COMMISSION
DE RÉGULATION
DE L'ÉNERGIE

THINKING THE ENERGY OF TOMORROW

2019 PROGRESS REPORT

2020
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20 years
thinking the energy of tomorrow

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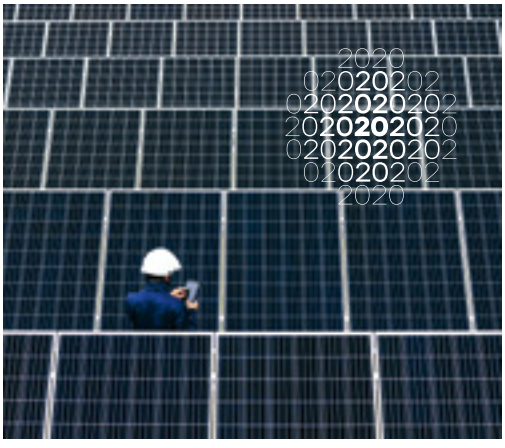
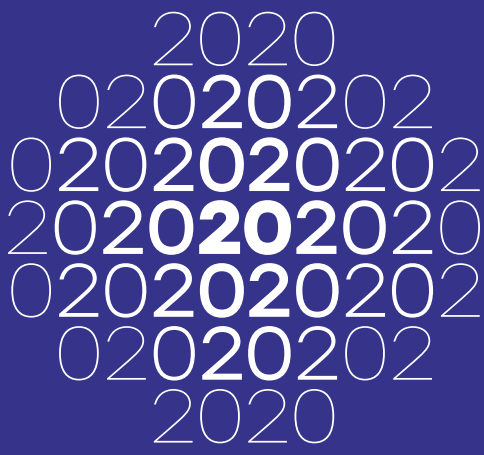
2019 PROGRESS REPORT

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Established on 24 March 2000, the Energy Regulatory Commission (Commission de régulation de l'énergie – CRE) is an independent administrative authority.
Working for the benefit of end consumers, it contributes to the proper functioning of the electricity and natural gas markets. It ensures the absence of any discrimination, cross subsidy or obstacle to competition. It participates in the construction of the European energy market.

THE CRE' 20 YEARS THINKING THE ENERGY OF TOMORROW

1999

Eligibility of sites with an annual electricity consumption of > 100 GWh

2000

The CRE is created, competencies in the electricity sector

Electricity: eligibility of sites with an annual electricity consumption > 16 GWh

Eligibility of all sites consuming over 237 GWH/year of gas and producers of electricity and heat

Proposes tariffs for the use of electricity grids

Approves annual TSO investment programmes

Review of the TRVE (regulated tariffs for the sale of electricity)

Supervises calls for tenders for renewable energy

Assesses public service charges

Settles disputes over network access

2003

Extension of the CRE's competence to natural gas

Electricity: eligibility of sites with an annual electricity consumption > 7 GWh

Gas: eligibility of all sites consuming over 83 GWh/year

Proposes tariffs for the use of natural gas networks

2004

Electricity and gas: eligibility of all businesses and local authorities for electricity and gas

Publishes the RCBCI report

2005

Subsidiarisation of TSOs (RTE, GRTgaz and TIGF)

2006

Creation of the CoRDiS

Monitors wholesale electricity and natural gas markets

Proposes tariffs for annex services provided by system operators

2007

First coupling of electricity markets between France, Belgium and the Netherlands

Electricity and gas: eligibility of all consumers, including residential

2008

Subsidiarisation of DSOs (ERDF and GRDF)

Electricity: 692,000 residential customers with open market contracts with an alternative supplier

Gas: 416,000 residential customers with open market contracts with an alternative supplier

2009

3e paquet « énergie » : fixation des tarifs d'acheminement par les régulateurs

Création de l'ACER

Élaboration des codes de réseaux européens

2010

Monitors the wholesale CO_2 markets

Competence to implement the Arenh and Mecapa

The Fos-Cavaou terminal is commissioned

2011

First gas market coupling between the North zones and

Massive development of calls to tender for renewable energy

Sets the tariffs for network use

Certifies TSOs

Publishes the annual retail market monitoring report

Approves the 10-year investment plans of TSOs

Gives its go-ahead for the deployment of Linky and Gazpar

2012

Implementation of REMIT

Electricity: 2.1 m customers with open market contracts for electricity

Gas: 1.7 m customers with open market contracts

2013

TRVG (regulated tariffs for the sale of natural gas) reform: monthly evolutions of supply costs, annual audits

Sanctions for failure to comply with REMIT

Implementation of the valorisation of load management

Issues coordinated decisions for PCI (projects of common interest)

2014

TRVE (regulated tariffs for the sale of pricing by stacking

Electricity: 3 m residential customers with open market contracts for electricity

Removal of regulated tariffs for the sale of gas to non-residential customers and local distribution companies (LDC) consuming over 100 GWh/year

Gas: 3.5 m customers with open market contracts

2015

Reduction in the number of gas balancing zones, from 8 in 2003 to 2 in 2015

Removal of regulated natural gas tariffs for non-residential sites and joint-owner syndicates consuming over 200 MWh/year

Approves the S3REnR cost model

2016

Removal of regulated tariffs for the sale of electricity for > 36 kVA

4.5 m residential customers with open market contracts for electricity

Removal of regulated tariffs for the sale of gas for non-residential sites consuming > 30 MWh/year > 150 MWh/year for joint-owner syndicates and < 100 GWh/year for local distribution companies

5 m customers with open market contracts for gas

Proposes regulated tariffs for the sale of electricity

The Dunkirk LNG terminal commissioned

2017

5.9 m residential customers with open market contracts for electricity

5.8 m residential customers with open market contracts for gas

Approves supplier network access contracts

Sets the remuneration for customer management services under single contract

Sets TURPE 5 tariffs

Competence to regulate gas storage

Creates the Foresight Committee

2018

Creation of the single gas market zone

Ensures new competencies for capacity obligations

First sanction of the CoRDiS under the REMIT regulation

2019

4th energy package

New competencies concerning the end of TRVG and monitoring TRVE

Implementation of the "regulatory sandbox"

TABLE OF CONTENTS

THE CRE PARTICIPATES IN THE EVOLUTIONS OF OUR ENERGY SYSTEM

The editorial of this 2019 activity report for the CRE will not be as it would have been written a few weeks ago. I could have unashamedly mentioned how the CRE has participated in the evolutions of our energy system (gas and electricity) while ensuring the hand-to-hand defence of domestic and industrial consumers by preserving the security of the supply, the quality of the energy, price moderation and healthy competition among suppliers.
I could have expressed my satisfaction to see the regulated players in a good position to face the future, the rapid progress of renewable energy in our country, and our work in this field alongside the Minister for the Ecological and Inclusive Transition.
I could also have mentioned the major issues of the past year: green gas, market, offshore wind turbines, Europe and other topics, such as the tariff deliberations for all grids.
However, as I am writing these words, the coronavirus has attacked the world's populations. How will our countries, societies and economies survive the epidemic? Nobody knows today. However, I have the duty to initiate reflection and share my thoughts with you concerning our energy sector.

- **First thought:** at the time of writing these lines, all regulated players are preserved by our regulatory system. This system is demonstrating its resilience and robustness. The employees of these companies are at work in the front line and with a great deal of professionalism for the benefit of the public, and I thank them deeply.

- **Second thought:** the wholesale markets are functioning well. Nevertheless, the decrease in consumption entails financial losses for suppliers. Disputes are arising. Beyond energy transport, the question of the price and quantities consumed of both gas and electricity are long-term questions. It is therefore important to maintain a great deal of calm, which is why the CRE has refused the emergency application of the

JEAN-FRANÇOIS CARENCO, CHAIRMAN OF THE ENERGY REGULATION COMMISSION

force majeure clause in the Arenh contract; the question is for the courts to decide.

- **Third thought:** linked to the absolute necessity to continue building Europe, we must question the organisation of the European market. At a time when the return of public authority is desired by many, at a time when consumption is in a very deep slump, at a time when market prices reflect the perspectives of a lasting decrease in economic activity, we must calmly question ourselves about the production market, the supply market and the role of the grids.

- **I have only one thought in mind:** we must ask ourselves these questions without ever forgetting that the agility of the players is necessary to build the future.

- **Fourth thought:** at the same time, the overriding necessity to fight climate change must always remain present. Reducing our energy consumption, ensuring maximum flexibility to reduce our environmental footprint, developing renewable energy – whose development can only be ensured by regulation through pricing, ensuring the security of our supply thanks to nuclear energy, which must be preserved by new regulations: such are the challenges for the coming years that we must not forget during these times of uncertainty, but which, on the contrary, must show us the way out of the crisis.

As for the CRE, we wish, among all the players of the sector, to bring our contribution to this construction and provide its thinking and studies to the public authorities who must make these difficult choices.

I hope you find this activity report interesting reading and take this opportunity to wish the CRE a happy anniversary.

Acting in the interest of consumers is the guiding principle for all the CRE's actions: price, quality of service, innovation, security of supply, the issues of energy transition, and the resilience of our systems (physical infrastructures and markets). This last point, with the recent health crisis that questions certain aspects of our models of development and lifestyle, has emerged as being even more vital. If being able to quickly respond to emergencies is critical for effective regulation, it is also necessary to remain permanently active over the long term with respect to the major projects and challenges of the CRE.
The resilience of our energy system also depends on the capacity to ensure a stable and effective regulatory framework in all its aspects.
The national energy system is affected by the acceleration of major structural developments: digital technology and especially smart electric grids, the ecological transition, the place and new regulation of nuclear energy, biomethane, electric vehicles, innovation for the benefit of consumers...
Long positioned on the analysis of these evolutions, in 2019 the CRE published numerous decisions, opinions and reports in order to ensure that the regulatory framework is conducive to these evolutions, and it will continue to follow a dynamic regulatory approach in these sectors.

Thus, in 2019 the steps towards opening the markets have seen new developments with the Energy-Climate law that puts an end to regulated electricity tariffs for businesses with over 10 employees and €2 million of turnover, and which schedules their removal on 30 June 2023 for the gas sector. Although regulated tariffs offered a stable environment that promoted trust among certain consumers, the regulatory framework constructed must consolidate the benefits for the future.
Moreover, the development of renewable energy has continued, with the CRE examining calls for tenders. It has been observed that the role of competition in this sector remains imperfect. Although evolutions in the structure of calls for tenders, notably proposed by the CRE, have been implemented by the government, further global reflection on the subject remains essential. Capitalising on its knowledge of the sector and equipped with the necessary feedback tools deployed in 2019, the CRE intends to contribute its expertise to the debate to ensure that the fight against climate change is an environmental imperative that is economically sustainable and socially acceptable.
Europe has also been at the heart of the CRE's action for many years. From the entry into force of the "Clean energy for all Europeans" package, which

> ACTING IN THE INTEREST OF CONSUMERS IS THE GUIDING PRINCIPLE OF THE CRE

adapts the market regulations for electricity and the European climate objectives for 2030, to the European Green Deal, 2019 was rich in major evolutions.
The CRE aims to continue to build, with its European partners and ACER, and thanks to its dynamic and leading role, a European market that is fluid, efficient and for the benefit of all. With its human resources highly involved in the structuring of the various markets, the CRE remains attached to pragmatic solutions, such as those for the rules of use of interconnections. Indeed, it is necessary to offer realistic and operational solutions because European added value in the energy sector is an undeniable technical and economic reality, but one that remains little known to the consumer.
The non-interconnected zones (zones non interconnectées – ZNI) were also a major theme for the work of the Commission in 2019. From the examination of multi-annual energy programmes (PPE) to support missions for overseas communities, the CRE contributed its expertise to the energy transition of these territories. This is a challenge not only for the non-interconnected zones but also for the knowledge of energy systems where the penetration of renewable energy is becoming massive, and thus for the anticipation of risks and opportunities for the national system in the long term.

Mutual enrichment and the sharing of knowledge also require the international cooperation in which the CRE has been highly involved, ensuring the co-presidency of the MedReg (association of Mediterranean energy regulators) and the presidency of RegulaE.Fr (French-speaking network of energy regulators).
The CRE thus aims to maintain the exchange of experience that is always beneficial to all. This international positioning is an asset built on both a base of recognised technical expertise as well as on the active involvement of the college in these bodies.
Although 2018 was a year of strong growth in wholesale prices, 2019 was marked by a decrease in these prices, which has only been amplified by the current health crisis. What does tomorrow hold in store for our energy system?
Our determination to prepare the future was already strong in 2019, and this health crisis only serves to reinforce it. The CRE wishes to remain a place of debate, where reason prevails over passion.
Our values of independence, transparency and impartiality are our base, but, more than ever before, our action must remain open and attuned to all the players of the energy system.

From left to right and top to bottom:

JEAN-FRANÇOIS CARENCO,
CHAIRMAN OF THE ENERGY REGULATION COMMISSION

CHRISTINE CHAUVET,
REFERENT COMMISSIONER FOR TENDERS,
Vice-president of MedReg

CATHERINE EDWIGE,
REFERENT COMMISSIONER FOR NON-INTERCONNECTED ZONES,
President of RegulaE.Fr

JEAN LAURENT LASTELLE,
REFERENT COMMISSIONER FOR EUROPEAN AFFAIRS

IVAN FAUCHEUX,
REFERENT COMMISSIONER FOR THE CRE FORESIGHT COMMITEE

TO UNDERSTAND THE CRE

PRINCIPLE

INDEPENDENCE
with respect to the energy industry and government for the implementation of missions defined by the legislation.

TRANSPARENCY
of work and procedures for the elaboration of decisions and opinions.

IMPARTIALITY
to ensure the neutrality, equity and objectivity of decisions and opinions.

MISSIONS

PARTICIPATE
in the construction of the European energy market.

IMPLEMENT
certain support mechanisms for renewable energy by conducting calls for tenders.

GRID REGULATION
for gas and electricity, which are monopolies: set their tariffs and ensure that they do not favour specific users.

ENSURE
that consumers are well informed.

CONTRIBUTE
to the smooth operation of the electricity and natural gas markets for the benefit of end consumers.

OBJECTIVE

GUARANTEE
the independence of system operators.

ESTABLISH
harmonised rules for the operation of grids and markets to ensure that energy circulates freely among the member states of theEuropean Union.

ENSURE
competition among energy suppliers for the benefit of consumers.

ENSURE
that consumers obtain the best service and pay a fair price.

STATUS
INDEPENDENT ADMINISTRATIVE AUTHORITY

THE CoRDIS

Four full members and four associate members comprise the Dispute Settlement and Sanctions Committee, with the same number of State councillors and advisers to the Court of Cassation. They are responsible for resolving disputes over access to public electricity and gas networks and over their use between operators and users, as well as to sanction breaches of the energy code.

2 INDEPENDENT BODIES

THE COLLEGE

Five commissioners, with a difference of no more than one person in the gender balance, appointed on the basis of their legal, economic and technical qualifications, set the general guidelines and adopt decisions and opinions on the basis of the expertise of the directorates, placed under the authority of the chairman and director general.

→ Consult the 2017-2018 report on the respect of the codes of good conduct and the independence of the operators of electricity and natural gas systems
→ Consult the general presentation of the CRE and its principles
→ Consult the legal activity report

24 bn€

Revenue authorised for regulated operators for the transmission and distribution of electricity and gas infrastructures.

BUDGET

20,9 M€

The credit necessary for the operation of the CRE is proposed by the commission to the Minister in charge of Finances for entry in the law of finances. The credit allocated is entered in the national general budget. The CRE is subject to the control of the Court of Auditors.

WORKFORCE

150

AGENTS

(excluding the college) on 31 December 2019

2019 IN FIGURES

302

deliberations

22
public consultations

63
market players heard by the college

13
hearings of the chairman, the director general and the CRE services in Parliament

58
sessions of the Commission

18
decisions by the CoRDiS

17
referrals from CoRDiS

THE CRE AND PARLIAMENT

The CRE gives particular importance to its dialogue with Members of Parliament by supporting their work on energy and providing its expertise on the energy markets for the elaboration of legislation.
In 2019, the chairman, the director general and the services of the CRE were thus heard 13 times at the request of the deputies, senators and parliamentary departments.

- In particular, the CRE was solicited during the elaboration of law No. 2019-1147 of 8 November 2019 on energy and the climate. It notably contributed to legislative evolutions concerning energy markets as well as its own operation. This law thus endowed the CRE with new competencies for opinions, proposals and communication on regulated tariffs for the sale of electricity and gas, the operation of energy markets and the implementation of a support mechanism adapted to innovative renewable electric energy. Finally, this legislation introduced an experimental mechanism, called the "regulatory sandbox", which enables the CRE and the administrative authority to grant exemptions to the conditions of access and use of the networks and facilities in order to deploy innovative technologies or services in favour of energy transition and smart grids.
- During the elaboration of law No. 2019-1428 of 24 December 2019 on the orientation of mobilities, the CRE provided its technical expertise in the field of grids, in particular for infrastructures for recharging and the deployment of electric vehicles.
- The services of the CRE participated in the debates on grids and wind turbines organised by the National Assembly's mission of enquiry into the obstacles to energy transition.
- The CRE was heard by the deputies,
members of the commission of inquiry on the economic, industr–ial and environmental impact of renewable energy, the transparency of finances and the social acceptability of the policies of energy transition concerning support for renewable energy.
- The CRE was invited to participate in a Senate hearing on industrial questions related to the energy sector in the context of the mission of inquiry into the challenges facing the steel industry in France in the 21st century.

Every year, the CRE is also available to members of parliamentary commissions in charge of elaborating financial legislation to answer their questions concerning the conduct and management of environmental, development and sustainable mobility policies, as well as on the economic and budgetary perspectives related to the energy sector.
Finally, the CRE shares with members of parliament its opinions and positions for the transposition of European legislation into national law.

ORGANISATIONAL CHART OF THE CRE DIRECTORATES

CHAIRMAN
College

CORDIS
CHAIRMAN

The CoRDiS benefits from the services of the CRE to carry out the missions it is entrusted.

CABINET
RAPHAËLLE EPSTEIN RICHARD, CABINET DIRECTOR

DIRECTORATE GENERAL OF SERVICES
DOMINIQUE JAMME, DIRECTOR GENERAL OF SERVICES

DEPARTMENT OF FORESIGHT AND INNOVATION
DIDIER LAFFAILLE

SECRÉTARIAT GENERAL
RAPHAËLLE EPSTEIN-RICHARD, SECRETARY GENERAL

DIRECTORATE OF COMMUNICATION
ANNE MONTEIL

DEPARTMENT OF INSTITUTIONAL RELATIONS
OLIVIA FRITZINGER

DIRECTORATE OF LEGAL AFFAIRS
ALEXANDRA BONHOMME

- Disputes
- Access to markets
- Networks and infrastructures
- Energy transition
- Secretariat

DIRECTORATE OF NETWORKS
DOMITILLE BONNEFOI

- Coupling and balancing
- Interconnections and European networks
- Electricity transmission
- Upstream gas infrastructures
- Distribution
- Connection and smart grids

DIRECTORATE OF MARKETS AND ENERGY TRANSITION
CHRISTOPHE LEININGER

- Retail markets
- Pricing and competition
- Support mechanisms for renewable energy and consumers of the Commission

WHOLESALE MARKET SURVEILLANCE DEPARTMENT
KSENIYA KHROMOVA

- Market analysis and surveillance tools
- In-depth surveillance and inquiries

DIRECTORATE OF ECONOMIC AND FINANCIAL AFFAIRS
LAURENT MENARD

- Financial analysis
- Operator costs auditing
- Expertise in the cost of capital

DEPARTMENT OF EUROPEAN AND INTERNATIONAL AFFAIRS AND COOPERATION
CLAIRE HELLICH-PRAQUIN

- Europe-international-cooperation

DIRECTIORATE OF THE CSPE PROGRAMME
FRANÇOIS-XAVIER BIEUVILLE

DIRECTORATE OF HUMAN RESOURCES
SOPHIE PATARIDZÉ

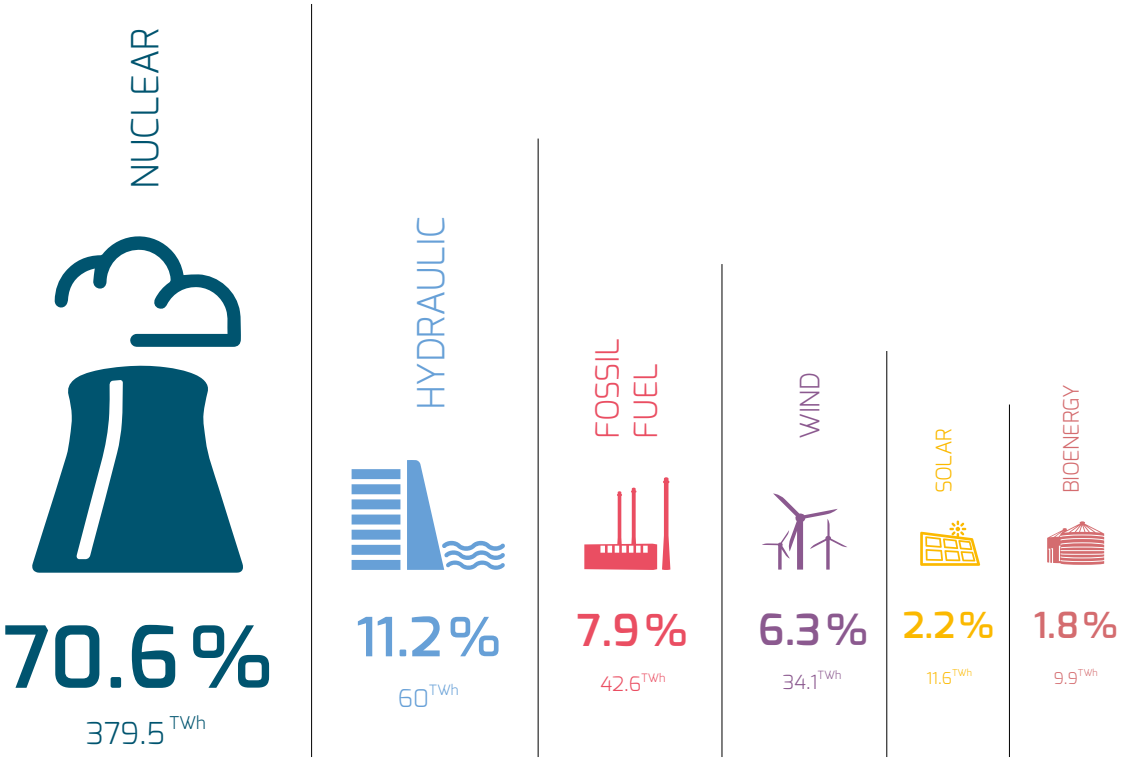
SERVICES: RESOURCES DIVISION

- Site management
- IT and risks
- Finance

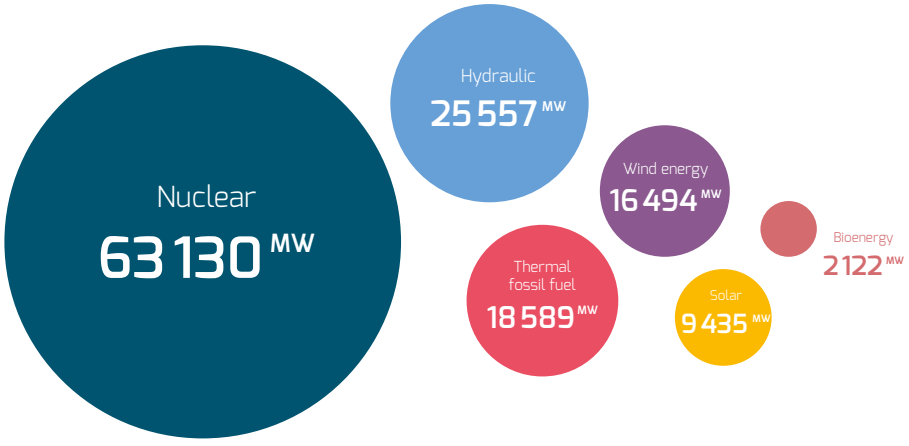
AN OVERVIEW OF ENERGY IN FRANCE

ENERGY MIX

ELECTRICITY PRODUCTION



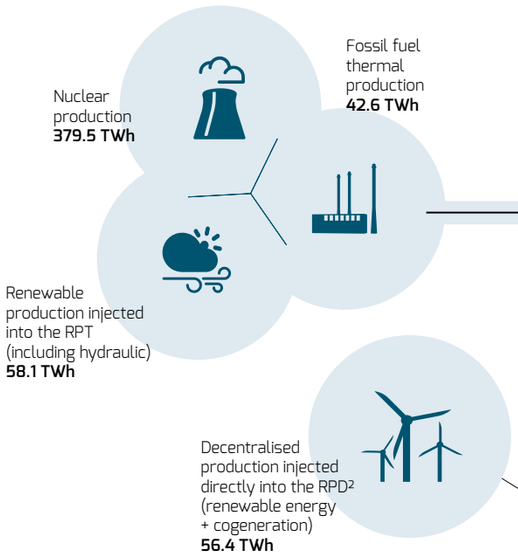
PRODUCTION CAPACITY



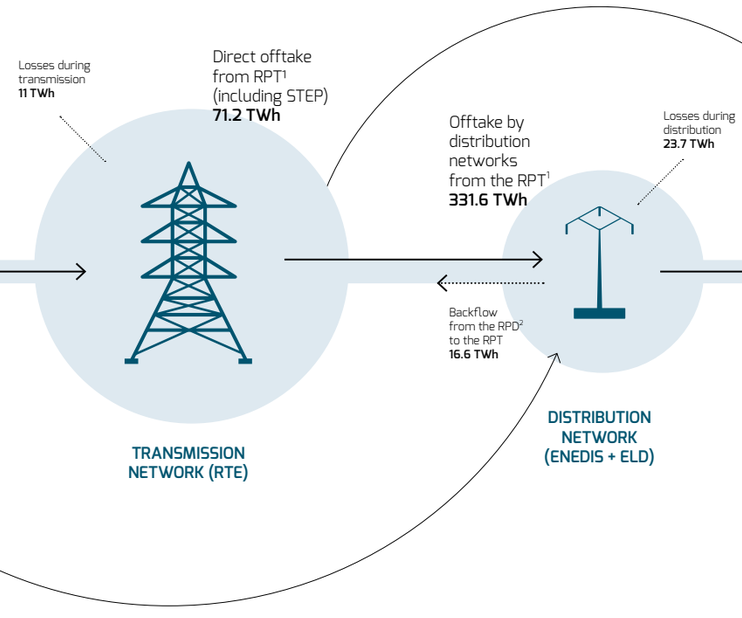
Source: 2019 RTE electricity report

ELECTRICITY

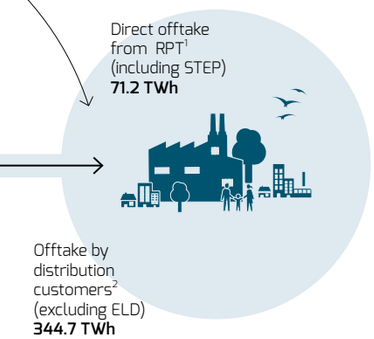
PRODUCTION
537.7 TWh



DELIVERY



CONSUMPTION
474 TWh



EXPORT BALANCE
55.7 TWh

IMPORT **28.3 TWh**

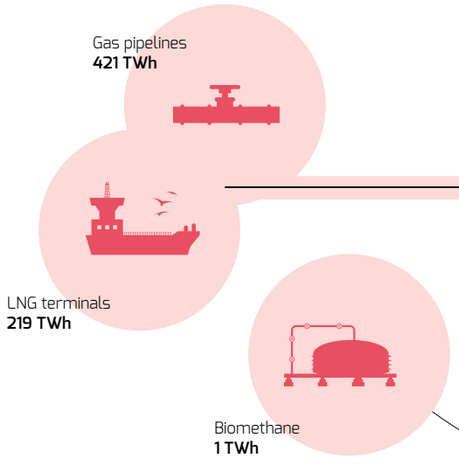
EXPORT **84 TWh**

SOURCES
RTE et Enedis

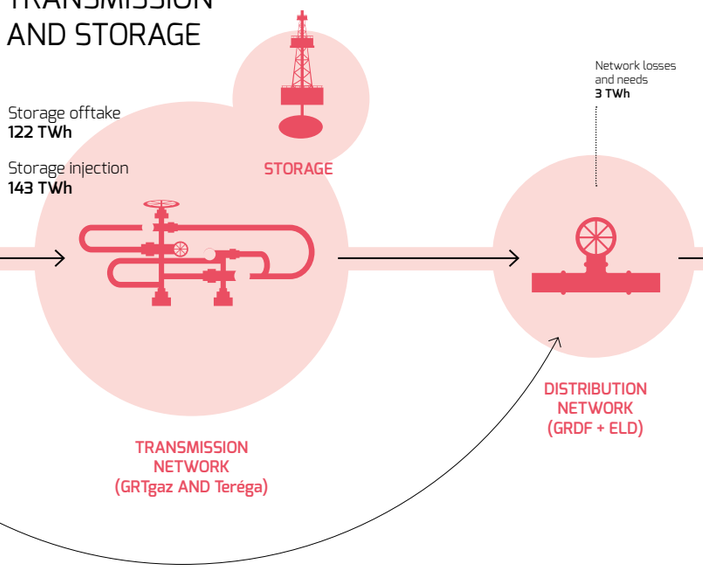
[1] Continental France, including Corsica.
[2] Excluding local distribution companies (approx. 5% of the continental territory).
RPT: public transmission grid
RPD: public distribution grid

GAS

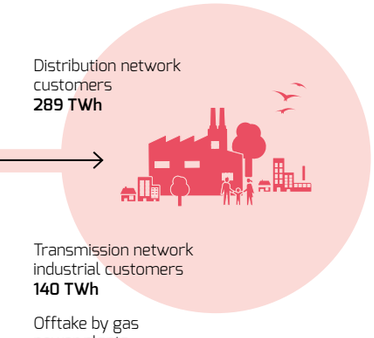
IMPORTS
639 TWh



TRANSMISSION AND STORAGE



CONSUMPTION
478 TWh



EXPORTS
136 TWh

SOURCES
GRTgaz et Teréga

THE CONSTRUCTION OF THE EUROPEAN ENERGY MARKET

The ambition of the Green Deal for Europe presented by the European Commission at the end of 2019 is to make Europe the first climate-neutral continent by 2050. Incorporating the specificities of the French energy system, the CRE has drafted ten statements of position on the future of European regulations.

2020
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02020202020
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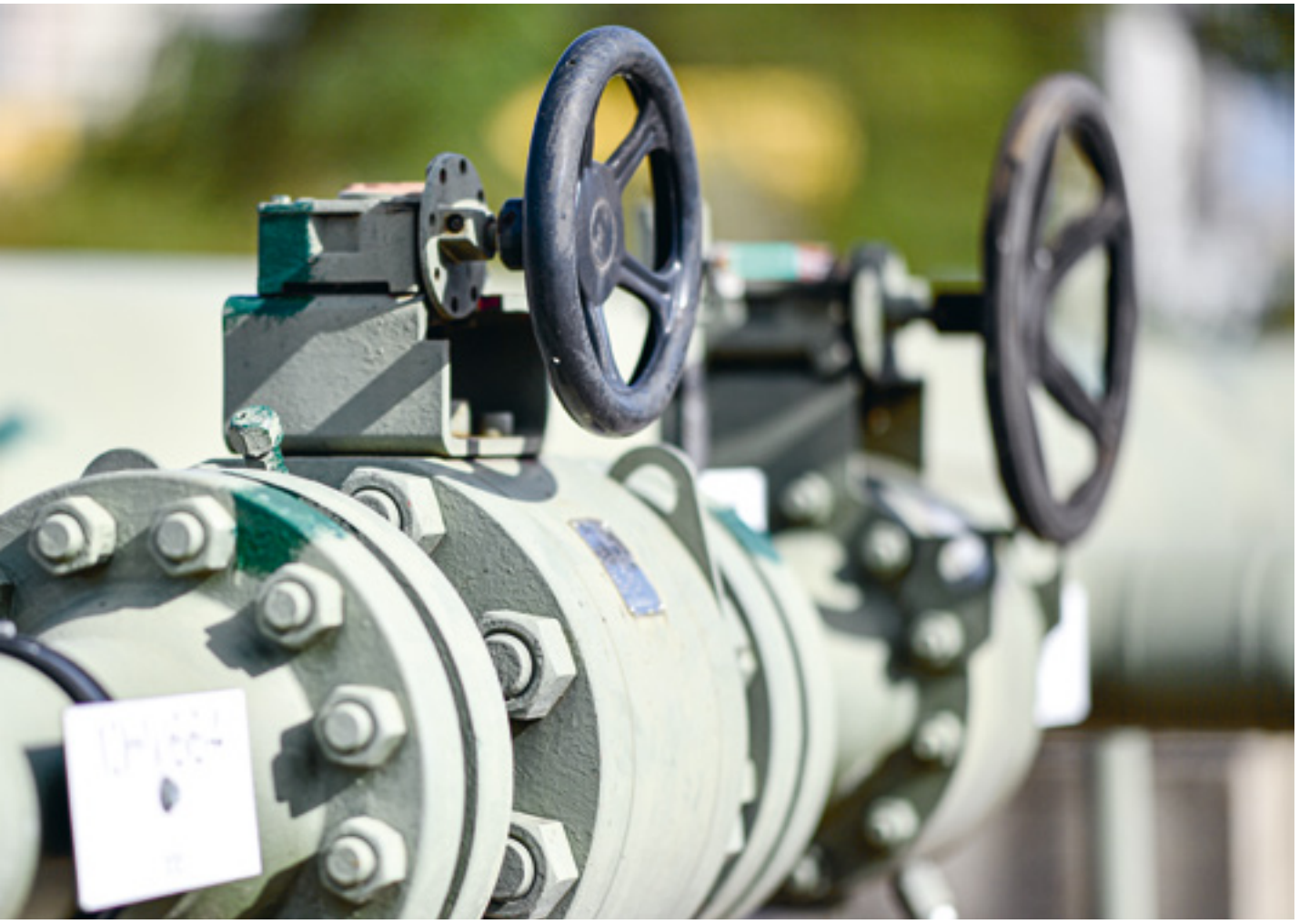
2019 WAS A TURNING POINT FOR EUROPEAN ENERGY.

It was the year the "Clean energy for all Europeans" package came into force, which adapts the regulations of the electricity markets to the European climate objectives for 2030. It was also the year of European elections and the renewal of the decision-making bodies of the Parliament and Commission which, through the voice of Ursula van der Leyen, proposed in December a Green Deal for Europe as the cornerstone for the new legislature. 2020 is thus decisive both for the application of the recent legislative provisions and for the enhancement of European climate ambitions.
It is also the 20th anniversary of the CRE and marks two decades of opening energy markets, for which it is one of the driving forces. This provides us with an opportunity to review the fundamental role of European integration and regulation in the organisation of energy markets.



PEACE THROUGH ENERGY COOPERATION

In 1951, six years after a devastating war, France, Germany, Italy, Belgium, Luxembourg and the Netherlands created the ECSC, the European Coal and Steel Community, and pooled the fundamental resources for their energy and industrial supply. Energy thus lies at the heart of a peace project that is unique in its ambition and duration. In 1958, the simultaneous entry into force of the Euratom Treaty and the Rome Treaty, creating the European Economic Community (EEC), consolidated this vision of energy cooperation as a factor of peace.

SLOW BEGINNINGS

The objective had been formulated but implementation was laborious. Energy is a constituent of the sovereignty of nations that they are not inclined to share. Moreover, the progressive substitution of oil and gas for coal and the decrease in coal mining emptied the ECSC of its substance.
In the 1960s and 70s, political will flagged and each member state had to face alone the first oil crisis and the adaptation of their energy mix. Lacking the necessary levers of power, the European Commission could not coordinate a more ambitious energy policy.

PROSPERITY THROUGH MARKET LIBERALISATION

Act 2 of European energy, the Single European Act of 1986 set the goal to complete the internal market by the end of 1992 by dismantling the barriers to the free circulation of goods, services, capital and citizens. The priority was to accompany the economic recovery of a continent stricken by the end of the thirty-year boom known in France as the *Trente Glorieuses*. The European authorities wished to include the energy sector in the European internal market subject to free competition.

FOCUS ON THE CONSUMER

During the 1990s, European energy production facilities exceeded needs for the most part: the massive investments undertaken after the 1974 oil crisis to reduce oil dependency had been dimensioned for a linear growth in consumption, without anticipating the end of the "economic miracle". In France, for example, the capacities of nuclear plants were abundant and competitive and the installation of new plants was not economically justifiable.
The ambition of Europe was to limit the intervention of public authority and to introduce competition by removing the administrative barriers to entering a market from the moment it is no longer considered as a natural monopoly.
Objective: to benefit the consumer, lying at the heart of political considerations, advantages in costs and the quality of services thanks to the opening up of trade, and the end of annuities for integrated public monopolies.

THE 1st LEGISLATIVE PACKAGE

From this deregulation, a new regulation was born: the opening of the energy sector began with the directives of the "1st legislative package" in 1996 for electricity and 1998 for gas. The change of paradigm was considerable: European legislation provided for the progressive opening of the markets with a wide margin left to the appreciation of the member states under the notion of subsidiarity. It provided "eligible" consumers with the free choice of their supplier and allowed producers the freedom of geographical establishment as well as third-party access to the networks that remain natural monopolies. Vertically integrated companies had to separate their activities between production, transmission, distribution and supply. In reality, the minimum thresholds set by the two directives (35% in 2003 for electricity, 33% in 2008 for gas) were soon exceeded. By 2000, the average rate of opening to the European market was 66% for electricity and 79% for gas.

Maintenance on an interconnection station. © GRTgaz/Dunouau Franck

THE BIRTH OF THE CRE

How to guarantee access by third parties to networks still owned by the incumbent monopoly? As senator Henri Revol wrote in his report on the liberalisation of the market:
"*The largest operator of the market, Électricité de France, the one that ensures public service, will remain under government control. As such, how can the latter pretend to enforce the law of the market with total impartiality? Placing the public authority in a position of both judge and party would distort competition, discourage free enterprise and contradict the very principles of the open market.*"

CLEARLY SHARED RESPONSIBILITIES

It is thus that the Energy Regulatory Commission (CRE) was born on 24 March 2000. Initially named the Electricity Regulatory Commission, it was created by law No. 2000-108 on 10 February 2000.

This went beyond the requirements of the directive of 1996, which did not impose a regulatory body. The responsibilities were clearly shared between the government and the independent authority: public service and energy policy would be the domain of public authorities, whilst the implementation of access to networks and the regulation of the open market fell within the competence of the CRE.
Although it cannot dispute the goals and orientations of the legislative body, the CRE can propose implementation solutions that are effective, clear and less expensive for consumers. Its opinion is thus called upon for decisions likely to have an impact on the market, especially in terms of tariffs. Also under the CRE's competence are certain procedures that require impartiality, neutrality and independence: the assessment of the charges of public service, the conduct calls for tenders to support renewable energy, etc.

THE FORTUNES AND MISFORTUNES OF THE OPEN MARKET

Exceeding the minimum thresholds for opening up to competition in most member states led the European Commission to propose the full opening of the market. In 2003, the "2nd package" (directives 2003/54/EC for electricity and 2003/55/EC for gas) set the eligibility for open market contracts for all companies for 1 July 2004 and the eligibility for all customers for 1 July 2007. It thus established the principle of independent sectoral regulator that the CRE had anticipated and supervised, for the first time, the conditions of access to cross-border infrastructures.

MARKETS STILL HIGHLY MONOPOLISTIC, CROSS-BORDER FLOWS IN PROGRESS

The opening of markets at different paces depending on the country created distortions in competition: monopolies benefiting from "captive" customers in one country used them as a guarantee of revenue and leverage to conquer other international markets. At the beginning of the 2000s, the liberalisation of gas and electricity paradoxically accelerated the concentration of the sector in the hands of major groups: EDF, EON, RWE, Suez-Electrabel or Vattenfall for electricity; ENI, GDF or Ruhrgas for gas. National markets inter-penetrated each other through an increase in mergers and acquisitions, but the progress of cross-border flows of electricity remained slow: 10.7% of electricity production in the European Union was exchanged in 2004, 2% more than in 2000. From 2002, the CRE thus called for the creation of a true single market, "*a European zone where, within a continuous network, Europe is the domestic market for each operator*".
In addition, even though the demand was "liberated", national markets remained highly monopolistic. In its annual report of 2007, the CRE noted that "*the strong concentration of French markets remains a problem, with incumbent suppliers in a largely dominant position. This situation benefits neither the operators nor consumers*".

3rd ENERGY PACKAGE

In 2007, observing that the European Union (EU) was far from reaching its objective of creating a true single internal energy market, the European Commission proposed a "3rd package" for consumers who could not materially exercise their right to freely choose their supplier, for producers that wished to invest and for suppliers that wanted to sell energy in any member state with no discrimination or disadvantage. This aimed to meet a triple challenge of competitiveness, secure supply and sustainability.

FOCUS

TRANSPOSITION OF THE "3RD PACKAGE": CONSEQUENCES FOR THE CRE

Establishment of a procedure for the certification of the independence of transmission system operators (TSO) entrusted to the CRE.

Reinforcement of the obligations of TSOs regarding investments, the control of which is entrusted to the CRE: obligation to publish a 10-year development plan for the networks concerned submitted to the opinion of the CRE, which verifies the completion of these investments.

Extension of the competence of the CRE for dispute settlement and sanctions.

Reinforcement of the CRE's competence for the tariffs for the use of gas and electricity transmission and distribution networks, as well as the tariffs for the use of methane terminals, which it now sets or approves.

Reinforcement of the competence of the CRE for the connection to electric or gas infrastructures: in particular, the approval of the scales of costs and conditions for the connection of third parties to the grids.

3 QUESTIONS FOR

CLÉMENT SERRE, SECONDED BY THE CRE TO THE EUROPEAN COMMISSION AS PROJECT MANAGER WITH THE ENERGY POLICY COORDINATION UNIT – DG ENER

How would you assess your experience in Brussels?
Working for the European Commission, in particular with the DG for Energy, provides the opportunity to understand European institutions and the political and legislative mechanisms that bind them. I have the good fortune to work with highly competent colleagues who have a solid feeling for the interests of the European public. It is also very rewarding to work with people from different nationalities and cultures and a daily reminder of the challenge to construct a joint structure that is beneficial for all.

How does the European Commission utilise your experience as a regulator?
I work for the energy policy coordination unit, in close collaboration with the units responsible for the wholesale and retail gas and electricity markets. I have thus participated in the negotiations on the directive and regulations that organise the electricity markets. Thanks to my knowledge of the markets acquired at the CRE, I deal with issues related to the Energy Union, bearing in mind the concrete impact of European legislation on the national level.

After the announcement of the Green Deal, what consequences do you expect for gas and electricity?
Their future depends on decarbonisation. The rise in renewable energy will be accompanied by a strong growth in the electrification of numerous uses, thus providing us with decarbonised energy. The electricity and gas sectors could be integrated more intelligently, including with other sectors, such as heating, industry, transport and agriculture. In this sectoral integration, renewable and decarbonised gases, including hydrogen, will have their role to play in the storage, transmission and flexibility of the energy system or as an industrial raw material.

ITRE commission meeting on the "energy" package. © European Union 2017 – Source : EP

COMPLETING THE INTEGRATION OF THE INTERNAL ENERGY MARKET

In 2007, the Lisbon Treaty entrusted the EU with real competence for the energy policy, shared with the member states and based around four poles: ensuring the proper functioning of the market, contributing to the security of the supply, promoting energy efficiency and renewable energy, and developing network interconnection.

A TRIPLE CHALLENGE: COMPETITIVENESS, SECURITY OF SUPPLY, SUSTAINABILITY

With the 2008 package for the climate and energy, the EU, already committed to the 1997 Kyoto protocol to reduce greenhouse gas emissions, set the goals for 2020 of a 20% reduction in CO_2 emissions, 20% of renewable energy in the energy mix and a 20% improvement in energy efficiency. To these environmental objectives were added the reinforcement of European coordination to meet the threats to the security of the supply due to tensions within the oil markets, while blackouts occurred in Italy in 2003 and Germany in 2006.

As the CRE indicated in 2007, "*the magnitude of the 2006 blackout was the result of the poor application of security measures and insufficient cooperation between the operators of European networks. To remedy this, the European regulators recommended the establishment of legally binding rules for transmission system operators, under their control*".

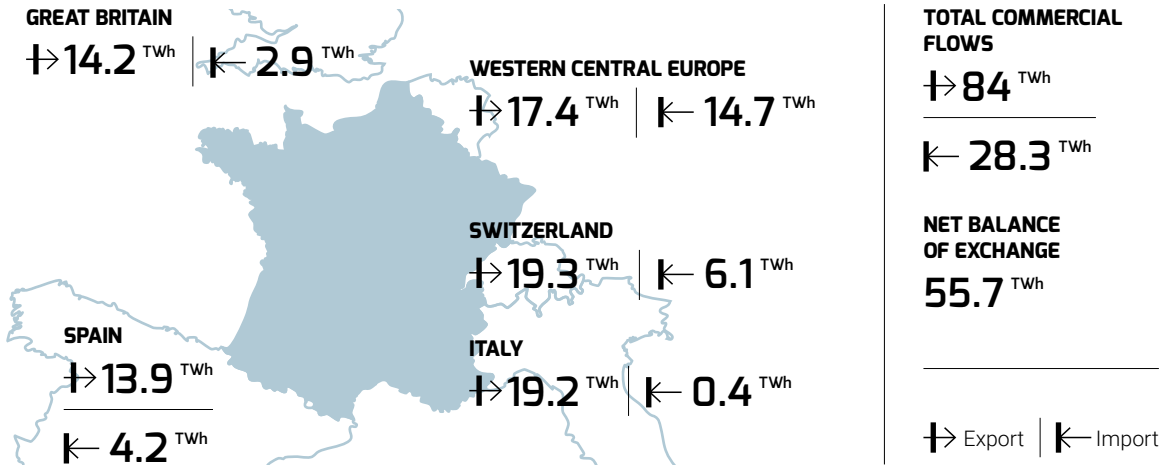
The security of supply and sustainability thus complete the doctrine of competitiveness in the new challenges that the European energy policy must face.

ONE CONDITION: AN INTERNAL EUROPEAN ENERGY MARKET

As was highlighted by the CRE in 2008, a true internal energy market is the condition to reach the three objectives of European energy. "*These three objectives are interdependent. By favouring the circulation of the energy flow, the European internal market optimises the complementarity of the energy mix and increases the level of competitiveness. Through the freedom of establishment for producers and suppliers, it promotes the development of various sources of production, including renewable sources. It thus offers the players of the European market opportunities for development on the European scale.*" Completed in 2009, the revision of the European legislative framework provided for three major steps forwards: the improvement of the functioning of energy and gas transmission systems through the implementation of European network codes, the harmonisation and reinforcement of the competencies and independence of national regulators, and the creation of an agency for the cooperation of energy regulators.

France was among the first member states to transpose the directives of the "3rd package" into its national law with order No. 2011-504 of 9 May 2011, which created the energy code.

The interconnections of the energy network



COOPERATION OF EUROPEAN REGULATORS

Cooperation among regulators is part of the CRE's DNA. After only three months of existence, it had already "created working relationships with the national regulators of the energy sector of the European Union" and had begun with some of these to elaborate joint standards to regulate cross-border congestion. In June 2000, it signed the Memorandum of Understanding for the establishment of the Council of European Energy Regulators, which announced the objective of their collaboration: to develop markets and competition via transparency and non-discrimination. This cooperation became official in 2002 with the creation of a permanent secretariat in Brussels, the CEER[1], a platform for discussion and representation for thirty European regulators. In parallel, the Commission created the European Regulators Group for Electricity and Gas, the Efgeg[2], which advises and assists it.

THE CREATION OF ACER

Along with the other European regulators, the CRE within a specific geographical zone, these regional initiatives facilitate the management of exchanges at cross-border interconnections and the emergence of new regional markets. However, the CEER and the Ergeg had no regulatory powers and, in case of a blockage, the regulators struggled to adopt harmonised technical standards for the use of cross-border infrastructures.

A structuring advance in the 3rd "energy" package, the creation of the Agency for the Cooperation of Energy Regulators (ACER), filled this gap in 2011. It formalised the cooperation between the CRE and its European counterparts. In addition to its mission of coordination, ACER exercises a central role in the elaboration of the new European regulatory framework. It also has a power of individual decision for cross-border disputes. Within ACER, the CRE continues to work towards the optimisation of intra-European exchange via the implementation of network codes.

[1] Council of European Energy Regulators.
[2] European Regulators Group for Electricity and Gas.

FOCUS

CELTIC, A PROJECT SERVING EUROPEAN OBJECTIVES

In April 2019, the CRE and the CRU, the Irish regulator, adopted a joint decision for the financing of the Celtic electricity interconnection (700 MW, 575 km in length, including 500 km submerged) linking France and Ireland. It is a project with major importance in the post-Brexit context.

A PCI
The first electricity link between continental Europe and Ireland, Celtic will enable the latter to integrate the European electricity market, with numerous benefits for the EU, with regard to the security of supply, solidarity between member states and the integration of large volumes of renewable energy. Declared to be a European project of common interest (PCI) in 2013, Celtic will contribute to the completion of the EU's climate and energy objectives.

€930 m in investment, nearly 60% financed by the EU
65% of the investment (€930 m) will be assumed by the Irish TSO EirGrid, 35% assumed by the French TSO, RTE.

The project was granted a European subsidy of €530.7 million on 2 October 2019 under the Connecting Europe Facility.
Celtic should be commissioned in 2026.

→ View our video https://www.youtube.com/watch?v=jeLId-mwCgho"Interconnections: choice, security, fluidity!"

→ Consult the network map at www.rte-france.com/fr/la-carte-du-reseau

THE ENERGY TRANSITION IMPERATIVE

At the end of 2016, when energy production and consumption contributed to over three quarters of the EU's CO_2 emissions, the Commission presented the "Clean energy for all Europeans" package. It proposed to renovate the European energy policy to meet the requirements of the Paris agreement on climate change and to define, for the 2020-2030 period, a framework to accompany the energy transition at a controlled cost and to supply clean energy that is accessible to all Europeans.
It sets three priorities: to give precedence to energy efficiency, to reach the forefront for renewable energy at the global level, and to place the consumer at the heart of the energy system.

THE "CLEAN ENERGY" PACKAGE: A NEW IMPULSE

After three years of negotiations and the active participation of the CRE, which drafted 13 statements of position, this legislative package gives new impetus to the energy transition and the fight against global warming. It sets new objectives: by 2030, the EU should reduce it greenhouse gas emissions by at least 40%, cover 32% of its energy consumption via renewable sources, improve its energy efficiency by 32.5% and reach a level of interconnection of 15%.
The organisation of the electricity market is also adapted to provide improved investment signals and to bring more flexibility to the markets, in particular via the increased use of interconnections and the fluidisation of European electricity exchanges. The challenge: to increase the portion of renewable energy in electricity production by 30 to 50% by 2030.

→ Consult Décryptage No. 60 "Clean energy package for all Europeans"

FOCUS

THE CRE, A PLAYER IN THE INTERNATIONAL COOPERATION OF REGULATORS SUPPORTED BY THE EUROPEAN COMMISSION

The EU wishes to draw closer the regulatory frameworks of neighbouring countries to fluidise exchanges and the European Commission finances experience sharing and institutional support. A privileged lever to explain the European regulatory model and to contribute to the ramping up of the competence of foreign authorities with a vision to promoting development and mutual enrichment, the CRE actively participates in actions of international cooperation within the multi-lateral cooperative bodies of the MedReg and RegulaE.Fr, as well as contributing to twinning programmes.

Participation in the multi-lateral structures of cooperation
The CRE contributes to the works of multi-lateral cooperative structures associating non-European regulators, which are financed by the European Commission. Since 2007, the CRE has been involved in the MedReg, which brings together the Mediterranean energy regulators and which is co-directed today by Christine Chauvet. The CRE is also very active in the Network of French-speaking regulators, RegulaE.Fr, created in 2016, for which the CRE has ensured the secretariat since its origin and its presidency for 2020 under Catherine Edwige. The involvement of the CRE in these structures follows the same objective of providing its expertise to meet the needs of its members. The works of these bodies joins that of the European and non-European regulators in themed workshops and working groups that enable them to build together the regulation of the future.

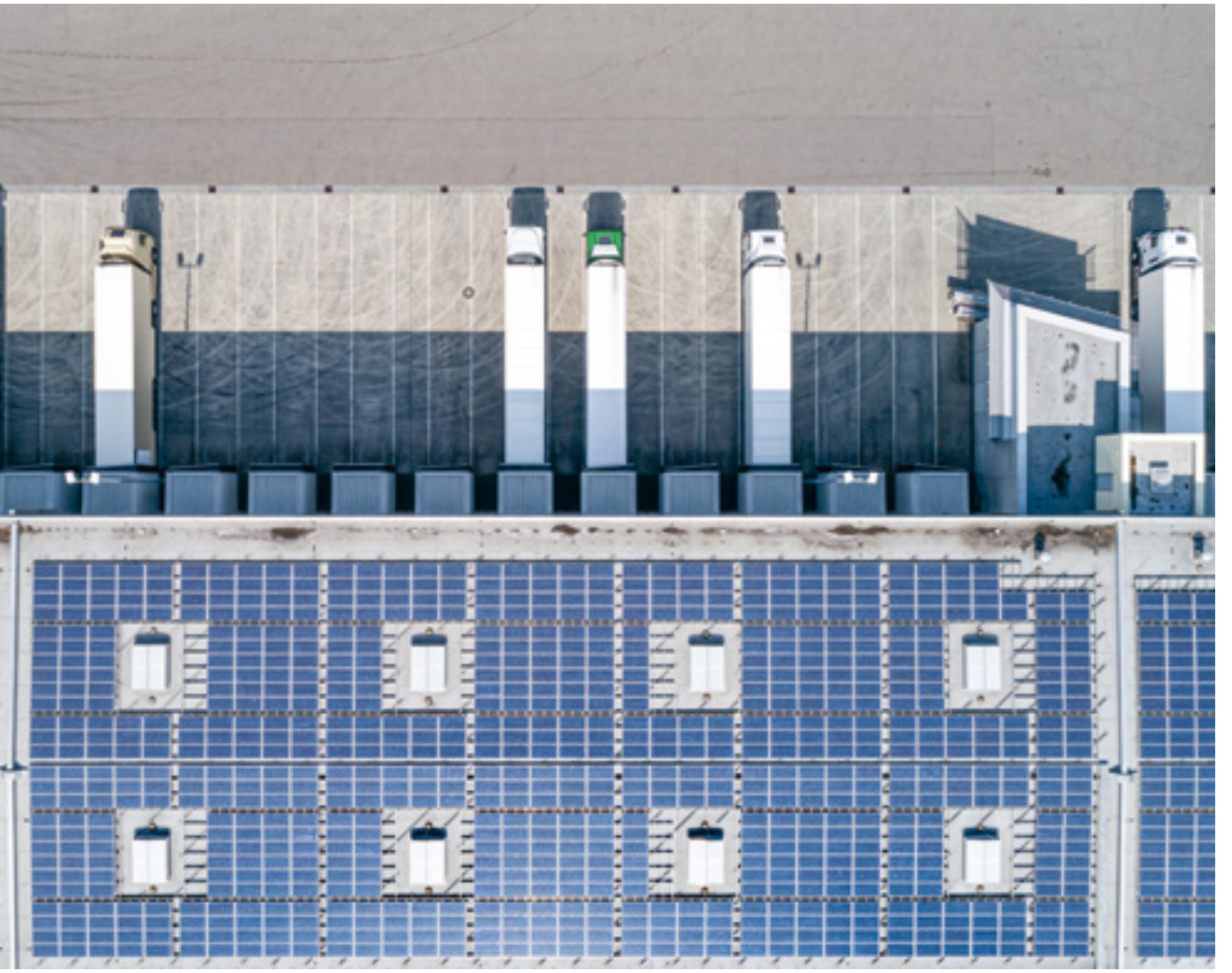
Twinning of the CRE in Morocco and Georgia
Twinning enables candidates for EU membership to align their legislative and regulatory systems with European law. Of two year's duration, they are thus designed for neighbouring countries and those in pre-accession. In 2019, the CRE invested itself in two twinning projects: one initiated in Morocco in 2018 for the benefit of the Ministry of Energy (assistance with the preparation of regulatory texts), the other with Georgia for the benefit of the regulator (incentive-based regulation on the quality of service and deployment of smart meters).

→ Consult Décryptages No. 61 "International Cooperation, the CRE in the lead"

FOCUS

COOPERATION WITH EGYPT

In June 2019, Tarek El Molla, the Egyptian minister for Oil and Natural Resources, met with Jean-François Carenco. In Egypt, gas and electricity are managed by two ministries and two regulatory authorities: EgyptERA (electricity since 2000) and GasReg (chaired by Tarek El Molla since its creation in 2017). At the centre of discussions: cooperation between regulators and the role of GasReg in the strategy that aims to make Egypt the gas hub of the eastern Mediterranean. Discussion took place in a bilateral context with the signature of an MoU (Memorandum of Understanding) between the CRE and GasReg, and within the framework of MedReg, the association of Mediterranean energy regulators. In September, the CRE hosted training for GasReg, financed by MedReg.



Warehouse equipped with rooftop solar panels. © Istock, Bim

TOWARDS A GREEN DEAL FOR EUROPE

In April 2019, in its fourth report on the state of the Energy Union, the European Commission observed that the EU is well on the way to reaching its 2020 objective to reduce greenhouse gas (GHG) emissions. From 1990 to 2017, its economic growth reached 58% and the decrease in its emissions reached 22%, according to preliminary data provided by the member states. Moreover, the share of renewable energy in the internal consumption of the EU-28 (the 28-member European Union) has considerably increased since 2004, increasing from 8.5% to 18% in 2018.

SATISFACTORY PROGRESS FOR THE BENEFIT OF CONSUMERS

For the Commission, "*satisfactory progress has been made on the path leading towards a more integrated European energy market. Energy is sold more freely (even though its sale is still not free enough) across borders, thanks to the directives concerning the electricity and gas markets and to the control of the application of rules concerning anti-competitive practices*".
It also notes that in 2019, 26 countries, representing over 90% of European electricity consumption and over 400 million persons, have coupled their daily electricity markets. According to ACER, this coupling has led to a benefit for European consumers of approximately €1 billion per year from 2012 to 2019. It has also promoted the convergence of prices in certain regions: this reaches 80% in the Baltic regions and 41% in central-west Europe.

REGULATION OF THE ARENH, GAS STORAGE, CAPACITY MECHANISMS: THE CRE ACTS AND STRUCTURES

In France, the CRE has increased its competence, exceeding European requirements, by implementing the *ex ante* regulation of nuclear production with the regulated access to incumbent nuclear energy (Arenh), the regulation of gas storage and the supervision of capacity mechanisms. On the French market on 31 December 2019, 68% of electricity consumption was supplied under open market contracts, including 38% with alternative suppliers. For gas, 91% of consumption and 66% of sites have open market contracts, including 34% with alternative suppliers.

MAKING EUROPE THE FIRST CLIMATE-NEUTRAL COUNTRY BY 2050

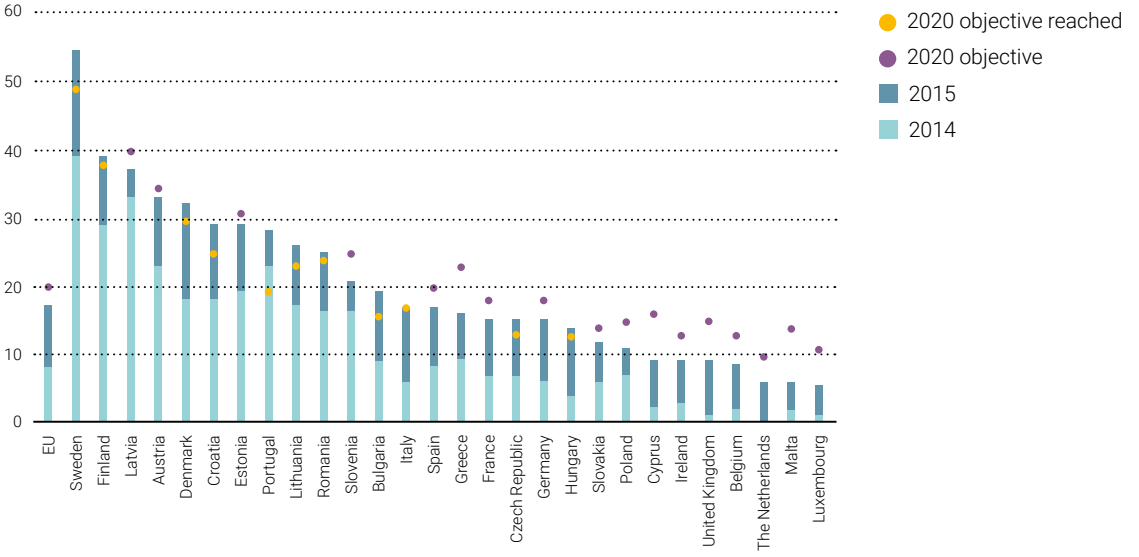
On 11 December 2019, the Commission presented a Green Deal for Europe that formulated the ambition to make Europe the first climate-neutral continent by 2050. It proposes a decrease of 50 to 55% of greenhouse gas emissions by 2030 and reduction measures in all sectors emitting GHG (energy, industry, mobility, agriculture and trade). Existing or future financial instruments (fair transition funds, European investment bank, multi-annual financial framework) will by mobilised to support this transition.
To nourish these upcoming measures, share its 20-year experience in regulation and contribute to inventing the European energy system of tomorrow, the CRE has drafted 10 position statements on the future of European regulation.

→ Consult the European legislative framework

→ Consult the European Green Deal: the CRE's contribution to building tomorrow's world of energy

→ Watch the interviews of public stakeholders gathered during the "France in European energy" conference in February 2019

Portion of energy from renewable sources in the EU member states
(in percentage of gross final energy consumption – Source: Eurostat, 2018)



INTERVIEW

CHRISTIAN ZINGLERSEN, DIRECTOR OF ACER

Question 1: You took over as director of ACER last January. What are your first impressions and what are your priority projects?
My first impressions are strongly linked to the fact that I do not come from the world of regulation.
I was initially struck by the solid foundations the agency is based upon: ACER is a highly technical organisation with determined and dedicated professionals.
Secondly, our community of European regulators is more collegiate than it appears, and the joint feeling of belonging enables us to transcend the differences in points of view among the authorities or with the agency. Related to these first two impressions, I feel great respect for the work of the agency with regard to the many challenges it must face.
As for priority projects, I am determined to review the way the agency communicates with regulators but also with the stakeholders in the broadest sense, even non-experts, and to do so even if our resources are limited. Our mission, in this period that is both fascinating and difficult, obliges us to commit ourselves and to inform them further about what they are most interested in. I also want the agency to deploy its vast knowledge to support the "efforts of tomorrow".
The agency must play a prospective role, alongside the regulators, by identifying the opportunities and future challenges to provide decision-makers with the proper elements for reflection. Indeed, the sector is undergoing major changes that are the result of new policy objectives and technological evolution.
Not all of yesterday's solutions are applicable to the challenges of tomorrow. ACER must strike a balance. Firstly, on the level of resources: we must be cautious and avoid dedicating resources to the challenges of tomorrow that will prevent us from meeting those of today. We must also be careful not to overstep our mandate. Advocacy is not our role, nor should we stray into political domains that go beyond our regulatory field of competence.

Question 2: At the time of energy transition and the Green Deal, how do you perceive ACER's role?
Firstly, the purpose of the agency is to contribute, from a regulatory point of view, to the objectives set at the highest political level in Europe in terms of energy and decarbonisation, such as the recent European Green Deal.
In particular, the reinforcement of cross-border and regional cooperation promotes energy transition at a lower cost. Cooperation enables us to "get our money's worth" and ACER is the guarantor of this.
We must, of course, strike a balance between pan-European approaches and local flexibility, between a market framework and government planning. Regardless of our position on these questions, one element commands our consensus: European energy supply must remain safe and affordable for private citizens and industry alike. In this respect, the proper functioning of integrated and reliable European markets is essential. Contributing to this mission, within the framework of the Green Deal, is ACER's raison d'être.

Question 3: How can the European regulators, including the CRE, help you?
The regulators have always formed the backbone of the agency and promoting their cooperation lies at the heart of my mission.
By working in close collaboration, we ensure that the integration of the markets and the implementation of national legislation align with the energy policy and EU regulations. A strong community of regulators sharing a common approach and mutual respect: those are the assets that I am determined to preserve.
The CRE, in particular, has largely contributed to the work of ACER, notably by playing an active role within the working groups that prepare and inform the council of regulators for the main decisions to be taken. The CRE is a powerful regulator in Europe! I have a very concrete suggestion: that more national experts from the CRE join us in our premises in Ljubljana [Slovenia] to work with us. A call for applications is currently open!

OPENING UP THE MARKETS

The opening up of competition on the energy markets has triggered a real dynamic, which is more pronounced for gas than electricity.
Within the framework of its mission of market surveillance, the CRE ensures consumer protection.

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IN THE BEGINNING, CRE STARTED FROM A BLANK PAGE

to formulate equitable and transparent rules – legal, economic, technical – in order to initiate and make progress with the opening of markets that were historically subject to monopolies.
With the various European directives and French laws, the missions of the CRE concerning the energy markets have expanded. In particular, with the surveillance of retail and wholesale markets, it is the guarantor of their proper functioning and evolution.
Its quarterly observatories and annual market surveillance reports take stock of the pace of their opening and indicate the obstacles that slow their evolution.
The NOME law of 7 December 2010 entrusted the CRE with the responsibility of building regulated electricity tariffs. The government published its tariff legislation based on the CRE's proposals. As for gas, it is also at the heart of the mechanism because it analyses the supply costs of the incumbent suppliers integrated into the method of calculating tariffs.

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GAS AND ELECTRICITY: DIFFERENT CONTEXTS AND PACE FOR OPENING THE MARKETS

Nearly three quarters of French electricity production is supplied by EDF nuclear power plants, a unique situation in the world.

HIGHLY CONCENTRATED ELECTRICITY PRODUCTION

Amortised to a large extent, the EDF's nuclear plants contribute to ensuring the country's energy independence at a competitive cost of production in spite of the heavy costs of initial investment. With no CO_2 emissions, it thus participates in the success of an economically sustainable energy transition towards a carbon-neutral system.

The multi-annual energy programme (PPE) sets a roadmap for the reduction to 50% of the share of nuclear energy in France by 2035 through the closing of 14 reactors after 50 years of service, except two to be closed in anticipation in 2027-2028.

In the long term, this roadmap leads the way to a production mix that is more integrated into the market, with a larger part of production ensured by installations developed according to competitive processes.

GAS: CONDITIONS THAT ARE MORE FAVOURABLE TO THE OPENING OF MARKETS

Since the retail markets opened to competition for small consumers on 1 July 2007, the dynamics of the natural gas market have been more intense than for electricity.

A structural difference distinguishes gas suppliers from those of electricity: the electricity consumed in France is for the most part produced nationally, notably due to the impossibility to store or import sufficient volumes, and with a largely dominant producer, whereas natural gas supply depends entirely on imports. Highly competitive, the world gas market contributes to facilitating the access of alternative suppliers (AS) to the retail market.

WHOLESALE MARKET: ORGANISATION IN STAGES

In Europe, the development of wholesale energy product exchanges has gone hand-in-hand with the liberalisation, financialisation and coupling of the markets among nations. This triple movement has provided the market with liquidity, favouring transactions at the most competitive prices possible.

THE END OF THE INTEGRATED MODEL

Begun in France in 1999, the opening of the wholesale energy market to competition has favoured the evolution of the integrated model of the energy sector that was until then almost entirely operated by the public monopolies of EDF and GDF-Suez, which produced, transported, distributed and supplied electricity or gas to their customers. The need to exchange energy with other players was therefore very weak. Exchanges with foreign energy monopolies existed, but via bilateral agreements and poorly developed interconnection infrastructures.
The liberalisation of the markets led to the separation of their activities of energy production, transmission, distribution and supply, and the creation of a new energy system in which new suppliers and producers could compete with the incumbent players. Suppliers, which do not necessarily possess production assets, play an intermediary role between producers and end customers.

THE CREATION OF ENERGY EXCHANGES

The creation of energy exchanges has facilitated exchanges between players, ensuring the development of wholesale prices that are transparent, public, and the result of the balance between supply and demand. Over-the-counter transactions, whether bilateral or via a broker, remain an alternative to energy exchanges: they provide players with flexibility to freely determine the terms of a contract in price and volume.

The history of energy exchanges in France began in 2001 with the creation of the Powernext electricity exchange operating on the Day-ahead market. Wholesale electricity prices became a strong and structuring indicator for the creation of other necessary mechanisms for the proper functioning of the markets.
In June 2004, the launch of Powernext futures enabled market players to cover themselves with futures contracts to face short-term risks. The financial players that sought to diversify their portfolios turned towards this market by generalising derivative products (financial contracts whose values fluctuate according to the underlying wholesale price of energy products. The markets financialised, bringing liquidity and openings for producers and suppliers as well as for the largest industrial consumers.

THE COUPLING OF EUROPEAN MARKETS

The coupling of European markets developed and improved the confrontation between supply and demand. Launched in 2006, the coupling of the French markets with Belgium and the Netherlands later extended to Luxembourg and Germany. In 2008, this movement led to the creation of Epex Spot, the European electricity exchange that took over the management of short-term exchanges.
From then, Powernext reoriented its activity in 2008 towards a gas market marked by strong growth in the number of operators in France. The two exchange platforms thus created – one for spot products, the other for futures – were the basis for the organisation of the pan-European PEGAS platform for gas trade. Owned by the German wholesale market operator of the European Energy Exchange (EEX), it is run by Powernext. In January 2020, EEX absorbed Powernext, maintaining its office in Paris.

WHOLESALE MARKET SURVEILLANCE BY THE CRE

Since 2006, the CRE has monitored the wholesale electricity and natural gas markets in France. It publishes an annual report on the functioning of these markets and quarterly observations. In case of suspicion of market abuse, it exercises its powers of inquiry and sanction.

THREE INQUIRIES IN PROGRESS AT THE END OF MARCH 2020

The chairman of the CRE can name an investigator in case of suspicion of a breach of the REMIT regulation of 25 October 2011 concerning the integrity and transparency of the wholesale energy market. The inquiry may, if necessary, lead to referral to the Dispute Settlement and Sanctions Committee (CoRDiS) by the chairman of the CRE.

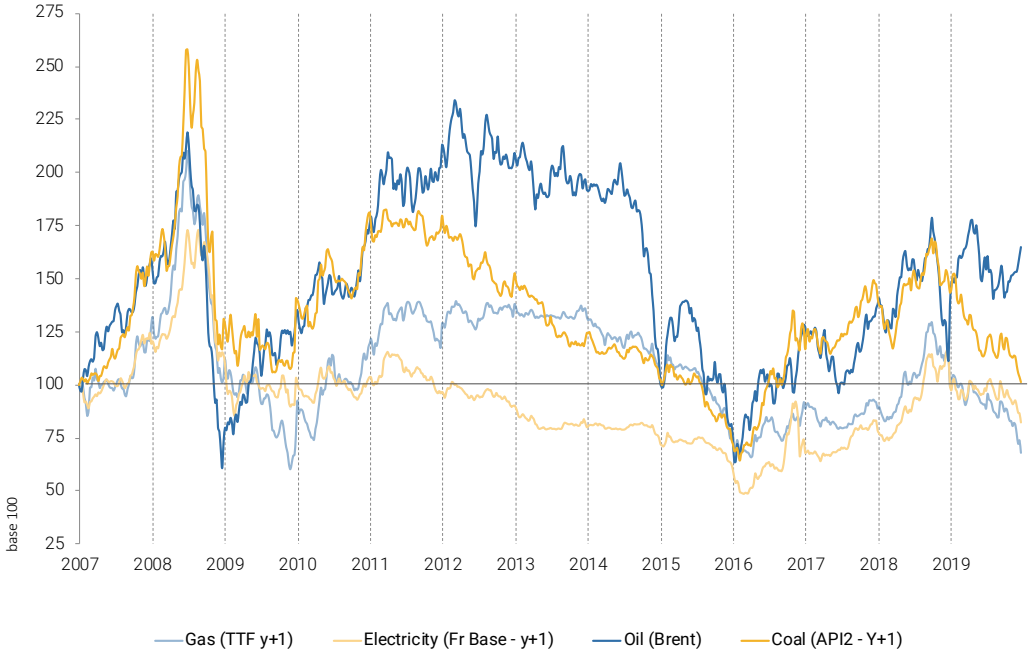
At the end of March 2020, two inquiries were in progress for the wholesale electricity market and one for the natural gas market.
Four enquiries have led to referral to the CoRDiS, in 2016, 2018, 2019 and 2020, respectively. Two of these led to sanctions being taken.

SECOND SANCTION BY THE CORDIS

After a fist sanction in 2018 against Vitol, the CoRDiS pronounced a second sanction on 19 December 2019: this concerned BP Gas Marketing Limited (BPGM) for €1 million for wholesale gas market manipulations at the PEG Sud gas exchange point in breach of article 5 of the REMIT.

Evolution of the prices of raw materials 2007-2019

(Source: Refinitiv)



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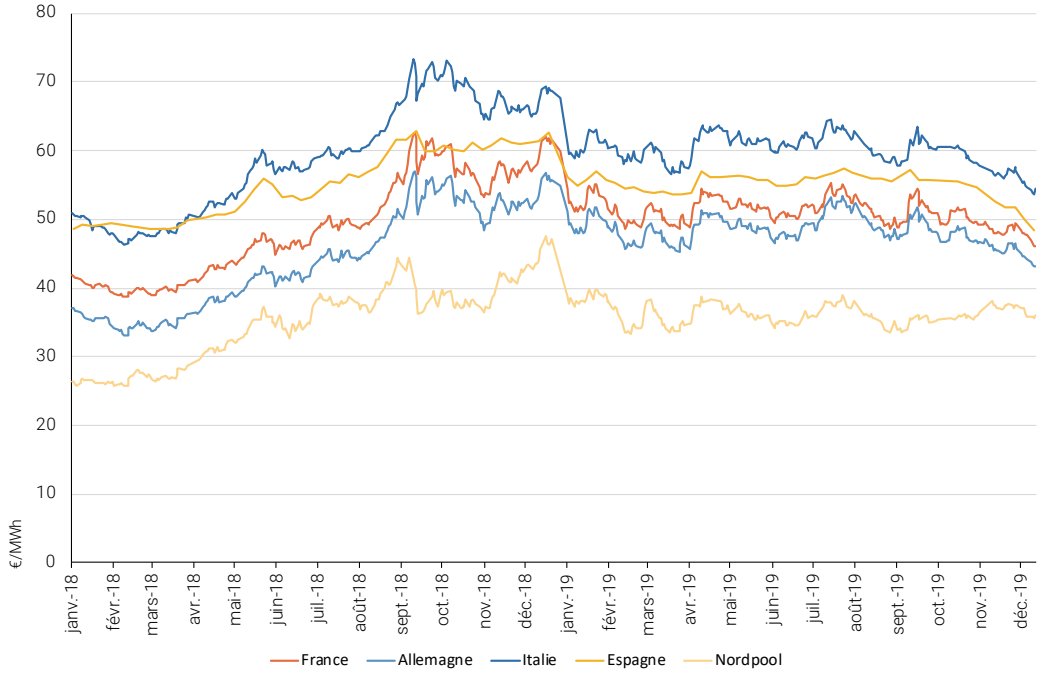
EXCHANGES FOR PROGRESS

To maintain the transparency and integrity of the wholesale markets, the timely and effective publication of privileged information is essential. For this reason, the CRE works notably with major electricity producers to better understand the chains of circulation and publication of this information and to explore potential paths for improvement.

The CRE also strives to reinforce its cooperation with the persons professionally arranging transactions (PPAT) on the wholesale energy market: under article 15 of the REMIT regulation, these persons must organise a surveillance system and notify the regulator of any suspicious activity on their markets.

Evolution of one-year calendar prices in Europe
(Source: EPD, ICE Endex, Heren)



WHOLESALE MARKETS IN 2019

The reflection of national particularities, wholesale prices are, with the development of interconnections and market coupling, exposed to the European and international economic situation. This characteristic can be found in the cyclical nature of their evolution over a long period. In the historical perspective of the last twelve months, the level of prices observed in 2019 remains within the average.

PROGRESSIVE DECREASE IN ELECTRICITY PRICES

In France, spot prices (short term) on the wholesale electricity market have decreased by an average of 21% compared with 2018. As in 2018, gas power plants were highly solicited in 2019, a year marked by the low availability of nuclear plants and the low levels of hydroelectric dams. Since the end of 2018, the decrease in the price of gas has been transposed to electricity spot prices, which have also followed a downward trend.
As for long-term prices (for delivery the following year), after strong growth in 2018, they started the year at a high level (around €54.4/MWh in early 2019 for delivery in 2020), then progressively decreased to end the year at around €44/MWh. Also observed in other European countries, this evolution is principally the result of repercussions in the prices of coal and gas in the wake of worldwide economic slowdown.

SHARP DECREASE IN GAS PRICES

In both France and Europe, spot prices for gas (short term) on the wholesale markets decreased by nearly 41% over the year, compared with 2018. In this context of a generalised price decrease for raw materials and geopolitical tension, especially between the USA and China, the abundant worldwide supply of liquid natural gas (LNG) caused prices to drop as far as €7.88/MWh in September 2019, the minimum annual level.
Long-term prices (delivery the following year) decreased throughout 2019, going from €20.5/MWh in January to €16.4/MWh in December.

HISTORIC PEAK OF CO_2 QUOTA PRICES

The continuation of the price increase of CO_2 in 2019 mainly resulted in the anticipation of the implementation of the market stability reserve limiting the number of emission permits in circulation as well as uncertainty about Brexit. Prices stabilised around €24/t with some strong volatility, including a historic peak of €29.95/t on 24 July.

→ Consult the 2019 surveillance report
→ Consult the surveillance report on the functioning of the wholesale electricity and natural gas markets in 2018

THE PRICES OF ELECTRICITY

Spot
39.4 €/MWh
on average in 2019

Future (Y + 1)
50.9 €/MWh
on average in 2019

Futures price (Y+1) start of year
53 €/MWh
on average start of 2019

Futures price (Y+1) end of year
46.4 €/MWh
on average end of 2019

Number of transactions: 942,000
Number of TWh: 1639

THE PRICES OF GAS

Spot
13.6 €/MWh
on average in 2019

Future (Y + 1)
18.1 €/MWh
on average in 2019

Futures price (Y+1) start of year
20.6 €/MWh
on average start of 2019

Futures price (Y+1) end of year
14.4 €/MWh
on average end of 2019

Number of euros: €57 m
Number of requests for information: 29

RETAIL ELECTRICITY MARKET: INTENSIFICATION OF THE OPENING SINCE 2012

Supported by regulated access to incumbent nuclear energy ("accès régulé à l'électricité nucléaire historique" or Arenh) and the construction of regulated tariffs for the sale of electricity ("tarifs réglementés de vente d'électricité" or TRVE) by cost stacking, the slow opening of the retail electricity market grew from 2012. This dynamic has accelerated since 2015 with the decrease in wholesale prices and the end of regulated tariffs for the sale of electricity for major consumers.

THE ARENH AND COST STACKING

Provided for by the NOME law of 2010, the Arenh has enabled, since 1 July 2011, alternative suppliers (AS) to source base electricity under economic conditions that are equivalent to those of the incumbent operator, EDF, promoting the development of competition on the retail market.
These sourcing conditions have been taken into account since 2014 in the regulated tariffs elaborated by "stacking" in such a way as to correctly reflect supply costs, as well as in EDF's market offers for reasons of the right to competition. These two elements ensure that alternative suppliers can build competitive offers for all segments of the clientele.
The CRE sets regulated tariffs for the sale of electricity through the addition of four components: the cost of supply in energy and capacity, the cost of delivery (TURPE), the cost of commercialisation, and the remuneration for supplying energy to customers.

THE END OF REGULATED ELECTRICITY TARIFFS FOR MEDIUM AND LARGE COMPANIES

The end of regulated tariffs for the sale of electricity on 1 January 2016 for consumer subscriptions over 36 kVa gave alternative suppliers the opportunity to win new customers in the non-residential segment.
The Energy-Climate law of 8 November 2019 put an end to regulated tariffs for professional customers with over 10 employees or whose turnover exceeds €2 million, no later than 1 January 2021.

FOCUS

THE CHANGE TO OPEN MARKET CONTRACTS: NEW STEPS WITH THE ENERGY-CLIMATE LAW

The Energy-Climate law of 8 November 2019 modified the categories of consumers eligible for regulated tariffs for the sale (TRV) of gas and electricity.

For natural gas
Regulated tariffs will disappear on 1 December 2020 for non-domestic end consumers consuming less than 30 MWh/year and on 1 July 2023 for domestic end consumers consuming less than 30 MWh/year, the single owners of residential buildings consuming less than 150 MWh/year and the joint ownership syndicates of this type of building.

For electricity
Professional consumers with over 10 employees or whose turnover, revenue or balance sheet total exceed €2 million per year will no longer benefit from regulated tariffs after 1 January 2021.
The guarantor of the smooth operation of the electricity and natural gas markets, the CRE accompanies these changes by ensuring that consumers are properly informed. In particular, it has created a dedicated working group to enable the various players to exchange views and obtain information.

→ View the video and guide for professionals

THE NATURAL GAS RETAIL MARKET: A MORE PRONOUNCED DEVELOPMENT OF COMPETITION

In the early 2010s, a substantial part of Engie's gas supply came from long-term contracts indexed on the price of oil, which, some years, proved to be more costly than the natural gas available on the market. This situation led to a strong development of the market share of alternative suppliers, especially those at the high end of the portfolio.

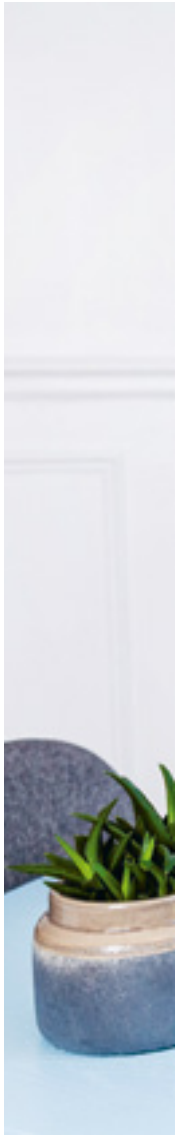
TOWARDS THE END OF TRVG FOR ALL

The formula for the indexation of regulated tariffs for the sale of gas (TRVG) was progressively reviewed. Today, it is based uniquely on gas market prices, which ensures its contestability.

Beyond the evolution of the indexation formula for regulated tariffs, the retail gas market is marked by the regular progression of open market contracts and the reduction of the part of regulated tariffs. This led the legislator to programme the progressive end of regulated tariffs for the various segments of the customer base, which stipulates that consumers who have not already done so must switch to open market contracts.

For large and medium companies, the removal of regulated tariffs took place in three stages: on 19 June 2014 for consumers connected to the transmission grid, 31 December 2014 for non-domestic consumers consuming over 200 MWh/year of gas, and 31 December 2015 for non-domestic consumers that consume over 30 MWh/year of gas and for residential buildings consuming over 150 MWh/year.

The Energy-Climate law provides for the end of regulated tariffs for all consumers and has introduced two new deadlines: 1 December 2020 for non-domestic end customers that consume less than 30 MWH/year and 30 June 2023 for domestic end consumers and the owners of buildings that consume less than 150 MWh/year.



NUMBER OF RESIDENTIAL SITES AND VOLUME OF CONSUMPTION

ELECTRICITY

33

million sites, 151.9 TWh (i.e. 35% of total consumption in France)

GAS

10.7

million sites, 120 TWh (i.e. 26% of total consumption in France)

NUMBER OF RESIDENTIAL SITES WITH OPEN MARKET CONTRACTS AND WITH AN ALTERNATIVE SUPPLIER

ELECTRICITY

9 159 000

sites, including 8,489,000 with an alternative supplier (i.e. 38.7 TWh vs 3.2 TWh supplied under open market contracts with incumbent suppliers)

GAS

6 903 000

sites, including 3,559,000 with an alternative supplier (i.e. 37.3 TWh vs 39.9 TWh supplied under open market contracts with incumbent suppliers)

3 QUESTIONS FOR

MATHILDE LAVOINE,
PROJECT MANAGER AT THE CRE RETAIL MARKETS DEPARTMENT

What are the consequences of the removal of regulated sales tariffs for the consumers concerned?
The consumers concerned by the end of regulated tariffs, especially small professional consumers for the upcoming deadlines, have several months in which to choose the offer that is best adapted to their needs and consumer profile. It provides them with the occasion to study their consumption and to take advantage of the competition between energy suppliers, which can lead to a decrease in their annual bills.

What steps do consumers have to take?
They can now subscribe to an open market contract with the supplier of their choice. To learn about the offers, compare them and choose the one that is best adapted to their needs, they can use the comparison tool that is accessible on the website of the national energy ombudsman (médiateur national de l'énergie –MNE) at www.energie-info.fr/Pro. The starting date for the offer is agreed with the new supplier, which will perform all the formalities free of charge. Note that consumers must not cancel their current contract themselves. Changing supplier does not entail any interruption of the power supply.

What does the CRE do?
The CRE and the MNE inform the consumers concerned of the removal of their tariffs and have created a working group to inform the stakeholders. In particular, the group is working on the development of a pedagogical information guide.
Written for professional consumers and, in a second phase, private consumers, this guide is designed to be distributed to associations, public authorities, etc. Moreover, the CRE has placed pages of information on its dedicated website along with a short pedagogical video.

Monitoring consumption in an Enedis customer space on a portable computer after the installation of a Linky networked meter in Paris.
© Enedis / Allavoine Louise

RETAIL MARKETS: A DYNAMIC SUPPORTED BY COMMERCIAL AND TECHNOLOGICAL INNOVATION

The quality and innovation of the offers are also levers to stimulate competition and convince customers. Beyond competition over energy supply (around one third of the bill for residential consumers), new technologies and digitisation have been relays of growth for the retail market.

COMMERCIAL INITIATIVES OF THE AS

The development of competition on the retail gas and electricity markets also leads to better understanding by consumers of their right to choose their supplier. In 2017, 50% of consumers knew they could change suppliers. In 2019, this rose to 87%, according to the 13th yearly energy-info survey published by the national energy ombudsman. This progress is partially due to the multiplication of communication campaigns carried out by the AS (alternative suppliers) and consumers' associations, and to the deployment of grouped purchasing campaigns.

OFFERS TO MONITOR AND CONTROL CONSUMPTION

With the massive deployment of advanced meters (Linky for electricity and Gazpar for gas), energy suppliers have developed offers that are adapted to their customers' needs. These can now precisely adapt their level of subscription, closely monitor their consumption or power several usages simultaneously: electric vehicle recharge, heating, air conditioning, etc. Other offers are based on the development of applications and sensors that follow energy consumption, practically in real time. Depending on their consumption habits, customers can opt for offers that are related, for example, to the transfer of their consumption to the weekend or to manage their flexible usages.
100% online offers and digital customer paths are becoming more general, thus simplifying consumer access to the services offered by suppliers.
In addition, there are green offers and fixed-price offers which, meeting the need for stability, visibility and the participation of consumers in the energy transition, are important assets for the opening of retail markets.

→ Consult the Retail Market Observatory for the 4th quarter 2019

→ Consult the report on the "Overview of retail electricity and natural gas markets in 2017"

FOCUS

TOOLS TO UNDERSTAND EVERYTHING ABOUT THE FUNCTIONING OF RETAIL MARKETS

The CRE participates in the proper functioning of the electricity and natural gas markets for the benefit of end consumers. Since 2009, it has measured the development of competition via indicators that are published in its quarterly observatories. It also publishes a yearly report on the operation of the retail markets, with an overview of competitive dynamics, including the market shares of suppliers, sales flows and the various types of offers proposed to and subscribed by consumers.
Moreover, every two years it carries out a consultation campaign with the players of the retail market to gather their views and suggestions. During the interviews in 2019, it identified several important issues: green offers, the development of digital intermediation (comparison tools for offers and business providers), and provisions concerning regulated tariffs provided for by the Energy-Climate law.

Field Conditions Performance Lab (LPCT) at Linky Lab, laboratory for the qualification of Linky equipment, Nanterre.

THE EVOLUTION OF TARIFFS

In its deliberation of 7 February 2019, the CRE proposed an increase in the regulated tariff for the sale of electricity of +7.7% excluding tax (5.9% incl. tax), which is the result of three factors. First, the sharp increase of market prices in 2018, the impact of which was nonetheless limited by the choice of the CRE to smooth supplies over the 24 months preceding the year of delivery. Then, the breach of the Arenh ceiling in 2018 (132.98 TWh demanded for a legal ceiling of 100 TWh), which required the capping of the rights allocated to suppliers. The CRE considered that the volumes not supplied by the Arenh were supplied once the capping was known, i.e. in December 2018. Finally, very high prices in December 2018 amplified the effects of the breach of the Arenh ceiling.

This increase in regulated electricity tariffs was applied on 1 June 2019 by decision of the government, which led to a cost-coverage shortfall in 2019. The CRE proposed to recover this over two years in its deliberation of 16 January 2020 (+3.1% excl. tax, i.e. +2.4% incl. tax, of which +1.5% incl. tax for recovery purposes). On this occasion, the CRE considered that the Arenh system was no longer adapted and would have to evolve.

Finally, on 25 June 2019 the CRE proposed to modify the regulated electricity tariffs to take account of the modifications of transmission tariffs (+1.5% excl. tax, i.e. +1.2% incl. tax). This became effective on 1 August 2019 by government decision.

VALIDATION OF THE CRE TARIFF METHODOLOGY BY THE STATE COUNCIL

The major principles of the construction of regulated tariffs for the sale of electricity were validated by two decisions taken by the State Council on 6 November 2019.

In its first decision, the State Council validated the CRE's methodology for the construction of various cost elements for regulated electricity tariffs and rejected the recourse of Engie and the National Association of Retail Energy Operators (Association nationale des opérateurs détaillants en énergie – Anode) against the TRVE applicable from 1 August 2018 to residential consumers in continental France.

In its second decision, the State Council rejected the recourse filed by the UFC-Que Choisir and Consommation logement et cadre de vie (CLCV) associations against the decision that set the regulated tariffs for the sale of electricity applicable from 1 June 2019. The judge validated the CRE's method of taking into account the exceedance of the maximum global volume of incumbent nuclear electricity likely to be transferred by EDF (the Arenh ceiling).

→ Consult the press release "Regulated tariff for the sale of electricity: The main principles of tariff construction validated by the State Council"

INVOICE BREAKDOWN

ELECTRICITY

1 463 € INCL. TAX/YEAR

for a 9 kVA customer living in Paris and consuming 8500 kWh, with 54% peak hours and 46% off-peak hours)

- TAXATION **36 %** — VAT: €225, TICGN: €81, CTA: €28, CSPE: €192
- ENERGY SUPPLY **38 %** — €557
- DELIVERY **26 %** — €380 (TURPE, transmission and distribution)

GAS

1207 € INCL. TAX/YEAR

for a B1 tariff customer living in Paris and consuming 17 MWh (for heating purposes)

- TAXATION **29 %** — VAT: €173, TICGN: €144, CTA: €34
- ENERGY SUPPLY **36 %** — €433
- DELIVERY **35 %** — Distribution: €285, transmission: €90, storage: €48

MARC BENAYOUN
EXECUTIVE DIRECTOR OF GROUPE EDF, IN CHARGE OF THE CUSTOMER, SERVICES AND TERRITORIES DIVISION

NAIMA IDIR
CHAIRMAN OF THE NATIONAL ASSOCIATION OF RETAIL ENERGY OPERATORS (ANODE)

Twenty years on, how do you assess the opening of the gas and electricity markets?
MB The free choice of supplier and the linking of offers to a wholesale electricity market enabling the establishment of a price up to three years forward have certainly benefited business market consumers: industrial customers or large tertiary sector customers.
The performance and sophistication of the suppliers' offers have increased.
However, many small customers, residential customers or small businesses, complain of the complexity of the market structure: on one hand, the difference between suppliers and distributors, and on the other hand, between suppliers (for example, EDF and Engie), are poorly understood. This situation can be fertile ground for the multiplication of intermediaries and for the development of telephone or door-to-door selling, certain forms of which are clearly abusive.

NI We still have far to go in the electricity sector! The opening of markets must face unfathomable contrary forces, as is demonstrated by the confusion that is permanently maintained by EDF between its monopoly activities (nuclear production, regulated sales tariffs and electricity distribution) and its activity as a supplier on the competitive market.
The opening of markets is nevertheless an important step in the transformation of the French energy sector, which needs all initiatives in terms of innovation and investment to meet the challenge of the energy transition and to prepare the world of tomorrow.

What will be the impact of the provisions of the Energy-Climate law with respect to regulated tariffs?
MB The end of regulated gas tariffs will certainly increase the number of suppliers on the natural gas market, and several of them will reach critical size.
As for the electricity market, the end of regulated sales tariffs for small professionals, excluding micro-enterprises, will certainly increase the sometimes aggressive commercial prospecting on the part of EDF's competitors. Finally, the obligations concerning consumer information about the possibility to leave regulated tariffs, with the indication of a price comparison tool, could bring a number of customers to challenge their supplier. EDF should not be penalised in this context.
For this reason, we highlight that price should not be the only criteria of choice. It is clear that suppliers do not all offer the same level of service.

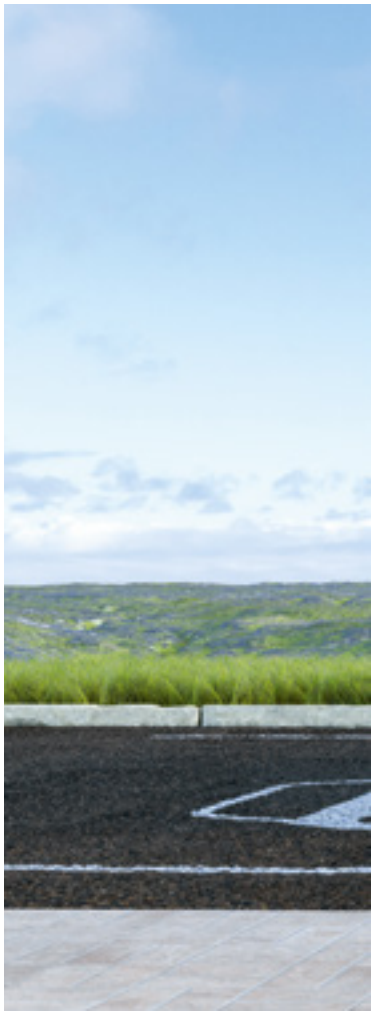
NI The end of regulated tariffs will enable those consumers concerned to freely choose their supplier and the offer that best meets their needs. It is an opportunity that must be taken in order to study all the possibilities and to remove the obstacles to making their choice, such as the lack of information or the limited access to consumption data for alternative suppliers. Anticipating this change will avoid consumers subscribing to an undesired offer by default. Consumers must not remain captive to a monopolistic heritage that hampers the development of innovative offers (green offers, fixed-price multi-annual offers) or new services (self-consumption, controlled consumption). The end of regulated tariffs will oblige the entire market to reinvent itself and innovate for the benefit of consumers.

How do you perceive the CRE's role in supporting this opening?
MB The CRE plays an absolutely essential role with regard to setting prices (regulated sales tariffs, TURPE) and also plays a key role for the surveillance of the market and commercial practices. In addition, the national energy ombudsman provides customers with the elements of factual comparison on the levels of service, notably the number of complaints and the quality of their treatment by the suppliers.

NI The CRE must be the independent and transparent reference for the opening to competition in order to ensure that no obstacles hamper the appearance of the French competitive energy market. It is their mission to guarantee that the rules are respected by all players. They must place themselves above any partisan ideology for all their decisions. Moreover, the CRE is now an essential pedagogical vector for the end consumer, who struggles to find clear and neutral information. Despite limited means, this informative role must be reinforced in the context of the end of regulated tariffs.

ADAPTING ELECTRICITY GRIDS TO ENERGY TRANSITION

The vertical model of electricity transmission and distribution is evolving to better integrate intermittent renewable productions distributed throughout the territory and in majority connected to distribution networks.
Meeting the challenges of energy transition implies developing and reinforcing grid infrastructures. Their operators must nevertheless optimise their investment decisions in order to control the associated costs, which are borne by the users of the grids. When pertinent, the CRE expects them to exploit user flexibility, of both consumers and producers. The CRE provides support to grid operators in these developments, in particular in the context of the examination of their investment projects.



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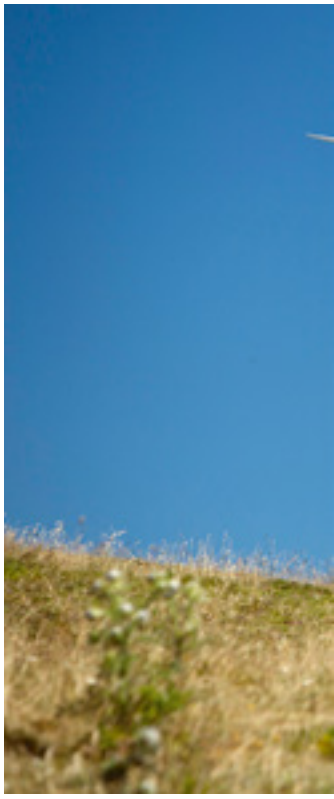
FROM ITS CREATION, THE CRE PUBLISHED ITS FIRST DELIBERATION
concerning the government's tariff proposal for the use of public electricity networks, called TURPE 1. This competence was enhanced in 2011, because it now sets these tariffs. In 2019, it took on the task of the new generation of tariffs for gas transmission, distribution and storage.
On the strength of this competence in tariffs, the CRE examines the decisions concerning investment and the choices of system operators, with particular attention to the respect of the equilibrium between the quality of service and long-term sustainability of delivery invoicing. It approves the annual investment programmes of the RTE and, more generally, provides support to the operators for their adaptation towards energy transition (advanced meterage, self-consumption, electric vehicles, storage, etc.).
In 2019, it published its roadmap for electricity storage, which followed its 2018 reports on self-consumption and electric mobility.
The CRE also verifies that grid operators guarantee non-discriminatory access to their infrastructures and publishes a biennial report on their independence and respect of the code of good conduct.
The latest edition of this report was published in 2019.



THE IMPACT OF THE TRANSFORMATION OF THE ENERGY LANDSCAPE

Historically speaking, electricity has mainly flowed downstream from centralised production plants based on nuclear, hydraulic or fossil fuel energy, and connected via high voltage to the centres of consumption, which are in majority connected to distribution grids.
Boosted by the continuing rise in consumption over several decades, these almost uni-directional flows have never ceased to increase. Due to this, network infrastructures were initially sized to carry the anticipated demand throughout their life cycle. If there was any uncertainty about their sizing, it above all concerned the predicted rate of growth in demand.

A NEW LOGIC FOR GRIDS

The rise of renewable energy production has toppled this logic. Meeting a stable demand for electricity, with a growing portion of decentralised sources of production, implies using sources that are unequally distributed throughout France and the European synchronous grid. The logic behind grid infrastructure sizing is also disrupted by the variable and not easily predictable character of renewable production, which is intermittent by nature.
More than ever at the heart of the equilibrium between supply and demand, networks are adapting their operation to this new logic to collect, distribute and transport electricity as well as to guarantee the security of the electricity system.

THE DEPLOYMENT OF DECENTRALISED RENEWABLE PRODUCTION

Today, a growing part of the electricity consumed in France is produced by decentralised renewable sources.
According to the Overview of renewable electricity, wind and solar energy production facilities, which are for the most part connected to the distribution grids, respectively increased by 9% and 10.4% in 2019, reaching 16.5 GW and 9.4 GW of installed power. All sectors combined[1], renewable energy production facilities reached 53.6 GW on 31 December 2019.
This upward trend will continue: the multi-annual energy programme (PPE), published for consultation on 20 January 2020, incorporates a target capacity of 24.1 GW in 2023, then between 33.2 and 34.7 GW in 2028 for onshore wind energy, and, for the photovoltaic sector, a target capacity of 20.1 GW in 2023 and then between 35.1 and 44.0 GW in 2028.

THE CRE'S SUPPORT

The CRE supports these evolutions towards energy transition. In particular, it supervised the deployment of Enedis's advanced Linky meters and established a specific incentive regulation in order to ensure its effectiveness. This regulation was reinforced in 2019 to take into account the good performance by Enedis at the beginning of the deployment and to demand an ever growing

Wind turbine near Ally, in Haute-Loire. © Enedis / Chevreau François

quality of service in response to the legitimate expectations of consumers. The total number of Linky meters installed at the end of 2019 reached 23.1 million. These meters simplify reading, open up new possibilities for pricing and are able to make consumers active stakeholders in the electricity system.
Moreover, in addition to its regular discussions with operators to ensure the progress of their work, the CRE formulated recommendations to network operators in its roadmap concerning smart grids (2017) and electricity storage (2019), and has produced two discussion papers on self-consumption (2018) and electric vehicles (2019).

[1] The wind turbine sector and the solar sector contributed to 96% of the growth of renewable electric energy in the last quarter of 2019. With nearly 25.6 GW installed, the hydraulic sector remains stable. Bioenergy-based electricity production exceeds 2.1 GW.

FOCUS

THE REGIONS: A REINFORCED ROLE THROUGH ENERGY DECENTRALISATION

Co-chaired by Frédéric Gonand, professor of economy at Paris-Dauphine University, and Bernard Boucault, honorary regional prefect, the No. 2 working group of the foresight committee released its findings in October 2019. It provided the occasion to highlight the new local dynamics of the French electricity system.
Closely associated with the growing dispersion of electricity production, energy transition reinforces the role of the regions in energy planning: ever more competent, they superimpose their orientations for regional development on national programmes.
The energy syndicates will also play an important role in the harmonisation of the different levels of planning and inter-regional energy solidarity.

The question of tariff equalisation
With the new dispersal of energy production, distribution networks are evolving towards networks of collection and delivery. Structuring choices will thus be unavoidable in the coming decade in order to take full stock of the regional aspect of energy transition. The flexibility of the network lies at the heart of technical thinking to provide support to the regions.
Although the decentralisation of energy objectives raises questions about tariff equalisation, the historical French model is nevertheless sufficiently flexible to adapt itself without challenging the solidarity of its electricity system, which is the guarantor of equality among the regions.

→ Consult the reports of the foresight committee

MORE COMPLEX MANAGEMENT

ENEDIS: SEVEN TIMES MORE LOW-VOLTAGE INSTALLATIONS CONNECTED IN TEN YEARS

Renewable production facilities (chiefly wind and solar) are distributed throughout the territory in the form of very numerous low-power units: at the end of 2019, over 5200 installations were connected to the medium-voltage grid (HVA) operated by Enedis, double that of 2010, for a total power of 24 GW. As for low voltage, fewer than 60,000 installations were connected to the grid operated by Enedis in 2010. In 2019, these had multiplied by seven: 436,000, for 4.4 GW of power.

DECREASE IN ENEDIS OFFTAKE ON THE TRANSMISSION GRID...

The direct consequence of the rise in production directly connected to the distribution grid, offtake from the transmission grid is stagnating or even decreasing. This is despite the slight growth in the electricity consumption of users with low-voltage connections due to the electrification of usages: heating and hot water, transport and the development of specific usages.
Thus, the level of injection from the French transmission system (Réseau de transport d'électricité – RTE) to the Enedis grid decreased by 1.1% in 2019 compared with 2018 (excluding climate and calendar effects).

... AND INCREASE IN BACKFLOW

The decentralisation of production also affects the transmission grid operated by RTE. Although local consumption is not sufficient to absorb production, the flows of electricity are fed back from the distribution grids to the transmission grids. This is the case during windy summer or inter-seasonal nights when consumption, at its lowest, is locally lower than wind turbine production.
In sharp increase, Enedis backflow towards RTE reached 16.6 TWh in 2019 (+29% compared with 2018), i.e. a quarter of the volume of decentralised production. A historic peak of 8.5 GW was reached in September 2019: in the future, more and more source stations could be sized according to the production to be evacuated rather than to the consumption to be transported downstream.

STRONG GROWTH IN INVESTMENT

These evolutions are not synonymous with lower needs for the sizing of transmission grids, on the contrary. The current situation in Germany, which is investing massively in transmission grids to connect the wind turbine production of the north to the centres of consumption in the south, is an example of this. Thus, the development of renewable energy and the decentralisation of the electricity system do not imply a lesser demand on the grids, but, on the contrary, give them increased importance to enable supply and demand to meet in total security for the electricity system.
Hence the rise in the provisional investment pathways of RTE and Enedis, which announced in 2019 that they planned to invest respectively €33 billion in the transmission grid and €69 billion in the distribution grid by 2035.

EXPECTED RISE IN TURPE

All things being equal otherwise, the impact of these investment pathways will lead to a rise in invoices for the tariff for the use of public electricity networks (TURPE) for all consumers.
According to the regulatory framework set by the CRE, the investment expenditure of system operators, which are amortised over several decades, must be covered by the TURPE. It is therefore essential for the CRE, which approves the annual investment programmes of transmission system operators, to ensure the effectiveness of the amounts thus committed over time. A major regulatory issue, the control of their volumes of investment by system operators is the object of constant dialogue with the CRE, notably via the work undertaken in 2020 for the upcoming tariffs for the transmission and distribution of electricity, named TURPE 6.

The 400,000-volt line linking Villarodin, near Modane, in Savoie, with Venaus, near Turin, Italy. It is one of the four strategic lines between France and Italy. © Seignette Lafontan

FOCUS

The variable and not easily predictable nature of flows on the transmission and distribution networks raises core questions concerning their sizing and operation that are treated in the Ten-year transmission network development plan (Schéma décennal de développement du réseau de transport – SDDR), published by the RTE at the end of 2019. The treatment of these subjects by the operators of distribution networks will gain visibility after the transposition into French law of article 32 of the European directive of 5 June 2019, i.e. before December 2020. It requires that distribution system operators submit to the regulatory authority a network development plan, which has been the subject of consultation. The CRE has initiated work with Enedis to ensure that they specify their methods for network planning and sizing prior to any approval of future distribution network development plans.

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CONNECTIONS: ALTERNATIVE OFFERS

The CRE facilitates the insertion of renewable energy, notably by proposing the adoption of new forms of connection.
The referential connection solution provided to producers by the distribution system operator is sized to enable renewable energy facilities to inject at any time their production at the maximum active power required during connection.
In practice, this often implies network reinforcement work, which can lead to significant costs for the producer, a delay in commissioning, or temporary injection limitations.
However, in reality, a renewable energy production site only injects maximum power to congested networks for a few hours per year. To solve this paradox, Enedis has tested offers of alternative connections for several years. Connection is made:

- either at a power that is lower than the demanded power , while enabling complementary injections or offtake during certain periods;
- or at a power that is equal to the demanded power, while limiting injections and offtake during certain periods.

The producer is offered both the referential connection offer and the alternative offer and chooses the one they find the most suitable.

FLEXIBILITY TO REDUCE ENVIRONMENTAL AND ECONOMIC COSTS

Using the flexibility of grid users, consumers and producers, can be a pertinent solution both to meet the challenges of energy transition by controlling the evolution of costs and to optimise the investment decisions of system operators.

A NEW APPROACH

It can indeed be economically more relevant to use the flexibility resources of a user to solve a constraint than to invest in the network according to historical practices. New for system operators, this approach implies a transfer of risk from network development to the operational phase: where previously the level of risk of congestion was treated when sizing the works, the operator is now exposed to it during the demand for flexibility.
Made necessary by the future rise in investments, the development of flexibility is made possible through technological evolutions (capacity and storage management solutions, smart meters, etc.) and through the digitisation of networks, which enables system operators to acquire finer knowledge of their grids and to better characterise the constraints.

→ Consult the discussion and proposal paper "Electricity storage in France"

PROJECTS EXPERIMENTED IN FRANCE

Resorting to solutions of flexibility is strongly encouraged by the European "Clean energy" package, notably for distribution system operators. Article 32 of the directive of 5 June 2019 is very explicit: "The Member States shall provide the necessary regulatory framework to allow and provide incentives to distribution system operators to procure flexibility services, including congestion management in their areas, in order to improve efficiencies in the operation and development of the distribution system."
The directive specifies the conditions for sourcing these flexibilities: the purchasing process must be market based, transparent and non-discriminatory.
In complement to the existing mechanisms of reserves and capacity, which aim to meet the needs for the balancing and security of supply and are encouraged by the CRE, the French system operators have initiated projects based on the use of various sources of flexibility to reduce network congestion.

SMART CONNECTION FOR DISTRIBUTION

Tested in production and consumption by Enedis since 2018, smart connection offers (offres de raccordement intelligentes – ORI) consist in identifying user flexibility during their

FOCUS

PROCEDURES TO STIMULATE COMPETITION BETWEEN RENEWABLE ENERGY PRODUCTION SITES FOR BETTER ECONOMIC EFFICIENCY OF PUBLIC SUPPORT

The procedures to stimulate competition are a lever for the development of renewable energy and cost control for public authorities.
In 2019, they enabled the CRE to propose a power of 3188 MWe for 1245 projects, shared among twelve calls for tenders/competitive dialogue and five sectors: photovoltaic solar, onshore and offshore wind, biomass and small hydraulic energy.
In 2019, after a lack of competition during calls for tenders for photovoltaic facilities for construction, the CRE recommended the application of a competition clause to stimulate competitive pressure, by eliminating 20% of the least well-noted projects if the power demanded was not reached. Objective: to incite project bearers to tender as close as possible to their costs.
This proposal was implemented by the public authorities.
In 2019, the CRE examined tenders for an offshore wind project in Dunkirk. Unique for renewable energy, the competitive dialogue procedure enables the definition of specifications with provisions that reduce the risks borne by the successful candidate without removing their responsibility.
The high level of competition between robust candidates led to the award of a record price of €44/MWh for the winning project, which could lead to net revenue for the public energy service, depending on the observed wholesale electricity price.

Electric vehicle recharging on the car park at the Enedis base in Marly (59).
© Enedis / De Bengy Raphaël

3 QUESTIONS FOR

BASILE NICOLSKY, PROJECT MANAGER FOR THE NETWORK DIRECTORATE OF THE CRE

Is the use of flexibilities new for system operators?
RTE already uses the management of conventional production plants within the framework of the adjustment mechanism: the objective of most of the calls is to balance supply and demand but some of them aim to resolve congestion, therefore to avoid investments to reinforce facilities at the highest levels of voltage. The CRE expects RTE and Enedis to enlarge their source of flexibility at various levels of voltage (clearance, renewable energy producers, storage, etc.) and to benefit from this to solve more constraints, which were hitherto resolved by systematic recourse to investment.

What is RTE doing to facilitate the mobilisation of sources of flexibility?
At the request of the CRE, in 2020 RTE will place on line a map of provisional congestions on the transmission network. At first, it will concern the Hauts-de-France region. It will provide visibility to those players that wish to promote their flexibility for the benefit of the network, whether they are already connected or not. It is now up to RTE to create the contractual framework necessary for the participation of these sources of flexibility.

What about using flexibilities to treat the constraints on the distribution network?
After a survey of interests on six sites, in 2020 Enedis will launch an experimental call for tenders for different cases of use: postponed investment, optimisation of costs associated with works scheduling and the management of incidents on the network.
These initial local flexibility contracts should be operational by winter 2020-21. Feedback from this will open the way to the next stages.

connection to the network and aim to resolve congestion problems on the facilities of those requesting connection. In return for the occasional limitations of production or consumption, costs and lead times for connection are reduced.
In its deliberation of 12 December 2019, the CRE integrated smart connection offers into the principles for the elaboration of the procedures for the treatment of requests for connection to public electricity distribution grids. Once placed in compliance with the referential technical documentation of Enedis, these offers can be initially proposed to production capacities.

→ Consult www.smartgrids-cre.fr
→ Consult the module to learn about Smart grids

CAPPING RENEWABLE PRODUCTION

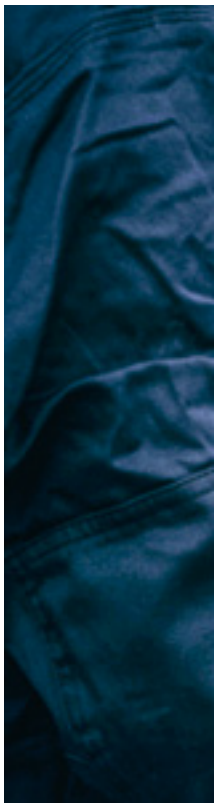
The second flexibility solution: capping the production of renewable connected facilities within the framework of the S3REnR, the regional schemas for the network connection of renewable energy. Capping avoids the need, in areas of high renewable production, to build network infrastructures that only prove useful for a few hours per year.
The first studies on the gains made by system operators in 2019 identified considerable provisional savings.

According to RTE, capping below 0.3% of renewable energy production on the HVB1 network could reduce infrastructure costs by around €7 billion over 15 years. For distribution, Enedis assesses at €250 million the net savings enabled by capping the producers connected in HVA, for a capping volume estimated at 0.06% of production. At the request of the CRE, these studies will be followed by trials in 2020.

→ Consult the report on Costs and profits of large photovoltaic facilities in continental France

USE OF LOCAL FLEXIBILITIES

In 2019, Enedis launched a trial for the use of local flexibilities. Within the framework of a dedicated consultation, Enedis published a survey of interest at the end of 2019 and in spring 2020 it will launch six local calls for tenders open to all types of flexible capacities, without discrimination. The use of local flexibilities could serve to respond to various cases of use: for example, postponed investment, optimisation of costs associated with works scheduling or the management of incidents on the network.
Based on feedback carried out by Enedis, the CRE will ensure that they adopt a sustainable and effective contractualisation model that enables a maximum number of players to promote their flexibility for the benefit of all users of the networks.



INTERVIEW

PHILIPPE BARBE, DEVELOPMENT MANAGER, NW JOULES

In your opinion, what can electricity storage offer networks in the context of energy transition? What evolution of this offer can be expected within the next ten years?
The PPE [multi-annual energy programme] predicts the doubling of renewable energy production by 2028. The growth of this intermittent and decentralised electricity production risks destabilising the networks. In this context, NW is convinced that electricity storage infrastructures have a primordial role to play at different levels. First of all, at the national level, they contribute to ensuring the permanent balance between electricity production and consumption, which has been strained by the growing insertion of intermittent energy into the networks. In this mission they replace classic thermal plants and thus participate in the reduction of GHG emissions. At the local level, storage is a real Swiss army knife. In particular, it can raise the voltage at the end of the line and thus increase the hosting capacity of source stations for the connection of new renewable energy production facilities. Finally, energy transition will certainly be accompanied by a simultaneous development of electric mobility. Storage is essential to manage vehicle recharging in order to preserve the grid from probable peaks in consumption related to this new usage.
In France, energy transmission pumping stations (STEP), have long assumed these network stability and flexibility services alone and successfully. However, today the multiplication of constraints related to the network, especially

Photovoltaic farm in Brach, Gironde. © Enedis / Goldstein Julien

on the local level, requires an increase and diversification of the offer of electricity storage. The increase in the offer will be particularly strong in the non-interconnected zones where the more fragile grids have to face a massive integration of renewable energy ensuring the energy autonomy of these regions.

Have you encountered any obstacles to developing your activity?
The particularity of the development of storage projects is that it is a very young sector that is in full growth. The regulatory framework and the markets are in constant evolution. All the players will be called on to contribute to the construction of the sector by participating in the definition of the issues and mechanisms of potential markets. This also slows the development of our projects.
In particular, connection procedures do not take storage flexibility into account and the studies thus conceive the installation as a site that brings constraints of both offtake and injection.

How are the roles shared between storage providers and system operators?
We must develop true collaboration between storage providers and system operators, as their jobs are complementary. System operators define and target the needs for flexibility to enable storage providers, like NW Joules, to provide pertinent answers. Joint trials, such as the one NW Joules carried out at the Ferrières site with Enedis, are very rewarding, and we hope that these will be multiplied in the future.
They aim to test the interest of storage for newly identified problems and provide a line of development for the storage provider and system operator.

TRANSFORMATIONS IN THE GAS SECTOR

Since 2003, the CRE has accompanied the activity of the operators of gas facilities, keeping pace with the transformations in the sector.
After a broad consultation, in 2019 it elaborated the new generation of gas infrastructure tariffs (transmission and distribution networks, storage) applicable from 2020. In a context of strong evolution, these new tariffs stimulate innovation and provide incentive for operators to maintain the high level of security of their infrastructures, control their costs and to assert themselves as strong players in the energy transition of the sector.

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2020

MOBILISED, FOR THE BENEFIT OF CONSUMERS,
for the continuous improvement of the functioning of the gas market and the security of supply, the CRE has accompanied gas transmission operators with the development of interconnection capacities since 2003. Objectives: to diversify the sources of supply and better integrate France into the European gas market. During this period, it has proceeded, with the support of GRTgaz and Teréga, with the progressive simplification of the French market, leading to the creation in 2018 of the Trading Region France, a unique market zone that enables all consumers to benefit from a single price for gas in a more liquid and competitive market. Another major evolution: the completion of the reform of access to stored gas, which, since 2018, secures France's winter consumption at a controlled cost.
Cost control, a high level of infrastructure security, energy transition: the future challenges of the gas sector lie at the heart of the work of the CRE today.

A MARKET OPENING FOR THE BENEFIT OF ALL CONSUMERS

Simplified organisation, reinforced LNG entry capacities, better integration into the European market: the functioning of the French gas market is now compliant with the objectives set by the CRE since 2003. It is the result of the work carried out over more than fifteen years with the operators of gas infrastructures.

After major work, notably to reduce congestions and to welcome new infrastructures, the transmission network has been significantly reinforced.
Thus, via investments undertaken with neighbouring countries, gas interconnections have been developed. Since 2005, the CRE has accompanied this dynamic based on the open seasons tendering procedures which secure project financing. Important interconnection capacities, both for entry and exit, have thus been created with Germany, Belgium and Spain.
Moreover, the commissioning of the Fos-Cavaou terminal in 2010 and the Dunkirk terminal in 2016 have increased and diversified the sources of entry of liquid natural gas (LNG) into the transmission network.
The French gas system is now flexible and well-integrated into the European market. Market players can choose between different sources of gas and effectively face any modifications of flow schemas.

A SINGLE MARKET ZONE FOR THE BENEFIT OF CONSUMERS

The merger of the Trading Region South (TRS) and gas exchange point (PEG Nord) on 1 November 2018 led to the creation of the Trading Region France (TRF), the single gas market zone in France, which is an objective set by the CRE in 2014 after extensive consultation.
It marks the final stage of fifteen years of major investment conducted by GRTgaz and Teréga, thanks to the reinforcement of the Val-de-Saône and Gascogne-Midi lines. The Val-de-Saône programme increased the capacity of gas transmission between the north and south of France by 250 GWh/day. As for the Gascogne-Midi reinforcement, with 62 km of pipes and new capacities of compression, it ensures a capacity of 140 GWh/day from the south-west to the south-east.
The single market zone means a single price on the French wholesale gas markets for the consumer's benefit, in particular those in the south who were previously penalised by the price difference with the north. It also makes the French market less volatile, more fluid, more competitive and better integrated into the European market, including the most liquid marketplace, the TTF in the Netherlands. Finally, by improving access to the various sources of gas, it reinforces the security of supply for France. Supplied in part by gas transiting France, Spain and Portugal also benefit.

→ Consult Décryptages No.57: An interview with Thierry Trouvé & Dominique Mockly

REGULATED STORAGE FOR SECURE SUPPLY AT CONTROLLED COST

Since 1 January 2018, third-party access to stocks is regulated. The multi-annual energy programme (PPE) lists the storage infrastructures necessary to guarantee the security of supply. The CRE sets the authorised revenue for the operators concerned and storage capacities are marketed by auction.
The CRE has determined the procedures to implement these auctions in order to maximise capacity subscriptions to secure the supply for consumers. This objective has been reached with the subscription of all storage capacities since 2018.

FOCUS

STORAGE: TOTAL SUCCESS OF CAPACITY AUCTION CAMPAIGNS

In France, a large part of natural gas is used for heating, hence the strong variation in seasonal consumption.
Underground storage covers this seasonality, with an alternation between summer periods of filling followed by winter offtake. The law of 30 December 2017, which terminated hydrocarbon prospecting and exploitation in France, regulated the access of third-parties to natural gas storage in order to guarantee the filling of storage facilities necessary for the security of supply in winter, while providing cost transparency. Within this regulated framework, storage capacities are auctioned according to procedures set by the CRE based on the proposals of storage operators. The auction campaigns carried out since the enforcement of the regulation have been successful, with the subscription of all the storage capacities of Storengy, Teréga and Géométhane.
The new system ensures consumers security of supply at a controlled cost (€5.35/MWh in 2020, €6.1/MWh in 2016) during the winter and ensures transparent and non-discriminatory access to the market players. French storage also participates in the robustness and attractiveness of the French gas system within the European market.

→ Consult the press release All natural gas storage capacities have been subscribed: a success of the 2018 reform

Unloading pipes transported by barge in the port of Frouard. © GRTGaz

NEW CONTEXT, NEW CHALLENGES

The end of major investment projects, the predicted decrease in consumption: the evolutions in the sector created new challenges for the operators of gas infrastructures. For its work, the CRE takes into account: tariffs, investments and the rules of market access.

For the CRE, the French transmission network is now sufficiently sized to guarantee the effective operation of the gas market, which should lead to a decrease in major investment projects for transmission system operators (TSO).
This satisfactory sizing is accompanied by a perspective decrease in gas consumption in the mid and long term, due notably to actions to control energy demand and the objective to reach carbon neutrality by 2050, which was confirmed by the Energy-Climate law of 8 November 2019.

THE CONTROL OF GAS INFRASTRUCTURE COSTS, AN ESSENTIAL CHALLENGE

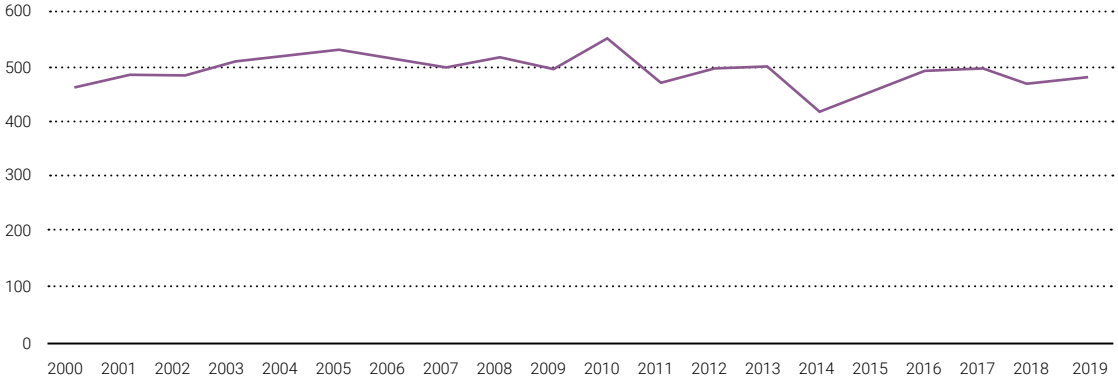
In the future, the CRE will examine with particular vigilance any new investment projects submitted by TSOs: they must undergo robust cost-benefit analysis in order to avoid subjecting consumers to excessive costs and to avoid any risk of stranded costs over time. The control of gas infrastructure costs thus becomes a central issue for the sustainability of gas.

GREEN GAS: RAMPING UP UNDER CERTAIN CONDITIONS

Today, methanisation is the only mature sector of renewable gas production. The biogas produced by methanisation can be used for heating and electricity (cogeneration), used directly in the form of natural gas for vehicles (bioNGV) or injected into the natural gas distribution and transmission networks. Submitted for consultation in January 2020, the draft decree for the multi-annual energy programme (PPE) provides for an objective of 6 TWh of biomethane injected into the natural gas network in 2023 and for 14 to 22 TWh by 2028.
In addition to the sufficient availability of resources for the production of biomethane, reaching these objectives implies new investments in order to adapt the natural gas transmission and distribution networks. Indeed, these networks do not cover the territory homogeneously and their capacity varies greatly according to the region.

→ Consult the interviews with public stakeholders of 9 July 2019

Gas consumption in France 2000-2019



Bassée biomethane. © GRTgaz, Jennifer Do Couto

FOCUS

THE GREENING OF GAS: THE FORESIGHT COMMITTEE'S REPORT

Methanisation, pyrogasification, power-to-gas technologies: in 2019, the Foresight Committee's No. 1 working group devoted part of its efforts to the development of the three principle branches of renewable gas for 2035. Undergoing rapid growth, methanisation offers multiple advantages for the climate, energy independence and the development of regions where methanisation facilities initiate the dynamics of a circular economy, agro-ecology and waste treatment, in particular for the benefit of the agricultural sector. The most mature technology, it possesses the most credible economic model to ensure the production of first generation biomethane, under the condition of a decrease in production costs and a public intervention to integrate the externalities of this technology into the players' approach. The reservoir of sources available is sufficient to reach 10% of the renewable gas consumed in 2030. Beyond this date, new intermediary energy cultures must be developed over the entire territory, taking into account climate change and the available water resources.

Less mature, the pyrogasification branch could constitute a relay of development for green gas from 2030.

Power-to-gas technologies are even more prospective, but possess strong assets, in particular the integration of high proportions of renewable energy into the energy system.

→ Consult the Foresight Committee's report at eclairerlavenir.fr/rapports/

A NEW GENERATION OF TARIFFS TO MEET NEW CHALLENGES (2020-2023)

After extensive consultation and in-depth analyses, in 2019 CRE drew up the new generation of gas infrastructure tariffs (transmission and distribution networks, storage), applicable from 2020.
In 2020 these new tariffs represent a turnover of 5.8 billion euros. They are designed to address multiple issues.

CRE has renewed the main incentive regulation mechanisms currently in force for transmission and distribution, with marginal improvements, to control operating expenses and investment expenditure, quality of service and ex post coverage of certain variances via the clawback account.
It has extended these mechanisms to storage infrastructure operators, after an initial tariff period limited to two years with a simplified regulatory framework in the context of the entry into regulation of the activity.
In addition, for distribution, it has taken into account the ministerial guidelines of energy policy and removed the bonus/penalty mechanism from the previous ATRD5 tariff, relating to the incentive to connect consumers.

ENCOURAGE OPERATORS TO INNOVATE

Energy transition requires transforming the networks. CRE wishes to encourage innovation and the progress offered by the digital revolution, levers for cost optimisation. The regulatory framework for the new gas tariffs encourages operators to adopt innovative solutions that contribute to reducing total costs for the community and/or the risks of over-investment or even failed costs. It also provides them with the means to carry out their innovation projects in order to anticipate the need to modernise their tools and enable them to provide an efficient, high-quality service to their users in a changing sector.

MEETING THE COST CONTROL CHALLENGE

As highlighted in the report drawn up by the CRE in its public consultation of February 14, 2019, the gas TSOs operating costs have risen faster than inflation over the last decade. This is mainly the result of the significant investments that accompanied the opening of the markets (development of interconnections, network strengthening to create the single market area) and the total separation between TSOs and their parent companies with which they no longer share support functions, information systems or research and development (R&D) activities.
On the other hand, GRDF, the main gas distributor, has seen its operating expenses decline over the last ten years in constant euros, reflecting significant productivity gains, while it too has had to cope with change: notably, separation from the parent company and the development of information systems to manage mass market processes.
The cycle of major investments in gas transmission is over and gas consumption is expected to decline by 2030. Consequently, cost control has become an essential issue for gas operators. The new gas tariffs responded by setting the operator's operating expense trajectories, on the basis of 2018 expenditure and the challenges of the new tariff period.

INCENTIVE SCHEMES FOR PRIORITY ISSUES

Consistent with previous tariffs, CRE has planned incentives based on priority service quality criteria. Accordingly, the ATRD tariff includes the monitoring of 15 indicators dedicated to the implementation of Gazpar's smart meters. All tariffs include indicators for monitoring the quality of service offered to infrastructure operators.

PROVIDING OPERATORS WITH THE MEANS TO BE PARTICIPANTS IN THE ENERGY TRANSITION...

In a context of energy transition, the drop in consumption is offset by the development of renewable gases, forcing the gas system stakeholders – operators and regulators – to think differently. As a result, the new gas infrastructure tariffs take into account two opposing trends: the fall in gas consumption, driven notably by energy demand management measures, and the emergence of new costs for adapting networks to include renewable gas. The new tariffs give operators the means to make this transition, in particular in terms of the resources allocated to the introduction of biomethane in the networks and to R&D, while encouraging them to control their costs, in particular via optimising the mobilisation of existing resources.

... TO MAINTAIN A HIGH LEVEL OF SECURITY...

The security of people and property is a main issue for operators and for CRE. Gas tariffs contribute to maintaining a high level of security in gas infrastructures, for example cybersecurity or addressing the ageing of physical networks. It also enables operators to implement a network investment policy, which contributes to this objective.

... AND TO MAINTAIN THE ATTRACTION OF INFRASTRUCTURES

The level of the weighted average cost of capital (WACC), set at 4.25%, 4.1% and 4.75% respectively for transmission, distribution and storage activities, while taking into account the downward change in financing costs observed over the last four years, ensures a reasonable return on capital invested, making it possible to maintain the attraction of energy infrastructures in France compared to other European countries.

→ Consult the 10-year report on the tariff regulation framework applicable to regulated infrastructure operators in France - February 2019

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STABLE AND SIMPLE TARIFF STRUCTURES IN LINE WITH COSTS AND USAGE TRENDS

FOR WHOLESALE GAS TRANSMISSION

The structure of the ATRT7 tariff reflects the costs incurred by users, in particular in order to avoid cross-subsidies between different categories of users. CRE also takes care to meet the requirements of the Tariff network code and to take into account the opinion of ACER (Agency for the Cooperation of Energy Regulators).
It has maintained a tariff grid globally building on that of the ATRT6 tariff, under which transit costs and national customer supply costs are aligned. In its decision dated 18 March 2019, the State Council validated this tariff structure. Following a study of responses to the public consultation and consideration of ACER's opinion, CRE furthered its work on flow scenarios to ensure that the flows adopted correspond to a physical reality. This work shows that, even though the Pirineos entry point is subscribed, it hardly serves to supply France. Therefore, CRE adopts in its decision, a re-balancing between the costs for transit use and for domestic use, resulting in a drop in the exit tariff charge at the Oltingue PIR (-6%) and the Pirineos PIR
To take better account of the characteristics of the various users, it has also modified the pricing on the domestic transmission network (elimination of the proximity charge and the Short-Notice Interruptible Transmission (IAPC) tariff option, improvement in the progressivity of intra-annual tariffs), as well as the formula for calculating winter modulation of the storage tariff term.

FOR REGIONAL GAS TRANSMISSION

Following the major reform implemented in the ATRT6 tariff, with a ceiling on regional tariff (NTR) levels at 10, CRE chose not to change the tariff structure on the regional networks for the ATRT7 tariff.

FOR GAS DISTRIBUTION

For several years now, CRE has adopted a simple and stable tariff structure, it has renewed the main principles in force for the ATRD6 period (2020-2023), with a few adjustments justified by changes in the use of these networks. Consequently, the threshold between options T1 and T2 shall be lowered (from 6 to 4 MWh/year) as of 2022, in order to reflect the drop in average consumption allocated to heating use and the expected changes in profiles. In addition, the calculation of continuity between the tariff options no longer takes into account the transmission tariff contribution ("contribution tarifaire acheminement" or CTA) and the application of a degressive option in the pricing of capacity in the T4 option, to introduce greater continuity between the distribution and transmission network tariffs.
Finally, to encourage biomethane injection project developers to take into account the costs resulting from their location choice, CRE has introduced an injection tariff in the ATRT7 and ATRD6 tariffs. Its level depends on the necessary adjustments based on the connection zoning scheme.

WEIGHTED AVERAGE COST OF CAPITAL

-0.9% for the ATRD

-1% for the ATRT and the ATS,

notably as a result of the reduction in interest rates

THE NEW TARIFFS

ATRT7 for the GRTgaz and Teréga natural gas transmission systems from April 1, 2020, for approximately four years.

+1.4% for GRTgaz

AND

+0.7% for Teréga:
on average per year

ATRT6 for the GRDF natural gas distribution networks from July 1, 2020, for approximately four years.

-0.3% on average per year

ATS2 for the Storengy, Teréga and Géométhane regulated natural gas storage infrastructures for the 2020-2023 period.

CHARGES TO BE COVERED:

+1.4% for Storengy

+1;3% for Teréga:

+4.7% for Geomethane

on average per year from 2018 to 2023

CONCERTATION

7
public consultations

6
audits (requests from regulated operators in terms of operating costs)

1
round table with suppliers and consumers

264
pages of deliberation

370
responses received

3
audits (rates of remuneration for regulated assets)

16
interviews (operators and shareholders)

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3 QUESTIONS FOR

SARA RAMI,
PROJECT MANAGER AT THE CRE NETWORK DIRECTORATE

CRE has published three gas tariffs. How was the work carried out?
2019 was a particularly gas-intensive year! The tariffs were due to be published at the beginning of 2020, with a limited margin of flexibility. Ahead of the decisions, several internal and external audits were launched and served as a basis for the seven public consultations. A round table was organised and the six operators and their shareholders were heard.

A seventh transmission tariff ... A classic CRE event?
Yes and no. The tariffs have always been prepared on the basis of a broad market consultation, but the application of the Tariff network code and exchanges with ACER are an innovation. They have made it possible to ensure that the ATRT tariff complies with this network code, which aims to harmonise gas transmission tariffs in Europe and to guarantee non-discrimination, transparency and the reflection of costs. In addition, the sector is changing rapidly, and tariffs must take new issues into account. Biomethane, for example, has taken on a new role.

Now that the tariffs are published. What is the next step?
For CRE, it consists in ensuring that these tariffs "exist", in particular by assisting operators in implementing changes, both in terms of framework and structure, or by ensuring that these changes and their consequences are known to all stakeholders.

→ Consult the module "How does gas work? "

INTERVIEW

DOMINIQUE MOCKLY
CHAIRMAN AND CEO OF TERÉGA

In the context of energy transition, what are the main challenges faced by the gas sector players?
Gas is an energy with many environmental and economic advantages, and thanks to the existence of a regional network integrated on a European scale, it is an essential future energy source for the acceleration of energy transition and to meet the 2050 carbon neutrality objective in France. However, the sector must undergo a genuine transformation in order to become greener and gradually replace fossil fuels with new sources of green gas – biomethane, pyrogasification, methanation, hydrogen or power-to-gas. While it is technically possible to integrate these new gases into the infrastructure, the main challenge is to demonstrate the economic cost-effectiveness of these solutions and to minimise the public budgetary support required for their implementation. The stakeholders in the sector are fully committed to the massive industrialisation of these renewable gases. In addition to its effects on the decarbonisation of the energy sector, the roll-out of these gases will boost farmer's incomes, encourage the re-industrialization of regions, enable the relocation of productive activities in France and the creation of jobs. All of these benefits clearly take on an increased dimension in the current health crisis, which requires us to rethink our economic growth models.

How do these challenges affect the management of a gas network operator or storage operator's activity?
As early as 2017, Teréga implemented a strategic roadmap to establish the company as a key player in the energy transition at a regional level and in Europe by 2025. This "Impact 2025" business transformation plan places customers at the heart of the company's culture, to effectively anticipate the future energy needs of consumers. To meet the challenges of competitiveness, we are constantly striving to effectively manage the costs of developing and operating infrastructures by building on an internal programme of operational excellence. This approach is also part of the establishing of effective rules for the prevention of industrial accidents and hazards. The company has also rolled out a proactive policy to reduce its environmental footprint and achieve carbon neutrality across its activities by the end of 2020 (BE Positif programme).
Resolutely committed to a plan to diversify its businesses and backed by the support of the CRE, the Nouvelle-Aquitaine and Occitanie regions, Teréga is focusing specifically on multi-energy systems (Impulse 2025) and an ambitious research and innovation programme. Finally, all these changes are accompanied by an internal transformation of our working methods, taking full advantage of digital tools, in order to increase flexibility and develop the skills of our employees to prepare them for the professions of tomorrow.

How do you work with the CRE on these issues (tariff work, investments, biomethane, etc.)?
CRE has always supported Teréga in addressing these challenges. There are many examples of CRE's support for our projects. One example is the establishment of the single market, Trading Region France, which has enabled the French gas market to become more fluid and competitive and to increase its integration in the European system.
Similarly, in 2019 gas infrastructure operators were able to fully commit to a biomethane development plan that minimizes the cost to the end consumer and that has made it possible to identify the most promising areas favourable to the development of biomethane injection into the networks.
Finally, the publication in 2019 by CRE of the ATRT7 and ATS2 tariffs for natural gas transmission and storage infrastructures will allow Teréga to pursue its transformation plan and strengthen its position as an innovative player serving energy transition in the regions.

Switching station. © GRTgaz/AGENCE COM'AIR

Regulated asset base and gas operators allowed revenue.

ON AVERAGE OVER THE PERIOD 2020-2023	REGULATED ASSET BASE (€M)	GAS OPERATORS ALLOWED REVENUE (€M)
GRDF	15 602	3 209
GRTgaz	8 955	1 794
Teréga-transport	1 699	277
Storengy	3 840	514
Teréga-storage	1 283	152
Geomethane	253	46
Total	31 632	5 992

ENERGY TRANSITION AT WORK IN THE NON-INTERCONNECTED ZONES

Zones not connected to the continental electricity network (ZNI) have set their sights on the development of their local renewable resources and energy self-sufficiency.
A dynamic in which CRE participates.

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CALCULATION OF PUBLIC SERVICE COSTS FOR ENERGY,
analysis of the relevance of support mechanisms for renewable energies, assessment of the level of compensation for electricity production units and storage facilities, steering the roll-out of energy demand control actions, definition of regulated tariffs for the sale of electricity, regulation of network activities: since its creation CRE has been heavily invested in the ZNI. Since 2015, in line with the objectives of the law, it has supported these territories in their energy transition, with a renewed intensity, paying particular attention to the safety of the power system and the control of public spending. It plays an increasingly leading role in energy efficiency and electricity demand management, the development of storage and the preparation of multi-annual energy programmes.

CONSTRAINED ZONES

In areas not interconnected to a continental grid (ZNI) the electricity consumed is necessarily produced on site.

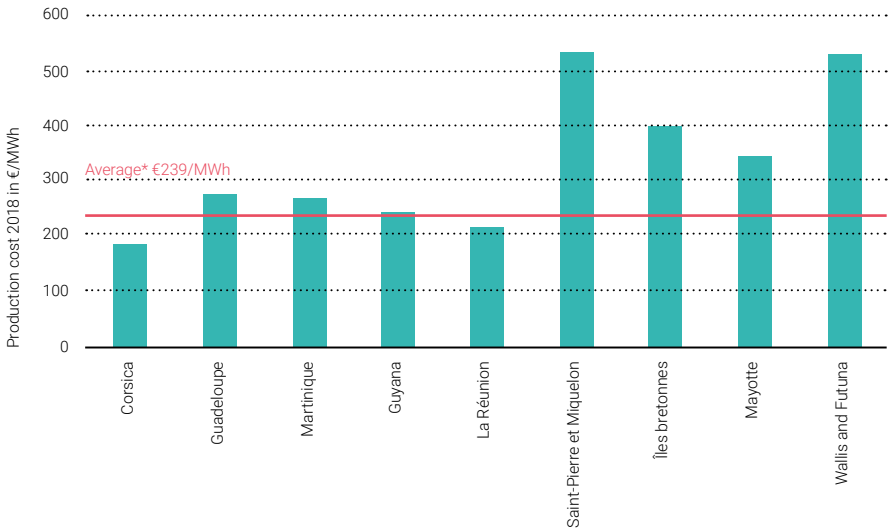
HIGHER ELECTRICITY PRODUCTION COSTS

In these territories, electricity is still mostly produced from imported fossil resources (fuel, gas, coal), supplemented if necessary, by renewable energies with guaranteed power (hydraulic, biomass, geothermal) or intermittent (wind, photovoltaic, run-of-river hydro, biogas, incineration). The climatic and geographical characteristics of these territories, the logistical constraints related to the inadequate road and port infrastructures and the small size of the electrical systems has led to much higher production costs (239€/MWh on average in 2018) than in continental France.

TARIFF EQUALIZATION TO ENSURE NATIONAL SOLIDARITY

However, according to the principle of equalization at national level, consumers pay a level of electricity bill identical to that of continental France. The structural additional costs between production costs and tariff revenue from the sale of electricity are offset against the public service costs for energy (SPE) financed by the State budget.
Boosted by investments in oil-fired power stations commissioned mid-2010 and the increasingly rapid roll-out of renewable energies (RE), the charges linked to tariff equalisation in the ZNIs excluding RE will rise from €1 billion in 2009 to more than €2 billion in 2020 (projected).

Electricity production costs in 2018 in ZNI (in €/MWh)
*Weighted average by the amount of electricity injected.



Morne-Carrière wind turbine in Martinique. © CRE

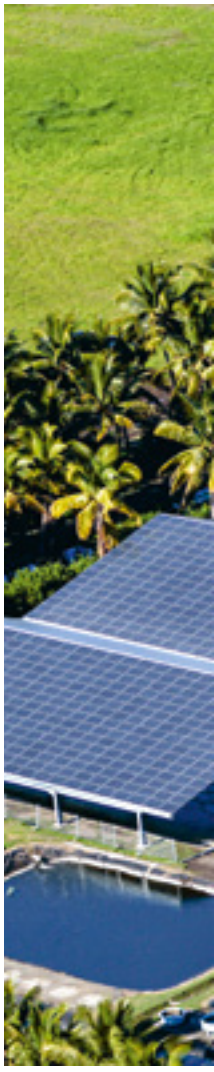
3 QUESTIONS FOR

OPHÉLIE PAINCHAULT,
PROJECT MANAGER
AT CRE

What are the challenges, specifically in terms of energy, in relation to waste?
In the ZNI's, almost all household waste is buried.
Communities are committed to reducing waste at the source, recycling waste and developing alternatives to the storage of household waste. Their energy recovery offers a very promising solution in the islands. Firstly, because storage space is very limited. Secondly, because energy recovery reduces the use of fossil fuels and takes advantage of a local resource. It is a solution that is all the more relevant as the ZNIs still have a very carbon-intensive electricity mix and the law sets a target of energy autonomy by 2030.

What projects are currently underway?
At present, only Martinique has a waste-to-energy plant.
In La Réunion, Ileva the syndicat mixte is developing a power plant project (16.7 MW) that will use solid recovered fuel (SRF) prepared with the non-recyclable part of waste.
In the north of the island, another SRF preparation unit is under construction.
In Guadeloupe and Guyana, several projects are under review.

How is CRE involved in the development of these projects?
It assesses these projects by mutual agreement and evaluates their normal and full cost, which serves as the basis for determining the electricity purchase price paid by the historic supplier to the producer. The major challenge is to achieve a balanced sharing of costs between waste treatment and electricity production activities.
So as not to weigh the costs of the waste policy on the public service costs for energy.



FOCUS ON RENEWABLE ENERGIES AND ENERGY SELF-SUFFICIENCY

In 2018, renewable energies cover roughly 31% of the electricity production of the ZNIs. The continuing predominance of thermal means and the fact that the ZNIs represent 2% of French electricity consumption but about 20% of the CO_2 emissions of the national electricity sector, make the development of renewable energies essential. Electricity production in the ZNIs generated 5.3 Mt of CO_2 in 2018.

The Energy Transition Law for Green Growth (LTECV) of 2015 set the course: to achieve energy autonomy by 2030 according to the objectives set out in the Multi-annual Energy Programme (PPE). These PPEs are tools for steering energy policy and are drawn up jointly by local authorities and the government. Their revision should be finalised in 2020. They set ambitious objectives for the development of the various renewable energy sources – photovoltaic, wind, biomass, geothermal, biogas, waste and small-scale hydroelectricity – to replace the production of carbonaceous resources, fuel and coal-fired power plants.

TWO STORAGE PROJECTS SELECTED IN MAYOTTE IN 2019

To develop these decentralised sources of renewable production, which are often non-synchronous and fatal (photovoltaic and wind power plants are interfaced by power electronics and their production is non-controllable), and correctly integrate this production into electrical systems requires changes in system management methods. In the ZNIs, electricity storage can be of particular interest in managing intermittent renewable energies at a low cost to the communities and to improve their integration into the electricity system. CRE published a methodology for the appraisal of centralised storage projects in March 2017, in order to select the most efficient ones. In 2019, it selected two storage projects in Mayotte, following the organisation of a specific window for this region. This Mahorais window replaced a first window organised in the other territories in 2017-2018, where CRE had selected 11 storage projects for a total capacity of around 50 MW.

AN AMBITIOUS PROGRAMME CONSUMPTION CONTROL

Another effective lever for reducing CO_2 emissions in the electricity sector in regions with a high carbon content mix: energy demand management (EDM) initiatives. By reducing consumption, these initiatives limit the use of the most expensive means of production and future investments. They are therefore essential in limiting public service costs.

In January 2019, CRE set the compensation frameworks for very ambitious EDM programmes, drawn up for each region by the EDM committees. This represents investment aid of more than 500 M€ over five years. The EDM schemes installed will reduce electricity consumption and help to lower production costs. Over the lifetime of the equipment (up to 30 years for some), the net savings for public service costs for energy (SPE) are estimated at more than 1 600 M€. Implementing all the actions will reduce greenhouse gas emissions related to electricity production by around 8%.

Photovoltaic park L'Étang-Salé in Réunion. © CRE

FOCUS

FIRST TERRITORIALIZED CALLS FOR TENDERS TO REACH THE OBJECTIVES OF THE PHOTOVOLTAIC SECTOR

Two calls for tenders were launched in the ZNI to develop the photovoltaic sector: one for self-consumption installations, the other for total injection installations, possibly coupled with storage devices. In line with a long-standing CRE recommendation, these calls for tenders have the particularity of being territorialized: the power required is defined for each of the territories with a view to reaching the development ambitions of this sector for each ZNI, in connection with its PPE. The CRE received the offers in December 2019. After examination, these two calls for tenders will result in the development of approximately 100 MWp on 75 sites, all ZNIs combined.

More than 80% of the selected ground projects concern rundown land. In areas where land sprawl is a major constraint, this will make it easier to accept the massive growth of photovoltaics. In order to support the development of ground-based projects that have the advantage of being cost-effective, CRE is in favour of increasing the maximum eligible power for projects located on run-down land, which is currently limited to 5 MWp.

To give visibility to the sector, it also recommends that the dates of the next periods be defined as quickly as possible.

PPE: ENSURE CONSISTENCY BETWEEN ENERGY TRANSITION TRAJECTORIES

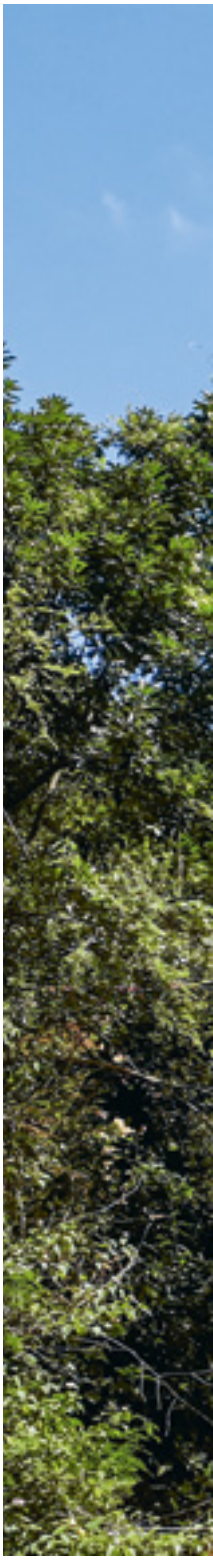
The multi-annual energy programmes (PPE) determine the trajectories for developing renewable energy sources at different time horizons and reinforcing the fleet of thermal power plants, in the event of additional demand, to guarantee security of supply.
The PPE relating to the 2023 targets have all been adopted. Pursuant to the Energy Code, they must be revised to adjust the 2019-2023 targets and add a five-year programming period, 2024-2028.
Associated with this revision work, CRE conducts economic impact studies of PPE projects whose trajectories have a direct impact on public service costs for energy (SPE). Specifically, it analyses them in relation to the criteria of security of supply and optimal use of resources.

CRE'S ASSISTANCE FOR A COST-EFFICIENT ENERGY TRANSITION

The ZNI's thermal resources, some of which have been in service for only five years, represent a cost for the community, regardless of their call rate over their lifetime. While setting an ambitious pace for the development of renewable energies, PPEs must take into account these thermal means: even if they are only minimally used, they can effectively contribute to the security of supply and their conversion to biofuels provides an option to greening the mix.
Reducing energy transition costs implies giving priority to robust renewable technologies and, wherever possible, whose full costs are lower than the variable costs of thermal power plants, whose renewable production will be substituted in situations of overcapacity.
Another point of attention for all stakeholders: the correct dimensioning of new means of production. In this respect, the development of new means, especially fossil fuels if they are the only solution to ensure electricity supply security, requires a very attentive analysis in order to avoid creating stranded costs in the future.

INTEGRATING INTERMITTENT RENEWABLE ENERGIES IN THE NETWORKS

Moving from a centralised system, where the supply is mainly provided by fossil fuels, to a more decentralized system, based on renewable energies for some intermittent, supposes the development of more innovative solutions than the ZNI electric systems which, by their small size, are particularly sensitive to variations in production and consumption.
Some of these solutions are already in the process of being rolled out, in particular the storage means developed in the framework of the referral window organized by CRE. The implementation of certain technical devices by network operators to raise the instantaneous



Longoni power plant in Mayotte. © CRE

penetration threshold for renewable energies must be the subject of determined efforts. While the more advanced solutions need to be taken into account in order to define ambitious and balanced targets for non-synchronous renewable energies, it should be noted that targets that are disproportionate to progress in this area would lead to a massive capping of renewable energy burdens on SPE charges.

RECOMMENDATIONS BY TERRITORY

In the context of PPE revisions, CRE has formulated recommendations by territory on the proposed objectives.

In 2019, its analyses made it possible to revise the sizing of new investments in thermal resources in Corsica, in line with advances in consumption control and the dynamics of renewable energy and storage roll-out.

In Guadeloupe, CRE analysed the ambitions of the proposed revision of the PPE and highlighted the risk of over-sizing in renewable means of production, which would be either under-commissioned or largely capped, leading to abnormally high production costs.

It conducted similar work in Mayotte in April 2019 and published its conclusions and recommendations in February 2020.

CRE'S MISSION IN MAYOTTE

In April 2019, CRE carried out an expert mission in Mayotte to evaluate the progress made since its first mission in October 2014 and to support the players in the revision of the multi-annual energy programming (PPE).

ANALYSES TO ASSESS FUTURE NEEDS

Fuelled by numerous exchanges with stakeholders, this mission enabled CRE to gain a better understanding of the issues and challenges facing the region and to refine its proposals to assess the future needs of the electricity production facilities on the basis of the supply/demand balance models it has developed. In its February 2020 report, CRE reviewed the current state of energy issues in Mayotte and made several recommendations.

IN THE SHORT TERM, DEVELOP PHOTOVOLTAIC ENERGY

It recommends strong measures to develop solar energy in Mayotte, whose current electricity production is essentially based on fossil fuels. The share of renewable energies in the electricity mix, 5% in 2018, is low in comparison to the other ZNI's. Given the low potential identified for the other sectors, photovoltaic energy appears to be the main lever for the development of renewable energies. As a result, CRE recommends giving visibility to the sector through the prompt setting of objectives for the next tendering periods and by ensuring regular calls for tenders in the future. Other recommendations: carry out a study on the island's solar potential and impose the installation of solar panels on public and private office buildings.
At the same time, CRE advises exploring more long-term solutions, by further investigating the geothermal potential, the possibility of converting existing power plants to biofuel or building an energy transfer pumping station (STEP) on a hillside reservoir.

STRENGTHEN THE EDM

The second axis to meet the objectives of the law on energy transition through green growth (LTECV): controlling consumption. The CRE recommends several measures to support the control of consumption and to reinforce it through regulations on the energy performance of certain equipment and buildings.
In addition, CRE has made a number of recommendations, notably to Electricité de Mayotte (EDM), which it regulates.

→ Consult CRE Guidelines on Mayotte's multi-annual energy programming

FOCUS

THE ELECTRIC MIX IN THE ZNI

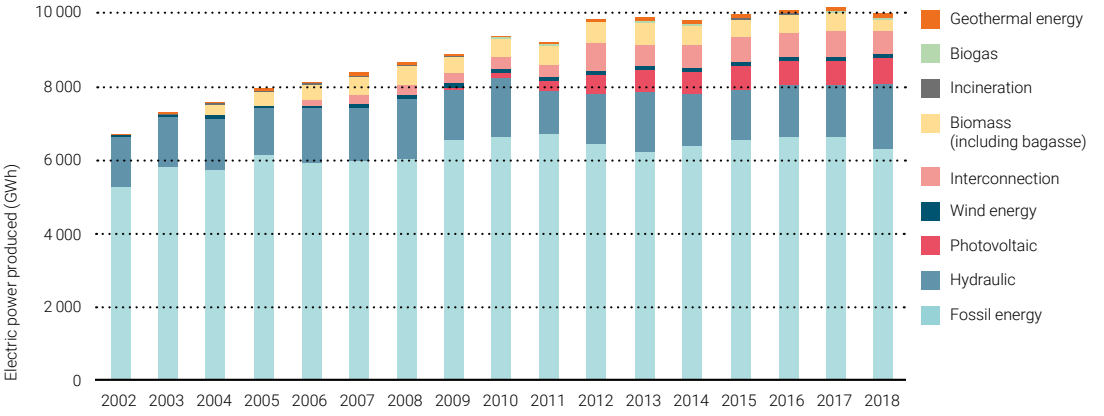
A mix that is still highly carbon-based
In 2018, 31% of the electricity mix in the ZNIs will be covered by renewable energies and the share of thermal means continues to be significant. The contribution of renewable energies has been growing steadily since the early 2000s, but at a rate that is still insufficient to achieve the ambitious targets set by the LTECV.

Varying mixes according to territories
Due notably to the specific geographical features of each region, the electrical mixes of the ZNIs show strong disparities. Consequently, in 2018, nearly 65% of Guyana's energy mix will be covered by renewable energies thanks to high hydroelectric production: the Petit Saut dam alone provided 55% of the electricity supply. Conversely, renewable energies accounted for 5% of the electricity mix in Mayotte and 11% in Martinique.

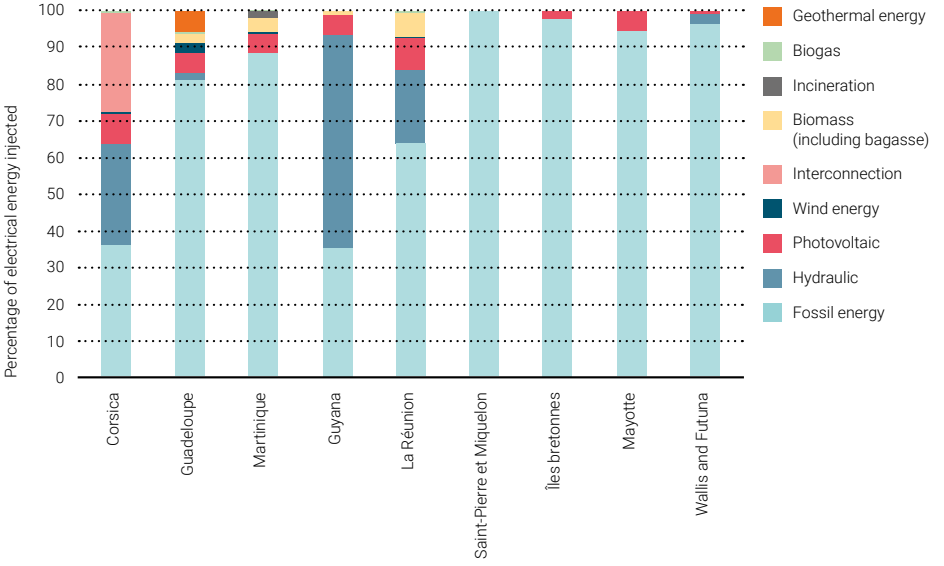
CRE's support
CRE assists regions in their energy transition, in particular by implementing support schemes for renewable energies, storage facilities and MDE actions and by providing its expertise for the drafting of PPE.

Evolution of the electricity mix in the ZNI 2002-2018

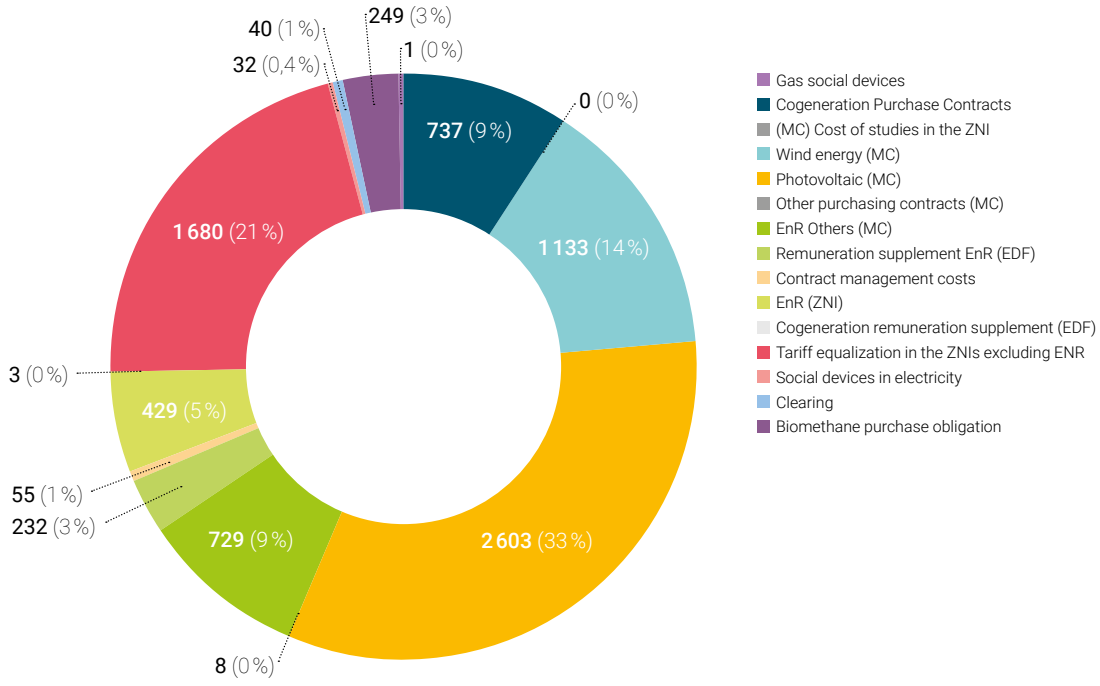
(excluding Saint-Pierre et Miquelon, Breton islands and Wallis and Futuna)



A still very carbon-intensive electric mix in 2018



Projected public service costs for energy 2020
(total: 7 930 €M)



Sainte-Rose wind farm in Guadeloupe. © CRE

INTERVIEW

OLIVIER SERVA, DEPUTY FOR GUADELOUPE

Mr Serva, you are Chairman of the National Assembly's overseas delegation.
In your opinion, what joint issues facing the overseas territories should be included in the (future) PPE?
The effects of the health crisis caused by the global Covid-19 pandemic on the environment are a reminder of the need to combat climate change by significantly curbing harmful human activities. This movement involves increasing the energy autonomy of the overseas territories. In spite of the ambition that is driven by and for our regions, I believe that additional efforts must be made to achieve a decarbonised economy for the preservation of our environment and to further diversify the energy mix, notably in view of the multitude of renewable energies available in the overseas territories. Consequently, greater support for renewable energies (in particular thermal and biomass energies) and a reduction in the consumption of primary fossil energy will be a priority. In addition, the development of electric vehicles and recharging devices is also a crucial issue to achieve energy autonomy in the overseas territories by 2030.

For transport, the electric vehicle appears to be a solution if the electric mix is sufficiently decarbonised. As a member of the National Assembly finance committee, what are the possible impacts on the financing of regional communities?
The proliferation of electric vehicles in overseas territories poses a genuine challenge.
In Guadeloupe, the objective of energy autonomy by 2030 imposed by the Energy Transition Law for Green Growth dated August 17, 2015 implies reducing energy dependence (94%) on imported fossil fuels. In 2018, these imports of petroleum products, coal and gas cost the territory 454 million euros (5% of GDP) to operate. At the same time, these imports generate almost 130 million euros of tax revenue (dock dues, regional dock dues and special fuel tax) each year, which go directly into the local authorities budgets.
The ecological transition will therefore inevitably lead to a drop in tax revenue for overseas territorial authorities, in particular those stemming from the special fuel tax (TSC).
The special consumption tax on fuel was introduced in the French overseas departments by a law dated December 31, 1951 for a supplementary contribution for road network equipment instead of the domestic tax on petroleum products that applies in metropolitan France.
The increase in demand for electric vehicles in the regions, particularly in Guadeloupe, will inevitably mean that local authorities will need new resources to replace local revenue, which will be greatly reduced.
It is a necessary concerted effort that must be carried out with thepublic authorities and local authority representatives, in close cooperation with the overseas deputies.

As a deputy from Guadeloupe, do you have any key points for its energy strategy?
This revision must be in line with an energy autonomy legislative objective set for 2030 for Guadeloupe.
The work of the Regional Council of Guadeloupe, of which I as Chairman of the Committee for Economic Development, am a member, aims to guarantee an ambitious policy in the field of sustainable development through, on the one hand, controlling energy demand and, on the other hand, the sustainable development of renewable energies with a view to energy autonomy.
For this reason, the procedure for developing the PPE must continue to be based on joint work and co-steering by the Region and the State, as provided for in the energy transition law for green growth. Consistent with the positioning of the State within the framework of the formulation process, in terms of strategic priorities, all of the provisions and objectives provided for in the draft revised PPE must therefore be the result of co-construction work between the State, the Region and the economic players in the territory.
Technically, the content must be improved, to ensure that Guadeloupe's energy transition trajectory becomes a reality and to optimise its impact on the evolution of public service costs for energy.
Among the key priorities, it is important to highlight the control and reduction of electricity consumption, which is still an ambitious but achievable objective.
In terms of renewable energies, the objective is to reach 50% of RE in final consumption by 2020.

Finally, the Region aims to achieve a 30% use of electric vehicles in the local car fleet by 2030.
Other sectors, such as the energy recovery of biomass and waste, will also be given priority.
Especially, as in an island context, energy transition has a direct impact on the economy, employment and the financing of local public action.
Finally, the current major health crisis, which has a considerable impact on Guadeloupe's fragile island economy, requires us to anticipate the strategies that will enable both a recovery of economic activity and a reduction in the territory's dependence at all levels.
The PPE is part of the plans and programmes that make it possible to prioritize the development of the territory's assets, in order to increase its resilience to the various hazards that may impact it, as recent history demonstrates: extreme natural phenomena, supply disruptions induced by the national or global social or economic context, health crises, etc.
The guidelines and objectives in the revised PPE certainly have a cost. The aim today is to accept this cost in order to meet the energy transition regulatory requirements adopted by France and in line with its international commitments on climate change and to enable Guadeloupe to adapt to the decarbonised world ahead.

ANNEXES
GLOSSARY

3rd ENERGY PACKAGE

Issued in August 2009, the 3rd energy package aims to create a level playing field in the EU Member States for the completion of the internal energy market. It consists of two directives on the electricity and gas markets (2009/72/EC and 2009/73 / EC), two regulations concerning network access conditions for cross-border electricity exchanges. (Regulation (EC) n° 714/2009) and the conditions for access to the natural gas networks (Regulation (EC) n° 715/2009) and Regulation (EC) n° 713-2009 creating the Agency for the Cooperation of Energy Regulators (ACER).

3 X 20

See energy-climate package.

4th ENERGY PACKAGE

Issued by the European Commission on November 30, 2016, the "Clean Energy for All" package is designed to implement the energy union with a view to encouraging energy efficiency, gaining global leadership in renewable energy and a fair deal for energy consumers. The package consists of seven legislative and regulatory texts and notifications. It includes the revised Energy Performance of Buildings Directive (EU) 2018/844 (Directive [EU] 2018/844), the revised Renewable Energy Directive (EU) 2018/2001) and the revised texts governing the organisation of the electricity market, including the Directive on common rules for the internal market for electricity (Directive [EU] 2019/944), the revision of two regulations on the electricity market (EU Regulation 2019/943) and on the Agency for the Cooperation of Energy Regulators (EU Regulation 2019/942) and a new EU Regulation 2019/941 on risk-preparedness in the electricity sector. Finally, it includes a new Regulation (EU) 2018/1999 on the governance of the energy union, introducing the obligation of national energy-climate plans for the period 2020-2030.

AGENCY FOR THE COOPERATION OF ENERGY REGULATORS (ACER)

The Agency for the Cooperation of Energy Regulators (ACER) is an Agency of the European Union with legal personality, established by Regulation (EC) n° 713/2009 in 2010. ACER has been operational since 3 March 2011. Its headquarters are in Ljubljana, Slovenia. The objective of ACER is to help national regulatory authorities to exercise and coordinate their regulatory tasks at European level and, if necessary, to complete their actions. It plays a key role in the integration of the electricity and natural gas markets.
Its competences include:
• to develop and submit to the European Commission non-binding framework guidelines;;
• to participate in the development of European electricity and natural gas network codes in line with the framework guidelines;
• make binding individual decisions on the terms and conditions for access and operational security of cross-border infrastructure when national regulatory authorities cannot reach an agreement or jointly request ACER intervention;
• decide on exemptions, if the infrastructure in question is located in more than one Member State, if the national regulatory authorities are unable to reach an agreement or jointly request ACER's intervention;
• provide advice to ENTSO-G (European Network of Transmission Managers Gas Network) and ENTSO-E (European Network of Transport Managers Network for Electricity), including network codes, and the drafting of the network development plan throughout the European Union;
• monitor the execution of ENTSO tasks;
• monitor the regional cooperation between ENTSOs;
• advise the European institutions on issues relating to electricity and natural gas markets;
• in cooperation with the European Commission, Member States and the national regulatory authorities, monitor the internal electricity and natural gas markets, including retail electricity and natural gas prices, access to the grid, including access to electricity produced from renewable energy sources, and compliance with consumer rights.

ARENH

Regulated access to historical nuclear energy ("ARENH") was created by Law n° 2010-1488 of 7 December 2010 with new organisation of the electricity market (NOME) and the implementing Decree n° 2011-466 of 28 April 2011, now codified in Articles R. 336-1 et seq. of the French Energy Code. It was established on the basis of the conclusions of a commission report chaired by Paul Champsaur, which concluded, that in the context of the period, i.e. 2009, access to electricity was necessary for the development of competition in the retail market.
As of July 1, 2011, and for a period of 15 years, ARENH allows alternative suppliers to access, at a regulated price, the electricity produced by EDF's historic nuclear power plants in service at the date of enactment of the NOME law. The Arenh volumes subscribed by alternative suppliers cannot exceed 100 TWh over one year, or about 25% of the production of the historic nuclear park. Law n° 2019-1147 of November 8, 2019 relating to energy and climate allows the government to raise this amount up to a ceiling of 150TWh.
Article L. 337-14 of the Energy Code states that in order to ensure fair remuneration to EDF, the price must be representative of the economic conditions of electricity production of its historic nuclear power stations over the term of the device. Initially fixed at €40/MWh on 1 July 2011, consistent with the transitional regulated market tariff (Tartam) in force on December 31, 2010, this price has risen to €42/MWh since January 1, 2012.

INDEPENDENT ADMINISTRATIVE AUTHORITY (AAI)

An Independent Administrative Authority (AAI) is a State institution responsible for regulating sectors considered as essential and for which the government wants to avoid intervening too directly. The AAI has three characteristics. authorities. They have a certain number of powers (recommendation, decision, regulation, sanction). administrative: they act on behalf of the State and certain powers of the administration are delegated to them (e.g.: regulatory power). independent: controls sectors and public authorities. AIAs are placed outside traditional administrative structures and are not subject to hierarchical power. The public authorities cannot order, instruct or even advise them. Their members are not revocable.

CERTIFICATION

The certification of transmission system operators (TSOs) is intended to ensure compliance with the organisational rules and independence requirements in respect of companies engaged in the production or supply of gas and/or electricity. The main purpose of separating transport network management activities from production or supply activities is to avoid any risk of discrimination between the users of these networks.
In France, GRTgaz and RTE are certified under the "Independent Transmission Operator" model (ITO): they act completely independently from the other parts of their vertically integrated business. Since 2014, Teréga has been certified under the "Ownership Unbundling model – OU): as the TSO no longer belongs to an integrated group since 2013, there is a complete separation between energy production or supply and transmission activities.

EUROPEAN NETWORK CODES

Developed by the European Network of Transmission System Operators for Electricity and Gas (ENTSOs), the European Network Codes are common rules on various cross-border issues listed in Community regulations. They can become legally binding through comitology, if the Agency for the Cooperation of Energy Regulators (ACER) makes a recommendation along these lines to the European Commission.

SMART METERING

Smart metering is designed to provide consumers with accurate information on their electricity or gas consumption at least once a month, rather than every six months, with the aim of improving invoicing quality and better control of energy consumption by customers. Smart metering systems store data (index, load curves), stores information (supply interruption, power overflow), can be optionally parameterised, interrogated and remotely operated (bi-directional operation). Smart metering implies the implementation of communicating meters capable of storing information resulting from measurements and the establishment of data transmission systems enabling the rapid and reliable flow of information contained in the meters between users, network operators and suppliers. In France, these are the Linky meter (Enedis) for electricity and the Gazpar meter (GRDF) for gas.

COUNCIL OF EUROPEAN ENERGY REGULATORS (CEER)

The Council of European Energy Regulators (CEER) is an association created in 2000 at the initiative of the national energy regulators of the Member States of the European Union and the European Economic Area. CEER structures include a General Assembly, the only decision-maker, a board of directors, working groups specialised in different fields – electricity, gas, consumers, international strategy, etc. – and a secretariat based in Brussels. A work programme is published annually. In accordance with the statutes of the association, decisions are taken by consensus and, failing that, by qualified majority voting.

CONTRIBUTION TO THE PUBLIC ELECTRICITY SERVICE (CSPE)

Domestic tax on final electricity consumption. The contribution to the public electricity service (CSPE), contribution to the special solidarity tariff (CTSS) and biomethane contribution have all been suppressed for consumption after 31 December 2015. These suppressions were offset in 2016 by a redefinition of the domestic tax on final electricity consumption (TICFE) renamed "contribution to the public electricity service", and an increase in the domestic tax on natural gas consumption (TICGN). Its proceeds are allocated to the general state budget.

COUPLING MARKETS (EXPLICIT AUCTIONS, IMPLICIT AUCTIONS)

The coupling of several markets means the common treatment of their supply and demand curves according to their economic relevance, e.g. the matching of the highest buy orders with the lowest sell orders, regardless of the market where they were placed, but taking into account the daily interconnection capacities. In other words, within the limits of the interconnection capacity made available, the consideration for a transaction on an exchange may be from a foreign exchange without the participants being obliged to explicitly purchase the corresponding capacity at the relevant border. This is a form of implicit auction, as opposed to explicit auctions at which cross-border energy traders must purchase the corresponding interconnection capacity.

CLEAR CONSUMPTION

Consumption clearance is the ability of a consumer to adjust their consumption level (by giving up certain consumption or by shifting it over time) according to the external signals they receive. These signals can be automatic (remote control of consumer appliances) or economic (price modulation encourages consumers to change their behaviour). In both industrial and residential consumers, consumption clearances introduce flexibility in the demand for electricity, making it possible to adjust the level of consumption according to system needs or price levels.

RENEWABLE ENERGY

Renewable energy sources are wind, solar, geothermal, aerothermal, hydrothermal, marine and hydro, as well as energy from biomass, landfill gas, sewage treatment plant gas and biogas.

LOCAL DISTRIBUTIONCOMPANY (LDC)

Company or authority, also called non-nationalised distributor, which ensures the distribution and / or the supply of electricity or natural gas on a determined territory, not served by ERDF or GRDF.

FLOW-BASED

Cross-border trading capacity calculation method based on flows. It makes it possible to take advantage of the interdependence between cross-border trades by dedicating the physical capacity of lines to the most economically valuable trades (e.g. where the price differential is the most important). The offers are indeed accepted considering their impact on the lines in addition to their price and volume.

SUPPLIER

A legal person who holds an authorisation that supplies at least one final consumer with electricity or gas, either from energy that they have produced or from purchased energy.

ALTERNATIVE SUPPLIER (AS)

Suppliers who are not historical suppliers are considered alternative.

HISTORICAL SUPPLIER

A supplier is considered historical in an energy if they market or have marketed regulated sales tariffs (see "Regulated sales tariffs") in that energy. A historical supplier is not considered an alternative supplier outside its historical service area. Similarly, a historical supplier is the only supplier that can offer the regulated tariff in its incumbent service area.

TRANSMISSION (GRT) OR DISTRIBUTION (GRD) NETWORK OPERATOR

Company responsible for the design, construction, operation, safety, maintenance and development of a transmission or distribution system for electricity or natural gas, ensuring the performance of contracts relating to third party access to these networks.

WHOLESALE MARKET

Wholesale market refers to the market where electricity and gas are traded (purchased and sold) before being delivered on the network to end customers (residential or business).

RETAIL MARKET

The electricity and natural gas retail market is the market on which the supply of electricity and natural gas to end customers.

ADJUSTMENT MECHANISM

RTE has power and energy reserves that can be mobilized when the balance between generation and electricity consumption is at risk (loss of a generating unit or part of the grid, bad estimation of level of consumption, etc.): system services (primary and secondary reserves) and the adjustment mechanism (tertiary reserve). The primary and secondary reserves are activated automatically in a few seconds after the break in equilibrium. The activation of the tertiary reserve is done manually by asking the producers and the consumers connected to the network to activate offers of adjustment of their production or of their consumption, upwards or downwards, in order to maintain the balance between production and consumption. Any player submitting an offer on the adjustment mechanism has the free choice of the activation price of the offer (with the exception of the setting of a ceiling for tenders submitted by consumers under contract with RTE). When RTE activates an upward adjustment offer, i.e. an offer that resolves imbalances of the type "production lower than consumption", it compensates the player who proposed this offer. Conversely, when RTE activates a downward adjustment offer, it receives the price of the offer from the player, with the player purchasing from RTE the energy that it should have produced itself to rebalance its portfolio. The expenses and products related to the activation of adjustment offers are managed by RTE within the expenditure-income account, a management account which aims to be balanced: the costs of the imbalances are attributed to the players who are at the origin during the calculation process and settlement of the differences.

NATIONAL ENERGY OMBUDSMAN

Independent administrative authority, the National energy ombudsman is responsible for recommending solutions to disputes relating to the execution of electricity or natural gas supply contracts and for helping to inform consumers of their rights. It can only seize disputes arising from the performance of contracts concluded by a non-professional consumer or a professional consumer belonging to the category of micro-enterprises mentioned in article 51 of law n° 2008-776 of August 4, 2008 on the modernization of the economy.

ENERGY MIX

Or energy bouquet. Distribution, usually in percentages, of primary energy in the consumption of a country.

PURCHASE OBLIGATION

Legislative and regulatory framework forcing EDF and local distribution companies (LDC) and the approved bodies mentioned in Article L. 314-6-1 of the Energy Code to purchase electricity produced by certain production sectors (wind, photovoltaic, biomass, etc.) under imposed pricing and technical conditions.

MARKET TENDER

Market tenders are offered by all suppliers, alternative and historical. Prices for market tenders are set freely by suppliers under a contract.

ENERGY CLIMATE PACKAGE

Issued on June 2009, set of three Directives (2009/28/EC, 2009/29/EC and 2009/31/EC) and a Decision (No 406/2009/EC) aims to reduce the EU's greenhouse gas (GHG) emissions and strengthen its energy security and competitiveness through the development of renewable energy sources. It is commonly associated with the goal "3x20 by 2020": Increasing the use of renewable energies to 20% of the primary energy consumption of the EU, reducing its greenhouse gas emissions by 20% compared to 1990 levels and increasing its energy efficiency by 20% by 2020. Two new directives were adopted on December 11, 2018 on the promotion of the use of energy from renewable sources (2018/2001/EC) and energy efficiency (20128/2002/EC). They aim to increase the share of renewables in European energy consumption to 32% and to improve the EU's energy efficiency by 32.5% by 2030.

GAS EXCHANGE POINTS (PEG)

Trade in the wholesale natural gas market takes place on virtual points of the French gas transmission network called gas exchange points (PEG). It operates the exchanges between gas suppliers and the gas supply of gas transmission network operators for the equilibrium of daily balances. There is a PEG in each of the market areas of the French network: the PEG Nord and the TRS (Trading Region South, which groups the balancing zones of GRTgaz Sud and Teréga). On 1 November 2018, the two marketplaces will merge to form the TRF (Trading Region France).

COMMON INTEREST PROJECTS

Projects for the development of electricity and gas transmission infrastructures, the list of which is adopted by the European Commission after a selection procedure. These projects will benefit from facilitated authorisation procedures and, if necessary, from specific incentives and will be eligible for financing assistance.

REGULATION RESPECTING THE INTEGRITY AND TRANSPARENCY OF THE WHOLESALE MARKET FOR ENERGY (REMIT)

UE Regulation n°1227/2011 of the European Parliament and the Council of 25 October 2011 on the Integrity and Transparency of the energy wholesale market (REMIT) entered into force on 28 December 2011. It establishes the rules prohibiting abusive practices on energy wholesale markets in:
• prohibiting market manipulation and insider trading;
• forcing market players to publish the inside information they hold.
Insider trading consisting in particular of using inside information (e.g. non-public information whose publication would likely have an impact on the price of the energy concerned) by acting on wholesale energy markets. Privileged information must also be published.
Market manipulations, in particular by giving a misleading signal on the price or the balance of supply and demand in the energy markets.
This approach is inspired by financial regulation, and adapted to the energy markets. The notion of privileged information refers in particular to information relating to physical production, transportation, storage and LNG terminals. It is linked to the transparency obligations provided for in the 3rd energy package.

THE EUROPEAN NETWORK OF TRANSMISSION SYSTEM OPERATORS (ENTSO)

ENTSO (European Network of Transmission System Operators) for electricity (ENTSOE) and for gas (ENTSO-G) exist. Transmission system operators cooperate at EU level via ENTSO to promote the implementation and operation of the internal market for natural gas and electricity and cross-border trade and to ensure optimal management, coordinated operation and a solid technical evolution of the natural gas and electricity transmission network. In this context, the ENTSOs elaborate the European network codes, based on the framework guidelines established by ACER and in close consultation with the latter.

ELECTRICITY TRANSMISSION AND DISTRIBUTION NETWORK

Network designed for the transit of electrical energy between production sites and places of consumption. It is composed of power lines that provide connections to given voltage levels and compounds voltage transformer stations, connection and cut-off devices, measuring instruments, control and monitoring and reactive energy compensating means. There are three hierarchies of networks:
• the large transmission and interconnection network which supplies large quantities of energy, 400 kV or 225 kV, over long distances with low losses;
• the regional distribution network that allocates energy to the regions that power the public distribution network as well as large industrial customers in 225 kV, 90 kV and 63 kV;
• the distribution network at 20 kV and 400 kV serving end consumers in medium voltage (SME and SMI) or in low voltage (domestic, tertiary, small industry customers).

INTELLIGENT ELECTRICAL NETWORKS

The smart electrical networks are also called "smart grids". These are the public electric networks to which the features from the new information and communication technologies are added (NTIC). The goal is to balance electricity supply and demand at all times and provide a safe, sustainable and competitive supply for consumers. Making the network smart consists in improving the integration of energy systems and involvement of network users. These networks need to be deeply reconfigured to integrate decentralized generation of renewable sources on a large scale, and to promote demand-driven supply by providing the final consumer with tools and services that allow them to know their personal consumption, and therefore to act on it.

SECURITY OF SUPPLY

Ability of electrical and gas systems to continuously meet the predictable market demand.

COST OF USE OF THE TRANSMISSION AND DISTRIBUTION NETWORK

To deliver energy on the network, the users pay transmission and distribution system operators for the use of their networks. The method of establishing these tariffs is fixed by the CRE. They are calculated in a transparent and non-discriminatory manner, in order to cover all the costs borne by the network managers insofar as these costs correspond to those of an efficient network manager.

REGULATED SALES TARIFFS

Regulated tariffs, whose changes are set by the public authorities, can only be offered by historical suppliers.
In a decision of 19 July 2017, the State Council ruled that maintaining regulated natural gas tariffs was contrary to EU law. However, by a decision of May 18, 2018, it accepted the existence of regulated tariffs.
Residential consumers may at any time and at no cost terminate their contract and change their offer or supplier to a market offer or return to the regulated tariff.
The energy-climate law of November 8, 2019 provides for the abolition of regulated tariffs for natural gas by June 30, 2023 and the maintenance of regulated tariffs for electricity only for residential consumers and micro-businesses.

LNG TERMINAL

A port facility that receives, stores liquefied natural gas (LNG) and sends the liquefied natural gas to the main transmission network after re-gasification.

ACRONYMS

ACER
Agency for the Cooperation of Energy Regulators

ADEME
Agency for the Environment and Energy Management (Agence de l'environnement et de la maîtrise de l'énergie)

AMF
Financial Markets Authority (Autorité des marchés financiers)

AMM
Automated Meter Management

ANODE
National Association of Energy Retail Operators (Association nationale des opérateurs détaillants en énergie)

ARENH
Regulated access to historical nuclear energy (Accès régulé à l'électricité nucléaire historique)

ATRD
Third party access to the distribution network (Accès des tiers au réseau de distribution)

BT
Low tension (Basse tension)

CE
European Commission (Commission européenne)

CEER
Council of European Energy Regulators

CNIL
National Commission for Information Technology and Civil Liberties (Commission nationale de l'informatique et des libertés)

CORDIS
Dispute Resolution and Sanctions Committee (Comité de règlement des différends et des sanctions)

CRE
Energy Regulation Commission (Commission de régulation de l'énergie)

CSPE
Contribution to the public electricity service (Contribution au service public de l'électricité)

CTA
Transmission tariff contribution (Contribution tarifaire d'acheminement)

DGEC
Directorate General for Energy and Climate (Direction générale de l'énergie et du climat)

ELD
Local Distribution Company (Entreprise locale de distribution)

ENTSO
European Network of Transmission System Operators

ETP
Full-Time Equivalent (Équivalent temps plein)

ETPT
Worked Full-Time Equivalent (Équivalent temps plein travaillé)

GRD
Distribution System Operator (Gestionnaire de réseaux de distribution)

GRT
Transmission System Operator (Gestionnaire de réseaux de transport)

HTA
High Voltage A, medium voltage (Haute tension A)

HTB
High Voltage B, high and very high voltage (Haute tension B)

LTECV
Law n°2015-992 of 17 August 2015 on the energy transition for Green growth (Loi n° 2015-992 du 17 août 2015 relative à la transition énergétique pour une croissance verte)

NOME
New organization of the electricity market (Nouvelle organisation du marché de l'électricité)

PEG
Gas exchange point (Point d'échange de gaz)

PPE
Multi-annual energy programme (Programmation pluriannuelle de l'énergie)

REMIT
Regulation on Wholesale Energy (Market Integrity and Transparency)

TPN
Basic rate (Tarif de première nécessité)

TTF
Title Transfer Facility

TURPE
Tariff for use of the public electricity networks (Tarif d'utilisation des réseaux publics d'électricité)

ZNI
Non-interconnected areas (Zones non interconnectées): Corsica, Guadeloupe, Réunion, Mayotte, Martinique, Guyana, Saint-Pierre-et-Miquelon, Saint-Barthélemy, Saint-Martin, Wallis and Futuna, les îles d'Ouessant, Molène, Sein and Chausey

CRE REPORTS

REPORT ON THE CRE GUIDELINES ON THE MULTI-ANNUAL ENERGY PROGRAMME IN MAYOTTE

REPORT ON THE COSTS AND PROFITABILITY OF SMALL-SCALE HYDROELECTRICITY IN MAINLAND FRANCE

REPORT ON ELECTRICITY STORAGE IN FRANCE

REPORT ON THE FUNCTIONING OF THE WHOLESALE ELECTRICITY AND NATURAL GAS MARKETSIN 2018

ANNUAL REPORT ON LEGAL ACTIVITY IN 2018

REPORT ON THE STATUS OF THE RETAIL ELECTRICITY AND NATURAL GAS MARKETS IN 2018

10 YEAR REPORT ON THE TARIFF REGULATORY FRAMEWORK APPLICABLE TO OPERATORS OF REGULATED INFRASTRUCTURES IN FRANCE

REPORT ON THE COSTS AND PROFITABILITY OF WHOLSALE PHOTOVOLTAICS IN MAINLAND FRANCE

2017-2018 REPORT ON THE COMPLIANCE WITH THE CODES OF CONDUCT AND INDEPENDENCE OF ELECTRICITY AND NATURAL GAS SYSTEM OPERATORS

The purpose of this document is to inform the public of the CRE activities. Only the deliberations of the CRE are authentic.

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