution of electricity generation capacities according to primary energy source and, if need be, according to generation technique and geographical area.

● **Natural monopoly:** a term designating sectors of economic activity characterised by strictly increasing efficiency, i.e. the cost of the last unit produced is lower than that of all previous ones. Under such conditions, average production costs are strictly decreasing, i.e. average cost falls with the volume produced. A single operator is therefore necessarily more efficient than several operators, provided that it is prevented from abusing its monopolistic position. Sectors concerned are usually those in which investment costs (fixed costs) are so high that their multiplication would not be justified for opening up to competition. Infrastructure networks are the most widely cited examples of natural monopolies, including railway networks, road and motorway networks, and water, gas and electricity distribution systems.

● **Negotiated third party access to grids/networks:** conditions for access to grids/networks are negotiated between grid/network operators and market players (eligible customers, producers/generators, etc) on a case-by-case basis.

- **Non-interconnected territories:** areas within the national territory which are not connected (by electrical lines) to the mainland continental system (Corsica, Martinique, Guadeloupe, Reunion, Guyana, Saint-Pierre and Miquelon and the islands of Molène and Ushant).

- **Non-nationalised distributors:** see Local distribution company

- **Nordpool:** electricity exchange of Northern European countries (Norway, Finland, Sweden and Denmark).

- **Notional hub:** exchange point whose geographical position cannot be accurately fixed (e.g. the NBP in the United Kingdom or gas exchange points (PEG) in France). Exchanges take place at some unspecified point between transmission network entry and exit in the corresponding zone.

- **Offshore (wind-powered generation plant):** wind-powered generation capacity set up at sea.

- **Onshore (wind-powered generation plant):** wind-powered generation capacity set up on land.

- **Open season:** procedure aimed at dimensioning a new infrastructure according to market need and allocating the corresponding capacity in a non-discriminatory manner.

- **Pay-as-bid:** a payment rule for an auction procedure applied for sale of interconnection capacity and sale of energy in the context of the balancing mechanism. According to this rule, every agent whose bid is accepted receives (or pays) the price he proposed and offers (or receives) the proposed quantity.

- **Peak product:** the peak is the maximum power withdrawn from a grid during a given period. A peak product corresponds to the supply of constant electrical power during peak periods (for example: from 8 am to 8 pm for a daily peak product).

- **Physical hub:** exchange point with a fixed geographical position (e.g. Zeebrugge in Belgium where exchanges occur on a physical platform).

- **Pressure:** depending on the type of network, three pressure levels are normally used in the gas industry:
  - for international transportation, pressure is between 60 and 100 bar;
  - for the main and regional French networks, between 40 and 80 bar;
  - for distribution networks, there are two pressure levels: medium pressure (400 mbar to 4 bar) and low pressure, supplied direct to household customers (no greater than 50 mbar).

- **Price cap:** tariff regulation mechanism by which the regulatory authority sets the rate of price level change in advance for several years. The mechanism is generally considered to encourage improvements in productivity, since companies with regulated tariffs can benefit from all or part of the savings they make during the period for which the tariffs have been set.

- **Pool:** national electricity market where all transactions have to be carried out, and intended to streamline demand on means of generation.

- **Postage stamp tariff:** pricing principle which provides access to an entire service area, in exchange for the payment of a single access fee, regardless of the distance transited by the electricity.

This tariff is divided into two parts:

- an injection stamp: payment by generators to deliver their energy to a grid connection point;
- a withdrawal stamp: payment by the consumer for being supplied at a grid connection point.

- **Producer (gas) / generator (electricity):** individual or company which produces natural gas or generates electricity. A producer or generator is also a supplier.

- **Purchase obligation:** legislative measure obliging EDF and non-nationalised distributors (NNDs) to purchase the electricity generated by certain generation sectors under imposed conditions.

- **Pure transits:** flows crossing a control area without being injected or withdrawn (e.g. a flow moving from Belgium to Spain is a transit flow in France).

- **Regulated tariffs:** electricity or gas retail tariffs for ineligible customers and customers who have not exercised their eligibility.

- **Regulated Third Party Access to grids/networks:** in the case of regulated TPA, tariffs for use of grids/networks are proposed by the regulator. User access conditions are transparent and non-discriminatory.

- **Remote meter reading:** remote reading of the quantity of electrical energy injected into / withdrawn from the grid. In France, the equipment used for this remote meter reading complies with the applicable metrology rules, pursuant to article 13 of the Decree of 23 December 1994 approving the specifications of the general supply grid (RAG).

- **Ribbon:** see Electricity supply

- **Roadmaps:** action plans proposed by regulators.

- **Spot market:** market on which exchange, purchase and sales transactions are carried out for quantities of electricity or volumes of gas deliverable the next day. To create reliable markets and credible price references for dealers, such markets must fulfil the two criteria of transparency (real-time publication of data) and liquidity (no dealer must have a dominant position enabling it to influence the market).

- **STS tariff:** the Seasonal Transmission Subscription (STS) tariff is the integrated regulated tariff applicable to sales of gas to industrial customers that have not exercised their eligibility, ineligible customers, and public distribution companies.

- **Supplier:** corporate body, holding a permit for the gas sector or registered with the public authorities for the electricity sector, supplying at least one end consumer with electricity or gas, using either energy it produces itself or energy that it has bought (trader).

- **Supply contract:** contract for the sale of electricity or natural gas by a supplier to an end consumer or trader.

- **Synchronous grid:** transmission grid with installations interconnected through AC links and where frequency is the same at any point. Europe's main synchronous grids are: UCTE, Nordel and the insular grids (Great Britain, Ireland, etc).

- **System services:** services required to transmit energy from generation units to the loads while ensuring operational security of the electricity system.

- **Take-or-pay:** long-term contract under which producers guarantees to supply gas to operators that guarantee payment regardless of whether or not they take delivery of the gas.

- **Third Party Access to grids/networks:** recognised right of any user (eligible customer, distributor, or generator/producer) to access a transmission or distribution system in exchange for payment of access rights.

- **Trader:** gas or electricity supplier purchasing energy from another supplier in order to sell it to end consumers or other traders.

- **Transit tariffs:** tariff for an electricity flow crossing a control area.

- **Transitional regulated tariff for market adjustment (TaRTAM):** regulated tariff available to customers who have exercised their eligibility and have requested the tariff before 1 July 2007, for a duration of two years.

- **Transmission shipper or distribution shipper:** signatory of a transportation or distribution contract with a transmission or distribution system operator. A transmission or distribution shipper may be an eligible end customer or their agent.

- **Transmission system operator (TSO) or distribution system operator (DSO):** entity responsible for design, construction, operation, maintenance and development of a public transmission or distribution system, fulfilling contracts relating to third-party access to these systems.



● **Transmission transportation contract (transmission contract)/distribution transportation contract (distribution contract):** contract signed between a transmission or distribution system operator and a transmission or distribution shipper for the purposes of transporting quantities of energy between one or more entry points and one or more delivery points.

- natural gas delivery conditions (pressure, rate, etc);
- delivery equipment characteristics and ownership conditions (rental of the delivery station, etc) and;
- conditions for determining quantities of energy delivered.

● **Transport-distribution interface point: (PITD):** a point where gas transported by a transmission system operator is taken in charge by the distribution system operator.

● **Underground storage facility:** use of geological formations (aquifers or salt domes) for the storage of gaseous hydrocarbons.

● **Union for the Coordination of Transmission of Electricity (UCTE):** association whose purpose is to define the operating rules for interconnections between European countries. The UCTE is one of the four founding members of ETSO. The organisation includes transmission system operators in the following countries: Austria, Belgium, Bulgaria, Bosnia-Herzegovina, Croatia, Czech Republic, Western Denmark, France, Serbia and Montenegro, Macedonia, Germany, Greece, Hungary, Italy, Luxemburg, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Switzerland.

● **'Use-it-or-get-paid-for-it':** this rule gives holders of 'physical' rights to interconnection capacity the choice between

- physically exercising their right, by firmly nominating the corresponding energy sufficiently in advance with grid operators or,
- transforming their 'physical right' into a 'financial right'. In this case, holders of the rights inform grid operators that they have decided to give up physical exercise of their rights. Unused capacity is automatically reallocated to the market in the context of the next allocation mechanism, in return for which the initial holders of the rights receive the reallocation profit.

● **'Use-it-or-lose-it':** this rule obliges holders of physical rights to interconnection capacity to firmly nominate the corresponding energy sufficiently in advance with grid operators. This firm nomination has the triple advantage of:

- limiting risks of unscrupulous market players being able to retain capacity;
- enabling grid operators to reallocate allocated but unused capacity to the market;
- enabling grid operators to carry out capacity netting operations and allocate supplementary capacity thus freed up to the market.

● **Use-it-or-sell-it:** rule giving holders of 'physical rights' to interconnection capacity the choice between:

- physically exercising their right by firmly nominating the corresponding energy sufficiently in advance with grid operators;
- transforming their 'physical' right into a 'financial' right. In this case, the unused capacity is automatically reallocated to the market in the context of the next allocation mechanism, and the initial holders of the right receive reallocation profit.

● **VPP (virtual power plant):** fictive, non-designated generation capacity, sold to an operator and used to withdraw energy on demand at a previously set price from a generator.



## III. Abbreviations

<b>AEEG:</b> Autorità per l'Energia Elettrica e il Gas (electricity and gas energy authority)	<b>LDC:</b> Local Distribution Companies
<b>APX:</b> Amsterdam Power Exchange	<b>LNG:</b> Liquefied Natural Gas
<b>ATR:</b> Third Party Access to Grids/Networks	<b>LV:</b> Low Voltage
<b>ATRT:</b> Third-Party Access to Transmission Grids/Networks:	<b>DSO:</b> Distribution System Operator
<b>ATRD:</b> Third-Party Access to Distribution Grids/Networks	<b>TSO:</b> Transmission System Operator
<b>ATTM:</b> Third-Party Access to LNG Terminals	<b>GSO:</b> Gaz Sud-Ouest (France)
<b>CEDIGAZ:</b> Information and Documentation Centre on Gas	<b>IEA:</b> International Energy Agency
<b>CEER:</b> Council of European Energy Regulators	<b>LPX:</b> Leipzig Power Exchange
<b>CFM:</b> Compagnie Française du Méthane (French LNG Company)	<b>NBP:</b> National Balancing Point
<b>CNE:</b> Comision Nacional de Energia (National Energy Commission) (Spain)	<b>NGC:</b> National Grid Company
<b>CNR:</b> Compagnie Nationale du Rhône	<b>OCM:</b> On-the-day Commodity Market (NBP spot market)
<b>CRCP:</b> Expenses and revenues clawback account	<b>OTC:</b> Over-the-Counter
<b>CREG:</b> Commission de Régulation de l'Electricité et du Gaz (Belgian Commission for Regulation of Electricity and Gas)	<b>PPI:</b> Multi-year Investment Programme
<b>CSI:</b> Commercially Sensitive Information	<b>RE:</b> Balancing responsible entity
<b>CSPE:</b> Contribution au Service Public de l'Electricité (Public Electricity Service Contribution)	<b>RTE:</b> Réseau de Transport d'Electricité (electricity transmission system operator)
<b>DIDEME:</b> Directorate of Energy Demand and Markets	<b>SNET:</b> Société Nationale d'Electricité et de Thermique (National Electricity and Thermics Company) (France)
<b>EEX:</b> European Energy Exchange	<b>SPEGNN:</b> Professional Union of Local Gas Companies
<b>EHV:</b> Extra High Voltage	<b>TaRTAM:</b> Transitional Regulated Tariff for Market Adjustment
<b>ERD:</b> EDF Réseau Distribution	<b>TTF:</b> Title Transfer Facility (virtual gas hub in the Netherlands)
<b>ERGEG:</b> European Regulators' Group for Electricity and Gas	<b>UCTE:</b> Union for the Coordination of Electricity Transmission
<b>ETSO:</b> European Transmission System Operators	<b>UNIDEN:</b> Union des Industries Utilisatrices d'Energie (Union of Gas-Using Industries)
<b>EUROGAS:</b> European Gas Association	<b>VPP:</b> Virtual Power Plant
	<b>ZNI:</b> Non-interconnected territory

## IV. Units and conversions

### Gas

#### Volumes

1 cubic metre (m<sup>3</sup>) = 35.315 cubic feet

1 metric ton of liquefied natural gas (t LNG) =

1,350 m<sup>3</sup> of gas

1 m<sup>3</sup> of LNG = 593 m<sup>3</sup> of gas

#### Mass/energy volume conversion

1,000 m<sup>3</sup> of natural gas = 0.9 ton of oil equivalent (toe)

1 m<sup>3</sup> of natural gas = 10.8 kilowatt hours (kWh)

1 metric ton of LNG = 1.3 toe

#### Mass/volume conversion as Btu (International Energy Agency conventions)

Equivalent to	LNG	Gas			
		Norway	Netherlands	Russia	Algeria
1 m <sup>3</sup>	39,343	40,290	33,550	35,855	37,125
1 kg	51,300	49,870	42,830	51,675	47,920

#### Energy equivalences

Equivalent to	GJ	kWh	MBtu	th	therm
1 gigajoule (GJ)	1	277.8	0.948	238.9	9.479
1 kWh	3.6* 10 <sup>-3</sup>	1	3.411* 10 <sup>-3</sup>	0.86	3.411* 10 <sup>-2</sup>
1 million Mbtu	1.055	293.2	1	252	10
1 thermie	4.186* 10 <sup>-3</sup>	1.162	3.968* 10 <sup>-3</sup>	1	3.968* 10 <sup>-2</sup>
1 therm	0.1055	29.32	1*10 <sup>-1</sup>	25.2	1

1 barrel of oil (West Texas Intermediate-WTI) = 017 MBtu (USDOE conventions)

### Electricity

The standard unit used to measure power, i.e. energy per unit of time is the watt (W).

The watt represents the level of power corresponding to energy generation of one joule (J) per second. The joule represents the work produced by one newton (N), whose point of application moves one metre in the direction of the force, given that a newton is the force which gives a mass of 1 kilogram an acceleration of 1 metre per second.

The kilowatt-hour (kWh) is the amount of energy consumed by a 1-kW appliance in one hour. The volt (V) or kilovolt (kV) is the unit of voltage, i.e. the difference in electrical potential between two points of a conductor travelled by a constant current of one ampere (unit of electrical current intensity) when the power dissipated between these points is equal to one watt.

In the field of energy, coefficients used to multiply base units apply in the same way as for other units, i.e.:

For example, overall consumption of electricity (excluding losses) in France for the year was 446.4 TWh and the average annual consumption of a French household is 4,700 kWh.

The power of the latest nuclear power plants constructed is 1,450 MW, while that of a wind-powered generation plant may reach 3 MW and that of an iron is 1 kW.

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