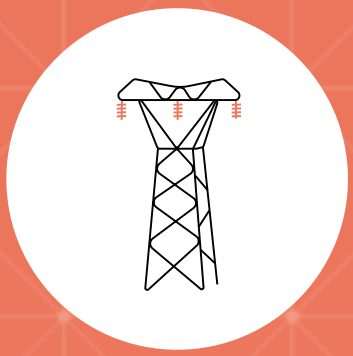
July 2021 edition

TURPE 6

TARIFF SETTING OF NETWORKS

UNDERSTANDING THE TARIFF



Distributors

Summary

Discover the TURPE 6

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RTE Commercial Director

Entry into force of TURPE 6 HV-B: RTE provides you with support and information

A stable and sustainable business model

Since the introduction of European sectorial legislation in the late nineteen nineties, power transmission has become a regulated activity.
The transposition of those texts into French law (specifically in the French Energy Code) sets out the conditions in which RTE is expected to carry out its missions. In particular, the law clearly highlights our administrative independence with regard to our shareholder, as well as our neutrality towards all power system stakeholders.

How are RTE tariffs set?

RTE's income is not linked to a market price but rather to a tariff, **specifically the Public Transmission System Access Tariff** (TURPE in French). Pursuant to the French Energy Code, this tariff is set by the French Energy Regulatory Commission (CRE).
It is set in a **transparent and non-discriminatory manner** so as to:

- cover all RTE costs, insofar as they reflect the costs of an efficient system operator,
- ensure a fair return on capital employed through investment programmes.

The TURPE is our principal financial resource and the main contractual relationship we have with you. It accounts for almost 90% of RTE's revenue and covers our investments and all of the operation and maintenance activities of the public electricity transmission system.

TURPE 6 HV-B

The TURPE 6 tariff being applied **as of 1 August 1 2021** runs for approximately four years. It takes account of the stakes at hand for RTE through the ten-year network development plan (Schéma Décennal de Développement du Réseau (SDDR)) for the next years. In particular, these include the integration of renewable energies, including offshore wind farms, and the renewal of the transmission system required to maintain a high level of power quality over time. The regulatory framework defined by the CRE ensures good control of RTE's expenditure and ultimately costs for network users. The CRE also approves RTE's investment volumes and sets the company's profitability targets.

The TURPE 6 tariff change, which will be +1,57% on average per year over the entire tariff period (based on forecast inflation) falls within this context.
As of 1 August 1 2021, **this increase is on average 1.09%** for all customers.

By our customers' side

This brochure provides you with information on how the tariff is set, and also sets out the new features of TURPE 6 and its invoicing procedures.

To assist you in this transition, we are expanding our offer with new digital services available on the RTE Services Portal and the Sales Division teams are on hand to advise you.

Summary return

Discover the TURPE 6

The main principles

The public transmission system access tariff is designed to invoice you according to the costs incurred by your use of the network.

The tariff is based on four main principles

1. Postage stamp principle:
Pricing is independent of the distance travelled by the power between the site where it was generated and the site where it was consumed.

2. Tariff equalisation principle:
To be fair across all territories, TURPE is applied in the same way throughout the continental metropolitan national territory.

3. Principle of the tariff's dual component (called a binomial tariff):
Excluding HV-B 3 and excluding injection, the tariff includes a part for power and a part for energy divided into several categories to account for our customers' different kinds of uses.

4. Principle of hourly/seasonal adjustments:
The cost of the energy part varies according to the seasons, days and hours of use of the Public Transmission System.

Indexing of the tariff schedule

The tariff schedule is updated every year on 1 August according to parameters:

- The non-tobacco consumer price index
- The retrospective correction of the differences in revenue and expenditure with respect to authorised income, with an effect on the evolution of the tariff of between -2% and +2%.

In TURPE 6, the CRE is also introducing a gradual evolution in the consumption component coefficients. The coefficients will evolve every year in relation to the reference tariff schedules.

Incentive regulation encourages us to continually improve our performance

In addition to the tariff, the CRE also sets out a regulatory framework to encourage RTE to improve its performance by setting up incentive mechanisms. These financial mechanisms result in bonuses or penalties, depending on whether the objectives are met.

Authorised income:

As for its use of the Public Transmission System for Electricity, RTE is in a regulated monopoly situation. Thus, your bills are not based on a market price but of a tariff set by the regulator: the French Energy Regulatory Commission (CRE).

This tariff covers RTE's costs, which represents the "authorised income" reference level defined by the CRE. In order to guarantee this coverage, the tariff is increased the following year if this income was not met. It is otherwise revised downwards in order to refund overpayments to all RTE customers. To limit fluctuations during the tariff period, the imbalances between forecast and actual is corrected annually within a range of -2% + CPI to +2% + CPI.

CPI: Non-tobacco consumer price index

Summary return

Discover the TURPE 6

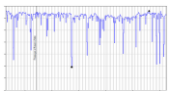
The main differences compared with previous tariffs

Smoothing the annual evolution of the tariff level

For TURPE 6, the CRE is introducing a smoothed level change over the entire tariff period. The objective is to mitigate the tariff increase for the first year of the period. Annually, this represents a 0.49% increase, introduced in the formulas for the annual reassessment of the tariff.

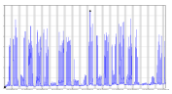
3 tariff versions corresponding to 3 consumption profiles

For HV-B 1 and HV-B 2 tariffs, the three “Tariff Versions”, Short-Term Use (STU), Medium-Term Use (MTU) and Long-Term Use (LTU) still apply.
The respective weights of the power and energy shares according to voltage ranges and tariff versions are modified.



Long-Term Use (LTU)

Medium-Term Use (MTU)



Short-Term Use (STU)

For the HV-A tariff, fixed peak and mobile peak tariffs are applied in two tariff versions called Short-Term Use (STU) and Long-Term Use (LTU).

Phased evolution of the consumption component coefficients

The CRE is gradually introducing changes to the power and energy coefficients of the extraction component during the TURPE 6 period.

This evolution will take place every 1 August through reference tariff schedules already available in the deliberation for the years 2022 to 2024. They identify changes in the tariff structure (weight of the power share versus the energy share according to voltage range and tariff version) but are not the final tariff schedules.
They do not in fact incorporate the effects of the annual indexing applied on 1 August.

Two special provisions for changing the tariff version

You can change your Tariff Version with no requirement of a 12-month time limit from the previous change in the following 2 cases:

- Once from the entry into force of the TURPE 6
- Only once during a tariff period between 1 August and 30 November of one of the TURPE 6 years.

For your other Tariff Version changes, the rules in force since TURPE 5 apply: you can make a change in the course of the month, applicable the following day, provided that your previous change was more than 12 months prior to it.

Weighting coefficient of the monthly component for subscribed power overruns (CMDPS) in HV-A

In TURPE 6, the CRE is revising the CMDPS weighting factor for the HV-A tariff and aligning it with the HV-B tariff weighting factor.

Summary return

Discover the TURPE 6

The reactive power overrun billing rule remains unchanged at the PTS/PDS interface

The targeting of the billing zone in low voltages (active and reactive consumption) remains unchanged. High voltage pricing (reactive power generation, consumption or generation of active power) always applies year-round. The billing interval is hourly.

This invoicing is evolving for consumers and generators in TURPE 6.

Summary return

Presentation of the tariff

At each connection point or grouping point, the annual price for accessing the Public Electricity Transmission System is the sum of:

For all customers

+ **CG** – Annual Management Component
+ **CC** – Annual Metering Component
+ **CACS** – Annual Additional and Backup Power Component
+ **CR** – Tariff grouping component for connection points
+ **CS** – Annual component for Extraction
  - **CMDPS** – Monthly components for subscribed power overruns
  - **CDPP** – Monthly component for one-off, scheduled overruns
+ **CER** – Annual component of Reactive Energy
+ **CI** – annual Injection Component

Additional aspects specific to Distributors

+ **CT** – Annual component of the use of Transformation works
− **CEL** – Compensation for the Operation of Lines at the same voltage as the upstream network of the PTS connection point
− **EGF** – Extreme cold capping

= **Amount of the annual bill for accessing the Public Electricity Transmission System***

* Excluding taxes and contributions

The energy used to calculate the different components (excluding CG, CC, and fixed CACS costs) corresponds to the physical flow measured at the point of connection concerned or to the sum of physical flows measured for a grouping point.

Summary return

Description of the components of the tariff

The tariff's annual components for accessing the Public Electricity Transmission System by connection point or by grouping point are described below.

The formulas and coefficients presented below are derived from:

- the 21 January 2021 French Energy Regulatory Commission's decision on charges for the use of public transmission networks from 1 August 2021 for HV-B voltage, published in the Official Bulletin of 23 April 2021.
- the 21 January 2021 French Energy Regulatory Commission's decision on charges for the use of public transmission system networks from 1 August 2021 for HV-A and LV voltage ranges, published in the Official Bulletin of 23 April 2021.

The deliberations of the French Energy Regulatory Commission of 21 January 2021 set the annual evolution of tariffs for the use of power networks.

The tariff schedule for the use of public transmission networks in the HV-B voltage ranges goes by +1.09% on 1 August 2021.

The tariff schedule for the use of public electricity networks in the HV-A and LV voltage ranges is that applied to users of the electricity distribution system. It increased by an average of 0.91 % on 1 August 2021.

Annual management component (CG)

The annual component for management covers the costs of managing customer records, such as receiving, contracting, invoicing and collection. This component is established for each main power connection point. Its amount depends on the voltage range (HV-B or HV-A).

Voltage range	a_1 € / year
HV-B	9 404.04
HV-A	425.64

Annual injection component (CI)

The injection component covers the costs of compensating for losses incurred on the French transmission system with exported electricity as well as the cost of compensating for losses invoiced to RTE under the Inter TSO Compensation (ITC) cross-border mechanism.

It is calculated on the basis of the active energy injected into the grid.

Voltage range	c€/MWh
HV-B 3	23
HV-B 2	23
HV-B 1	0
HV-A	0

The annual component for metering covers the costs of metering, control, reading and transmission of customer metering data, as well as leasing and maintenance costs, if applicable. It is based on the metering device's ownership status.

HV-B metering device owned by RTE

Voltage range	Annual component (€ / year / device)
HV-B	3 095.28

HV-B metering device owned by the customer

Voltage range	Annual component (€ / year / device)
HV-B	555.72

HV-A metering device

Voltage range	Annual component (€ / year / device)
HV-A	312.12

Summary return

Tariff elements, formulas, and rates

The annual consumption component (CS) and the monthly components for subscribed power overruns (CMDPS)

The tariff for HV-B 3 extraction not adjusted for time/season

For the HV-B 3 voltage range, the extraction component is calculated as a function of the energy withdrawn at a flat price and for each connection point. The notion of subscribed power overruns is no longer applicable for this voltage range.

At each of these connection points, the annual extraction component shall be established according to the following formula:

$$CS = c \times E$$

The applicable c factor is:

Voltage range	c c€/kWh
HV-B 3	0.33

HV-B 2, HV-B 1 and HV-A tariffs adjusted for time/season

The subdivision of subscribed powers

For each one of your connection points, you choose a subscribed power for each time range and a pricing version. These subscriptions are set for 12 months. The five subscribed powers must be subdivided in the following order:

See the Time range schedule

Peak hours	High Season Peak Hours	High Season Off-Peak Hours	Low Season Peak Hours	Low Season Off-Peak Hours
Time range 1	Time range 2	Time range 3	Time range 4	Time range 5

$$PS_1 \leq PS_2 \leq PS_3 \leq PS_4 \leq PS_5$$

Tariff versions

For the HV-B 1 and HV-B 2 ranges, three tariff versions are available depending on your network usage profile: short-term use, medium-term use or long-term use.

For the HV-A 1 range, you have two options (fixed or mobile). For each option, two tariff versions are available depending on your network usage profile: short-term use or long-term use.

The connection points connected to the HV-A 2 voltage range are priced as those on HV-B 1 voltage range are.

Calculation formula

At each of these connection points, the annual extraction component shall be established as follows:

$$CS = \underbrace{b_1 \times PS_1 + \sum_{i=2}^{5} b_i \times (PS_i - PS_{i-1})}_{\text{Fixed part = Power part}} + \underbrace{\sum_{i=1}^{5} c_i \times E_i}_{\text{Energy part}} + \underbrace{\sum_{12\ mois} \sum_{i=1}^{5} 0{,}04 \times b_i \times \sqrt{\sum_{j} (P_j - PS_i)^2}}_{\text{Overruns}}$$

Where:

- i denotes the time interval;
- b_i is the weighting factor of the power defined by time interval i according to the voltage range and the tariff version concerned;
- Psi_i is the subscribed power of time interval i;
- ci is the weighting factor of the energy for time interval i according to the voltage range and the tariff version concerned;
- E_i is the active energy extracted over the year during time interval i, expressed in kWh;
- P_j is the power overrun averaged over ten minutes in kW;
- j is the set of 10-minute overrun points for time range i;
- 0.04 is the weighting factor of the CMDPS (in HV-B and HV-A)

Summary return

Tariff elements, formulas, and rates

The fixed part represents the cost to the network of making the subscribed power available to the main power supply.

The variable part corresponds to the sum of the energy part (the energy extracted over the year) and the subscribed power overruns for the 12 months of the year (the 12 CMDPS for the year).

Example of calculation for the CS without overruns:

An **HV-B 2** customer, on the "**Long-Term Use**" tariff version, receives its RTE invoice for the month of January 2022.

For its sole main power supply, this customer has subscribed to a power package ranging from 16 000 to 22 000 kW, the distribution of which complies with the principle of subdivision.

As January is not part of the low season, only the high season and peak hour time slots are used to invoice the energy part.

Subscribed Power (PS)

PS_1 – 16 000 kW
PS_2 – 16 000 kW
PS_3 – 18 000 kW
PS_4 – 22 000 kW
PS_5 – 22 000 kW

Fixed part =

b_i (€/kW/year)	×	Δ powers	
11.92		16 000	
11.44		16 000 - 16 000	= 238 200 €/year
9.40		18 000 - 16 000	= 19 850 €/month
7.17		22 000 - 18 000	
3.87		22 000 - 22 000	

Energy extracted (January 2022)

E1 – 1 930 454 kWh
E2 – 5 469 132 kWh
E3 – 3 252 478 kWh
E4 – 0 kWh
E5 – 0 kWh

Energy part =

c_i (c€/kWh)	×	Energy extracted	
0.78		1930454	= € 63,055.40
0.61		5469132	
0.45		3252478	

Total CS $_{jan.2022}$ ***= 82 905.40 €*** (Excl. overruns)

Example based on 1 August 1 2021 tariffs. Their value is reassessed annually.

Focus on the monthly component for subscribed power overruns (CMDPS)

The monthly component for subscribed power overruns (CMDPS) represents the cost that you will have to pay if you are soliciting the network beyond your subscribed power.
These overruns are added up monthly and for each time range.
For each time range, the subscribed power invoice is calculated at 10-minute intervals.

In the case of load transfers requested by RTE for works between two main or complementary power supplies of the same consumption site, overruns incurred by customers are capped during the load transfer period.
This system does not apply to HV-A connection points.

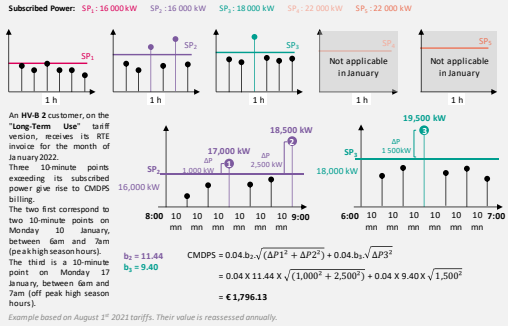
Over the same month, the b_i coefficients may vary due to a change in the tariff version.
The formula then becomes:

$$CMDPS = \sum_{i=1}^{5} 0{,}04 \times \sqrt{b_i^2 \times \sum_j \left(P_j - PS_i\right)^2 + b'^2_i \times \sum_j \left(P_{j'} - PS_i\right)^2}$$

Where:

- i denotes the time interval;
- b_i is the weighting factor of the power defined by time interval i according to the voltage range and the tariff version concerned, for the tariff version before the change;
- b'_i is the weighting factor of the capacity defined by time interval i according to the voltage range and the tariff version concerned, for the tariff version after change;
- PS_i is the subscribed power of time interval i;
- P_j is the power overrun greater than the subscribed power averaged over ten minutes in kW before the tariff version change;
- j s the set of 10-minute overrun points for time range i before the tariff version change;
- $P_{j'}$ is the power overrun greater than the subscribed power averaged over ten minutes in kW after the tariff version change;
- j' is the set of 10-minute overrun points for time range i after the tariff version change;

Example of calculation of the CMDPS:



Summary return

Tariff elements, formulas, and rates

See the Time range schedule

HV-B 2

The bi and ci coefficients used that are applicable to the HV-B 2 voltage range are:

For the short-term use tariff version (STU)

	Peak hours (i=1)	High Season Peak Hours (i=2)	High Season Off-Peak Hours (i=3)	Low Season Peak Hours (i=4)	Low Season Off-Peak Hours (i=5)
Weighting coefficient for power b_i (€/kW/year)	1.43	1.37	1.35	1.28	1.05
Weighting coefficient of energy c_i (c€/kWh)	1.29	0.88	0.85	0.67	0.54

For the medium-term use tariff version (MTU)

	Peak hours (i=1)	High Season Peak Hours (i=2)	High Season Off-Peak Hours (i=3)	Low Season Peak Hours (i=4)	Low Season Off-Peak Hours (i=5)
Weighting coefficient for power b_i (€/kW/year)	4.42	4.24	4.16	3.43	2.42
Weighting coefficient of energy c_i (c€/kWh)	1.09	0.85	0.65	0.51	0.34

For the long-term use tariff version (LTU)

	Peak hours (i=1)	High Season Peak Hours (i=2)	High Season Off-Peak Hours (i=3)	Low Season Peak Hours (i=4)	Low Season Off-Peak Hours (i=5)
Weighting coefficient for power b_i (€/kW/year)	11.92	11.44	9.40	7.17	3.87
Weighting coefficient of energy c_i (c€/kWh)	0.78	0.61	0.45	0.31	0.25

HV-B 1

The bi and ci coefficients used that are applicable to the HV-B 1 voltage range are:

For the short-term use tariff version (STU)

	Peak hours (i=1)	High Season Peak Hours (i=2)	High Season Off-Peak Hours (i=3)	Low Season Peak Hours (i=4)	Low Season Off-Peak Hours (i=5)
Weighting coefficient for power b_i (€/kW/year)	4.19	3.88	3.77	3.19	2.80
Weighting coefficient for energy c_i (€/kW/year)	2.30	1.88	1.57	1.18	0.85

For the medium-term use tariff version (MTU)

	Peak hours (i=1)	High Season Peak Hours (i=2)	High Season Off-Peak Hours (i=3)	Low Season Peak Hours (i=4)	Low Season Off-Peak Hours (i=5)
Weighting coefficient for power b_i (€/kW/year)	16.63	16.02	13.59	9.91	5.87
Weighting coefficient for energy c_i (€/kW/year)	1.70	1.39	0.92	0.65	0.44

Summary return

Tariff elements, formulas, and rates

See the Time range schedule

HV-B 1

For the long-term use tariff version (LTU)

	Peak hours (i=1)	High Season Peak Hours (i=2)	High Season Off-Peak Hours (i=3)	Low Season Peak Hours (i=4)	Low Season Off-Peak Hours (i=5)
Weighting coefficient for power b_i (€/kW/year)	32.17	30.99	24.86	17.49	9.94
Weighting coefficient of energy c_i (c€/kWh)	1.24	0.95	0.60	0.41	0.21

HV-A 1

The b_i and c_i coefficients used that are applicable to the HV-A 1 voltage range are:

For the Fixed Peak tariff and the Short-Term Use Tariff Version

	Fixed Peak Hours (i=1)	High Season Peak Hours (i=2)	High Season Off-Peak Hours (i=3)	Low Season Peak Hours (i=4)	Low Season Off-Peak Hours (i=5)
Weighting coefficient for power b_i (€/kW/year)	4.88	4.67	4.40	4.26	3.60
Weighting coefficient of energy c_i (c€/kWh)	3.73	3.20	2.17	1.64	1.01

For Fixed Peak tariff and Long-Term Use Tariff Version (LTU)

	Fixed Peak Hours (i=1)	High Season Peak Hours (i=2)	High Season Off-Peak Hours (i=3)	Low Season Peak Hours (i=4)	Low Season Off-Peak Hours (i=5)
Weighting coefficient for power b_i (€/kW/year)	19.36	18.26	13.85	9.71	4.15
Weighting coefficient of energy c_i (c€/kWh)	2.80	2.11	1.38	0.89	0.77

For the Mobile Peak tariff and the Short-Term Use Tariff Version

	Mobile Peak Hours (i=1)	High Season Peak Hours (i=2)	High Season Off-Peak Hours (i=3)	Low Season Peak Hours (i=4)	Low Season Off-Peak Hours (i=5)
Weighting coefficient for power b_i (€/kW/year)	5.34	4.61	4.40	4.26	3.60
Weighting coefficient of energy c_i (c€/kWh)	4.78	3.07	2.17	1.64	1.01

For the Mobile Peak tariff and the Long-Term-Term Use Tariff Version

	Mobile Peak Hours (i=1)	High Season Peak Hours (i=2)	High Season Off-Peak Hours (i=3)	Low Season Peak Hours (i=4)	Low Season Off-Peak Hours (i=5)
Weighting coefficient for power b_i (€/kW/year)	21.81	19.93	13.85	9.71	4.15
Weighting coefficient of energy c_i (c€/kWh)	3.21	1.93	1.38	0.89	0.77

Summary return

Tariff elements, formulas, and rates

Annual component for additional and backup power (CACS)

Supplementary power supplies and emergency power supplies are subject to a fixed rate. It is based on the parts that are dedicated to you, depending on the number of cells, the lines' length and type (overhead or underground).

If the backup power supply is connected to the same voltage range as that of the main power supply and is connected to a transformer on the public network different from that used for the main power supply, it will incur an additional fixed charge for power reserves.

Load extractions performed on a backup at the same voltage range as the main power supply are invoiced under the extraction component (CS) and the monthly components for subscribed power overruns (CMDPS) for

the main power supply.

Subscribed power extractions and overruns from the emergency power supply are then invoiced according to a specific tariff.

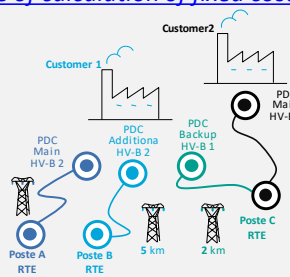
Please note that if several customers are connected to a single backup line that supplies exclusive backup power, the fixed costs are prorated on the basis of the subscribed power of each customer connected to this connection.

Fixed costs for additional and backup power

Voltage range	Cells (€ /cell /year)	Lines (€ / km / year)
HV-B 3	106 930.88	10 135.99
HV-B 2	64 488.15	Overhead lines: 6 462.01 Underground lines: 32 308.87
HV-B 1	33 496.46	Overhead lines: 3 834.42 Underground lines: 7 668.84
HV-A	3 355.09	Overhead lines: 915.22 Underground lines: 1 372.83

Example of calculation of fixed costs CACS

A network client has:
- A main supply of HV-B 2, connected overhead to a first RTE station;
- An additional supply of HV-B 2, connected overhead to a second dedicated RTE station;
- A backup supply of HV-B 1, connected to a third RTE station, shared with the main supply of another customer.



Additional power supply:	
1 HV-B 2 cell	€ 64,488.15
5 km of overhead line at 6,462.01 €/km	+ € 32,310.05
Frais Fixes complémentaire:	€ 96,798.20
Backup Power:	
No dedicated cell	€ 0
2 km of overhead line at 3,834.42 €/km	+ € 7,668.84
Backup fixed costs:	€ 7,668.84
TOTAL CACS Fixed costs:	**€ 104 467,04**

Example based on August 1st 2021 tariffs. Their value is reassessed annually.

Other power reserve power supply costs

Voltage range	€ / kW / year or € / kVA / year
HV-B 2	1.55
HV-B 1	2.98
HV-A	6.55

Summary return

Tariff elements, formulas, and rates

Specific charges for backup power supplies from a different voltage range than the main power supplies

If the backup power supplies are of a different voltage range than the main power supplies and are equipped with a meter measuring the active power overruns, the monthly component of the subscribed power overruns shall be calculated according to the following formula:

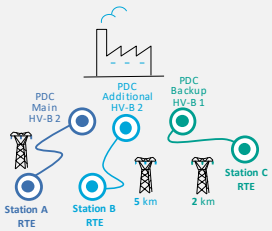
$$CMDPS = \propto . \sqrt{\sum(\Delta P^2)}$$

Voltage range of the main power supply	Voltage range of the backup power supply	Fixed premium (€/kW/year)	Energy part (c€/kWh)	α (c€/kW)
HV-B 3	HV-B 2 HV-B 1	7.41 5.45	0.77 1.31	31.39 23.25
HV-B 2	HV-B 1 HV-A	1.59 8.50	1.31 1.84	6.98 68.21
HV-B 1	HV-A	2.96	1.84	24.22

Example of the calculation of PS extractions and overruns on a backup power supply:

An HV-B 2 customer has:
- A main supply of HV-B 2, connected overhead to a first RTE station;
- An additional supply of HV-B 2, connected overhead to a second dedicated RTE station;
- A backup supply of HV-B 1, connected to a third RTE station, shared with the main supply of another customer and for which it has a **SP of 5000 kW**.

In January 2022, it **consumes 9 000 kWh** on its backup power supply and **exceeds by 200 kW** its subscribed power on a 10-minute point.



Voltage range Main Power Supply		Voltage range Backup Power Supply	
HTB 2		HTB 1	
Fixed premium €/kW/an	**Energy part** c€/kWh	**Exceedances SP** α c€/kW	
1.59	1.31	6.98	

Fixed premium cost	1.59 x 5,000 = 7,950 €/an = € 662.50/mois
Energy part cost	0.0131 x 9,000 = €117.90
SP exceedances cost	0.0698 x 200 = €13,96
TOTAL CACS consumption for the month:	**€ 794.36**

Example based on August 1st 2021 tariffs. Their value is reassessed annually.

Summary return

Tariff elements, formulas, and rates

The grouping component (CR)

If you have separate connection points to the Public Transmission System on your site with the same voltage and that are equipped with remote-controlled meters, you can benefit from the conventional grouping of all or part of these connection points.

The grouping component depends on the set of powers subscribed to at the grouping point and on the total length of the network and the type of connection (overhead or underground) necessary for the grouping of the connection points. This system can allow you to optimise your invoice by multiplying your different extractions.

The component is calculated annually using the following formula:

$$CR = (L_a \times k_a + L_s \times k_s) \times PS_{grouped}$$

Where:

- (L_a + L_s) is the smallest total length of the electrical structures on the PTS that physically enable the grouping, with L_a being the length of the overhead lines and L_s being the length of the underground lines,
- k_a and k_s the grouping coefficients for overhead and underground lines, respectively,
- $Ps_{grouped}$ equals the grouped subscribed power of the grouping point, except for the HV-B 3 range, where it is equal to the maximum hourly extraction capacity of the grouping point observed over the last 12 months.

Except for HV-B 3, the grouped subscribed power is calculated according to the following formula:

$$PS_{grouped} = PS_1 + \sum_{i=2}^{5} \frac{b_i}{b_1} \times (PS_i - PS_{i-1})$$

Where:

- i denotes the time interval,
- PS_i is the subscribed power for time interval i,
- b_i is the weighting factor of the capacity defined by time interval i and the tariff version.

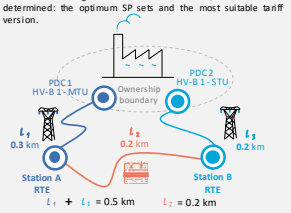
Voltage range	k (c€ / kW / km / year)
HV-B 3	5.81
HV-B 2	Overhead lines: 15.12 Underground lines: 58.12
HV-B 1	Overhead lines: 76.73 Underground lines: 134.86
HV-A	Overhead lines: 52 Underground lines: 76

Summary return

Tariff elements, formulas, and rates

Example of the calculation of the Grouping Component of 2 connection points:

A customer has **two** Connection Points in **HV-B 1**: the first in MTU tariff version and the second in STU tariff version.
From the connection points, the smallest distance of the Public Transmission System to connect these two points is **0.7 km**, including 0.2 km of underground lines and 0.5 km of overhead lines.
For the grouping point, the cumulative synchronous load curves of PDC 1 and PDC 2 gives a **theoretical load curve**, from which are determined: the optimum SP sets and the most suitable tariff version.



1. Grouping point: HV-B 1 Medium-Term Use

optimum SP set (MW)

HPTE (i=1)	HPSH (i=2)	HCSH (i=3)	HPSB (i=4)	HCSB (i=5)
36.5	36.5	36.5	37	37

Coefficients β (en %)

β_1	β_2	β_3	β_4	β_5
100	96	82	60	35

Where $\beta_i = b_i / b_1$

2. Calculation of the grouped $SP_{grouped}$

$SP_{grouped} = SP_1 + \sum_{i=2}^{i=5} \beta_i \cdot (SP_i - SP_{i-1})$
= 36,500 + 0.96x0 + 0.82x0 + 0.60x500 + 0.35x0
= 36,798 kW

3. Grouping component

k HTB 1	overhead L.	underground L.
c€/kW/km/year	76.73	134.86

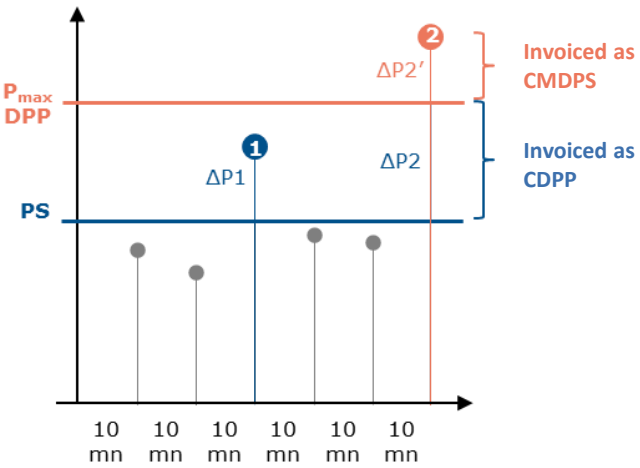
CR = l.k. $SP_{grouped}$
= [(0.2 x 1.3486) + (0.5 x 0.7673)] x 36,798
= **€ 24,042.71/year**

Example based on August 1st 2021 tariffs. Their value is reassessed annually.

Component for one-off scheduled overruns (CDPP)

For your HV-B 1 and HV-B 2 connection points, when you are working on your electrical installations, you can ask RTE for scheduled one-time overruns at any time of the year, in the forms and within the time limits stipulated in the Transmission System Access Contract. If the network's capacity can support it and your request is accompanied by elements justifying the work to be carried out on your electrical installations, RTE will approve it.

Your request must have a maximum requested capacity, applicable for all time ranges of the desired period.



During this period, subscribed power overruns below the maximum scheduled one-time capacity overruns granted are billed at a specific rate.

The application of this provision shall be limited for each connection point to not more than once per calendar year, for use corresponding to the period of works and not more than 14 non-fragmented days. It does not apply to a backup power supply or to connection points to the HV-B 3 and HV-A ranges, nor is it applicable to users connected to the HV-A 2 voltage range.

The component is calculated using the formula:

$$CDPP = \alpha \,.\, b_i \,.\, \sum \Delta P$$

Where:
- i denotes the time interval;
- b_i is the weighting factor of the power defined by time interval i according to the voltage range and the tariff version concerned.

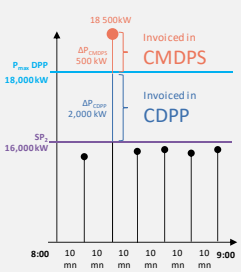
Voltage range	α
HV-B 2	0.000143
HV-B 1	0.000090

Example of calculation of CDPP:

An **HV-B 2** customer, on the "**Long-Term Use**" tariff version, benefits from the specific one-time 3-day exceedance tariff of November 2021.

In high season peak hours, for which the customer's subscribed power is **16 000 kW**, the maximum power for work requested under the **DPP** is **18 000 kW**.

During these three days, it exceeds its subscribed power on one 10-minute point by drawing **18 500 kW**.



Weighting factor b_2	Coefficient α HV-B 2
11.44	0.000143

CDPP billing of the exceedance

CDPP = 0.000143 x 11.44 x $\sqrt{2,000^2}$ = **€ 3.27**

CMDPS billing of the exceedance

CDMPS = 0.04.b_2.$\sqrt{\Delta P_{CMDPS}^2}$
= 0.04 x 11.44 × $\sqrt{500^2}$
= **€ 228.80**

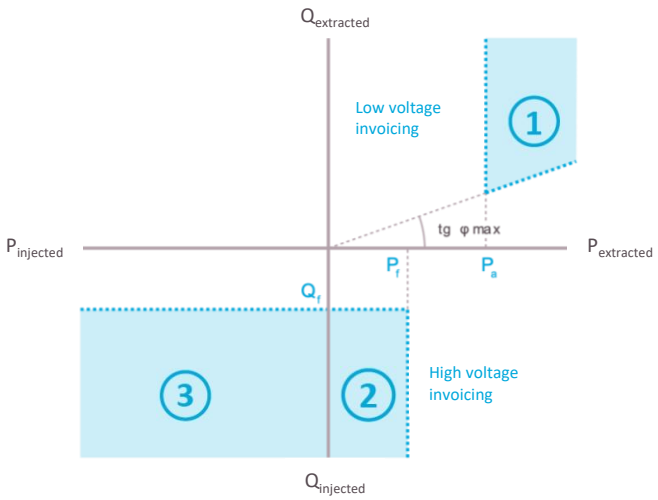
Example based on August 1st 2021 tariffs. Their value is reassessed annually.

Summary return

Tariff elements, formulas, and rates

Annual component for reactive energy (CER) in HV-A

There are three reactive energy billing zones, depending on the flows considered and the applicable thresholds.



Low voltage:

From April to October included, consumed reactive energy is not charged.

Zone 1: If, from November to March included, the amount of reactive energy consumed from 6:00 to 22:00, from Monday to Saturday, is greater than the contractual Tan ϕ max ratio and the active power is greater than a P_a threshold, the excess reactive energy consumed is charged to you and at intervals.

High voltage:

Zone 2: - If you consume active energy and inject reactive energy, reactive energy is charged when the injected reactive power is above a Q_f threshold and the active power is below a P_f threshold. This invoicing is done throughout the year with no time distinction, and at the hourly interval.

Zone 3: If you inject active and reactive energy, reactive energy is charged when the injected reactive power is above a Q_f threshold. This invoicing takes place throughout the year with no time distinction and at the hourly interval.

The billing thresholds (defined in the RTE Technical Reference Documentation):

- $P_f = 40\% * Ps_{max}$ and $P_a = 70\% * Ps_{max}$

Ps_{max} corresponds to the largest of the monthly weighted subscribed powers observed for year N-1.
In HV-B3, Ps_{max} corresponds to the maximum active power consumed at the hourly point observed over year N-1.

- $Q_f = -25\% * P_{dim}$

P_{dim} corresponds to the largest of the values between PS_{max} and the absolute value of the maximum active power injected in hourly points observed in year N-1.

November to March inclusive			
Low voltages Active extraction and reactive extraction	Invoicing	Monday to Saturday	6am to 10pm
	No invoicing	Monday to Saturday	10pm to 6am
		Sunday	0:00 to 24:00
All year round			
High voltages Active extraction and reactive injection	Invoicing	Every day	0:00 to 24:00
High voltages Active injection and reactive injection	Invoicing	Every day	0:00 to 24:00

Summary return

Tariff elements, formulas, and rates

The reactive energy component **extracted** is charged when the following conditions are met:

- the maximum contracted Tangent φ is exceeded, and
- your active energy consumption flows are greater than a threshold P_a.

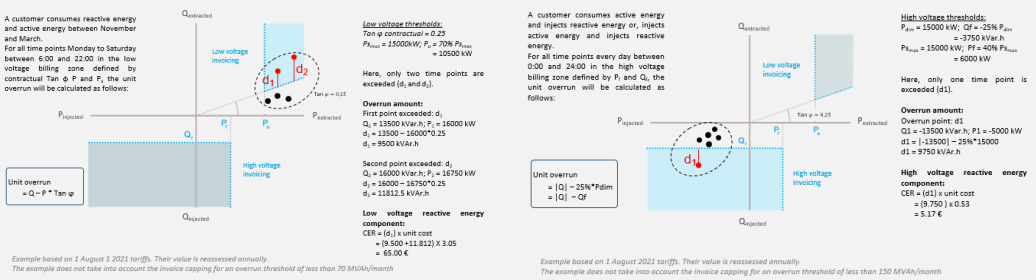
The **injected** reactive energy component is invoiced when:

- you inject active energy and the reactive energy injected is greater than a Q_f threshold, **or**
- your active energy extraction flows are below a P_f threshold and the injected reactive energy is above a Q_f threshold.

Unit overruns for each billing zone are charged at hourly intervals according to the scale shown here:

The unit cost of the overrun	€/Mvar.h
Reactive energy extracted (Zone 1)	3.05
Reactive energy injected (Zones 2 and 3)	0.53

Annual Component for reactive energy calculation examples:



Annual component of the use of transformation works (CT)

If you operate, downstream from your connection point, a line at the same voltage range as that downstream of the RTE transformer to which you are directly connected, you can benefit from the upstream voltage tariff on payment of the annual component for the use of the transformation works, depending on the set of subscribed powers.

The component is calculated using the following formula:

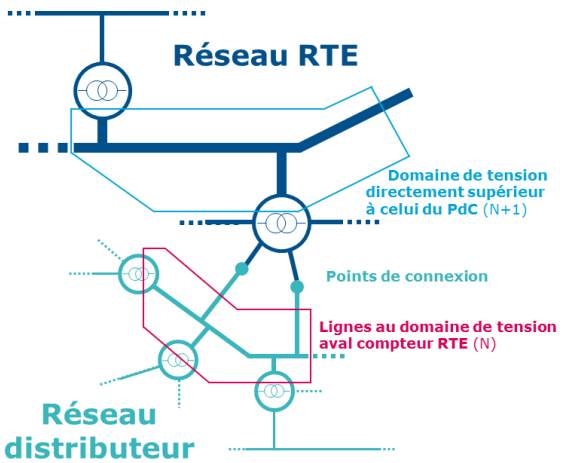
$$CT_{N/N+1} = k \times P_{souscrite}$$

Where:

$$P_{souscrite} = PS_1 + \sum_{i=2}^{5} \frac{b_i}{b_1} \times (PS_i - PS_{i-1})$$

Where:

- i denotes the time interval;
- PS_i is the Subscribed Power for time interval i;
- b_i is the weighting factor of the power defined by time interval i and by Tariff Version.



Summary return

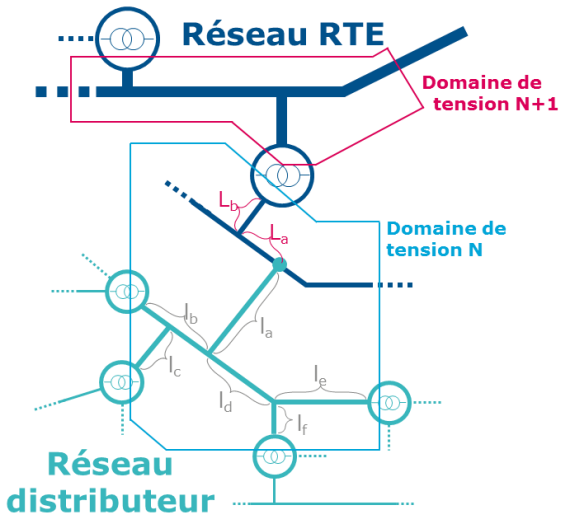
The k coefficient used is:

Voltage range of the connection point	Voltage range of the tariff applied	k (€/kW/year)
HV-B 2	HV-B 3	1.82
HV-B 1 or HV-A 2	HV-B 2	3.91
HV-A 1	HV-B 1	6.91

The compensation for operating lines at the same voltage as at the point of connection of the Public Transmission System (CEL)

You will benefit from this compensation if you operate lines at the same voltage as your Public Transmission System connection point. This takes into account two specific lengths:

- the sum of the lengths of the lines you own on the N voltage range of your connection point,
- the sum of the lengths of the lines RTE owns at the same N voltage range, required to connect your connection point to the RTE transformer to guarantee the subscribed power in normal operating scheme.



The annual extraction component (CS) of this connection point is calculated using the following formula:

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

Where:

- l_1 is the total length of the connection(s) operated by the distributor to voltage range N;
- l_2 is the total length of the connection(s) operated by RTE at the voltage range N, which is (are) strictly necessary to connect its connection point to the RTE transformer(s) to guarantee the power subscribed in the normal operating scheme defined in RTE's technical reference documentation;
- $CT_{N/N+1}$ is the annual component of the use of the transformation works between the N+1 and N voltage ranges

Summary return

Tariff elements, formulas, and rates

Extreme cold capping (EGF)

During a severe cold period, you can benefit from a reduction in the cost of your subscribed power overruns.

These provisions shall apply only for severe cold hours and 24 hours after each of these periods.

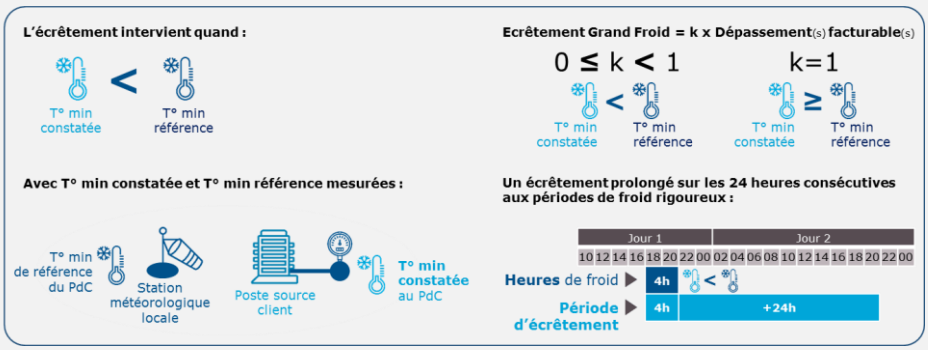
A severe cold period is the time, in hours, when the minimum temperature at the connection point is below the local minimum reference temperature for that connection point.

In severe cold weather, the subscribed power overruns at the delivery point substation concerned are capped: Their share in the CMDPS is multiplied by a k coefficient.

The coefficient k is 1 when the minimum temperature at the connection point is greater than or equal to the minimum reference temperature. However, when the minimum temperature falls below the minimum reference temperature, k decreases (possibly to 0).

The rules for calculation of the k-factor are specified in the Distributor CART.

A capping of subscribed power overruns triggered by a severe cold period:



Summary return

Invoicing terms

The invoicing of extraction in HV-B3 not adjusted for time of day and season

For HV-B 3, this component is calculated only from the energy E extracted during month M, according to the formula:

$$CS = c \times E$$

Its monthly amount for month M is invoiced at the beginning of month M + 1 (in arrears).

The time and season adjusted invoicing of extraction in HV-B 2, HV-B 1 and HVA-1

For voltage ranges adjusted for time/season, the annual amount of the extraction component is found using the following formula:

$$= Fixed\ part + Variable\ part$$

Where:

$$Fixed\ part = b_1 \times PS_1 + \sum_{i=2}^{5} b_i \times (PS_i - PS_{i-1})$$

And:

$$Variable\ part = \sum_{i=1}^{5} c_i \times E_i + \sum_{12\ month} CMDPS$$

Where:

- i denotes the time interval;
- b_i is the weighting factor of the power defined by time interval i and the Tariff Version;
- PS_i is the Subscribed Power for Time Interval i;
- c_i is the weighting factor of the energy for Time Interval i and the tariff version concerned;
- E_i is the active energy extracted over the year during Time Interval i, expressed in kWh.

Please note that in case of changes to the subscribed power and/or tariff version during the year:

- The annual fixed portion corresponds to the intraday pro rata temporis of the annual fixed parts corresponding to each unique set of subscribed power and tariff version;
- The monthly CMDPS distinguishes the overruns associated with each tariff version in effect for the month in question.

Invoicing for the fixed part

The monthly amount for the fixed part for month M is invoiced at the beginning of month M (in arrears). It corresponds to one 12th of the fixed annual part.

Invoicing for the variable part

The total for each of the invoicing elements for month M, with the exception of the fixed part, shall be invoiced at the beginning of the following month, M+1 (in arrears).

Payment terms

You can pay your invoice by cheque, wire transfer or direct debit.

RTE offers a free electronic invoicing service.

Summary return

Definitions

Main power supply

A set of attachment structures that ensure the transfer of energy and the availability of the extraction capacity to which the User has subscribed and/or the maximum agreed Injection capacity under normal operation of the User's electrical structures.

Additional power supply

A set of attachment structures that ensure the transfer of energy, and are in the same Voltage Range as the Principal Supply and not necessary to the power supply of the Site. The User Supplies that are neither the Principal Supplies nor Backup Supplies, are the Additional Supplies for this User.

Backup Power

A set of attachment structures kept live, but which is used for the transfer of energy between the Public Transmission or Distribution System and the installations of one or more Users only in the event that all or part of their main and additional supplies are unavailable.

Voltage range

The Voltage Ranges of the alternating current Public Transmission and Distribution Networks are defined in the table below:
The tariffs applicable to Users connected to the public networks in HV-A 2 are those from the HV-B 1 voltage range.

Connection voltage (Un)	Voltage range		
Un ≤ 1 kV	LV		Low voltage range
1 kV < Un ≤ 40 kV	HV-A 1	HV-A range	High voltage range
40 kV < Un ≤ 50 kV	HV-A 2		
50 kV < Un ≤ 130 kV	HV-B 1	HV-B range	
130 kV < Un ≤ 350 kV	HV-B 2		
350 kV < Un ≤ 500 kV	HV-B 3		

Active energy

All of the active power P during a defined time period.

Reactive energy

All of the reactive power Q during a defined time period.

Subscription Period

Duration of validity of a Subscribed Power subscription. This is normally 12 months but may be of a shorter duration, especially in the case of a change in the Subscribed Power. At each change in Subscribed Power the Subscription Period is renewed for 12 months. If not modified, the Subscribed Power is tacitly renewed for a new Subscription Period.

Time Range

For all Usage Tariffs on the public power networks, all times of the year during which the same tariff coefficient applies.

Metering Point

Physical point where the instrument transformers for metering the energy flows are located.

Summary return

Annexes

Connection Point:

The User's Connection Point(s) to the public power network coincide with the ownership boundary between the User's electrical structures and the electrical structures of the public network, generally at the end of an electrical structure, embodied by a switching device. The term "switching device" is understood to mean an apparatus installed on an electrical network, making it possible to interrupt a non-zero current flowing between the two ends of this apparatus.

Subscribed Power(s):

Power capacity that the Customer determines at the Connection Point, in accordance with its PTS needs. Capacity dispatched which exceeds the Subscribed Power is an overrun. The term HV-A refers to the HV-A 1 voltage range. The HV-A 2 voltage range is clearly mentioned

Public transmission system access tariff

Tariffs for the use of the public transport system and public electricity distribution systems (TURPE) applicable to users. These tariffs are calculated in a non-discriminatory manner in order to cover all costs resulting from the execution of public service contracts and tasks.

Tariff version:

For HV-B 2 and HV-B 1 tariffs adjusted for time/season, there are three tariff versions:

- short-term use (STU),
- medium-term use (MTU),
- long-term use (LTU).

For HV-A 1 tariffs adjusted for time/season, there are two tariff versions:

- short-term use (STU),
- long-term use (LTU).

Adjustment of HV-A tariffs for time/season:

For the HV-A voltage range, the time/season is aligned, from TURPE 5 , to the HV-B time/season with tariff grids consisting of five time ranges.
There are two tariff options.
For the fixed peak tariff, the peak hours in the time season adjusted calendar are aligned with the peak hours in the HV-B tariff calendar. For the mobile peak tariff (from TURPE 5), the peak hours are the "PP1" days of the capacity mechanism.

The PP1 Peak Period

The PP1 period is the reference period when establishing the obligation of each actor required in the capacity mechanism. It consists of 10 hours per day on the time slots [7am; 3pm] and [6pm; 8pm] for the days reported by RTE. The reported days are not fixed before winter. However, they still include the working days from November to March minus the period corresponding to the Christmas school holidays. The reporting for PP1 days is transmitted on D-1 at 9:30am. It is based on a consumption criterion. The number of PP1 days reported varies between 10 and 15 per year of delivery.

Summary return

The time ranges in HV-B 2, HV-B 1, and HV-A 1

The high season extends from November to March, the low season extends from April to October.

- Peak hours are from 9-11am and 6-8pm, December-February.
- High peak hours are from 7am-11pm during weekdays, excluding peak hours previously set.
- Off-peak hours are from 11pm-7am during weekdays, and on Saturdays, Sundays and public holidays.

For the mobile HV-A tariff, mobile peak hours are the hours of the PP1 period of the capacity mechanism (10 to 15 days a year, from 7am to 3pm and from 6pm to 8pm).

For the fixed peak HV-A tariff, peak hours are the same as for HV-B 1 and HV-B 2 tariffs.

High season						Low season		High season			
January		February		March		April to October		November		December	
7:00	9:00	7:00	9:00							7:00	9:00
9:00	11:00	9:00	11:00							9:00	11:00
11:00	18:00	11:00	18:00	7:00	23:00	7:00	23:00	7:00	23:00	11:00	18:00
18:00	20:00	18:00	20:00							18:00	20:00
20:00	23:00	20:00	23:00							20:00	23:00
23:00	7:00	23:00	7:00	23:00	7:00	23:00	7:00	23:00	7:00	23:00	7:00
Saturdays, Sundays and public holidays											
0:00	24:00	0:00	24:00	0:00	24:00	0:00	24:00	0:00	24:00	0:00	24:00

Peak hours	High Season Peak Hours	High Season Off-Peak Hours	Low Season Peak Hours	Low Season Off-Peak Hours
9:00/11:00 – 18:00/20:00	7:00/9:00– 11:00/18:00 – 20:00/23:00	23:00/ 7:00	7:00/ 23:00	23:00/ 7:00

Summary return

3 tariff versions corresponding to 3 consumption profiles

There are three tariff versions, called Short-Term Use (STU), Medium-Term Use (MTU), and Long-Term Use (LTU)(STU and LTU only in HV-A).

For the HV-B 1, HV-B 2, HV-A 1 and HV-A 2 ranges, they apply to the Consumption Point or Grouping Point and are subscribed for a minimum period of 12 months. Beyond this time, a customer can modify their tariff version any day of the month and without notice. The new version then takes effect the day after the request for a new period of at least 12 months. In the case of tariff grouping, only one tariff version applies.

On the other hand, these tariff versions do not apply:

- To the connection points on the HV-B 3 voltage range;
- To the connection points dedicated to a backup power supply at a voltage range lower than that of the main power supply

For the customer, the optimal tariff version tends to reflect the ratio between the energy consumed over 1 year and the maximum power demanded over the same period:

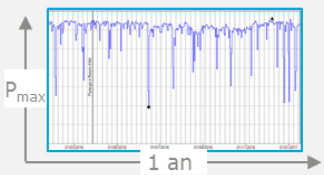
$$\frac{Energy_{12\ month}}{P.max_{extracted}}$$

This ratio, which is provided as a guideline only, can assist the customer in its tariff version choice.

However, there is no threshold value for the Power to Capacity ratio that can be used to attribute a tariff version to a consumption profile. The best tariff version for a given consumption profile must therefore be determined on a case-by-case basis.

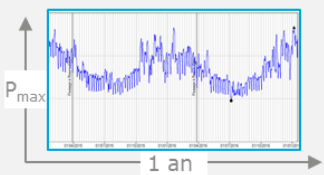
It necessarily involves carrying out simulations on the customer's load curve and simultaneously optimising the tariff version and the subscribed power set.

The gradual structure change during the TURPE 6 tariff period leads to a downward trend in the thresholds of the average indicative periods of use per tariff version each year.



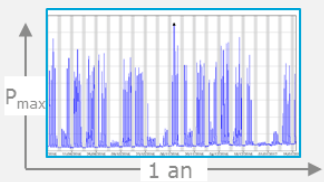
High

Long Term Use
Typical of consumers with continuous process



Medium

Medium Term Use
Typical of distributors (without renewable generation)



Low

Short Term Use
Typical of consumers with discontinuous process

Summary return

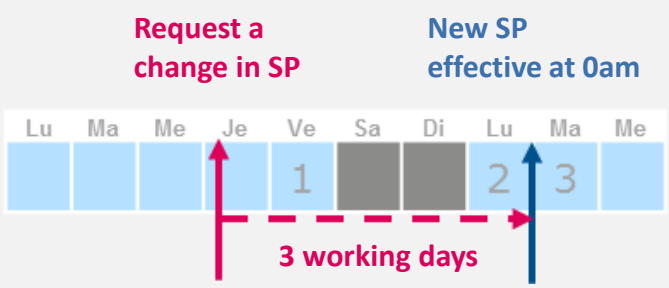
Manage your subscribed power

The subscribed power is set for 12 months. However, during this period, it can be amplified or diminished in accordance with the terms of the contract. In the HV-B 2, HV-B 1 and HV-A tariff that is adjusted for time/season, each subscribed power (PS) on each time range is modified independently of the others, in compliance with the following rule:

Peak hours	High Season Peak Hours	High Season Off-Peak Hours	Low Season Peak Hours	Low Season Off-Peak Hours
Time range: 1	Time range: 2	Time range: 3	Time range: 4	Time range: 5

$$PS_1 \leq PS_2 \leq PS_3 \leq PS_4 \leq PS_5$$

You can change your subscribed power several times in the same billing month, up to once a day. The change takes effect on the date you indicated on your request, which must be no earlier than 3 business days after your request.



When the network needs to be strengthened, it shall apply to the first day of the month following the date

strengthening work has been completed.

The principles for changing subscribed powers are as follows:

- You can freely proceed with a succession of consecutive reductions if you have not increased your
  subscribed capacity during the last 12 running months;
- You can increase your subscribed power at any time if the capacity of the network allows it. However, if you have reduced your power during the last 12 months, you will be asked for a financial adjustment.

Summary return

Three cases of increase after a PS reduction

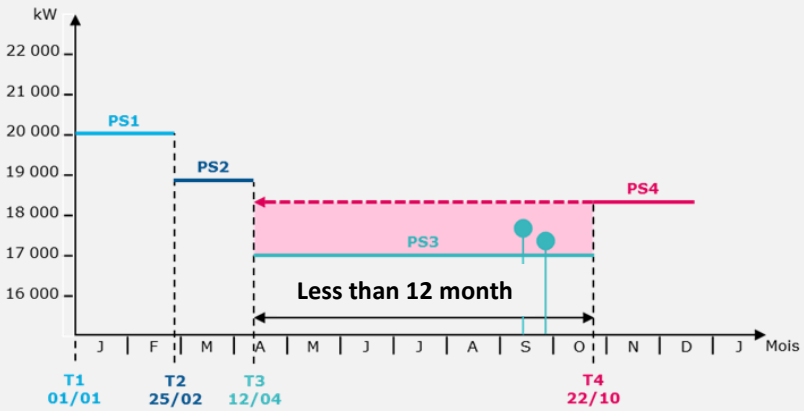
For tariffs adjusted for time/season, the following cases apply independently for each time range.

Case 1: Case 1: The new PS (PS4) is higher than PS (PS3) that remained unchanged for 12 months

- During the last 12 running months, the PS (PS3) remained unchanged.
- The PS (PS4) applies on the effective date of the T4 request.

Case 2: Case 2: The new PS (PS4) is lower than the PS before the last decrease (PS2) performed less than 12 months ago

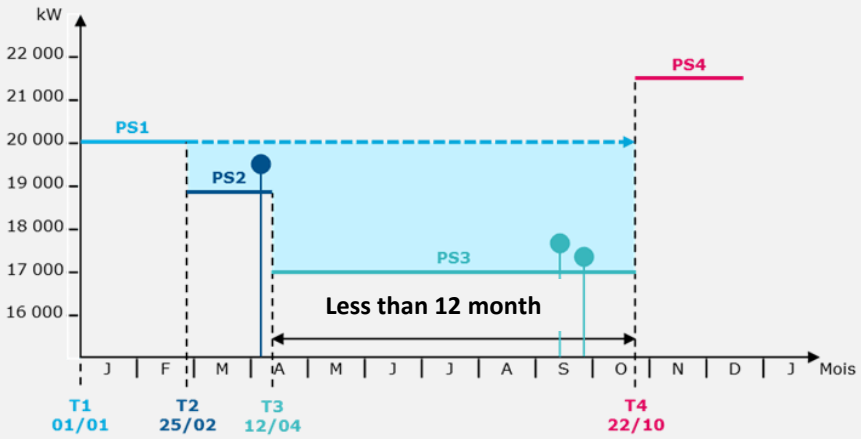
- PS4 applies to the effective date of the last decrease in the last 12 months which led to a capacity that is less than or equal to the new subscribed power from T3.
- The settlement of the fixed part of the CS is requested for the differential between PS3 and PS4, for the entire period between T3 and T4.
- The PS (PS3) overruns that happened between T3 and T4 remain with RTE.
- PS4's subscription period starts in T4.



Summary return

Case 3: The new PS (PS4) is higher than the PS before the first decrease (PS1) performed less than 12 months ago

- The PS (PS4) applies on the effective date of the T4 request.
- PS (PS2 and PS3) decreases are cancelled.
- The settlement of the fixed part of the CS is requested for the differential between PS1 and PS2 then PS3 and PS4, for the entire period between T2 and T4.
- PS (PS2 and PS3) overruns that happened between T2 and T4 remain with RTE.
- PS4's subscription period starts in T4.



Summary return

Examples of calculations for certain tariff components

Example of calculation for the CS without overruns

An **HV-B 2** customer, on the "**Long-Term Use**" tariff version, receives its RTE invoice for the month of January 2022.

For its sole main power supply, this customer has subscribed to a power package ranging from 16 000 to 22 000 kW, the distribution of which complies with the principle of subdivision.

As January is not part of the low season, only the high season and peak hour time slots are used to invoice the energy part.

Subscribed Power (PS)

PS_1 – 16 000 kW
PS_2 – 16 000 kW
PS_3 – 18 000 kW
PS_4 – 22 000 kW
PS_5 – 22 000 kW

Fixed part =

b_i (€/kW/year)	Δ powers
11.92	16 000
11.44	16 000 - 16 000
9.40	18 000 - 16 000
7.17	22 000 - 18 000
3.87	22 000 - 22 000

= 238 200 €/year

= 19 850 €/month

Energy extracted (January 2022)

E1 – 1 930 454 kWh
E2 – 5 469 132 kWh
E3 – 3 252 478 kWh
E4 – 0 kWh
E5 – 0 kWh

Energy part =

c_i (c€/kWh)	Energy extracted
0.78	1930454
0.61	5469132
0.45	3252478

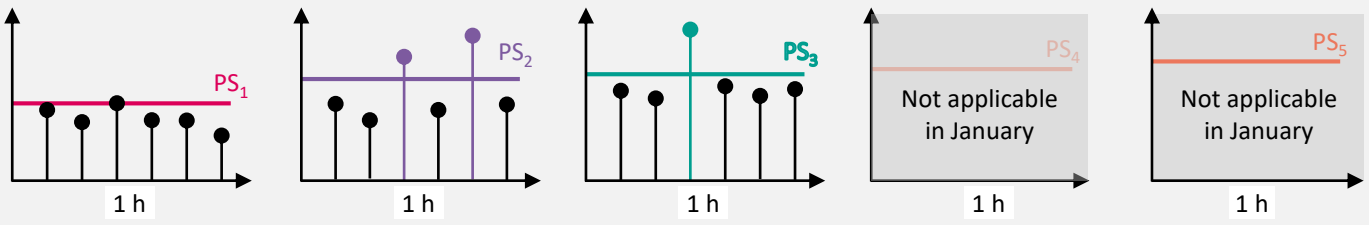
= € 63,055.40

Total CS$_{jan.2022}$ = 82 905.40 € (Excl. overruns)

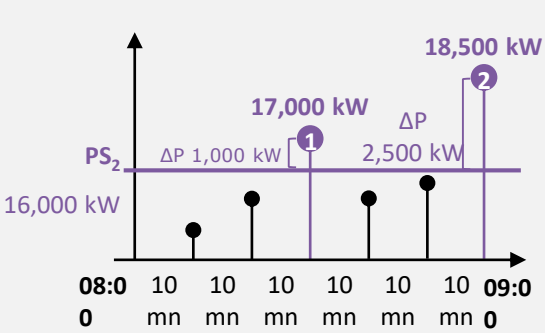
Example based on 1 August 1 2021 tariffs. Their value is reassessed annually.

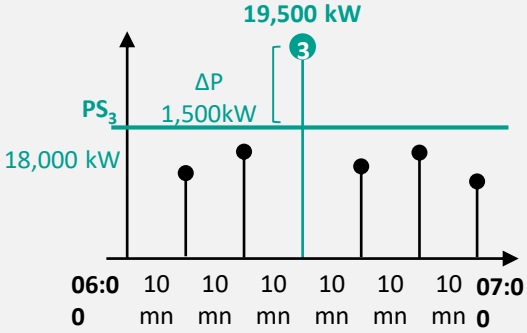
Example of calculation of the CMDPS

Subscribed Powers: PS_1: 16 000 kW PS_2: 16 000 kW PS_3: 18 000 kW PS_4: 22 000 kW PS_5: 22 000 kW



An **HV-B 2** customer, on the "**Long-Term Use**" tariff version, receives its RTE invoice for the month of January 2022. Three 10-minute points exceeding its subscribed power give rise to CMDPS billing. The two first correspond to two 10-minute points on Monday 10 January, between 6:00 and 7:00 (peak high season hours). The third is a 10-minute point on Monday 17 January, between 6am and 7am (off peak high season hours).





b_2 = 11.44
b_3 = 9.40

$$CMDPS = 0.04.b_2.\sqrt{(\Delta P1^2 + \Delta P2^2)} + 0.04.b_3.\sqrt{\Delta P3^2}$$

$$= 0.04 \text{ X } 11.44 \text{ X } \sqrt{(1{,}000^2 + 2{,}500^2)} + 0.04 \text{ X } 9.40 \text{ X } \sqrt{1{,}500^2}$$

= 1,796.13 €

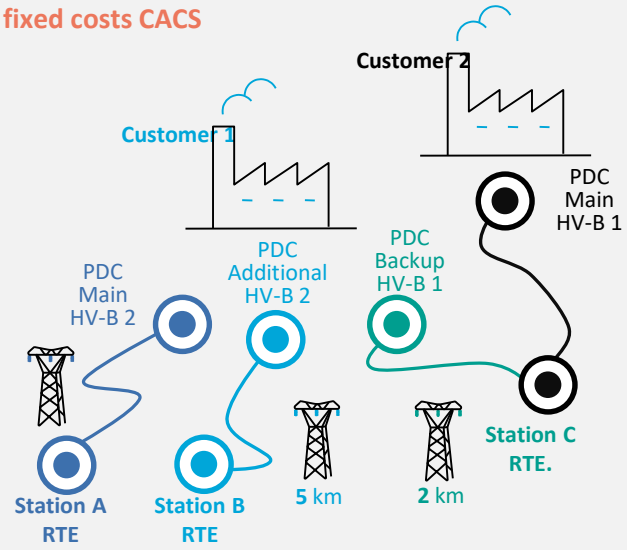
Example based on 1 August 1 2021 tariffs. Their value is reassessed annually.

Summary return

Example of calculation of fixed costs CACS

A network client has:

- A main supply of HV-B 2, connected overhead to a first RTE station;
- An additional supply of HV-B 2, connected overhead to a second dedicated RTE station;
- A backup supply of Hv-B 1, connected to a third RTE station, shared with the main supply of another customer.



Additional power supply:

1 HV-B 2 cell	64 488.15 €
5 km of overhead line at 6 462.01 €/km	+ 32 310.05 €
Additional fixed costs:	96 798.20 €

Backup Power:

No dedicated cell	€ 0
2 km of overhead line at 3 834.42 €/km	+ 7 668.84 €
Backup fixed costs:	7 668.84 €

TOTAL CACS Fixed costs: **104 467.04 €**

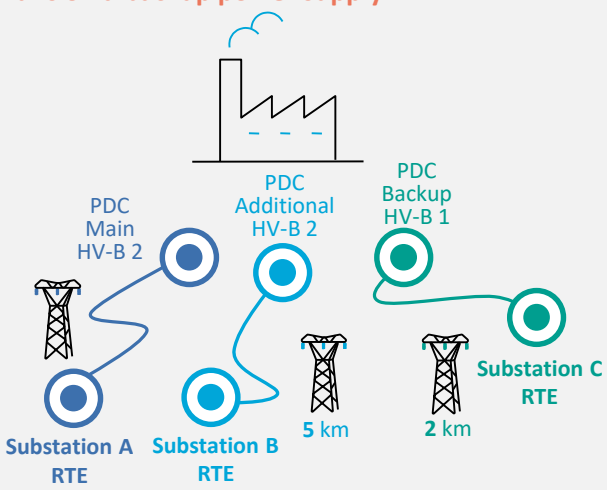
Example based on 1 August 1 2021 tariffs. Their value is reassessed annually.

Example of the calculation of PS extractions and overruns on a backup power supply

An HV-B 2 customer has:

- A main supply of HV-B 2, connected overhead to a first RTE station;
- An additional supply of HV-B 2, connected overhead to a second dedicated RTE station;
- A backup supply of HV-B 1, connected to a third RTE station, shared with the main supply of another customer and for which it has a **PS of 5000 kW**.

In January 2022, it **consumes 9 000 kWh** on its backup power supply and **exceeds by 200 kW** its subscribed power on a 10-minute point.



Voltage range Main Power Supply: **HV-B 2** > Voltage range Backup Power Supply: **HV-B 1**

Fixed premium €/kW/year	Energy share c€/kWh	SP overruns α c€/kW
1.59	1.31	6.98

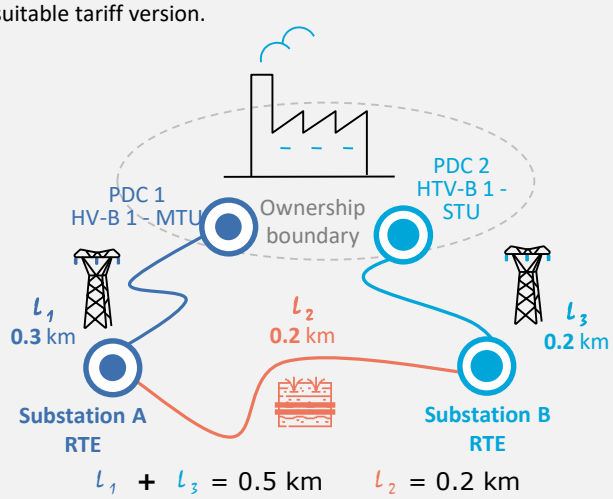
Fixed premium cost	1.59 x 5 000 = **7 950 €/year = 662.50 €/month**
Energy part cost	0.0131 x 9.000 = **€ 117.90**
SP overruns cost	0.0698 x 200 = **€ 13.96**
TOTAL CACS consumption for the month:	**€ 794.36**

Example based on 1 August 1 2021 tariffs. Their value is reassessed annually.

Summary return

Example of calculation of the grouping component of 2 connection points

A customer has two Connection Points in **HV-B 1**: the first in MTU tariff version and the second in STU tariff version. From the connection points, the smallest distance of the Public Transmission System to connect these two points is **0.7 km**, including 0.2 km of underground lines and 0.5 km of overhead lines. For the grouping point, the cumulative synchronous load curves of PDC 1 and PDC 2 gives a **theoretical load curve,** from which are determined: the optimal PS sets and the most suitable tariff version.



1. Grouping point: HV-B 1 Medium-Term Use

Optimal PS set (MW)

HPTE (i=1)	HPSH (i=2)	HCSH (i=3)	HPSB (i=4)	HCSB (i=5)
36.5	36.5	36.5	37	37

Coefficients β (in %)

β_1	β_2	β_3	β_4	β_5
100	96	82	60	35

Where $\beta_i = b_i / b_1$

2. Calculation of the grouped $PS_{grouped}$

$PS_{grouped} = PS_1 + \sum_{i=2}^{n+5} \beta_i . (PSi - PSi_{\_1})$
= 36 500 + 0.96x0 + 0.82x0 + 0.60x500 + 0.35x0
= 36,798 kW

3. Grouping component

k HV-B 1 *c€/kW/km/year*	overhead L.	underground L.
	76.73	134.86

CR = l.k.PS grouped
= [(0.2 x 1.3486) + (0.5 x 0.7673)] x 36 800
= **24,042.71 €/an**

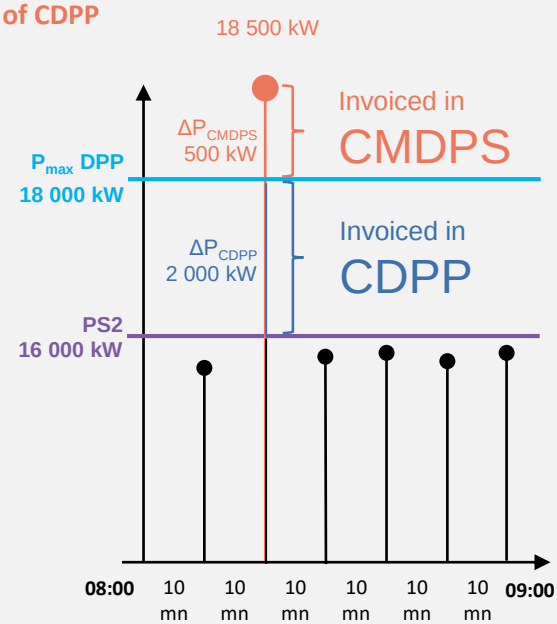
Example based on 1 August 1 2021 tariffs. Their value is reassessed annually.

Example of calculation of CDPP

An **HV-B 2** customer, on the "**Long-Term Use**" tariff version, benefits from the specific one-time 3-day overrun tariff of November.

In high season peak hours, for which the customer's subscribed power is **16 000 kW**, the maximum power for work requested under **the DPP is 18 000 kW**.

During these three days, it exceeds its subscribed power on one 10-minute point by drawing **18 500 kW**.



Weighting factor b_2	Coefficient α HV-B 2
11.44	0.000143

CDPP billing of the overrun

CDPP = 0.000143 x 11.44 x $\sqrt{2000^2}$ = **3.27 €**

CMDPS billing of the overrun

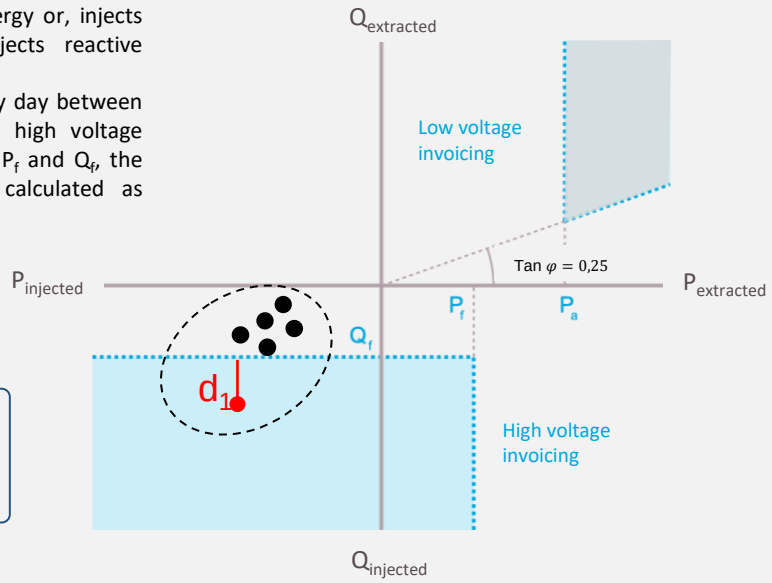
CDMPS = $0.04.b_2.\sqrt{\Delta P_{CMDPS}{}^2}$
= 0.04 x 11.44 × $\sqrt{500^2}$
= **€ 228.80**

Example based on 1 August 1 2021 tariffs. Their value is reassessed annually.

Summary return

Example of the calculation of the Reactive Energy Component, high voltage

A customer consumes active energy and injects reactive energy or, injects active energy and injects reactive energy.
For all time points every day between 0:00 and 24:00 in the high voltage billing zone defined by P_f and Q_f, the unit overrun will be calculated as follows:



Unit overrun
= |Q| – 25%*Pdim
= |Q| – Qf

<u>High voltage thresholds:</u>
P_{dim} = 15000 kW; Qf = -25% P_{dim}
= -3750 kVar.h
Ps_{max} = 15000 kW; Pf = 40% Ps_{max}
= 6000 kW

Here, only one time point is exceeded (d1).

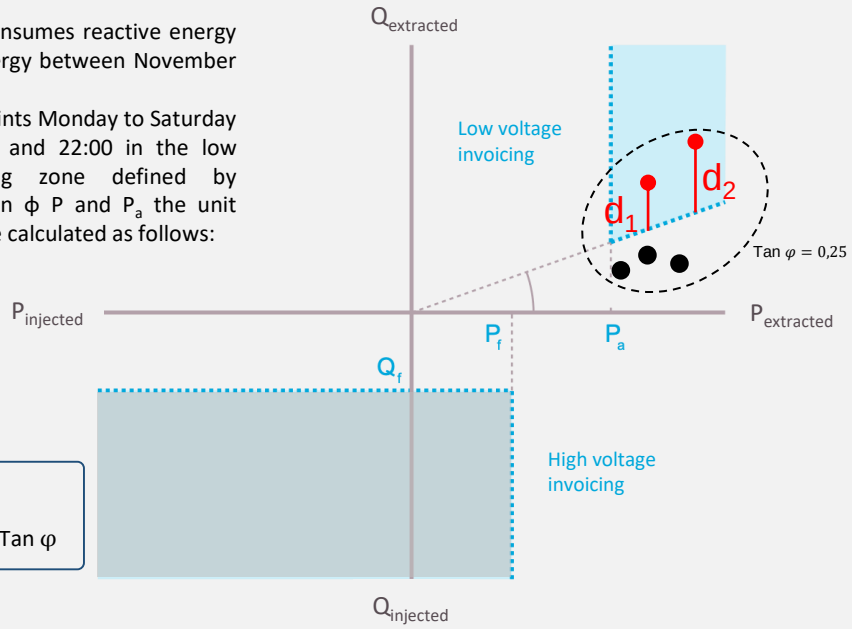
Overrun amount:
Overrun point: d1
Q1 = -13500 kVar.h; P1 = -5000 kW
d1 = |-13500| – 25%*15000
d1 = 9750 kVAr.h

High voltage reactive energy component:
CER = (d1) x unit cost
= (9.750) x 0.53
= 5.17 €

Example based on 1 August 2021 tariffs. Their value is reassessed annually.
The example does not take into account the invoice capping for an overrun threshold of less than 150 MVAh/month

Example of the calculation of the Reactive Energy Component, low voltage

A customer consumes reactive energy and active energy between November and March.
For all time points Monday to Saturday between 6:00 and 22:00 in the low voltage billing zone defined by contractual Tan ϕ P and P_a the unit overrun will be calculated as follows:



Unit overrun
= Q – P * Tan φ

<u>Low voltage thresholds:</u>
Tan φ contractual = 0.25
Ps_{max} = 15000kW; P_a = 70% Ps_{max}
= 10500 kW

Here, only two time points are exceeded (d_1 and d_2).

Overrun amount:
First point exceeded: d_1
Q_1 = 13500 kVar.h; P_1 = 16000 kW
d_1 = 13500 – 16000*0.25
d_1 = 9500 kVAr.h

Second point exceeded: d_2
Q_2 = 16000 kVar.h; P_2 = 16750 kW
d_2 = 16000 – 16750*0.25
d_2 = 11812.5 kVAr.h

Low voltage reactive energy component:
CER = (d_1) x unit cost
= (9.500 +11.812) X 3.05
= 65.00 €

Example based on 1 August 1 2021 tariffs. Their value is reassessed annually.
The example does not take into account the invoice capping for an overrun threshold of less than 70 MVAh/month

Summary return

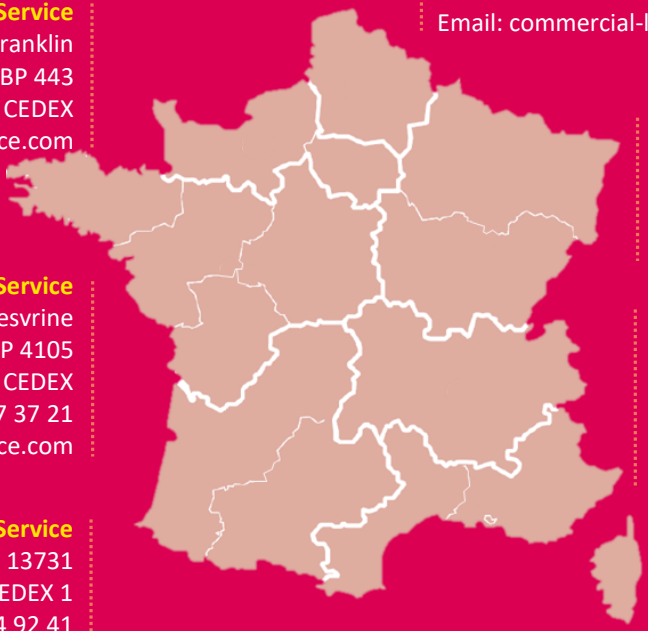
Your contacts

Your business services for any questions concerning contracts, access to the network, electricity quality, Maintenance or connection work:

St Denis Customer Service
22 boulevard Finot
93200 SAINT-DENIS
Tel.: +33 1 41 66 70 00
Email: marketservices@rte-france.com

Lille Customer Service
913 avenue de Dunkerque - BP 427
59160 LOMME
Tel.: +33 3 20 22 67 63
Email: commercial-lille@rte-france.com

St QUENTIN Customer Service
2 square Franklin
Montigny-le-Bretonneux - BP 443
78055 ST QUENTIN YVELINES CEDEX
Email : commercial-sqy@rte-france.com



Nancy Customer Service
8 rue de Versigny - TSA 50216
54608 VILLERS-LES-NANCY
Tel.: +33 3 83 92 23 23
Email: commercial-nancy@rte-france.com

Nantes Customer Service
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6 rue Kepler - BP 4105
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Email: commercial-nantes@rte-france.com

Lyon Customer Service
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1 rue Crepet
69007 LYON
Tel.: +33 4 27 86 32 01
Email: commercial-lyon@rte-france.com

Toulouse Customer Service
6 rue Charles MOULY - BP 13731
31037 TOULOUSE CEDEX 1
Tel.: +33 5 62 14 92 41
Email: commercial-toulouse@rte-france.com

Marseille Customer Service
82 avenue de Haïfa - CS 70319
MARSEILLE CEDEX 08
Tel.: +33 4 91 30 96 61
Email: commercial-marseille@rte-france.com

Your customer data and contracts services departments for any question concerning metering data, invoices or any contract modifications:

Customer Data and Contracts Service

ZAC de Gesvrine
6 rue Kepler - BP 4105 • 44241 LA CHAPELLE SUR ERDRE CEDEX
Tel.: 02 40 67 33 01 • Email: rte-nantes-accueil-client@rte-france.com

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Le réseau de transport d'électricité