Tariff rules for the use of public electricity grids

1. Definitions

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

1.1. Absorption of reactive power

Transit of reactive electrical energy via the connection point used to serve the user of the public electricity grid.

1.2. Power supply

If a user is connected to the public grid(s) by several power supplies, the main, complementary and back-up power sources should be designated in a contract with the operator(s) of the public grid(s) to which they are connected.

1.2.1. Main power supply/supplies

A user's main power supply or supplies must ensure that the user is supplied with the withdrawal power to which they have subscribed and/or the maximum injection power agreed to under normal operating conditions of the user's electrical equipment. Normal operating conditions are contractually agreed between the user and the operator(s) of the public grid(s) to which they are connected, in compliance with quality commitments contained in the corresponding access contract.

1.2.2. Back-up power supply

A user's power supply is a back-up power supply if it is a live circuit but only used for the transfer of power between the public grid and facilities 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 grids which is only crossed by flows with the destination of one or more connection points to 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 of the electrical equipment of the user(s) agreed to by contract with the operator of the public grid(s) to which they are connected, given the public grid topology and whatever operations their operators may be carrying out.

1.2.3. Complementary power supply

A user's power sources which are neither main power supplies nor back-up power supplies are considered as this user's complementary power supplies.
The assigned part of a complementary power supply is the part of the public grids which is only crossed by flows originating from or with the destination of one or more connection points belonging to this user.

Flows incorporated to establish the assigned part of complementary power supplies are those which are established under normal operating conditions of the electrical equipment of the user agreed to by contract with the operator(s) of the public grid(s) to which they are connected, given the public grid topology and whatever operations their operators may be carrying out.

1.3. Cell

A cell is a set of electrical switchgears 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 tariff for the use of public electricity grids, the time class is the set of hours in the year to which the same tariff coefficient is applied.

1.5. Grid access contract

The grid access contract is the contract governed by article 23 of the amended law No. 2000-108 dated 10 February 2000 which defines the technical, legal and financial terms for user access to a public transmission or distribution grid for withdrawal and/or injection of 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 a set of average values stamped with the hour and date 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 variable varying over time are calculated. If the current rules state that the variables are calculated per 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 the active and/or reactive energy meters at a given metering point, including cabinets, boxes and panels, as well as, if needs be, the following complementary items of equipment assigned to it: low voltage and current transformers (CT), pricing signal receivers, synchronisation systems, devices for pricing conversion of metering data, communication interfaces for meter reading, control systems to limit demand, and test boxes.

An advanced meter is a metering device connected to telecommunication networks that can be remotely configured and consulted using the public system operator’s information system. Readings are made and flows are controlled at the facility’s connection point automatically.

1.8. Voltage range

The AC voltage ranges of public transmission and distribution grids are defined in the table below:

Connection voltage (U_n)	**Voltage range**		
$U_n \leq 1$ kV	Low Voltage (LV)		Low voltage range
1 kV < $U_n \leq$ 40 kV	HVA 1	Medium voltage (HVA)	High voltage range
40 kV < $U_n \leq$ 50 kV	HVA 2		
50 kV < $U_n \leq$ 130 kV	HVB 1	High and very high voltage (HVB)	
130 kV < $U_n \leq$ 350 kV	HVB 2		
350 kV < $U_n \leq$ 500 kV	HVB 3		

Tariffs applicable to users connected to public HVA 2 grids are those of the HVB 1 voltage range. According to the set of current rules, tariffs applicable to users connected to public HVA 1 grids are called HVA voltage range tariffs.

1.9. Reactive power supply

Transit of reactive electrical energy through the connection point for public electricity grid supply by the user.

1.10. Index

Energy indices 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

Transit of active electrical energy through the connection point for public electricity grid supply by the user.

1.12. Busbar

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. Buses are used to connect equipment together (devices, lines, wires). A busbar is not an electrical line (as defined below) for the purpose of these tariff rules.

1.13. Electrical line

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

1.14. Transformer

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

1.15. Connection points

A user's connection point(s) on the public grid coincide(s) with the ownership limit between the user's electrical equipment and the public grid electrical equipment, normally corresponding to the boundary of the electrical equipment, marked off by a disconnecting device 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 HVB and HVA grids, it is considered that all or part of these points are mixed, if under normal operating conditions of the user's electrical equipment contractually agreed with the public system operator(s), they are connected by this user's electrical equipment to the connection voltage.

1.16. Profiling

System used by public grid operators to calculate, on a half-hourly basis, consumption or generation of users for whom settlement is not based on a measurement curve in order to determine imbalances of their balancing responsible entities. This system is based on determining the form of their consumption or generation (load profiles) for categories of users.

1.17. Active power (P)

Active power *P* refers to the average energy flow at a steady state at any point of the electricity grid.

1.18. Apparent power (S)

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

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 in the form of an electromagnetic field within electricity grids, 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 grid, the phase displacement of voltage and intensity signals. The *tg* φ ratio is an important parameter for the operation and safety of the electricity grid.

1.21. Withdrawal of active power

Transit of active electrical energy through the connection point to supply the public electricity grid user.

1.22. User

A public transmission or distribution system user is any private individual or any legal entity, especially public system operators directly supplying this public grid or directly served by this grid.

2. Pricing structure for the use of public grids

The tariffs below are expressed without any deduction or taxes applicable to the use of public electricity grids including the pricing contribution mentioned in article 18-I of the law dated 9 August 2004.

In compliance with article 4-II of the amended law dated 10 February 2000 which requires coverage of "all costs borne by operators of these grids, including costs resulting from fulfilling public service assignments and contracts", and with article 2 of amended Order No. 2001-365 dated 26 April 2001, in particular, they cover:

- Costs related to the constitution of operating reserves which consists of costs related to the acquisition by public system operators of system services for voltage control and costs for constituting primary and secondary reserves for frequency control,
- Costs related to operating the balancing responsible entity system for electricity consumption and/or generation sites with a connection point on the public transmission and distribution grids,
- Costs for metering, inspection, reading, validation, profiling and transmission of metering data,
- The share of costs of additional services provided under the monopoly of public system operators not covered by the tariffs of these services,
- The share of public electricity grid start-up and extension costs not covered by the contributions paid to public system operators when they are the contracting authority of the connection work.

An exception is also made for certain specifically identified services provided on a user's request or resulting from his/her own doing, which are invoiced separately, in particular in line with the terms laid out in the decision(s) approving the tariff proposal(s) regarding additional services provided under the monopoly of public electricity system operators in application, for the share of their costs that are not covered by the tariffs for the use of public electricity grids defined in sections 3 to 13 hereafter. The same applies to the use of interconnections with transmission grids in neighbouring countries which can be invoiced according to the results of market mechanisms set up in application of regulation (EC) No. 1228/2003 dated 26 June 2003.

The grid access contract stipulates the user's connection point(s) on the public grid concerned and the tariff applied. For each connection point, it also specifies the connection voltage range, withdrawal subscribed power subscribed by the user and the metering system deployed. Withdrawal subscribed power is defined at the beginning of a period of 12 consecutive months for the whole period. The grid access contract governs the terms for modifying withdrawal power subscribed during this period.

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

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

- The annual withdrawal component (CS),
- Monthly components for subscribed power overshoots (CMDPS),
- The annual component for complementary and back-up power supplies (CACS),
- The component for tariff aggregation of connection points (CR),
- For public grid operators, the annual component for transformer utilisation (CT), compensation for operating lines at the same voltage as upstream of the public grid and load peak shaving in extreme cold weather;
- The annual component for sporadic scheduled overshoots (CDPP),
- The annual reactive energy component (CER).

These components are applied notwithstanding any provision to the contrary in specifications, franchise agreements and contracts, especially those concerning the billing of operating, maintenance and renewal costs.

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

When a user is connected to the public electricity grid for less than one year, the set proportion of the tariffs for the use of public electricity grids defined in sections 3 to 13 hereafter is calculated on a monthly pro rata basis. The invoiced amount may not be less than 1/12th of the set proportion in question.

3. Annual administrative management component (CG)

The annual administrative management component in the grid access contract covers the costs of managing user files, physical and telephonic reception of customers, invoicing and debt recovery. For HVA and low voltage ranges, the amount depends on the contract terms laid down by the public system operator concerned, either directly with a user of this grid, or with the exclusive supplier to the grid user's site in application of article 23 of the amended law No. 2000-108 dated 10 February 2000.

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 section I of article 22 of amended law No. 2000-108 dated 10 February 2000,
- Users who benefit from a purchase price prior to the amended law No. 2000-108 dated 10 February 2000.

The annual management component a_1 is determined for each connection point of one or more main power supplies and for each access contract, in line with table 1 below:

Table 1

a_1 (€/year)	Grid access contract concluded by user	Grid access contract concluded by supplier
HVB	7,700.00	7,700.00
HVA	640.92	61.80
LV > 36 kVA	309.12	49.56
LV ≤ 36 kVA	30.84	8.04

4. Annual metering component (CC)

The annual metering component covers the costs of metering, inspection, reading, transmission of metering data (submitted to the user or an authorised third party at minimum intervals defined in tables 2.1 and 2.2 below), and, if needs be, the costs related to the rental, maintenance and application of load profiles to users equipped with meters that do not record measurement curves. It is determined depending on technical characteristics of metering systems and services requested by the users in line with the tariffs stated below. Variables measured by the user's measuring and testing equipment must provide for calculation of annual components included in the tariff for the use of public grids.

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 system operators can apply transparent and non-discriminatory methods for estimating energy flows injected or withdrawn 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 belonging to public system operators or authorities organising public electricity distribution

The annual metering component billed to users whose metering system belongs to public system operators or 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 variables measured (index or measurement curve).

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Table 2.1

Voltage range	Power (P)	Minimum transmission frequency	Power control	Variables measured	Annual metering component €/year
HVB	-	Weekly	Overshoot	Measurement curve	2,662.32
HVA	-	Monthly	Overshoot	Measurement curve	1,083.24
				Index	460.44
LV	-	Monthly	Overshoot	Measurement curve	1,083.24
	P > 36 kVA	Monthly	Overshoot	Index	357.12
			Circuit breaker		284.40
	18 kVA < P ≤ 36 kVA	6-monthly	Circuit breaker	Index	20.28
	P ≤ 18 kVA	6-monthly	Circuit breaker	Index	16.80
	P ≤ 36 kVA	Every 2 months	Advanced metering system	Index	16.80

4.2. Metering systems belonging to 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 variables measured (index or measurement curve).

Table 2.2

Voltage range	Power (P)	Minimum transmission frequency	Power control	Variables measured	Annual metering component €/year
HVB	-	Weekly	Overshoot	Measurement curve	477.96
HVA	-	Monthly	Overshoot	Measurement curve	507.36
				Index	139.32
LV	-	Monthly	Overshoot	Measurement curve	507.36
	P > 36 kVA	Monthly	Overshoot	Index	127.44
			Circuit breaker		132.96
	18 kVA < P ≤ 36 kVA	6-monthly	Circuit breaker	Index	8.16
	P ≤ 18 kVA	6-monthly	Circuit breaker	Index	8.16

5. Annual injection component (CI)

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

Table 3

Voltage range	c€/MWH
HVB 3	19
HVB 2	19
HVB 1	0
HVA	0
LV	0

6. Annual withdrawal components (CS) and monthly components for subscribed power overshoots (CMDPS) in HVB voltage ranges

6.1. Annual withdrawal component (CS)

Users choose a subscribed power, $P_{Subscribed}$, in multiples of 1 kW for each of their connection points in HVB voltage ranges. At each connection point, 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 period of 12 consecutive months 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:

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

Coefficients a_2, b and c used are those in table 4 below:

Table 4

Voltage range	a_2 (€/kW/year)	b (€/kW/year)	c
HVB 3	5.55	15.35	0.932
HVB 2	10.20	23.86	0.717
HVB 1	13.55	49.10	0.777

6.2. Monthly components for subscribed power overshoots (CMDPS)

Components for subscribed power overshoots are determined each month according to the following methods:

$$CMDPS = \alpha.\sqrt{\sum(\Delta P^2)}$$

Power overshoots of subscribed power ΔP are calculated per integration period of 10 minutes and the factor applicable is defined in table 5 below:

Table 5

Voltage range	α (€/kW)
HVB 3	0.25
HVB 2	0.59
HVB 1	0.79

7. Annual withdrawal components (CS) and monthly components for subscribed power overshoots (CMDPS) in the HVA voltage range

In order to determine their annual withdrawal component in the HVA voltage range, users choose one of the following three tariffs for each connection point and for a complete period of 12 consecutive months, excluding the transitional provision laid out in section 15:

- Optional tariff without time differentiation,
- Optional tariff with time differentiation in 5 classes,
- Optional tariff with time differentiation in 8 classes.

7.1. Optional tariff without time differentiation

Users choose a subscribed power, $P_{Subscribed}$, in multiples of 1 kW for each of their connection points in HVA voltage range 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:

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

Coefficients a_2, b and c used are those in table 6 below:

Table 6

Voltage range	a_2 (€/kW/year)	b (€/kW/year)	c
HVA	20.03	77.12	0.800

7.2. Optional tariffs with time differentiation

For each of their connection points in the HVA voltage range for which they have chosen such a tariff and for each of the n time classes it is made up of, users choose subscribed power P_i in multiples of 1 kW, where i designates the time class. 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 designates active energy withdrawn during the i^{th} time class, expressed in kWh

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

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

7.2.1. *Optional HVA tariff with time differentiation in 5 classes*

For the HVA tariff with 5 time classes (n = 5), coefficients a_2, d_i and k_i used are those in tables 7.1 and 7.2 below:

Table 7.1

a_2 (€/kW/year)	11.88

Table 7.2

	Peak hours (i = 1)	**Winter full-rate hours (i = 2)**	**Winter off-peak hours (i = 3)**	**Summer full-rate hours (i = 4)**	**Summer off-peak hours (i = 5)**
Energy weighting coefficient (c€/kWh)	d_1 = 6.60	d_2 = 2.78	d_3 = 1.48	d_4 = 0.88	d_5 = 0.68
Power weighting coefficient	k_1 = 100%	k_2 = 88%	k_3 = 62%	k_4 = 52%	k_5 = 42%

Time classes are set locally by the public system operator according to the operating conditions of the public grids. They are notified to anybody upon request and published on the public system operator's website or in the absence of such a site, through any other appropriate means. Winter is considered as being from November to March and summer from April to October. Peak hours are set from December to February inclusive, at two hours within the range of 8-12 in the morning and 2 hours in the evening within the range of 5-9. Sundays are fully considered as off-peak hours and the other days are composed of 8 off-peak hours to be determined within the range of 9.30 pm to 7.30 am.

7.2.2. Optional HVA tariff with time differentiation in 8 classes

For the HVA tariff with 8 time classes (n = 8), coefficients a_2, d_i and k_i used are those in tables 8.1 and 8.2 below:

Table 8.1

a_2 (€/kW/year)	11.88

Table 8.2

	Peak hours (i = 1)	**Winter full-rate hours (i = 2)**	**Full-rate hours in March and November (i = 3)**	**Winter off-peak hours (i = 4)**	**Off-peak hours in March and November (i = 5)**	**Summer full-rate hours (i = 6)**	**Summer off-peak hours (i = 7)**	**July-August (i = 8)**
Energy weighting coefficient (c€/kWh)	d_1 = 6.80	d_2 = 3.25	d_3 = 2.27	d_4 = 1.78	d_5 = 1.43	d_6 = 0.94	d_7 = 0.73	d_8 = 0.62
Power weighting coefficient	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 classes are set locally by the public system operator according to the operating conditions of the public grids. They are notified to anybody upon request and published on the public system operator's website or in the absence of such a site, through any other appropriate means. Winter covers the months of December, January and February and summer is composed of April, May, June, September and October. Peak hours are set from December to February inclusive, at two hours within the range of 8-12 in the morning and 2 hours in the evening within the range of 5-9. Saturdays, Sundays and public holidays are fully considered as off-peak hours and the other days are composed of 6 off-peak hours to be determined within the range of 11.30 pm to 7.30 am.

7.3. Monthly component for subscribed power overshoots (CMDPS)

7.3.1. HVA tariff with meters measuring overshoots per integration period of 10 minutes

For users, to whom a tariff without time differentiation is applied, and whose connection point is equipped with a meter measuring active power overshoots against subscribed power per integration period of 10 minutes, monthly components for exceeding subscribed power related to this point are defined each month based on the following method:

$$CMDPS = 0.08.a_2.\sqrt{\sum\left(\Delta P^2\right)}$$

For users, to whom a tariff with time differentiation is applied, and whose connection point is equipped with a meter measuring active power overshoots against subscribed power per integration period of 10 minutes, monthly components for exceeding subscribed power related to this point are defined every month for each time class of the month under consideration, based on the following method:

$$CMDPS = \sum_{i\,classes\ of\ the\,month} 0.15.k_i.a_2.\sqrt{\sum\left(\Delta P^2\right)}$$

Power overshoots of subscribed power ΔP are calculated per integration period of 10 minutes. Coefficients a_2 and k_i used are those in 7.1 and 7.2, depending on the option selected.

7.3.2. HVA tariffs with meter indicating maximum power

For users, to whom a tariff without time differentiation is applied, and whose connection point is equipped with a meter indicating maximum power and with power recorder, monthly components for overshooting subscribed power related to this point are defined 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, to whom a tariff with time differentiation is applied, and whose connection point is equipped with a meter indicating maximum power and with power recorder, monthly components for overshooting subscribed power related to this point are defined every month based on $\Delta P_{(max)i}$, the differences for each time class between maximum power reached during the time class under consideration and subscribed power during the time class considered according to the following method:

$$CMDPS = \sum_{i\,classes\ of\ the\ month} 1.6.k_i.a_2.\Delta P_{(\max)i}$$

Coefficients a_2 and k_i used are those in sections 7.1 and 7.2, depending on the option selected.

8. Annual withdrawal components (CS) and monthly components for subscribed power overshoots (CMDPS) in the LV range

8.1. Annual withdrawal components and monthly components for subscribed power overshoots in the LV range above 36 kVA

In order to determine their annual withdrawal component in the LV range strictly above 36 kVA, users choose, for the entire period of 12 consecutive months, excluding the transitional provision laid out in section 15, one of the two following tariffs with time differentiation: medium-term and long-term utilisation.

For each of the time classes defined in sections 8.1.1 and 8.1.2, and for each connection point in the LV range strictly above 36 kVA, users choose, in multiples of 1 kVA, apparent subscribed power S_i where i designates the time class.

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

When overshoots of apparent subscribed power are checked by a circuit breaker at the interconnection with the public grid, 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 connection point, the annual withdrawal component is determined according to the following formula:

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

E_i designates active power withdrawn during the i^{th} time class, expressed in kWh.

$S_{Subscribed\ weighted}$ designates weighted apparent subscribed power, calculated in line with the following formula:

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

8.1.1. *Tariffs for long-term utilisation of LV > 36 kVA*

For the tariff for long-term utilisation of LV > 36 kVA in 5 time classes (*n* = 5), a maximum of two apparent subscribed powers can be applied to the same user. Coefficients a_2, k_i and d_i used are those in tables 9.1 and 9.2 below:

Table 9.1

a_2 (€/kVA/year)	21.00

Table 9.2

	Peak hours (i = 1)	Winter full-rate hours (i = 2)	Winter off-peak hours (i = 3)	Summer full-rate hours (i = 4)	Summer off-peak hours (i = 5)
Energy weighting coefficient (c€/kWh)	d_1 = 3.42	d_2 = 3.42	d_3 = 2.36	d_4 = 1.19	d_5 = 1.01
Power weighting coefficient	k_1 = 100%	k_2 = 71%	k_3 = 61%	k_4 = 50%	k_5 = 50%

Time classes are set locally by the public system operator according to the operating conditions of the public grids. They are notified to anybody upon request and published on the public system operator's website or in the absence of such a site, through any other appropriate means. Winter is considered as being from November to March and summer from April to October. Peak hours are set from December to February inclusive, at two hours within the range of 8-12 in the morning and 2 hours in the evening within the range of 5-9. All days have 8 off-peak hours, either consecutive or broken up into two periods, within the range of 12pm to 4pm and 9.30 pm to 7.30 am.

8.1.2. *Tariffs for medium-term utilisation of LV > 36 kVA*

For the tariff for medium-term utilisation of LV > 36 kVA in 4 time classes (n = 4), apparent subscribed power must be such that $S_1 = S_2 = S_3 = S_4$. Coefficients a_2 and d_i used are those in tables 10.1 and 10.2 below:

Table 10.1

a_2 (€/kVA/year)	12.24

Table 10.2

	Winter full-rate hours (i = 1)	Winter off-peak hours (i = 2)	Summer full-rate hours (i = 3)	Summer off-peak hours (i = 4)
Energy weighting coefficient (c€/kWh)	d_1 = 4.26	d_2 = 2.89	d_3 = 1.18	d_4 = 1.01

Time classes are set locally by the public system operator according to the operating conditions of the public grids. They are notified to anybody upon request and published on the public system operator's website or in the absence of such a site, through any other appropriate means. Winter is considered as being from November to March and summer from April to October. All days have 8 off-peak hours, either consecutive or broken up into two periods, within the range of 12pm to 4pm and 9.30 pm to 7.30 am.

8.1.3. Monthly component for subscribed power overshoots (CMDPS)

Tariff for LV > 36 kVA with meter
measuring active power overshoots

For users of LV above 36 kVA who have chosen the tariff for long-term utilisation and whose connection point is equipped with a meter measuring active power overshoots against subscribed active power per integration period of 10 minutes, monthly components for subscribed power overshoots related to this point are defined every month for each time class in the month considered, based on the following method:

$$CMDPS = \sum_{i\,classes\ of\ the\ month} 0.15.k_i.a_2.\sqrt{\sum\left(\Delta P^2\right)}$$

Power overshoots of subscribed power Δ*P* are calculated per integration period of 10 minutes. Coefficients a_2 and k_i used are those in section 8.1.1.

For users of LV above 36 kVA who have chosen the tariff for medium-term utilisation and whose connection point is equipped with a meter measuring active power overshoots against subscribed power per integration period of 10 minutes, monthly components for subscribed power overshoots related to this point are defined every month for each time class in the month considered, based on the following method:

$$CMDPS = 0.15.a_2.\sqrt{\sum\left(\Delta P^2\right)}$$

Power overshoots, Δ*P*, compared to subscribed power at the time of the overshoot are calculated per integration period of 10 minutes. Coefficient a_2 used is that in section 8.1.2.

Tariff for LV > 36 kVA with meter
measuring apparent power overshoots

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

$$CMDPS = 11.11.h$$

8.2. Annual withdrawal component in the low voltage range up to 36 kVA inclusive

In order to determine their annual withdrawal component in the LV range up to subscribed power of 36 kVA inclusive, users choose, for an entire period of 12 consecutive months, excluding the transitional provision laid out in section 15, one of the following four tariffs:

- Short-term utilisation,
- Medium-term utilisation,
- Medium-term utilisation with time differentiation,
- Long-term utilisation.

For the tariff of their choice, they define subscribed power, $P_{Subscribed}$, in multiples of 1 kVA.

When overshoots of subscribed power are controlled by a circuit breaker at the interconnection with the public grid, 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 subscribed power of 36 kVA inclusive, the annual withdrawal component is determined in line with the following formula:

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

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

8.2.1. Tariff for short-term utilisation of LV≤ 36 kVA

For the tariff for short-term utilisation, n = 1 and coefficients a_2 and d_1 used are those in table 11 below:

Table 11

Subscribed power (P)	**a_2 (€/kVA/year)**	**d_1 (c€/kWh)**
P ≤ 9 kVA	3.12	3.15
9 kVA < P ≤ 18 kVA	5.64	2.98
18 kVA < P	11.40	2.65

8.2.2. Tariff for medium-term utilisation of LV ≤ 36 kVA

For the tariff for medium-term utilisation, n = 1 and coefficients a_2 and d_1 used are those in table 12 below:

Table 12

Subscribed power (P)	**a_2 (€/kVA/year)**	**d_1 (c€/kWh)**
P ≤ 9 kVA	4.44	2.97
9 kVA < P ≤ 18 kVA	8.28	2.71
18 kVA < P	18.24	2.13

8.2.3. Tariff for medium-term utilisation of LV ≤ 36 kVA with time differentiation

For the tariff for medium-term utilisation with time differentiation, n = 2 and coefficients a_2, d_1 and d_2 used are those in table 13 below:

Table 13

Subscribed power (P)	**a_2 (€/kVA/year)**	**d_1 Full-rate hours (c€/kWh)**	**d_2 Off-peak hours (c€/kWh)**
P ≤ 9 kVA	4.44	3.33	2.07
9 kVA < P ≤ 18 kVA	8.28	2.98	1.85
18 kVA < P	18.24	2.31	1. 44

Time classes are set locally by the public system operator according to the operating conditions of the public grids. They are notified to anybody upon request and published on the public system operator's website or in the absence of such a site, through any other appropriate means. There are 8 off-peak hours per day which can be non-consecutive, and these must be fixed in the ranges of 12-5 pm and 8 pm to 8 am.

8.2.4. *Tariff for long-term utilisation of LV ≤ 36 kVA*

For the application of the tariff for long-term utilisation, in the absence of metering systems, public system operators can apply transparent and non-discriminatory methods for estimating energy flows withdrawn and subscribed power.

Power is subscribed in multiples of 0.1 kVA, n = 1 and coefficients a_2 and d_1 used are those in table 14 below:

Table 14

	a_2 (€/kVA/year)	**d_1 (c€/kWh)**
Long-term utilisation	51.60	1.02

9. Annual component for complementary and back-up power supplies (CACS)

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

9.1. Complementary power supplies

The parts dedicated to a user's complementary power supplies are subject to a charge for the electrical equipment which they are composed of. This charge is based on the length of these assigned parts according to the following scale:

Table 15

Voltage range	**Cell (€/cell/year)**	**Lines (€/km/year)**
HVB 3	91,999	8,718
HVB 2	55,483	Overhead lines: 5,558 Underground lines: 27,789
HVB 1	28,819	Overhead lines: 3,298 Underground lines: 6,596
HVA	3,050	Overhead lines: 832 Underground lines: 1,248

9.2. Back-up power supplies

The parts dedicated to a user's back-up power supplies are subject to a charge for the electrical equipment which they are composed of. This charge is based on the length of these assigned parts according to the price scale in table 15 above. Power subscribed for back-up power supplies is less than or equal to the power subscribed for main power supplies.

If a back-up power supply is shared among several users, the invoice for the parts assigned to back-up power supplies and crossed by flows to several users' connection points is shared among these users at the pro rata of the power which they have subscribed to this back-up power supply.

If the back-up power supply is in the same voltage range as the main power supply and, on request from the user, it is connected to a public grid transformer different from that used for their main power supply, invoicing of the parts assigned to back-up power supplies is equal to the sum of the component resulting from application of the price scale in table 15 above and the component determined in line with the price scale in table 16 below, corresponding to pricing of transformation power reservation:

Table 16

Power supply voltage range	€/kW/year or €/kVA/year
HVB 2	1.34
HVB 1	2.56
HVA	5.95
LV	6.20

If the back-up power supply is in a voltage range different from that of the main power supply, annual invoicing of back-up power supplies is equal to the sum of the component resulting from the application of the price scale in table 15 above and the component determined according to the price scale in table 17 below, corresponding to pricing of the public electricity grid providing back-up in a lower voltage range.

Table 17

Main power supply voltage range	Back-up power supply voltage range	Fixed rate (€/kW/year)	Power share (c€/kWh)
HVB 3	HVB 2	6.39	0.65
	HVB 1	4.69	1.12
HVB 2	HVB 1	1.37	1.12
	HVA	7.72	1.66
HVB 1	HVA	2.69	1.66
HVA	LV	-	-

10. Component for tariff aggregation of connection points (CR)

A user connected to a public grid at several connection points on the same public grid in the same HVB or HVA voltage 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 tariffs as described in sections 5, 6 and 7, through payment of an aggregation component. In this case, the annual injection component (CI), annual withdrawal component (CS), monthly components for subscribed power overshoots (CMDPS), annual component for sporadic scheduled overshoots (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 grid is limited to the scope of the same distribution franchise for public distribution system operators and to the same site for other users.

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

The aggregation component (CR) is determined according to the length of the existing public electricity grid for this physical aggregation, independently of operating conditions, and on the transit capacity available on the grid for this aggregation. The amount of this component is calculated according to the following formula, depending on $P_{Subscribed\ aggregated}$, subscribed power for all tariff consolidated points and l, the shortest total length of the electrical equipment on the public grid considered for physical aggregation.

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

Coefficient *k* is defined by table 18 below:

Table 18

Voltage range	k (€/kW/km/year)
HVB 3	0.05
HVB 2	Overhead lines: 0.13 Underground lines: 0.50
HVB 1	Overhead lines: 0.66 Underground lines: 1.16
HVA	Overhead lines: 0.47 Underground lines: 0.67

11. Specific provisions for annual withdrawal components (CS) of public distribution system operators

11.1. Annual component for transformer utilisation (CT)

A public distribution system operator who 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 benefit upon request from the annual withdrawal component (CS) applicable to the voltage range just above that of the connection point. The operator must in this case pay an annual component for transformer utilisation, reflecting the costs of transformers and cells. This component is calculated according to the following formula, depending on subscribed power $P_{Subscribed}$.

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

Coefficient *k* used is that defined in table 19 below:

Table 19

Connection point voltage range	Voltage range of the pricing applied	k (€/kW/year)
HVB 2	HVB 3	1.56
HVB 1	HVB 2	3.36
HVA	HVB 1	5.95
LV	HVA	7.72

This arrangement can be combined with that of tariff aggregation according to the methods in section 10. In this case, the price scale in the voltage range above each connection point is firstly applied and then the tariff aggregation mentioned above.

11.2. Compensation for operating lines at the same voltage as the upstream public grid

A public distribution system operator who operates lines downstream of their connection point, in the same voltage range as the lines upstream of this connection point, benefits from this compensation if the pricing applicable to the connection point considered is that of the voltage range of this point.

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

- l_1, length of the grid operated in voltage range *N* by the public distribution system operator,
- l_2, the shortest length of the grid operated in voltage range *N* by the public distribution system operator to which they are connected and which links their connection point to this operator's voltage transformer,
- $CT_{N/N+1}$, annual component for transformer utilisation between the voltage ranges of *N+1* and *N* defined in section 11.1.

$$CS = \frac{l_2}{l_1 + l_2} CS_N + \frac{l_1}{l_1 + l_2} \left(CS_{N+1} + CT_{N/N+1} \right)$$

11.3. Peak shaving in extreme cold weather

Public distribution system operators can benefit from peak shaving of their power overshoots from the public system operator upstream to which they are connected in the event of severe cold spells. This provision is applied in compliance with transparent and non-discriminatory methods.

12. Annual component for sporadic scheduled overshoots (CDPP)

For sporadic overshoots scheduled for work during the period from 1 May to 31 October and notified to the public system operator in advance, a user, not exclusively supplied by or using one or more back-up power supplies, whose connection point is equipped with a meter with measurement curve and connected to either the HVB or HVA ranges, can request the application of a specific price scale for the calculation of their component for subscribed power overshoots related to this connection point.

In this case, during the period when this price scale is applied, subscribed power overshoots are subject to the following invoicing which replaces the invoicing for subscribed power overshoots defined in sections 6.2 and 7.3.

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

Power overshoots of subscribed power ΔP are calculated per integration period of 10 minutes. Factor *k* applicable is defined in table 20 below:

Table 20

Voltage range	k (c€/kW)
HVB 3	0.077
HVB 2	0.152
HVB 1	0.241
HVA	0.363

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

The application of this provision is limited for each connection point to a maximum of once a calendar year, 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 upon the request of public distribution system operators are not taken into account when they are the result of a request from a user connected to their network. Days which have not been used cannot be carried over.

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

13. Annual reactive energy component (CER)

In the absence of metering systems recording physical flows of reactive energy, public system operators can provide transparent and non-discriminatory methods for estimating these flows in their reference technical documentation.

The provisions in sections 13.1 and 13.2 do not apply to connection points located at the interconnection between two public electricity grids.

13.1. Withdrawal flows

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

- Up to the value of the $tg\ \varphi_{max}$ ratio defined in table 21 below, from 1st November to 31st March, from 6am to 10pm 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 21 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 classes,
- Without limitation outside these periods.

During these periods subject to limitation, reactive energy absorbed in the HVB, HVA and LV ranges above 36 kVA, beyond the value of the $tg\ \varphi_{max}$ ratio is invoiced in line with table 21 below:

Table 21

Voltage range	$tg\ \varphi_{max}$ ratio	c€/kvar.h
HVB 3	0.4	1.30
HVB 2	0.4	1.39
HVB 1	0.4	1.55
HVA	0.4	1.77
LV > 36 kVA	0.4	1.86

13.2. Injection flows

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

In the LV range, for facilities with power above 36 kVA, absorbed reactive energy is invoiced according to table 22 below.

In the HVA voltage range, reactive energy provided or absorbed above the $tg\ \varphi_{max}$ ratio or below the $tg\ \varphi_{min}$ ratio is invoiced according to table 22 below.

However, below a low monthly generation level, reactive energy provided or absorbed below the $tg\ \varphi_{min}$ ratio or above a threshold of monthly reactive energy is invoiced according to table 22 below.

The public distribution system operator sets the low generation level and the threshold of monthly reactive energy, as well as the $tg\ \varphi_{max}$ and $tg\ \varphi_{min}$ values of the $tg\ \varphi$ ratio thresholds per time slot.

Table 22

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

When the voltage of a facility is controlled, and the user does not benefit from a contract as provided by article 15-III of the French amended law No. 2000-108 dated 10 February 2000, the user undertakes to maintain the voltage of the facility's connection point within a range determined by the public system operator and set according to the rules published in the reference technical documentation of the public system operator to which the user is connected.

Should the voltage exceed the agreed range, the user is invoiced according to table 23 below for the difference between the reactive energy that the facility has actually provided or absorbed and the reactive energy that it should have provided or absorbed to maintain the voltage within the range agreed in the operating contract, up to the operating capacities defined by diagrams [U, Q] of the connection contract. These elements are determined according to the rules published in the reference technical documentation of the public distribution system operator.

Table 23

Voltage range	c€/kvar.h
HVB 3	1.30
HVB 2	1.39
HVB 1	1.55
HVA	1.77

13.3. Specific provisions for the annual reactive energy component between two public electricity system operators

At each connection point shared, the public system operators agree, by contract, the quantity of reactive energy they exchange, determined according to transits of active energy, in compliance with the rules published in the reference technical documentation of the public transmission system operator or, in this operator's absence among the contracting parties, the injecting system operator.

The reactive energy provided above the $tg\ \varphi_{max}$ ratio or absorbed below the $tg\ \varphi_{min}$ ratio is invoiced per connection point according to table 24 below.

The $tg\ \varphi_{max}$ and $tg\ \varphi_{min}$ values of the $tg\ \varphi$ ratio thresholds per connection point are agreed upon by contract per time slot between public system operators. The contractual $tg\ \varphi_{max}$ value is lower than 0.4 and, by default, considers the past values of the $tg\ \varphi$ ratio observed.

Table 24

Voltage range	c€/kvar.h
HVB 3	1.30
HVB 2	1.39
HVB 1	1.55
HVA	1.77

14. Indexation of the pricing structure

M, the anniversary month of the application date of these tariff rules.

Each year *N* as from 2010, the level of the following components is automatically adjusted on the first day of month *M*:

- The annual administrative management component applicable to the HVA and LV voltage ranges (coefficient a_1),
- The annual metering component applicable to the HVA and LV voltage ranges,
- The annual withdrawal component applicable to all voltage ranges (adjustment of coefficients a_2, b and d_i only),
- The monthly subscribed power overshoot components applicable to the HVB voltage range (coefficient α, the coefficients applicable to the other voltage ranges are automatically adjusted due to the adjustment of coefficients a_2).

The pricing structure in application as of the first day of month *M* of year *N* is obtained by adjusting the pricing structure in application the previous month in line with changes in the harmonised index of consumer prices, a cost change factor and an offsetting factor of the Expenses and Revenues Clawback Account (CRCP).

14.1. HVB voltage range

For the HVB voltage range, the pricing structure is automatically adjusted in line with the following percentage:

$$Z_N = IPCH_N - X + K_N$$

Z_N: percentage of change of the pricing structure in application as of the first day of month *M* of year *N* compared to that in application the previous month.

$IPCH_N$: percentage of change between the average value of the harmonised index of consumer prices - France over the calendar year *N-1* and the average value of the same index over the calendar year *N-2*, as published by the French statistics agency (INSEE) (id. code: 000671193).

X: cost change factor equal to – 0.4%.

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K_N: CRCP offsetting factor for year *N*, calculated on the basis of the CRCP balance as at 31 December of year *N-1* and offsetting operations already conducted. The absolute value of the coefficient K_N is limited to 2%.

14.2. HVA and LV voltage ranges

For the HVA and LV voltage ranges, the pricing structure is automatically adjusted in line with the following percentage:

$$Z'_N = IPCH_N - X' + K'_N$$

Z'_N: percentage of change of the price structure in application as of the first day of month *M* of year *N* compared to that in application the previous month.

$IPCH_N$: percentage of change between the average value of the harmonised index of consumer prices - France over the calendar year *N-1* and the average value of the same index over the calendar year *N-2*, as published by the French statistics agency (INSEE) (id. code: 000671193).

X': cost change factor equal to – 1.3%.

K'_N: CRCP offsetting factor for year *N*, calculated on the basis of the CRCP balance as at 31 December of year *N-1* and offsetting operations already conducted. The absolute value of the coefficient K'_N is limited to 2%.

14.3. Rounding rules

Rounding rules are as follows for the adjustment of pricing structures:

- For the HVB and HVA voltage ranges, the coefficients of set and variable parts of the annual withdrawal components without time differentiation are rounded to the nearest euro cent,
- The other coefficients of the variable parts of the annual withdrawal components are rounded to the nearest euro cent hundredth,
- For the HVB voltage range, the coefficients of the monthly subscribed power overshoot components are rounded to the nearest euro cent,
- The other coefficients of the set parts of the annual withdrawal components and the annual administrative management and metering components are rounded to the nearest value divisible by 12.

15. Transitional provision concerning the implementation of these tariff rules

For the first six months of application of these tariff rules and for the HVA and LV voltage ranges, users (or authorised third parties) can select their tariff option for each connection point without having to comply with the periods of 12 consecutive months since selecting their previous tariff option. This provision does not apply to the subscription of withdrawal power.

Executed in Paris, 26 February 2009

On befalf of the Energy Regulatory Commission (CRE),
The Chairman,

Philippe de LADOUCETTE