Decision

Deliberation of the French Energy Regulatory Commission of 28 May 2013 regarding the proposal of public medium and low voltage electricity network user tariffs between 1 August 2013 and 31 December 2013

Attendees: Philippe de LADOUCETTE, president, Olivier CHALLAN BELVAL, Hélène GASSIN, and Michel THIOLLIERE, commissioners.

On 28 November 2012, after more than three years of proceedings, the Council of State annulled the tacit decision approving the decisions of 5 May and 5 June 2009 on public transmission network and electricity distribution user tariffs setting public distribution network user tariffs as well as implied decisions of the ministers of energy and economy rejecting applications for review with regard to these decisions.

The Council of State found that the methodology used by the CRE to determine ERDF's return on capital was wrong in law because it did not take into account the specific characteristics of electricity distribution concession accounting. This annulment has had the effect of retroactively eliminating these regulatory tariffs from their entry into force on 1 August 2009.

However, the Council of State, considering that the application of second public electricity transmission user tariffs (TURPE 2) on the considered tariff period would not satisfy the requirement of complete coverage of costs incurred by the network operator, believes that it is the CRE's responsibility to propose that the relevant ministers approve new distribution tariffs for the current period starting from 1 August 2009, calculated taking into account the reasons for its decision.

The Council of State has accordingly postponed the effective cancellation date for public electricity transmission user tariffs to 1 June 2013 to allow these new tariffs to be adopted before this date.

In accordance with the reasoning in the Council of State's decision, the CRE proposed new tariffs for the period between 1 August 2009 and 31 July 2013 to the ministers of the economy and energy on 29 March 2013 in compliance with the applicable procedure on the date of the annulled decision. The ministers approved these tariffs (TURPE 3 HVA/LV) by decision on 24 May 2013 published in the Official Journal of the French Republic on 26 May 2013. The validity of this tariff, retroactively set according to the procedure that was applicable prior to the entry into force of the provisions of the Energy Code derived from the directives of the third package, cannot be extended beyond the expiry date of the annulled tariff.

Since the Energy Code's entry into force on 1 June 2011, the CRE has been responsible for setting network user tariffs in accordance with the provisions of Article L. 341-3 of the Energy Code and not just proposing them to the relevant ministers.

The most commonly used methodology in Europe bases operator remuneration on the value of their assets rather than their liabilities. This so-called "*economic*" methodology has the advantage of not being dependent on the company's level of equity and directly links the level of remunerations to the level of investment in networks.

In addition, tariff construction principles consist in establishing tariffs for coming years, allowing the operator to cover its costs and therefore take into account risk factors inherent to forward planning while ensuring a tariff framework conducive to distributor operational efficiency. Tariffs are typically developed on the basis of budgeted costs to encourage operators to control costs.

As stated in the preamble of the decision of 29 March 2013 on the TURPE3 HVA/LV proposal and given the procedures applicable to this decision, the CRE could not perform the work to adapt an economic approach to the reasoning of the Council of State's decision, notably based on a thorough analysis of ERDF's balance sheet and a benchmark of the approaches of other European regulators, within the time limits set by the decision, namely, to adopt tariffs by 1 June 2013. Therefore, the CRE retained a so-called "*accounting*" approach, based on the *ex post* coverage of all accounting expenses incurred by ERDF increased by equity remuneration for its retroactive tariff proposal for the period between 1 August 2009 and 31 July 2013 .

Given the procedures provided for in Article L. 341-3 of the Energy Code for new tariffs (public consultation, consultation of the Higher Council for Energy, two-month deadline left to ministers to ask the CRE for reconsideration), preparatory work for this new economic approach is not compatible with the original schedule for developing the next HVA/LV tariffs (TURPE 4 HVA/LV), which was to come into force on 1 August 2013, either.

The CRE decided to:

- continue working on developing an approach based on remuneration of distribution network operator assets, intended to apply to the new tariffs, on which stakeholders will be consulted in June 2013, and defer entry into force of these tariffs (TURPE 4 HVA/LV) to 1 January 2014;
- accordingly extend the approach proposed to ministers under the new version of TURPE3 HVA/LV, from 1 August to 31 December 2013 including projected costs for 2013.

The decision on this extension is independent to those on the TURPE 3 HVA/LV, insofar as the procedure applicable to developing new tariffs after 31 July 2013, term of the annulled tariff, is different.

Furthermore, the CRE has reused incentive mechanisms provided in the new version of TURPE3 HVA / LV in this tariff. The CRE effectively proposes to retroactively restore the incentive regulation principles set out in the annulled decision. However, because of the proposed *ex post* coverage of all accounting expenses incurred by ERDF, the incentive regulation system for operating expenses and the cost of purchasing losses could not be used in the TURPE 3 HVA/LV proposal.

Although this tariff does not present the same retroactive nature, the CRE believes that implementing incentive mechanisms on controllable operating costs for this tariff would have been largely ineffective as the few months between the entry into force of the tariff and the end of 2013 would not allow ERDF to achieve real productivity gains. In addition, section E.1 of this decision provides that if the amount of ERDF's net book expenses is higher than that considered when developing this tariff, the difference will be charged to the balance of the expenses and income claw-back account provided that such expenses correspond to those of an efficient network operator. This mechanism therefore encourages ERDF to control the level of its expenses.

The CRE consulted the Higher Council for Energy on the draft tariff decision which delivered its conclusions on 16 April 2013.

Contents

A. Methodological principles

There were three stages to the CRE's establishment of these tariffs. It initially defined an authorised tariff income that then enabled it to deduce tariff changes so that expected tariff income for the period between 1 August and 31 December 2009 was equal to the authorised tariff income over the same period. Finally, operator activity is regulated by various systems constituting what is called a regulatory framework.

Definition of Authorised Tariff Income

The approach retained by the CRE consists in defining an authorised tariff income that covers ERDF's entire net book expenses[1] plus the company's return on book equity[2] on a rate of equity remuneration and clearing the balance of the expenses and income claw-back account (CRCP) determined at the end of 2008.

$$RT = CNC + RCP + CRCP$$

With:

- RT: Authorised tariff income;
- CNC: Net book expenses;
- RCP: Return on capital equity;
- CRCP: CRCP balance annuity end 2008.

Tariff changes

Tariff income is broken down by user in the form of tariffs. There are several tariff components meeting different purposes. However, those that constitute the bulk of operator sales are withdrawal tariffs. These are composed of different coefficients that are collectively called a "pricing structure".

The CRE sets the tariffs valid for 1 August to 31 December 2013 so that expected tariff income for the period between 1 August and 31 December 2013 is equal to the authorised tariff income over the same period.

The percentage of change to the price structure on 1 August 2013 is determined by comparing authorised tariff income for the period between 1 August and 31 December 2013 with expected tariff income over the same period.

Regulatory framework

To encourage effective network management, the CRE has reused the incentive mechanisms implemented in the previous tariffs intended to improve service and supply quality for users in these tariffs. These mechanisms were not affected by the Council of State's decision and are intended to form part of the new tariffs.

This regulatory framework is supplemented by an expenses and income claw-back account for 2013 on which to charge differences between net book expenses and tariff income and CRCP estimation for the period between 1 August and 31 December 2013 subject to these expenses corresponding to those of an efficient network operator. This account will also be used to record the total financial incentives resulting from the implementation of incentive mechanisms.

B. Tariff validity

These tariffs are intended to apply from 1 August 2009 to 31 December 2013.

[1] Based on the financial statements of the operator established under French standards.

[2] Based on the financial statements of the operator established under French standards.

C. **Definition of Authorised** Tariff Income

1. Net book expenses

Net expenses for 2013 were estimated at €11,735 M, based on both elements presented by ERDF and assumptions developed by the CRE. Net expenses for the period between 1 August and 31 December 2013 are equal to 5/12^{ths} of annual expenses.

2. Return on capital equity

CRE retained a return on equity equal to income from the company's equity capital multiplied by the cost of equity capital. The level of return on equity should provide the operator with profits comparable to those from investments with comparable risk levels.

The CRE retained equity capital costs calculated using the following data:

Nominal risk-free rate (A)	4.2%
Market premium (B)	4.5%
Beta capital (C)	0.66
Cost of equity capital after income tax (= A + B x C)	**7.2%**

This rate seems consistent with the practices of other European regulators based on:

- studies by external consultants on remuneration rates for electricity and natural gas infrastructures in 2007 and 2011;
- internal assessments regularly conducted by the CRE.

This approach provides the following results:

In M€	**Aug. – Dec. 2013**
Equity capital on 1 January	4,085
Remuneration after tax	**123**

Remuneration for the period between 1 August and 31 December 2013 is equal to 5/12^{ths} of annual remuneration.

3. Clearing the expenses and income claw-back account for the previous tariff periods

Based on the rules set out in section III.B of TURPE 2's preamble, provisional data used to develop the TURPE 2, and ERDF accounting data, the CRCP balance at the end of 2008 was €-836 million (in favour of ERDF) and breaks down as follows (in millions of €):

CRCP TURPE 1 balance at the end of 2008	557
CRCP TURPE 2 balance at the end of 2008	-1,392
Expenses related to the compensation for network losses	*-1,468*
Capital expenses	*623*
Revenue received for the provision of ancillary services	*-547*
Total	**-836**

The significant CRCP balance at the end of 2008 was due, in particular, to very unfavourable volumes and prices of losses compared to TURPE 2 reference data and income assumptions for ancillary services included in these tariffs that were significantly above actual amounts but which were partly offset by the overestimation of capital expenses.

Remunerated at 7.25% and cleared over five years[3], this balance leads to an annuity of €205M before tax for ERDF (or €135M after tax).

4. Authorised tariff income

The retained approach resulting in the following authorised tariff income:

In M€	Aug. – Dec. 2013
Net book expenses	4,890
Return on capital equity	123
CRCP annuity after tax x 5/12	56
Authorised tariff income	**5,068**

D. Tariff changes

The percentage of change of tariffs on 1 August 2013 is calculated based on the pre-tax difference between the authorised tariff income and expected tariff income at an unchanged tariff.

Nota bene: expected tariff income at an unchanged tariff corresponds to 5/12^{ths} of projected income for 2013 if the tariffs applied for the entire year are equal to those valid for 1 August 2013 to 31 May 2013.

In M€	Aug. – Dec. 2013
Authorised tariff income	5,068
Expected tariff income at an unchanged tariff	5,083
Tariff reduction	14
Pre-tax tariff reduction	**22**

The percentage of change of tariffs compared to the tariffs in force between 1 August 2012 and 31 May 2013 is therefore -0.4% (= -22 M€ / 5,083 M€).

Given the tariff change (-2.5%) planned by the TURPE 3 HVA/LV proposal for 1 June 2013, the percentage of change on 1 August 2013 is +2.1% (= 2.5% - 0.4%).

E. Regulatory framework

1. Expenses and income claw-back account

Differences between the net book charges, tariff income, and CRE estimates for the period between 1 August and 31 December 2013 are charged to the CRCP balance provided that such costs correspond to those of an efficient network operator.

To ensure the mechanism's financial neutrality, the CRCP's updated balance, for differences observed from 1 August to 31 December 2013, is calculated using the nominal risk-free rate presented in section C.2.

[3] As provided for in section III.B.3 of TURPE 2's preamble.

The CRCP is also used for financial incentives resulting from applying incentive regulation mechanisms. Financial incentives specific to each incentive mechanism are calculated as indicated in each of the corresponding sections. In order to moderate the impact of incentive regulation for supply continuity and service quality, the total amount of financial incentives is charged to the CRCP balance calculated for 2013 and cleared for the next tariffs. These amounts are calculated every year and discounted by the nominal risk-free rate presented in section C.2.

2. Incentive Regulation

2.1. Supply Continuity

The CRE has extended the supply continuity improvement incentive mechanism provided for in the previous tariffs to the period between 1 August and 31 December 2013.

Despite this section's provisions, ERDF may be required to provide the CRE with other Public Electricity Distribution Network quality indicators, particularly in the context of ERDF's activity report. ERDF may also provide stakeholders and in particular, users and concessionary authorities with Public Electricity Distribution Network quality indicators.

2.1.1. Incentive Scheme Parameters

For ERDF, the average outage time for year *N* (AOT_N) is calculated using the following formula:

$$AOT_N = \frac{\sum_{\text{Year N}} \text{Outage time of LV consumption installations}}{\text{Total number of LV consumption installations on 1 January of year N}}$$

AOT_N is determined excluding incidents caused by exceptional events (see definition below) and excluding causes relating to the Public Transmission Network (or load shedding). Outages caused by work on the Public Networks operated by ERDF are also excluded due to the disposal programme for transformers containing PCB that would cause, if included, a temporary increase in the average outage time which ERDF indicates that it is currently unable to measure. To avoid any abuse, ERDF will provide the CRE with the average annual outage time caused by works on the Public Distribution Networks operated by ERDF, detailing the impact the disposal programme for transformers containing PCB has on it.

Year *N*'s financial incentive is calculated using the following formula:

$$I_N = -4 \times \left(AOT_{N\,\text{baseline}} - 28\right) \times \ln\left(\frac{AOT_N - 28}{AOT_{N\,\text{baseline}} - 28}\right)$$

$AOT_{N\ baseline}$: baseline average outage time for year *N*, expressed in minutes. Its value is set at 52 mins for 2013.

I_N: financial incentive for year *N*, expressed in M€, which can be a negative value. The absolute value of the annual incentive I_N is capped at €50M. The incentive for the period between 1 August and 31 December 2013 is equal to 5/12^{ths} of the annual incentive.

2.1.2. Supply continuity tracking

Before the end of each calendar quarter, ERDF will provide the CRE with the following information for the previous quarter:

- the average outage time for all causes;
- the average outage time for causes relating to the Public Transmission Network (or load shedding);
- the average outage time excluding exception events and excluding causes relating to the Public Transmission Network (or load shedding);

- for each exceptional event: any evidence to justify its classification as an exceptional event, the average outage time caused by the event and any elements to help assess the timeliness and relevance of ERDF's action to restore normal conditions of operation;
- the average outage time caused by works on the Public Distribution Networks operated by ERDF (detailing the impact the disposal programme for transformers containing PCB has on it).

Before the end of Quarter 1, every year, ERDF will provide the CRE with the following information for the previous year:

- the average annual outage time for all causes;
- the average annual outage time for causes relating to the Public Transmission Network (or load shedding);
- the average annual outage time excluding exception events and excluding causes relating to the Public Transmission Network (or load shedding);
- the average annual outage time caused by works on the Public Distribution Networks operated by ERDF (detailing the impact the disposal programme for transformers containing PCB has on it).

2.1.3. Exceptional Events

Under the incentive regulation for supply continuity, the following are considered to be exceptional events:

- destruction due to acts of war, rioting, looting, sabotage, attacks, or illegal damage;
- damage caused by accidental and uncontrollable events attributable to third parties, such as fires, explosions or plane crashes;
- natural disasters as defined by Law No. 82-600 of 13 July 1982, as amended;
- sudden, fortuitous and simultaneous unavailability of several production facilities connected to the public transmission network, when the unavailable power is above that provided for in the safety rules referred to in Article 28 of the standard public electricity transmission network concession specifications (appended to Decree No. 2006-1731 of 23 December 2006);
- shut-down of equipment imposed by the public authorities for public safety or police reasons when this decision is not the result of behaviour or inaction of the Public Electricity Network's operator;
- atmospheric phenomena of exceptional magnitude, in terms of their impact on the networks, characterised by an annual occurrence probability of less than 5% for the geographic area when, during the same day and for the same cause, at least 100,000 end consumers supplied by the public transmission network and/or public distribution network are deprived of electricity.

2.2. Service quality

The service quality regulation mechanism is composed of two types of indicator:

- indicators monitored by the CRE with a financial incentive in case of non-achievement or exceedance of pre-defined objectives. These financial incentives are in the form of a bonus or malus charged to the CRCP, i.e. financial compensation that ERDF pays directly to users (or third parties authorised by these users) who ask for it;
- indicators that are only monitored by the CRE.

ERDF provides these indicators to the CRE and also publishes them.

Despite this section's provisions, ERDF may be required to provide the CRE with other quality indicators, particularly in the context of ERDF's activity report. ERDF can also provide market players with quality indicators and in particular suppliers and concessionary authorities in the context of the CURDE (Electricity Distribution Network Users Committee) or its contractual relationships.

2.2.1. ERDF service quality indicators leading to financial incentives

The following five indicators are subject to financial incentives:

- Number of complaints for appointments not kept by ERDF;

- Rate of complaints responded to within 30 days;
- Number of connection offers sent late;
- Time taken to provide RTE with half-hourly measurement curves by each balance responsible entity;
- "Supplier" portal availability rate.

The description of these indicators and the related financial incentives are appended.

The total amount of bonus/malus that ERDF could have to pay or receive under the incentive regulation for service quality is capped at an absolute value of €20M/year.

2.2.2. Other ERDF service quality monitoring indicators

ERDF service quality monitoring is composed of:

- three indicators for interventions;
- two indicators for user relations;
- two indicators for supplier relations;
- four indicators for meter reading and billing;
- four indicators for connections;

The description of these indicators is provided in Annex 1.

F. Tariff structure and rules applicable to user for LV and HVA ranges

1. Tariff general principles and structure

To develop these tariffs, the CRE renewed the following TURPE 2 general principles.

1.1. Tariffs independent of distance

In compliance with provisions in Article 14, Paragraph 1, of the (CE) regulation No. 714/2009 of 13 July 2009, providing that network access charges do not depend on the distance separating a generator and a consumer involved in a transaction, the CRE has maintained the principle of *"postage stamp"* pricing.

1.2. Identical tariffs throughout the territory

The public distribution network user tariff is identical throughout the territory. It applies to all public distribution system operators, resulting in a geographical equalisation of tariffs in compliance with the principle of equality provided for in Article L.121-1 et seq. of the Energy Code.

1.3. Tariffs based on operator accounting costs

Article 2 of Decree No. 2001-365 dated 26 April 2001 stipulates that tariffs are to be calculated “based on all costs of these grids, as resulting from analysis of technical costs [and] operator general accounting”. The CRE has therefore retained a method for tariff construction which is based on operator accounting costs.

ERDF allocates its accounting costs by voltage range. Once the total cost to be paid by all users of a given voltage range has been determined, that cost is divided between those users.

1.4. Allocation of costs among users proportionally to energy flows on the networks

Energy is mainly injected in very high voltage to be consumed for the most part by distribution network users. This is why the energy successively travels along portions of networks in decreasing voltage levels. Network users therefore contribute, through the flow of energy they generate, to the vast majority of costs incurred by operators for the management of upstream networks. Thus, tariff revenues received from a user not only cover the costs of the user’s connection voltage range but also part of the costs of upstream voltage ranges.

1.5. Withdrawal tariffs based on the subscribed power and the energy withdrawn

Withdrawal tariffs depend on the connection voltage range, the subscribed power, and the energy withdrawn.

Tariff income collected from users of the same voltage range must cover the cost of losses and system services generated by these users as well as part of fixed grid costs, for upstream voltage ranges and connection voltage range.

1.6. Portfolio effect of power transited on the transmission and distribution grids

The probability that all users simultaneously withdraw all of their subscribed power is unlikely as users only withdraw energy for a short period during the year. A user with a short duration of use will contribute to dimensioning the grids to a lesser extent, and as a result should pay a lower contribution o finance fixed costs. This phenomenon is apprehended by portfolio effect coefficients. These coefficients reflect the average quantity of subscribed power consumed by connection point during the upstream network's most highly loaded hours.

1.7. This portfolio phenomenon is even more pronounced if the power flow uses a highly meshed network. This explains why the portfolio effect is differentiated by voltage range. The higher the number of lines provided by the grid for power transit, the higher the portfolio effect. Allocation of costs among users of the same voltage range

Once the total cost to be covered by tariff income collected by all the users of a given voltage range has been determined, that cost is spread among those users. This allocation is performed according to different criteria for different costs.

The cost of losses directly depends on the volume of withdrawals. This cost is therefore spread among the users of the same voltage range according to the quantity of energy they withdraw.

The other costs are distributed according to the level of subscribed power and the energy withdrawn by each user.

1.8. Structure of tariff options

In order to reconcile the principle of non-discrimination of tariffs stipulated in Article L. 341-2 of the Energy Code and the desire to control energy demand provided for in Article L. 341-4 of the Energy Code, the CRE has renewed time differentiation of tariffs already in place for distribution by stepping up : :

- the degree of time modulation by increasing the ratio between the variable proportion of peak hours and of off-peak hours and the winter/summer ratio,;

The appeal of time differentiated tariffs compared to tariffs without differentiation. These modifications are based on an objective criterion, namely the increase of time and seasonal differentiation of market prices and therefore the purchase cost of losses observed during the 2000s.

2. Content of and main changes in tariff rules for the use of LV and HVA public electricity networks

The tariffs rules in force from 1 August to 31 December 2013 are described in Appendix 2. They mainly renew previous tariff rules.

These rules have 12 sections. The first two define the notions used and the tariff structure. Sections 3 to 12 describe tariff components.

However, in light of feedback from network operators and contributions during the Public Consultations of 18 February 2008, 26 August 2008, 5 February 2009, and 6 November 2012 some provisions of the tariff rules have been modified or supplemented.

2.1. Definitions

The list of definitions has been supplemented to clarify the conditions of application of the tariffs for the use of public electricity grids.

2.2. Tariff Structure

Section 2 contains a description of the various categories of costs covered by the tariffs for the use of the LV and HVA public electricity network, the tariff structure determined so as to reflect these various categories of costs and the way of applying the various tariffs to each connection point.

The terms of calculation of the tariffs for the points connected to the network for a period of less than one year are also specified.

2.3. Administrative management component

The system implemented for the previous tariffs is renewed, namely the express billing of management costs in the form of a fixed charge applicable to all users (producers, consumers, and system operators) according to connection voltage range. This system differentiates users with a network access contract distinct from their supply contract and those with a single contract with their supplier. For the latter, the management costs borne by distribution network operators are reduced as a large proportion of system operator file management activities is performed by the suppliers which pass the cost on to their customers within a competitive market.

To better reflect the costs incurred by system operators, the annual administrative management component is billed by connection point and by access contract.

2.4. Contract management costs are composed of costs related to grid user reception, management of user files, billing, debt recovery and outstanding amounts. Metering

Provisions allowing users to freely choose their metering systems and benefit from offers of supply suited to their consumption have been renewed.

All users are billed a metering component depending on the services selected (meter with index or measurement curve, power control, *etc*.).

This component does not depend on the model of meter installed or the reading method (physical meter reading, remote meter reading via the switched telephone network, powerline communication, GSM, *etc*.) where these characteristics are included in public network operators' technical and managerial options and do not affect the accuracy of metering data.

For users who own their metering system, the new metering component covers the following costs:

- checks to ensure that metering equipment is working correctly conducted on the initiative of public network operators,
- reading or remote reading (including subscription and communication costs);Measurement, calculation and recording of metering data;
- validation, correction, and provision of validated metering data;
- where necessary, profiling for users who do not have meters that record measurement curves.

Meter data is sent to the user or to a third party authorised by the user at a minimum frequency defined according to the subscribed voltage range and withdrawal power and/or the connection point's maximum injection power.

For users whose metering device is owned by a public network operator or authorities organising public electricity distribution, the new metering component also covers the following costs:

- capital expenses of metering devices after deduction of the share of connection contributions regarding metering devices;
- metering equipment maintenance;
- replacement of metering equipment;
- where necessary, metering equipment synchronisation.

However, this metering component does not include the cost to change metering device at the user's request or at the request of a third party authorised by the user, which is subject to specific billing under

tariff rules concerning additional services provided under the monopoly of public electricity network operators.

In application of Decree No. 2007-1280 of 28 August 2007 on the composition of connection and extension structures to connect up to public electricity networks, the costs for initial on-site installation and sealing are now billed as part of the contribution paid to the contracting authority of the connection work.

In its press release of the 6th of June 2007 on the development of low voltage low power (≤36 kVA) meter reading, the CRE accepted the principle of an experiment conducted by ERDF on large-scale deployment of smart meters. To support this experiment, the metering component applicable to users equipped with a smart meter would be identical to that applied to other users.

2.5. HVA withdrawal tariffs

Users connected to the HVA range can choose between three tariff options:

- option without time differentiation;
- option with time differentiation in 5 classes;
- option with time differentiation in 8 classes;

Users opting for time-differentiated tariffs pay high prices during winter peak hours but benefit from lower tariffs outside this period. Grid user or a third party authorised by them are free to choose the tariff option and levels of subscribed power. Public distribution network operators advise users or their authorised third parties to allow them to choose the tariff option that best suits their needs.

2.6. LV withdrawal tariffs

2.6.1. LV > 36 kVA

Users connected to the LV range with subscribed power strictly above 36 kVA can choose from two options with time differentiation based on the rate of use of subscribed power.

2.6.2. LV ≤ 36 kVA

Users connected to the LV range with subscribed power less than or equal to 36 kVA can choose from four options: short-term use, medium-term use, medium-term use with time differentiation, and long-term use.

For all LV range withdrawal tariffs, the choice of one of the options depends on power requirements and subscribed power rate of use. Grid users or a third party authorised by them are free to choose the tariff option and subscribed power levels. Public distribution network operators advise users or their authorised third parties to allow them to choose the option that best suits their needs.

2.7. Complementary and back-up power supplies

For complementary or back-up lines, only the assigned parts are billed. This method of billing takes into account the fact that, given the grid dimensioning rules of “n-1”, it is not possible to distinguish surcharges related to supply of complementary or back-up capacity.

A subscribed back-up power overrun component when connected to a voltage range different to that of the main supply has been introduced. This provision helps ensure that the incentive for the user to purchase optimum power also orientates their choice of the subscribed power for their back-up supply.

2.8. Tariff aggregation of connection points

The consolidation mechanism in force since 1 January 2006 has been renewed.

2.9. Tariff provisions applicable to public distribution networks operators

Public distribution network operators have specific characteristics that are partly defined by the amended law No. 2000-108 dated 10 February 2000 and by article 5-II of French Decree No. 2001-365 dated 26 April

2001. To include these specific characteristics in tariffs applicable to the various voltage ranges, the following special provisions have been maintained:

- Transformer utilisation is invoiced depending on the average direct loads of the transformer station,

- Compensation for operating lines at the same voltage as the public grid upstream is determined based on the difference between tariffs in the delivery voltage range and in the voltage range directly below, decreased by the transformer utilisation component and weighted by the parts of these lines operated by the various system operators,

- Peak shaving of monthly bills for distributor power overshoots is authorised in cases of extreme cold, under the same conditions as for TURPE 2.

The definition of the terms I_1 and I_2 used to calculate compensation for the use of lines at the same voltage as the upstream public network have been clarified.

2.10. Temporary use

In order to take into account certain situations when network capacities can transmit power drawn for short periods without any adverse effects for other users, the system for billing scheduled temporary power overruns (DPP) implemented by TURPE 2 has been renewed. These overruns, which must have been approved by the public network operator, are billed at the average price of energy withdrawn by a user with a 25% rate of use.

DPP requests are conditioned by the completion of work on the electricity requesting party's installations.

The DPP mechanism is transitional so that public distribution system operators are not penalised.

2.11. Billing of reactive energy

Special pricing applied to reactive energy transmission to public distribution network connection points and the public transmission network has been reused to stabilise the number of MV capacitors and therefore maintain reactive energy production capacity on public distribution networks.

A scale sets the penalties in the event of exceeding a "*phi tangent*" range that has been contractually agreed by the parties with regard to the rules in the public transmission network operator's reference technical documentation.

In the absence of agreement between the parties, these tariff rules specify the method to determine the upper threshold of the "phi tangent" range. This method is based on using historic values and provides for the introduction of a lower bound.

This lower bound is justified by the rapid development of decentralised production and the trend towards a natural "phi tangent" increase on public distribution networks avoids excessive differences in treatment between connection points.

Appendix 1: ERDF service quality monitoring indicators

1. ERDF service quality indicators leading to financial incentives

1.1. Number of complaints for appointments not kept by ERDF

Indicator:	Number of complaints for scheduled appointments not kept by ERDF leading to the payment of financial compensation (with breakdown by user category)
Monitoring:	Calculation frequency: Quarterly CRE transmission frequency: Quarterly Publication frequency: Quarterly
Target:	100% of appointments not kept by ERDF and reported by users or third parties authorised by these users are subject to financial compensation
Incentive:	Financial compensation paid by ERDF: amounts identical to those billed by ERDF in the event of a scheduled call-out not respected by the user or a third party authorised by the user (absent during call-out, etc.), for each appointment not kept Payment: directly to users submitting a request (or to third parties authorised by these users if the request was made by these third parties)

1.2. Rate of complaints responded to within 30 days

Indicator:	Number of user complaints processed within 30 calendar days / total number of complaints (excluding complaints requesting compensation related to public network quality)
Monitoring:	Calculation frequency: Monthly CRE transmission frequency: Quarterly Publication frequency: Quarterly Incentive calculation frequency: Yearly (as of the tariff validity date)
Target:	Basic target: 95% of user complaints (either received directly or via third parties authorised by these users) processed within 30 calendar days (excluding complaints requesting compensation for public network quality)
Incentive:	Malus: €100,000 for each whole point below the basic target Payment: to the CRCP

Nota Bene: Complaints requesting compensation related to public network quality have been excluded from this indicator on ERDF's request.

1.3. Number of connection offers sent late

This indicator and the related financial compensation only concern connections for which ERDF manages the entire contract.

Indicator:	Number of connection proposals sent late due to the qualification of the request, in compliance with ERDF's billing scale for public electricity distribution network connection operations (with breakdown by connection category)
Monitoring:	Calculation frequency: Quarterly CRE transmission frequency: Quarterly Publication frequency: Quarterly
Target:	100% of connection proposals sent late reported by persons requesting the connection or by an authorised third party are subject to financial compensation

Incentive:	Financial compensation paid by ERDF: - €30 for individual connection requests for LV ≤ 36 kVA - €100 for individual connection requests for LV > 36 kVA and collective LV connection requests - €1,000 for HVA connection requests Payment: to the person requesting the connection (or to third parties authorised by these persons if the request was made by these third parties)

1.4. Time taken to provide RTE with half-hourly measurement curves by each balance responsible entity

Indicator:	Rate of compliance with the time-frame to send RTE overall consumption assessments for Balance Responsible Entities declared active (with sites) on the ERDF network for week W-2 in W for the following measurement curves (MC): - Aggregated MC for consumption on sites with remote measurement curve reading - Aggregated MC for consumption on sites with indexes (profiled) - Aggregated MC for production on sites with remote measurement curve reading - Aggregated MC for production on sites with indexes (profiled)
Monitoring:	Calculation frequency: Quarterly CRE transmission frequency: Quarterly Publication frequency: Quarterly Incentive calculation frequency: Yearly (as of the tariff validity date)
Target:	Basic target: 90% Core target: 96%
Incentive:	Malus: €50,000 for each whole point below the basic target Bonus: €50,000 for each whole point above the core target Payment: to the CRCP

1.5. "Supplier" portal availability rate

Indicator:	Number of hours of availability (excluding scheduled downtime) / number of opening hours of the exchange management system portal (opening hours are from 7am to 7pm Monday to Saturday excluding public holidays)
Monitoring:	Calculation frequency: Weekly CRE transmission frequency: Quarterly Publication frequency: Quarterly Incentive calculation frequency: Weekly and yearly (as of the tariff validity date)
Target:	Basic target: 96% per week Core target: 99% per year
Incentive:	Malus: €10,000 per week below the basic target Bonus: €100,000 per year above the core target Payment: to the CRCP

2. Other ERDF service quality monitoring indicators

2.1. Call-out/work indicators

Indicator Title	Indicator calculation	Transmission frequency to the CRE
Start-up turnaround time for existing installations	Rate of start-ups on existing facilities conducted by time-frame bracket and consumer category	Monthly
Completion turnaround time	Rate of start-ups by time-frame bracket and consumer category	Monthly
Turnaround time for a supplier change	Rate of supplier changes by time-frame bracket and consumer category	Monthly

Nota bene: ERDF's current information systems (IS) do not enable it to produce indicators concerning ancillary services for all consumer categories. These indicators are solely calculated on consumers managed by the IS implemented for the opening-up of markets. This will continue until ERDF and EDF IS are completely independent.

2.2. User relations indicators

Indicator Title	Indicator calculation	Transmission frequency to the CRE
Total number of user complaints	Number of user complaints (received directly or via a third party authorised by the user) by type and user category	Quarterly
Rate of response to user complaints within 30 days (breakdown by type and user category)	Number of user complaints processed within 30 days / total number of complaints (this indicator excludes complaints requesting compensation related to public network quality)	Quarterly

2.3. Supplier relations indicator

Indicator Title	Indicator calculation	Transmission frequency to the CRE
Specific supplier hotline accessibility rate	Number of calls taken on the "urgent" transmission hotline / Number of calls to process	Quarterly

2.4. Meter reading and billing indicators

Indicator Title	Indicator calculation	Transmission frequency to the CRE
Rate of meters with at least one real index reading per year for LV ≤ 36 kVA consumers	Number of meters with at least one real index reading per year / number of meters to read	Quarterly
Rate of monthly readings published based on real indexes for LV > 36 kVA and HVA single contract consumers	Number of readings published based on real indexes / number of readings published	Monthly
Rate of Exchange Management System publication of readings and bills for LV > 36 kVA and HVA single contract consumers within deadlines	Amount of reading and billing data published within deadlines / amount of expected reading and billing data	Monthly
Rate of absence of LV ≤ 36 kVA consumers for reading (3 or more times)	Number of customers absent 3 or more times for readings / number of meters to read	Quarterly

* EMS: Exchange Management System

2.5. Connection indicators

These indicators only concern connections for which ERDF manages the entire contract.

Indicator Title	Indicator calculation	Transmission frequency to the CRE
Accessibility rate of the Electricity Connection Hotline	Number of calls taken / number of calls received	Quarterly
Time taken to send a technical and financial connection proposal	Time taken to send a technical and financial connection proposal based on request qualification (with breakdown by connection category).	Quarterly
Rate of compliance with agreed start-up dates for connection structures	Number of connections for which operations started within the time-frame agreed in the technical and financial connection proposal (and where necessary the service order of the authority responsible for town planning) / Number of connections put into operation (with breakdown by connection category)	Quarterly
Connection work turnaround time	Time between receipt of the technical and financial connection proposal (and where necessary the service order of the authority responsible for town planning) and the actual date connections are put into operation (with breakdown by connection category): - Average time-frame for individual LV ≤ 36 kVA connections without extension - Rate of connections by time-frame bracket for the other cases (with breakdown by connection category)	Quarterly

Appendix 2: User tariffs rules for a public LV or HVA electricity network valid from 1 August 2013 to 31 December 2013

1. Definitions

For the application of these rules, the terms below have the following meanings.

1.1. Absorption of reactive power

Reactive power transmission via the connection point used to serve the public electricity network user.

1.2. Power supply

If a user is connected to the public network(s) by several power supplies, the main, complementary and back-up power sources should be identified in a contract with the relevant public network operator(s).

1.2.1. Main power supply

A user's main power supply or supplies must ensure that the user is supplied with their subscribed withdrawal power and/or the maximum injection power agreed under normal operating conditions of the user's electrical installations. Normal operating conditions are contractually agreed between the user and the relevant public network operator(s), in compliance with quality commitments included in the corresponding access contract.

1.2.2. Backup power supply

A user's power supply is a back-up power supply if it is a live circuit but only used for to transmit power between the public network and the installations of one or more users in the event of unavailability of all or part of their main and complementary power supplies.

The assigned part of a back-up power supply is the part of public networks which is only used by flows to one or more connection points for one or more back-up power supplies of this user or another user.

Flows taken into account to establish the assigned part of back-up power supplies are those which are established under normal operating conditions in the event of unavailability of all or part of other power supplies for the user's electrical installations agreed by contract with the relevant public network operator(s), given the typology of the public network and whatever operations the operators may be carrying out on them.

1.2.3. Complementary power supply

A user's power sources that are neither main nor back-up power supplies are considered as this user's complementary power supply.

The assigned part of a complementary power supply is the part of the public networks that is only used by flows originating from or with the destination of one or more connection points belonging to that user.

Flows taken into account to establish the assigned part of complementary power supplies are those which are established under normal operating conditions of the user's electrical installations agreed by contract with the relevant public network operator(s), given the typology of the public network and whatever operations the operators may be carrying out on them.

1.3. Cell

A cell is a set of electrical equipment installed in an electrical substation and which consists of a main switching device (normally a circuit breaker), one or more isolating switches, voltage and current transformers, and protection devices.

1.4. Time class

For any public electricity network user tariff, a time category is the number of hours in the year to which the same tariff coefficient is applied.

1.5. Grid access contract

A network access contract is the contract referred to in Articles L. 111-91 to L. 111-95 of the Energy Code defining the technical, legal, and financial terms for user access to a public transmission or distribution network to withdraw and/or inject electrical power. It is concluded with the public system operator either by the user or by the supplier on their behalf.

1.6. Measurement curve

A measurement curve is all time-stamped average values for a variable measured over consecutive integration periods of the same duration. The load curve is a curve measuring the active energy withdrawn.

Integration periods are consecutive intervals of time of the same duration during which average values of an electrical signal varying over time are calculated. If the current rules state that the variables are calculated by integration period, the value of these variables is reduced for each integration period to their average value during this period.

1.7. Metering system

A metering system is composed of all active and/or reactive energy meters at a given metering point, including cabinets, boxes, and panels, as well as, if need be, the following complementary items of equipment assigned to it: low voltage and current transformers, pricing signal receivers, synchronisation systems, devices for meter data pricing conversion, communication interfaces for meter reading, control systems to limit power consumption, and test boxes.

A smart meter is a metering device connected to a telecommunication network that can be remotely configured and consulted using the public network operator's information system. Readings and flow control are automatically performed at the installation's connection point.

1.8. Voltage range

AC public transmission and distribution voltage ranges are listed in the table below:

<table>
<tr><th>Connection voltage (U_n)</th><th colspan="3">Voltage range</th></tr>
<tr><td>$U_n \leq 1$ kV</td><td colspan="2">LV</td><td>Low voltage range</td></tr>
<tr><td>1 kV < $U_n \leq$ 40 kV</td><td>MV 1</td><td rowspan="2">Medium Voltage range</td><td rowspan="5">Medium voltage range</td></tr>
<tr><td>40 kV < $U_n \leq$ 50 kV</td><td>MV 2</td></tr>
<tr><td>50 kV < $U_n \leq$ 130 kV</td><td>HV 1</td><td rowspan="3">High Voltage range</td></tr>
<tr><td>130 kV < $U_n \leq$ 350 kV</td><td>HV 2</td></tr>
<tr><td>350 kV < $U_n \leq$ 500 kV</td><td>HV 3</td></tr>
</table>

Tariffs applicable to users connected to public MV 2 networks are those of the HV 1 voltage range. According to the set of current rules, tariffs applicable to users connected to public HV 1 networks are called MV tariffs.

1.9. Reactive power provision

Reactive power transmission via the connection point used to supply the public electricity network by the user.

1.10. Index

Energy indexes represent the time integration of the root mean square values of power, separately for each quadrant, from a selected time origin.

1.11. Active power injection

Active power transmission via the connection point used to supply the public electricity network by the user.

1.12. Busbars

Three-phase set of three metallic bars or three conductors, each making up a set of points with equal voltage, common to each phase of a three-phase system enabling connection. Buses are used to connect equipment together (devices, lines, wires). For the purpose of these tariff rules, busbars are not considered electricity lines (as defined below).

1.13. Electricity line

An electricity line is composed of a circuit, a set of conductors and, if need be, an overhead earth wire.

1.14. Transformer

Transformers are devices located at the interface between two different voltage ranges on public electricity networks.

1.15. Connection points

A user's connection point(s) on the public network coincide(s) with the ownership limit between the user's electrical installation and the public network's electricity equipment, normally corresponding to the boundary of the electrical equipment, marked off by a disconnecting device. A disconnecting device is a devise installed on an electricity network able to interrupt non-zero current flows between the two extremities of the device.

For the application of the current rules, for a user with several connection points on the public HV and MV networks, it is considered that all or part of these points are mixed, if, under the user's installation's normal operating conditions contractually agreed with the public network operator(s), they are connected to the connection voltage by this user's electrical installation.

1.16. Profiling

System used by public network operators to calculate, on a half-hourly basis, consumption or production of users for whom flow reconstitution is not based on a measurement curve to determine deviations in their balance responsible entities. This system is based on determining consumption or production types (load profiles) for user categories.

1.17. Active power (P)

Active power *P* refers to the average working energy flow at any point of the electricity network.

1.18. Apparent power (S)

Apparent power *S* represents the amplitude of the instantaneous power signal at any point of the electricity network.

1.19. Reactive power (Q) and reactive energy

Reactive power *Q* is equal to active power multiplied by the *tg* φ ratio.

Reactive energy refers to the reactive power *Q* integrant over a set period of time. Reactive energy is stored as an electromagnetic field within electricity networks but is not consumed by users.

1.20. Phi tangent (tg φ) ratio

The phi tangent (*tg* φ) ratio measures, at any point of the electricity network, voltage and intensity signal phase displacement. The *tg* φ ratio is an important parameter for electricity network operation and safety.

1.21. Active power output

Active power transmission via the connection point used to serve the public electricity network user.

1.22. User

A public transmission or distribution network user is any private individual or any legal entity, including public network operators directly supplying this public network or directly served by it.

2. Public network user tariff structure

The tariffs below are expressed exclusive of any taxes or charges applicable to the use of public electricity networks including the tariff contribution mentioned in Article 18-I of the Law of 9 August 2004, as amended, on Public electricity and gas services and electricity and gas companies.

In accordance with Article L. 341-2 of the Energy Code providing that "*public transmission and distribution network user tariffs shall be calculated in a transparent and non-discriminatory manner to cover all costs incurred by the operators of these networks insofar as they correspond to those of an efficient network operator*", and Article 2 of Decree No. 2001-365 of 26 April 2001, as amended, they cover:

- costs related to the constitution of operating reserves which include costs related to public network operator acquisition of voltage control system services and costs for constituting primary and secondary frequency control reserves,
- costs related to operating the balance responsible entity system for electricity consumption and/or production sites with a connection point to the public transmission and distribution networks,
- metering, inspection, reading, validation, profiling and meter data transmission costs,
- the share of costs of ancillary services provided under the monopoly of public network operators that are not covered by the tariffs of these services,
- the share of public electricity network start-up and extension costs that is not covered by the contributions paid to public network operators when they are the connection work's contracting authority.

An exception is also made for certain specifically identified services provided at a user's request or resulting from their own doing, that are invoiced separately, particularly under the conditions of the decision(s) on ancillary services provided under the monopoly of public electricity network operators in force, for the share of their costs that is not covered by the public electricity network user tariffs defined in sections 3 to 12 below.

The network access contract specifies the user's connection points to the relevant public network and the applicable tariff. It also specifies the connection voltage range, subscribed withdrawal power, and the metering system deployed for each connection point. Subscribed withdrawal power is defined at the beginning of a period of 12 consecutive months for the whole of that period. The network access contract provides for the conditions under which the subscribed withdrawal power capacity can be changed during this period.

At each connection point, the annual price paid for the use of a public electricity network is the sum of the following items:

- annual administrative management component(s) (CG),
- annual metering management component(s) (CC),
- annual injection component (CI),

- annual withdrawal component (CS),
- monthly subscribed power overrun component (CMDPS),
- annual complementary and back-up power supply component (CACS),
- contractual connection point consolidation component (CR),
- for public network operators, the annual component for transformer (CT) use, compensation for operating lines at the same voltage as the upstream public network and bill capping in extreme cold weather,
- annual scheduled temporary power overrun component (CDPP),
- annual reactive energy component (CER).

These components are applied notwithstanding any provision to the contrary in specifications, utility concessions, and contracts, including those for billing operating, maintenance and replacement costs.

Only the energy corresponding to physical flows measured at the connection point concerned is used to calculate annual injection and withdrawal components measured for each integration period by the contractually agreed metering system.

When a user has been connected to the public electricity network for less than a year, the fixed portion of public electricity network use tariffs defined in sections 3 to 12 below is calculated on a monthly *pro rata* basis. However, the billed amount may not be less than 1/12th of the fixed portion in question.

3. Annual Management Component (GS)

The annual administrative management component of the network access contract covers the costs of managing user files, physical and telephonic reception of customers, billing, and debt recovery. The amount depends on the contract terms laid down by the public network operator concerned, either directly with the network user or with the exclusive supplier to the network user's site in application of Article L. 111-92 of the Energy Code.

The annual management component in an access contract concluded by an exclusive supplier is also applicable to:

- consumers who have not exercised the right granted under Article L. 331-1 of the Energy Code,
- users who have a purchase price prior to Law No. 2000-108 of 10 February 2000, as amended.

The annual management component a_1 is determined for each connection point of one or more main power supplies and for each access contract according to Table 1 below:

Table 1

a_1 (€/year)	**Network access contract concluded by the user**	**Network access contract concluded by the supplier**
HVA	698.16	67.44
LV > 36 kVA	336.84	54.00
LV ≤ 36 kVA	33.60	8.64

4. Annual metering component (CC)

The annual metering component covers metering, inspection, reading, and meter data transmission (sent to the user or an authorised third party at minimum intervals defined in tables 2.1 and 2.2 below) costs, and, if need be, the costs related to the rental, maintenance, and implementation of load profiles to users equipped with meters that do not record measurement curves.

It is determined according to metering system technical characteristics and services requested by users according to the tariffs listed below. Values measured by the user's measuring and testing equipment must allow the calculation of annual components included in the public network user tariff.

The annual metering component is determined for each metering system and for each access contract according to tables 2.1 and 2.2 below, depending on the ownership of the metering system.

In the absence of metering systems, public network operators can apply transparent and non-discriminatory methods to estimate injected or withdrawn injection flows and subscribed power, according to the rules stipulated in their reference technical documentation. In this case, the annual metering component is 1.20 €/year.

4.1. Metering systems owned by public network operations or authorities organising public electricity distribution

The annual metering component billed to users with a metering system belonging to public network operators or the authorities organising public electricity distribution is defined in table 2.1 below, according to the voltage range, subscribed withdrawal power and/or maximum injection power, power control, and the variables measured (index or measurement curve).

Table 2.1

Voltage range	Power (P)	Minimum transmission frequency	Power Control	Measured values	Annual metering component €/an
HVA	-	Monthly	Overrun	Measurement curve	1,179.84
				Index	501.36
LV	-	Monthly	Overrun	Measurement curve	1,179.84
	P > 36 kVA	Monthly	Overrun	Index	389.04
			Circuit breaker		309.84
	18 kVA < P ≤ 36 kVA	Six-monthly	Circuit breaker	Index	22.08
	P ≤ 18 kVA	Six-monthly	Circuit breaker	Index	18.36
	P ≤ 36 kVA	Bi-monthly	Smart meter	Index	18.36

4.2. Metering systems owned by users

The annual metering component billed to users who own their metering system is defined in table 2.2 below, according to the voltage range, subscribed withdrawal power and/or maximum injection power, power control, and the variables measured (index or measurement curve).

Table 2.2

Voltage range	Power (P)	Minimum transmission frequency	Power Control	Measured values	Annual metering component €/an
HVA	-	Monthly	Overrun	Measurement curve	552.60
				Index	151.56
LV	-	Monthly	Overrun	Measurement curve	552.60
	P > 36 kVA	Monthly	Overrun	Index	138.84
			Circuit breaker		144.84
	18 kVA < P ≤ 36 kVA	Six-monthly	Circuit breaker	Index	8.88
	P ≤ 18 kVA	Six-monthly	Circuit breaker	Index	8.88

5. Annual injection component (CI)

The annual injection component is determined at each connection point, according to the active energy injected on the public network, according to Table 3 below:

Table 3

Voltage range	c€/MWh
HVA	0
LV	0

6. Annual HVA range withdrawal components (CS) and monthly components for subscribed power overruns (CMDPS)

To determine HVA range annual withdrawal component, users choose one of the following three tariffs for each connection point and for a complete period of 12 consecutive months:

- Optional tariff without time differentiation;
- Optional tariff with 5 categories of time differentiation;
- Optional tariff with 8 categories of time differentiation.

6.1. Optional tariff without time differentiation

Users choose a subscribed power, $P_{Subscribed}$ for each of their HVA range connection points for which they have selected this tariff.

At each of these connection points, the annual withdrawal component is determined according to the following formula:

$$CS = a_2.P_{Subscribed} + b.\tau^c.P_{Subscribed} + \sum_{12\ months} CMDPS$$

The rate of use τ is calculated based on active energy withdrawn over the 12-month period under consideration, $E_{withdrawn}$ in kWh, the subscribed power $P_{Subscribed}$ in kW and duration D in hours of the year considered according to the following formula:

$$\tau = \frac{E_{withdrawn}}{D.P_{Subscribed}}$$

The a_2, b, and c coefficients used are those in Table 4 below:

Table 4

Voltage range	a_2 (€/kW/year)	b (€/kW/year)	c
HVA	21.84	83.99	0.800

6.2. Optional tariffs with time differentiation

For each of their HVA range connection points for which they have chosen such a tariff and for each of the n time categories constituting it, users choose subscribed power P_i in multiples of 1 kW, where i signifies the time category. Whatever the value of i, subscribed power must be such that $P_{i+1} \geq P_i$.

At each of these connection points, the annual withdrawal component is determined according to the following formula:

$$CS = a_2.P_{Subscribed\ weighted} + \sum_{i=1}^{n} d_i.E_i + \sum_{12\ months} CMDPS$$

E_i signifies the active energy withdrawn during the i^{th} time category, expressed in kWh.

$P_{Subscribed\ weighted}$ signifies the weighted subscribed power calculated according to the following formula:

$$P_{Subscribed\ weighted} = k_1.P_1 + \sum_{i=2}^{n} k_i.(P_i - P_{i-1})$$

6.2.1. Optional HVA tariff with 5 categories of time differentiation

For the HVA tariff with 5 time categories (n = 5), coefficients a_2, d_i and k_i used are those in tables 5.1 and 5.2 below:

Table 5.1

a_2 (€/kW/year)	12.84

Table 5.2

	Peak hour (i = 1)	**Peak winter hours (i = 2)**	**Off-peak winter hours (i = 3)**	**Peak summer hours (i = 2)**	**Off-peak summer hours (i = 3)**
Energy weighting factor (c€/kWh)	d_1 = 7.19	d_2 = 3.01	d_3 = 1.61	d_4 = 0.97	d_5 = 0.74
Power weighting factor	k_1 = 100%	k_2 = 88%	k_3 = 62%	k_4 = 52%	k_5 = 42%

Time categories are set locally by the public network operator according to public network operating conditions They are notified to anybody on request and posted on the public network operator's website or, in the absence of such a site, by any other appropriate means. Winter is November to March. Summer is April to October. Peak hours are set, from December to February, at two hours between 8-12 in the morning and 2 hours between 5-9 in the evening. The whole of Sunday is off-peak. The other days are composed of 8 off-peak hours to be determined between 9:30 pm to 7:30 am.

6.2.2. Optional HVA tariff with 8 categories of time differentiation

For the HVA tariff with 8 time categories (n = 8), coefficients a_2, d_i and k_i used are those in tables 6.1 and 6.2 below:

Table 6.1

a_2 (€/kW/year)	12.84

Table 6.2

	Peak hour (i = 1)	**Peak winter hours (i = 2)**	**Peak hours in March and November (i = 3)**	**Off-peak winter hours (i = 4)**	**Off-peak hours in March and November (i = 5)**	**Peak summer hours**	**Off-peak summer hours (i = 7)**	**July-August (i = 8)**
Energy weighting factor (c€/kWh)	d_1 = 7.40	d_2 = 3.53	d_3 = 2.47	d_4 = 1.93	d_5 = 1.56	d_6 = 1.02	d_7 = 0.79	d_8 = 0.67
Power weighting factor	k_1 = 100%	k_2 = 89%	k_3 = 75%	k_4 = 66%	k_5 = 56%	k_6 = 36%	k_7 = 24%	k_8 = 17%

Time categories are set locally by the public network operator according to public network operating conditions. They are notified to anybody on request and posted on the public network operator's website or, in the absence of such a site, by any other appropriate means. Winter includes December, January, and February. Summer includes April, May, June, September, and October. Peak hours are set, from December to February, at two hours between 8-12 in the morning and 2 hours between 5-9 in the evening. The whole of Sunday and public holidays are off-peak. The other days are composed of 6 off-peak hours to be determined between 11:30 pm to 7:30 am.

6.3. Monthly subscribed power overrun component (CMDPS)

6.3.1. HVA tariff with meters measuring overruns by integration periods of 10 minutes

For users who have a tariff without time differentiation and a connection point equipped with a meter measuring active power overruns against subscribed power by integration periods of 10 minutes, monthly components for exceeding subscribed power related to this point are identified every month for the month, based on the following method:

$$CMDPS = 0{,}08.a_2.\sqrt{\sum\left(\Delta P^2\right)}$$

For users who have a tariff with time differentiation and a connection point equipped with a meter measuring active power overruns against subscribed power by integration periods of 10 minutes, monthly components for exceeding subscribed power related to this point are identified every month for each of the time categories for the month, based on the following method:

$$CMDPS = \sum_{\text{i categories of the month}} 0{,}15.k_i.a_2.\sqrt{\sum\left(\Delta P^2\right)}$$

Power overruns of subscribed power ΔP are calculated by integration periods of 10 minutes. Coefficients a_2 and k_i used are those in 6.1 and 6.2, depending on the option selected.

6.3.2. HVA tariffs with a meter with a maximum power indicator

For users with a tariff without time differentiation and a connection point equipped with a meter with a maximum power indicator and a power recorder, monthly components for exceeding subscribed power related to this point are identified every month based on ΔP_{max}, the difference between maximum power reached during the month and subscribed power, according to the following method:

$$CMDPS = 0{,}7.a_2.\Delta P_{max}$$

For users with a tariff with time differentiation and a connection point equipped with a meter with a maximum power indicator and a power recorder, monthly components for exceeding subscribed power related to this point are identified every month based on $\Delta P_{(max)i}$, the difference for each time category between maximum power reached during the month and subscribed power, according to the following method:

$$CMDPS = \sum_{\text{i categories of the month}} 1{,}6.k_i.a_2.\Delta P_{(max)i}$$

Coefficients a_2 *and* k_i *used are those in 6.1 and 6.2, depending on the option selected*.

7. Annual LV range withdrawal components (CS) and monthly components for subscribed power overruns (CMDPS)

7.1. Annual withdrawal components and monthly components for subscribed power overruns for LV range above 36 kVA

To determine the annual withdrawal component for the LV range strictly above 36 kVA, users choose, for the entire period of 12 consecutive months, one of the two following tariffs with time differentiation: medium-term and long-term use.

For each of the time categories defined in sections 7.1.1 and 7.1.2 and for each connection point for the LV range strictly above 36 kVA, users choose, in multiples of 1 kVA, apparent subscribed power S_i where *i* signifies the time category.

When overruns are checked against subscribed active power, the latter is equal to apparent subscribed power multiplied by 0.93.

When overruns of apparent subscribed power are checked by a circuit breaker at the interconnection with the public network, apparent subscribed power is equal to the control power of the surveillance equipment commanding the circuit breaker.

In addition, whatever the value of *i*, apparent subscribed power must be such that $S_{i+1} \geq S_i$. At each of these connection points, the annual withdrawal component is determined according to the following formula:

$$CS = a_2.S_{\text{Subscribed weighted}} + \sum_{i=1}^{n} d_i.E_i + \sum_{\text{12 months}} CMDPS$$

E_i signifies the active energy withdrawn during the i^{th} time category, expressed in kWh.

$P_{Subscribed\ weighted}$ signifies the weighted apparent subscribed power calculated according to the following formula:

$$S_{\text{Subscribed weighted}} = k_1.S_1 + \sum_{i=2}^{n} k_i.(S_i - S_{i-1})$$

7.1.1. LV tariff > 36 kVA long-term use

For the tariff for long-term use of LV > 36 kVA with 5 time categories (n = 5), a maximum of two apparent subscribed powers can be applied to the same user. The coefficients a_2, k_i and d_i used are those in tables 7.1 and 7.2 below:

Table 7.1

a_2 (€/kVA/year)	22.80

Table 7.2

	Peak hour (i = 1)	**Peak winter hours (i = 2)**	**Off-peak winter hours (i = 3)**	**Peak summer hours (i = 2)**	**Off-peak summer hours (i = 3)**
Energy weighting factor (c€/kWh)	d_1 = 3.74	d_2 = 3.74	d_3 = 2.58	d_4 = 1.30	d_5 = 1.09
Power weighting factor	k_1 = 100%	k_2 = 71%	k_3 = 61%	k_4 = 50%	k_5 = 50%

Time categories are set locally by the public network operator according to public network operating conditions. They are notified to anybody on request and posted on the public network operator's website or, in the absence of such a site, by any other appropriate means. Winter is November to March. Summer is April to October. Peak hours are set, from December to February, at two hours between 8-12 in the morning and 2 hours between 5-9 in the evening. All days have 8 off-peak hours, either consecutive or broken up into two periods, within the range of 12 to 4 pm and 9:30 pm to 7:30 am.

7.1.2. LV tariff > 36 kVA medium-term use.

For the tariff BT > 36 kVA medium-term use with 4 time categories (n = 4), apparent subscribed power must be such that $S_1 = S_2 = S_3 = S_4$. The coefficients a_2 and d_i used are those in tables 8.1 and 8.2 below:

Table 8.1

a_2 (€/kVA/year)	13.20

Table 8.2

	Peak winter hours (i = 1)	**Off-peak winter hours (i = 2)**	**Peak summer hours (i = 3)**	**Off-peak summer hours (i = 4)**
Energy weighting factor (c€/kWh)	d_1 = 4.63	d_2 = 3.15	d_3 = 1.29	d_4 = 1.09

Time categories are set locally by the public network operator according to public network operating conditions. They are notified to anybody on request and posted on the public network operator's website or, in the absence of such a site, by any other appropriate means. Winter is November to March. Summer is April to October. All days have 8 off-peak hours, either consecutive or broken up into two periods, within the range of 12 to 4 pm and 9:30 pm to 7:30 am.

7.1.3. Monthly subscribed power overrun component (CMDPS)

LV > 36 kVA tariff with meter
measuring active power overruns

For LV above 36 kVA users who have chosen a long-term use tariff and a connection point equipped with a meter measuring active power overruns against subscribed power by integration periods of 10 minutes, monthly components for exceeding subscribed power related to this point are identified every month for each of the time categories for the month, based on the following method:

$$CMDPS = \sum_{i \text{ categories of the month}} 0{,}15.k_i.a_2.\sqrt{\sum\left(\Delta P^2\right)}$$

Power overruns of subscribed power ΔP are calculated by integration periods of 10 minutes. The coefficients a_2 and k_i used are those in section 7.1.1.

For LV above 36 kVA users who have chosen a medium-term use tariff and a connection point equipped with a meter measuring active power overruns against subscribed power by integration periods of 10 minutes, monthly components for exceeding subscribed power related to this point are identified every month for each of the time categories for the month, based on the following method:

$$CMDPS = 0{,}15.a_2.\sqrt{\sum\left(\Delta P^2\right)}$$

Power overruns of subscribed power ΔP are calculated by integration periods of 10 minutes. The coefficient a_2 used is that in section 7.1.2.

LV > 36 kVA tariff with meter
measuring apparent power overruns

For users of LV above 36 kVA with a connection point equipped with meters measuring overruns, ΔS, between apparent power observed every minute as a sliding average of the root-sum square and subscribed power, monthly components for overrunning subscribed apparent power related to this point are determined every month for each time category in the month under consideration, based on overrun duration h (hours) and according to the following formula:

CMDPS = 11,11.h

7.2. Annual withdrawal component of the LV range up to and including 36 kVA

To determine the annual LV range withdrawal component up to and including subscribed power of 36 kVA, users choose, for an entire period of 12 consecutive months, one of the following four tariffs:

- short-term use;
- medium-term use;
- medium-term use with time differentiation;
- long-term use.

They must define subscribed power for their chosen tariff $P_{Subscribed}$, in multiples of 1 kVA.

When overruns of subscribed power are checked by a circuit breaker at the interconnection with the public network, subscribed power is equal to the control power of the surveillance equipment commanding the circuit breaker.

For each connection point in the LV range up to and including subscribed power of 36 kVA, the annual withdrawal component is determined according to the following formula:

$$CS = a_2.P_{Subscribed} + \sum_{i=1}^{n} d_i.E_i$$

E_i signifies energy withdrawn during the i^{th} time category, expressed in kWh, and $P_{Subscribed}$ signifies subscribed power equal to the control power of surveillance equipment commanding the circuit breaker.

7.2.1. LV tariff > 36 kVA short-term use

For short-term use tariffs, n = 1 and the coefficients a_2 and d_1 used are those in Table 9 below:

Table 9

Subscribed demand (P)	**a_2 (€/kVA/year)**	**d_1 (c€/kWh)**
P ≤ 9 kVA	3.48	3.43
9 kVA < P ≤ 18 kVA	6.24	3.25
18 kVA < P	12.36	2.89

7.2.2. LV rate ≤ 36 kVA medium-term use

For medium-term use tariffs, n = 1 and the coefficients a_2 and d_1 used are those in Table 10 below:

Table 10

Subscribed demand (P)	**a_2 (€/kVA/year)**	**d_1 (c€/kWh)**
P ≤ 9 kVA	4.80	3.24
9 kVA < P ≤ 18 kVA	9.00	2.95
18 kVA < P	19.80	2.32

7.2.3. LV tariff ≤ 36 kVA medium-term use with time differentiation

For the medium-term tariff with time differentiation, n = 2 and the coefficients a_2, d_1, and d_2 used are those in Table 11 below:

Table 11

Subscribed demand (P)	a_2 (€/kVA/year)	d_1 Peak hours (c€/kWh)	d_2 Off-peak hours (c€/kWh)
P ≤ 9 kVA	4.80	3.62	2.25
9 kVA < P ≤ 18 kVA	9.00	3.25	2.02
18 kVA < P	19.80	2.51	1.57

Time categories are set locally by the public network operator according to public network operating conditions They are notified to anybody on request and posted on the public network operator's website or, in the absence of such a site, by any other appropriate means. There are 8 off-peak hours per day which can be non-consecutive. These must be set between 12-5 pm and 8 pm to 8 am.

7.2.4. LV tariff ≤ 36 kVA long-term use

For the application of the long-term use tariff, in the absence of meters, public network operators can apply transparent and non-discriminatory methods to estimate energy flows withdrawn and subscribed power.

Power is subscribed in multiples of 0.1 kVA, n = 1 and the coefficients a_2 and d_1 used are those in Table 12 below:

Table 12

	a_2 (€/kVA/year)	d_1 (c€/kWh)
Long-term use	56.28	1.10

8. Annual complementary and back-up power supply component (CACS)

Complementary and back-up power supplies established at the request of users are billed according to the methods described below. The annual complementary and back-up power supply component (CACS) is equal to the sum of these components.

8.1. Complementary power supply

The sections dedicated to a user's complementary power supply are subject to a charge for the electrical equipment constituting them. This charge is based on the length of these assigned sections according to the following scale:

Table 13

Voltage range	Units (€/unit/year)	Lines (€/km/year)
HVA	3,050	Overhead lines 832 Underground cables: 1,132

8.2. Backup power supply

The sections dedicated to a user's backup power supply are subject to a charge for the electrical equipment constituting them. This charge is based on the length of these assigned sections according to the scale shown in Table 13 above: Power subscribed as back-up power supply is less than or equal to the power subscribed as the main power supply.

If a back-up power supply is shared by several users, the bill for the sections assigned to back-up power supply and crossed by flows to the connection points of several users is shared among these users pro rata of the backup power subscribed.

If the backup power supply is in the same voltage range as the main power supply and, at the user's request, it is connected to a public network transformer different from that used for their main power supply, the charge for the sections assigned to backup power supply is equal to the sum of the component resulting

from application of the scale in Table 13 above and the component determined according to the scale in Table 14 below, corresponding to pricing of transformation power reservation:

Table 14

Supply voltage range	€/kW/year or €/kVA/year
HVA	5.95
LV	6.20

If the backup power supply is in a voltage range different from that of the main power supply, annual billing of backup power supply is equal to the sum of the component resulting from the application of the scale in Table 13 above and the component determined according to the scale in table 15 below, corresponding to the tariffs of the public electricity network providing backup in a lower voltage range.

Table 15

Main supply voltage range	Backup supply voltage range	Fixed rate (€/kW/year)	Power share (c€/kWh)
HVB 2	HVA	7.72	1.66
HVB 1	HVA	2.69	1.66
HVA	LV	-	-

9. Consolidation component (CR)

A user connected to a public network by several connection points on the same public network in the same HVB or HVA range and equipped with meters with measurement curves for each of these points can, if they so wish, benefit from tariff aggregation of all or part of these points for the application of the tariffs described in sections 5 and 6 through payment of an consolidation component. In this case, the annual injection component (CI), annual withdrawal component (CS), monthly subscribed power overrun component (CMDPS), annual scheduled temporary power overrun component (CDPP), and annual reactive energy component (CER) are defined, based on the sum of the physical flows measured at the connection points concerned. The possibility of tariff aggregation for connection points on the same public network is limited to the scope of the same distribution concession for public distribution network operators and to that of a single site for other users.

The consolidation of connection point reactive energy flows is only possible in cases where these connection points meet the conditions stated in the public network operator reference technical documentation.

The consolidation component (CR) is determined according to the length of the existing public electricity network for physical consolidation, independent to operating conditions, and on the transmission capacity available on the network for this consolidation. The amount of this component is calculated according to the following formula, depending on $P_{Subscribed\ consolidated}$, subscribed power for all tariff consolidated points and l, the shortest total length of the electrical installations on the public network required for physical consolidation.

$$CR = l.k.P_{Subscribed\ consolidated}$$

The *k* coefficient is defined in Table 16 below:

Table 16

Voltage range	k (€/kW/km/year)
HVA	Overhead lines 0.47 Underground cables: 0.67

10. Specific provisions for public distribution network operator annual withdrawal components (CS)

10.1. Annual transformer use component (CT)

A public distribution network operator which operates one or more overhead or underground lines, downstream of their connection point, in the same voltage range as that downstream of the transformer to which they are directly connected, without an intermediate line upstream of the connection point, can request to benefit from an annual withdrawal component (CS) applicable to the voltage range directly above that of the connection point. In this case, the operator must pay an annual transformer use component that reflects transformer and cell costs. This component is calculated using the following formula, according to its subscribed power $P_{Subscribed}$.

$$CT = k.P_{Subscribed}$$

The *k* coefficient used is that defined in Table 17 below:

Table 17

Voltage range of the connection point	Voltage range of the applied tariff	k (€/kW/year)
LV	HVA	7.72

This arrangement can be combined with that of tariff aggregation according to the methods described in section 9. In this case, the tariffs for the voltage range above each connection point are first applied and then the tariff aggregation mentioned above is applied.

10.2. Compensation for operating lines at the same voltage as the upstream public network

A public distribution network operator operating lines downstream of its connection point, in the same voltage range as the lines upstream of this connection point, is eligible for this compensation if the tariffs applicable to the connection point considered are that of the voltage range of this point.

In this case the annual withdrawal component (CS) for this connection point is calculated using the following formula, with:

- l_1, length of the network operated in voltage range *N* by the public distribution network operator,
- l_2, the shortest length of the network operated in voltage range *N* by the public distribution network operator to which they are connected and which links their connection point to this operator's voltage transformer,

- $CT_{N/N+1}$ is the annual component for transformer use between the voltage ranges of *N+1* and *N* defined in section 10.1.

$$CS = \frac{I_2}{I_1 + I_2} CS_N + \frac{I_1}{I_1 + I_2} \left(CS_{N+1} + CT_{N/N+1} \right)$$

10.3. Extreme cold capping

In the event of severe cold spells, public distribution network operators can have their power overruns capped by the upstream public system operator to which they are connected. This provision is implemented in compliance with transparent and non-discriminatory methods.

11. Annual scheduled temporary power overrun component (CDPP)

For scheduled temporary power overruns for work between 1 May and 31 October that have been notified to the public network operator in advance, a user whose connection point is not exclusively supplied by or using one or more back-up power supplies, is equipped with a meter with measurement curve and connected to either the HVA or HVB ranges, can request the application of a specific price scale for the calculation of the subscribed power overrun component related to this connection point.

In this case, during the period when this price scale is applied, subscribed power overruns are subject to the following billing which replaces billing for subscribed power overruns defined in section 6.3.

$$CDPP = k. \sum \Delta P$$

Power overruns of subscribed power ΔP are calculated by integration periods of 10 minutes. The applicable factor *k* is defined in Table 18 below:

Table 18

Voltage range	k (c€/kW)
HVA	0.363

In support of their request for the application of a specific price scale for the calculation of their subscribed power overrun component, users provide all elements that justify the actual nature of the work to be conducted on their electricity installations. When such a request comes from a public distribution network operator and is the result of the request of a user connected to this network, the public distribution network operator provides the aforementioned elements to the upstream public network operator and provides the user's maximum power request which will be subtracted from the public distribution network operator's overruns and billed according to the provisions applicable to scheduled temporary overruns.

The application of this provision is limited to a maximum of once a calendar year for each connection point, for use over a maximum of 14 continuous days. For the breakdown of the number of applications of this provision per connection point, the applications made at the request of public distribution network operators are not taken into account when they are the result of a request from a user connected to their network. Unused days cannot be carried over.

The public network operator or, where necessary, the upstream public network operator, can refuse or suspend implementation of this provision to a user due to operating constraints planned on their public network. This refusal or suspension has to be justified and notified to CRE at the same time.

12. Annual reactive energy component (CER)

In the absence of metering systems that record physical reactive energy flows, public network operators can provide transparent and non-discriminatory methods to estimate these flows in their reference technical documentation.

The provisions of sections 12.1 and 12.2 do not apply to connection points at the interface of two public electricity networks.

12.1. Withdrawal flow

If physical active energy flows at a connection point are withdrawal flows, public network operators provide reactive energy free of charge:

- up to the value of $tg\ \varphi_{max}$ ratio defined in Table 19 below, from 1 November to 31 March, 6 am to 10 pm, Monday to Saturday;
- as an exception, for connection points where the user has opted for a tariff with time differentiation, not exceeding the $tg\ \varphi_{max}$ ratio defined in Table 19 below, during winter peak hours and full-rate hours as well as during full-rate hours in November and March for options with 8 time categories,
- without limitation outside these periods.

During these periods subject to limitation, reactive energy absorbed in the MR and LV ranges above 36 kVA, beyond the value of the $tg\ \varphi_{max}$ ratio is invoiced according to Table 19 below:

Table 19

Voltage range	***tg*** φ_{max} ratio	**c€/kvar.h**
HVA	0.4	1.77
LV > 36 kVA	0.4	1.86

12.2. Injection flow

If physical active energy flows at a connection point are injection flows and the installation is not subject to voltage control, the user is committed to not absorbing reactive power in the LV range and to providing or absorbing a quantity of reactive power in the HVA range determined by the public network operator and set depending on active power delivered to the public network operator, according to the rules published in the public distribution network operator's reference technical documentation.

In the LV range, for installations with power above 36 kVA, absorbed reactive energy is billed according to Table 20 below.

In the HVA voltage range, reactive energy provided or absorbed above the $tg\ \varphi_{max}$ ratio or below the $tg\ \varphi_{min}$ is invoiced according to Table 20 below.

However, below a low monthly production level, reactive energy provided or absorbed below the $tg\ \varphi_{min}$ ratio or above a monthly reactive energy threshold is billed according to Table 20 below.

The public distribution network operator sets the low production threshold and the monthly reactive power threshold. It determines the $tg\ \varphi_{max}$ and $tg\ \varphi_{min}$ values of the $tg\ \varphi$ ratio thresholds by time slot.

Table 20

Voltage range	**c€/kvar.h**
HVA	1.77
LV > 36 kVA	1.86

When the installation is voltage regulated and the user does not have a contract as provided for under Article L. 321-12 of the Energy Code, as amended, it undertakes to maintain the voltage of its installation's connection point within a range determined by the public network operator and set according to the rules published in the relevant public network operator technical documentation.

In case of voltage deviation from its contractual range, the user is invoiced according to Table 21 below for the difference between reactive energy that its facilities effectively supplied or adsorbed and that which it should have supplied or absorbed to maintain the voltage in its contractual range in its operating agreement, within the limit of its constructive capacity defined by diagrams [U and Q] of its connection agreement. These elements are established according to the rules published in the Public distribution network operator technical reference documentation.

Table 21

Voltage range	c€/kvar.h
HVA	1.77

12.3. Special provisions for the annual component of reactive energy between two public electricity network operators.

Public network operators will contractually agree on the quantity of reactive energy they will exchange at each shared connection point, determined according to the active energy transited and according to the rules published in public transmission network operator technical reference documentation or, failing its absence among the contractors, the injection operator.

Reactive energy provided above the $tg\ \varphi_{max}$ ratio or absorbed below the $tg\ \varphi_{min}$ ratio is billed by connection point in accordance with Table 22 below.

$tg\ \varphi_{max}$ and $tg\ \varphi_{min}$ values of $tg\ \varphi$ ratio thresholds per connection point are contractually agreed by time slot between public network operators. Contractual term $tg\ \varphi_{max}$ is less than 0.4 and includes, by default, historical values of the $tg\ \varphi$ ratio.

Table 22

Voltage range	c€/kvar.h
HVA	1.77

Pursuant to Article L. 341-3 of the energy code, this deliberation will be published in the *Official Journal* of the French Republic.

Paris, 28 May 2013

For the Energy Regulatory Commission,

The president,

Philippe de LADOUCETTE