

The Energy Regulatory Commission (CRE) consults market players.

## **PUBLIC CONSULTATION NO. 2019-002 OF 7 FEBRUARY 2019 RELATING TO THE ANALYSIS OF THE TEN-YEAR DEVELOPMENT PLANS OF GRTGAZ AND TERÉGA**

### Legal framework

Regulation (EC) No 715/2009<sup>1</sup> provides, in Article 8 §3-b, that the European Network of Transmission System Operators for Gas (hereinafter “ENTSOG”)<sup>2</sup> adopts, every two years, a non-binding ten-year plan for the development of European networks (hereinafter “TYNDP”)<sup>3</sup>, after having conducted an open and transparent consultation with all market players. The Agency for the Cooperation of European Regulators (ACER) issues an opinion on this plan and monitors its implementation.

Article L. 431-6, I of the Energy Code provides that the gas transmission system operators (TSOs) draw up, after consulting the interested parties, a ten-year plan for the development of their network (hereinafter “ten-year plan”) based on:

- existing gas supply and demand;
- reasonable medium-term forecasts for the development of gas infrastructures;
- reasonable medium-term gas consumption forecasts;
- reasonable medium-term forecasts for international exchanges;
- the assumptions and needs identified in the gas sector investment planning report prepared by the Minister for Energy.

This plan specifies the main transmission infrastructures that must be built or upgraded over the next ten years, lists the investment projects already decided upon, identifies new investments to be made within three years and provides a provisional timetable for all investment projects.

The 10-year plan is subject to review by the CRE so that the CRE can ensure, on the one hand, coverage of all investment needs and, on the other hand, consistency of the plan submitted with ENTSOG’s network development plan. In case of doubt on this last point, the CRE can consult the ACER.

The CRE may, if it considers that these requirements are not met, require the TSOs to amend their 10-year plans.

The purpose of this public consultation is to obtain the opinion of market players on the ten-year plans for the development of gas TSOs. The CRE invites interested parties to send it their contributions by 7 March 2019 at the latest.

Paris, 7 February 2019.

For the Energy Regulatory Commission,

A commissioner,

Christine CHAUVET

<sup>1</sup> Regulation 715/2009 of the European Parliament and of the Council of 13 July 2009 on conditions of access to natural gas transmission networks and repealing Regulation (EC) No 1775/2005

<sup>2</sup> European network of transmission system operators in gas

<sup>3</sup> “Ten-year network development plan”

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## 1. BACKGROUND

### 1.1 The multiannual forward estimate of network managers in the energy transition

The first multiannual energy programme (PPE) concerned the periods 2016-2018 and 2019-2023. The next PPE will cover the periods 2019-2023 and 2024-2028. The draft PPE was published on 25 January 2019<sup>4</sup> for consultation. This draft includes, in particular:

- a 19% decrease in primary fossil gas consumption compared to 2012 to 387 TWh<sup>5</sup> in 2028;
- a total gas consumption of 420 TWh in 2028, thanks to measures to control energy demand;
- the five-fold increase in renewable gas generation compared to 2017 to reach 24 to 32 TWh in 2028 (of which 14 to 22 TWh of biomethane injected into the networks) and thus make it possible to comply with the objective of the Energy Transition for Green Growth Act (LTECV) to increase the share of renewable gas in the consumption of gas of renewable origin by 2030 from 7% to 10%, if the cost reductions in the benchmark trajectory are indeed achieved.

In addition, Article L. 141-10 of the Energy Code amended by Act No. 2015-992 of 17 August 2015 on the energy transition for green growth (LTECV) stipulates that: “*natural gas transmission system operators draw up a multiannual forward estimate at least every two years, under the control of the State. This estimate takes into account changes in consumption, transmission, distribution, storage, regasification, renewable generation and exchanges with foreign gas networks*”.

In coordination with GRDF and the DNOs, GRTgaz and Teréga published the 2018 multiannual forward estimate for 2035 on 25 January 2019. All assumptions were reassessed based on data from the latest year of available consumption and generation, i.e. 2017. It is on these results that the TSOs’ 2018-2027 ten-year development plans (TYNDPs) are based.

### 1.2 ENTSOG’s Ten-Year Development Plan (TYNDP)

According to Regulation (EC) No 715/2009 concerning conditions of access to the transmission and natural gas networks, ENTSOG must establish, every two years, a non-binding ten-year plan for the development of the network (hereinafter TYNDP – “*Ten-year Network Development Plan*”). Regulation (EU) No 347/2013 concerning guidelines for trans-European energy infrastructure (known as the “*Infrastructure Regulation*”) stipulates that this plan must be based on cost-benefit analyses, the methodology for which must also be prepared by ENTSOG. The cost-benefit analyses of the projects identified in the TYNDP then serve as a support for the selection of European Projects of Common Interest (PCIs) and the cross-border allocation of costs provided for in the infrastructure regulation.

ENTSOG’s 2018 TYNDP was published in December 2018<sup>6</sup>. The scenarios used in the 2018 TYNDP<sup>7</sup> have been jointly developed for the first time by ENTSOG and ENTSOE, in order to enhance consistency between the gas and electricity network development plans. The assumptions relating to demand, electricity generation and gas supply were published in April 2018 in the 2018 TYNDP Scenario Report. These assumptions were prepared for France based on the 2016 forward estimate for the consumption and injection of renewable gas trajectories and on the ten-year development plans for TSOs published in 2017 for investment projects.

The scenarios developed by the ENTSOs take into account the forecasts for gas demand and generation presented in the TSOs’ ten-year development plans. Those of the TSOs’ 2018 ten-year development plans will be used to develop ENTSOG’s 2020 TYNDP.

### 1.3 Elements presented in the public consultation

This consultation presents the main elements of the respective 2018-2027 ten-year plans of GRTgaz and Teréga, as well as the preliminary analysis of the CRE on these elements. It aims to gather the opinions of market players on the methods for drawing up these documents, on the main assumptions and on the results and projects presented by the TSOs.

In particular, the CRE examined the consistency between the elements prepared by the TSOs and ENTSOG’s 2018 TYNDP. Given the difference of one to two years between the different exercises carried out, comparisons are made between the 2018 TYNDP and:

- the elements published by the TSOs in the 2016 ten-year development plans for scenarios for the consumption and generation of electricity from gas;
- the elements published by the TSOs in the 2017 ten-year development plans for renewable gas injection scenarios (by 2027) and for investment projects.

<sup>4</sup> Draft PPE for consultation

<sup>5</sup> The draft PPE provides for 349 TWh PCI (lower calorific value) i.e. 387 TWh PCS (higher calorific value)

<sup>6</sup> <https://www.entsog.eu/tyndp#entsog-ten-year-network-development-plan-2018>

<sup>7</sup> [https://www.entsog.eu/sites/default/files/entsog-migration/publications/TYNDP/2018/entsos\\_tyndp\\_2018\\_Final\\_Scenario\\_Report.pdf](https://www.entsog.eu/sites/default/files/entsog-migration/publications/TYNDP/2018/entsos_tyndp_2018_Final_Scenario_Report.pdf)

Concerning the assumptions for the generation of electricity from gas, the CRE also relied on the scenarios of RTE's 2017 forward estimate.

The CRE also presents a comparison between the 2018-2027 ten-year development plans of GRTgaz and Teréga and the objectives provided for by the draft PPE, subject to public consultation. It points out, however, the TSOs' ten-year development plans were created before the latter was published on 25 January 2019.

The CRE has thus carried out comparisons between the objectives of the draft PPE and the TSOs' ten-year development plans on:

- total gas consumption by 2030;
- fossil fuel gas consumption by 2028;
- renewable gas injection by 2028.

The ten-year development plans of GRTgaz and Teréga are appended to this public consultation.

#### **1.4 Consultation of stakeholders**

Pursuant to Article L. 431-6 of the Energy Code, the TSOs are obliged to consult interested parties in drawing up their ten-year plans. For this purpose, the TSOs rely on several mechanisms:

- the "Concertation Gaz" implemented for the French market since 2008;
- European-level work on regional investment plans<sup>8</sup> and North-West and South regional initiatives steered by the European regulators;
- the work carried out under the aegis of ENTSOG as part of the development of the ten-year development plans for European networks;
- bilateral exchanges, in particular with operators of adjacent infrastructures;
- the assessment of market demand as part of the incremental capacity process provided for by the European Network Code on capacity allocation<sup>9</sup>.

These different measures make it possible to identify the emergence of new needs, in addition to network studies and requests from project owners (industrial customers, operators of neighbouring infrastructures).

The report presenting the results of this consultation indicates that no players have made a request for new capacities at the interconnection points between the French transmission network and the neighbouring transmission networks.

In its deliberations of 17 December 2015<sup>10</sup>, the CRE asked the TSOs to "regularly present the progress of the development of [their] ten-year Concertation Gaz plans, without waiting for [their] finalisation". In 2018, the network operators organised two presentation meetings relating to the forward estimate; the first concerned the assumptions used in the different scenarios, and the second concerned the preliminary results. These meetings were held in the presence of stakeholders, representatives of the administration, civil society and energy players in France to discuss the main assumptions impacting natural gas consumption by sector and renewable gas.

Furthermore, GRTgaz and Teréga presented their 2018-2027 ten-year development plans as part of the Concertation Gaz on 8 November 2018. Teréga published its ten-year plan in October 2018 on its website<sup>11</sup> and GRTgaz in January 2019<sup>12</sup>.

<sup>8</sup> GRIP: Gas regional investment plan

<sup>9</sup> Commission Regulation (EU) 2017/459 of 16 March 2017 establishing a network code on capacity allocation mechanisms in gas transmission systems

<sup>10</sup> Deliberation of the CRE of 17 December 2015 on the review of the ten-year development plan and on the decision to approve the GRTgaz investment programme for 2016  
Deliberation of the CRE of 17 December 2015 on the review of the ten-year development plan and on the decision to approve the TIGF investment programme for 2016

<sup>11</sup> Teréga's 2018 - 2027 Ten-Year Transmission Network Development Plan

<sup>12</sup> GRTgaz's 2018 - 2027 Ten-Year Transmission Network Development Plan

The CRE considers at this stage that the TSOs' consulting procedures are satisfactory.

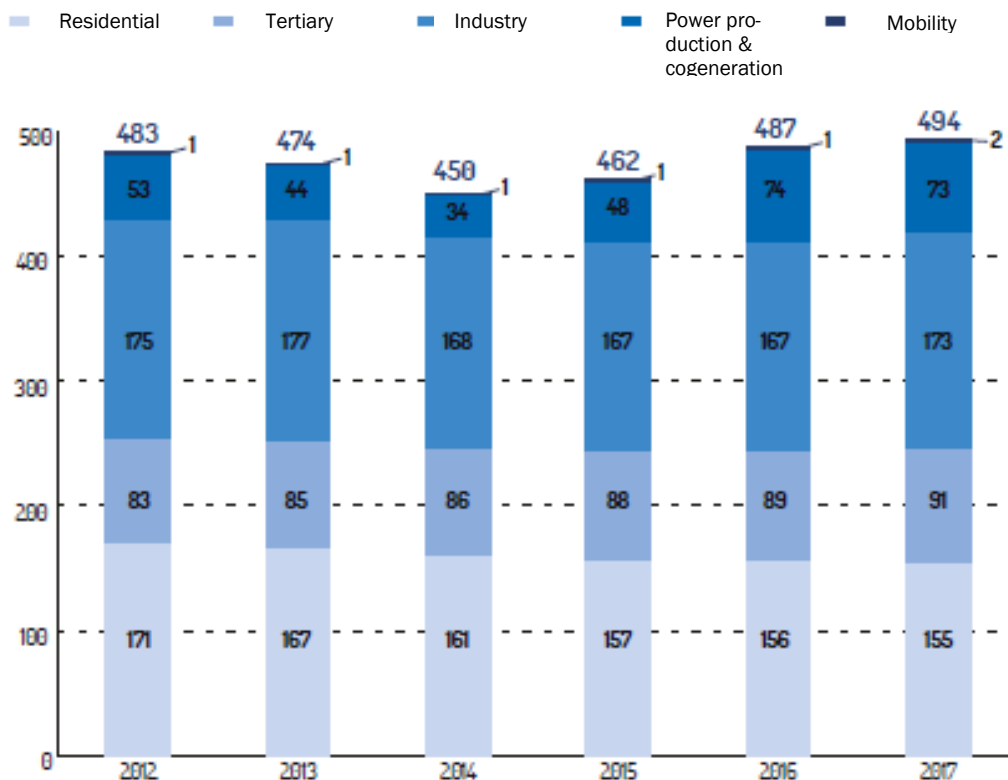
Question 1 Are you satisfied with the TSOs' current procedures for consulting the market?

## 2. CHANGE IN TOTAL GAS DEMAND SCENARIOS

### 2.1 Assumptions for gas consumption in France in the forward estimates of the network operators

In 2017, total gas consumption in France reached 494 TWh, climate-adjusted, up 1.4% compared to 2016. After a period of decline in total gas consumption at the beginning of the decade, the years 2015-2017 were characterised by an increase in gas demand. This increase was mainly due to increased use of gas for electricity generation and an increase in industrial demand for gas.

Change in gas consumption in mainland France in TWh PCS, climate-adjusted



Source: 2018 gas forward estimate

The operators have developed four scenarios around two axes (dynamism of the energy transition and complementarity of the electricity and gas networks):

- the **Blue** scenario represents a scenario in which the pace of the energy transition is sustained, thanks to a proactive pace of renovations, significant energy efficiency gains and the accelerated development of renewable energy sectors;
- in the **Orange** scenario, the pace of the energy transition is limited by the resources mobilised for its realisation and is mainly based on the optimisation of existing energy infrastructures;
- in the **Red** scenario, the pace of the energy transition is hampered by weak economic conditions with a continuation of current trends in the development of renewable energies;
- in the **Purple** scenario, the pace of the energy transition is dynamic. It is based on a widespread use of electricity without optimising the use of the various existing energy infrastructures.

### Scenario assumptions for the 2018 forward estimate

| Scenario Inducers                  | Orange              | Red               | Blue                | Purple            |
|------------------------------------|---------------------|-------------------|---------------------|-------------------|
| Energy efficiency and restraint    | Moderate increase   | Moderate increase | Sharp increase      | Sharp increase    |
| Evolution of gas uses in buildings | Moderate increase   | Falling slightly  | Stable              | Falling sharply   |
| Evolution of gas uses in industry  | Moderate increase   | Stable            | Moderate increase   | Falling slightly  |
| Gas mobility                       | Very sharp increase | Moderate increase | Sharp increase      | Moderate increase |
| Green gas generation               | Sharp increase      | Moderate increase | Very sharp increase | Sharp increase    |

Source: 2018 gas forward estimate

### Breakdown of consumption scenarios in volume terms For France by sector in 2027

| TWh  | 2017 Consumption | 2027 Forecast |              |              |              |
|--|------------------|---------------|--------------|--------------|--------------|
|  |                  | Orange        | Red          | Blue         | Purple       |
| Residential  | 155              | 133           | 121          | 129          | 116          |
| Tertiary   | 91               | 82            | 76           | 78           | 68           |
| Industry   | 173              | 164           | 161          | 153          | 140          |
| PEC <sup>13</sup> + cogeneration                   | 73               | 73            | 70           | 59           | 59           |
| Mobility   | 2                | 46            | 17           | 21           | 17           |
| <b>TOTAL</b>                                       | <b>494</b>       | <b>497</b>    | <b>445</b>   | <b>439</b>   | <b>400</b>   |
| <b>TCAM [Average Annual Growth Rate] 2017-2027</b> | -                | <b>+0.1%</b>  | <b>-1.0%</b> | <b>-1.1%</b> | <b>-2.1%</b> |

Source: 2018 gas forward estimate

The TSOs foresee a decrease in consumption in three out of four scenarios (**Red**, **Blue** and **Purple**) and one almost constant consumption scenario (**Orange**). The four scenarios show a significant reduction in consumption in the residential and tertiary sectors and an increase in gas mobility. The most proactive scenarios in the pace of the energy transition (**Blue** and **Purple**), also show a decrease in the consumption of the industrial sector and in the gas consumption required for the generation of electricity (centralised and cogeneration).

#### 2.1.1 The evolution of gas consumption in the GRTgaz area by 2027

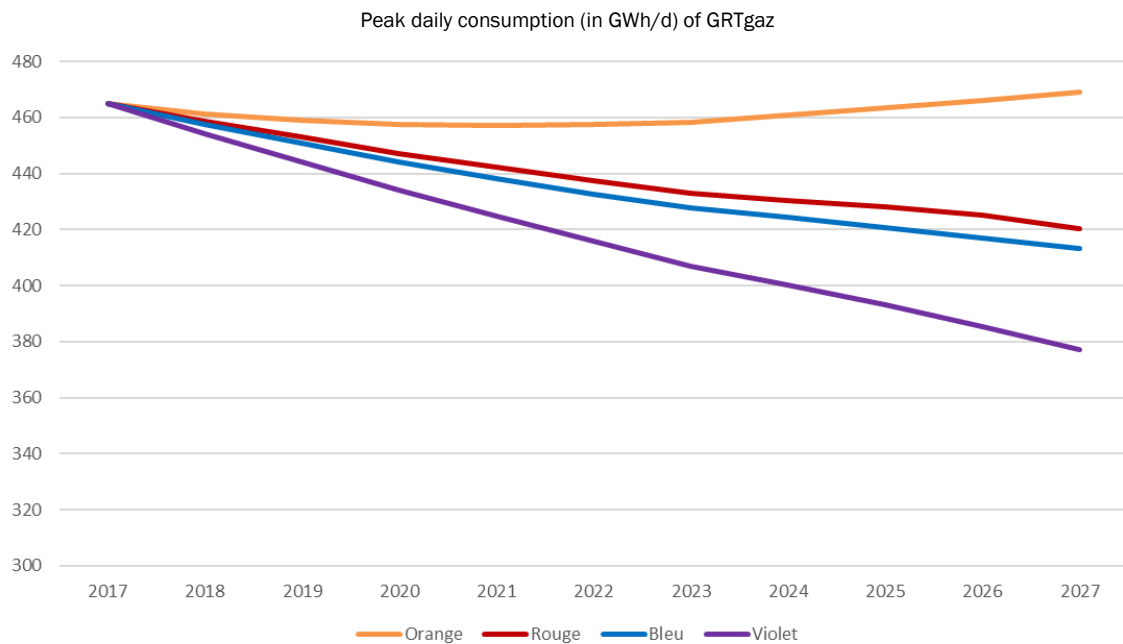
Total gas consumption in the GRTgaz balancing zone in 2017 amounted to 465 TWh, up 0.4% compared to the 2016 consumption level. In its communication of 24 January 2019 on the 2018 gas estimate, GRTgaz published the consumption data for 2018, with 442 TWh in its balancing zone.

Based on the four scenarios of the 2018 forward estimate, GRTgaz presents the evolution of total gas demand in its balancing zone by 2027.

<sup>13</sup> Centralised electricity generation

### Change in consumption scenarios for the GRTgaz scope in 2027

| TWh   | 2017 Consumption | 2027 Forecast |       |       |        |
|---|------------------|---------------|-------|-------|--------|
|   |                  | Orange        | Red   | Blue  | Purple |
| Total                                       | 465              | 469           | 420   | 413   | 377    |
| TCAM [Average Annual Growth Rate] 2017-2027 | -                | +0.1%         | -1.0% | -1.2% | -2.1%  |



Source: GRTgaz's 2018 ten-year development plan

### 2.1.2 The evolution of gas consumption in the Teréga area by 2027

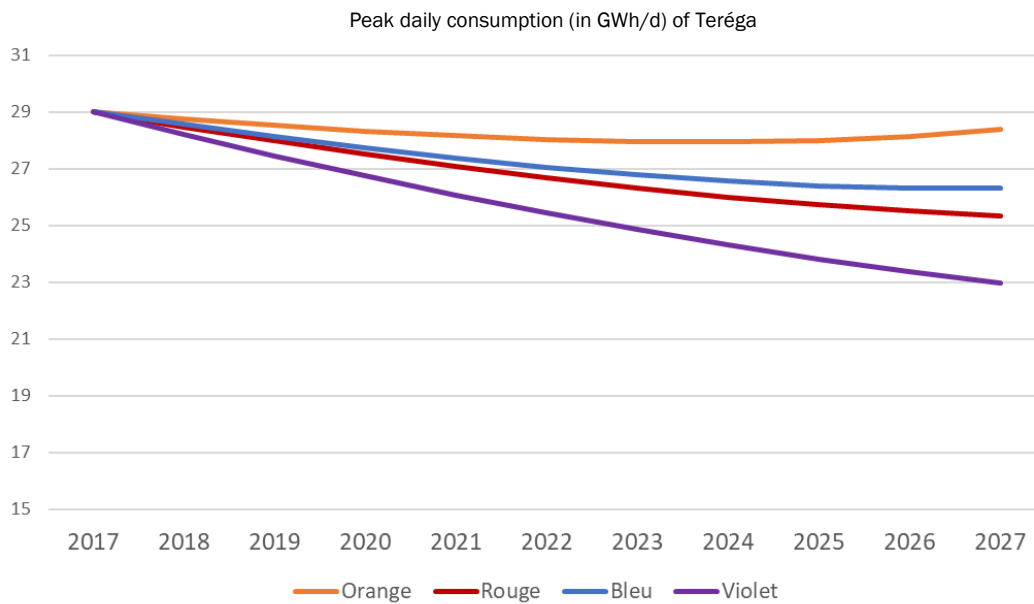
Total gas consumption in the Teréga balancing zone in 2017 amounted to 29 TWh, which was stable compared with consumption in 2016.

Based on the four scenarios of the 2018 forward estimate, Teréga presents the evolution of total gas demand in its balancing zone by 2027.

### Evolution of consumption scenarios for the Teréga scope in 2027

| TWh   | 2017 Consumption | 2027 Forecast |       |       |        |
|---|------------------|---------------|-------|-------|--------|
|   |                  | Orange        | Red   | Blue  | Purple |
| Total                                       | 29               | 28            | 25    | 26    | 23     |
| TCAM [Average Annual Growth Rate] 2017-2027 | -                | -0.2%         | -0.9% | -0.8% | -2.0%  |





Source: Teréga's 2018 Ten-Year Development Plan

## 2.2 Hypotheses of peak gas consumption in France in the forward estimate of the network operators

In accordance with the regulations, each year, the transmission system operators establish, for the following winter, peak cold consumption, known as the “2% risk peak”. This corresponds to the level of consumption that would take place in extreme weather conditions, where the average outdoor daily temperature is less than or equal to the lowest temperature with a probability of occurrence of 2%.

### 2.2.1 The evolution of peak gas consumption in the GRTgaz area by 2027

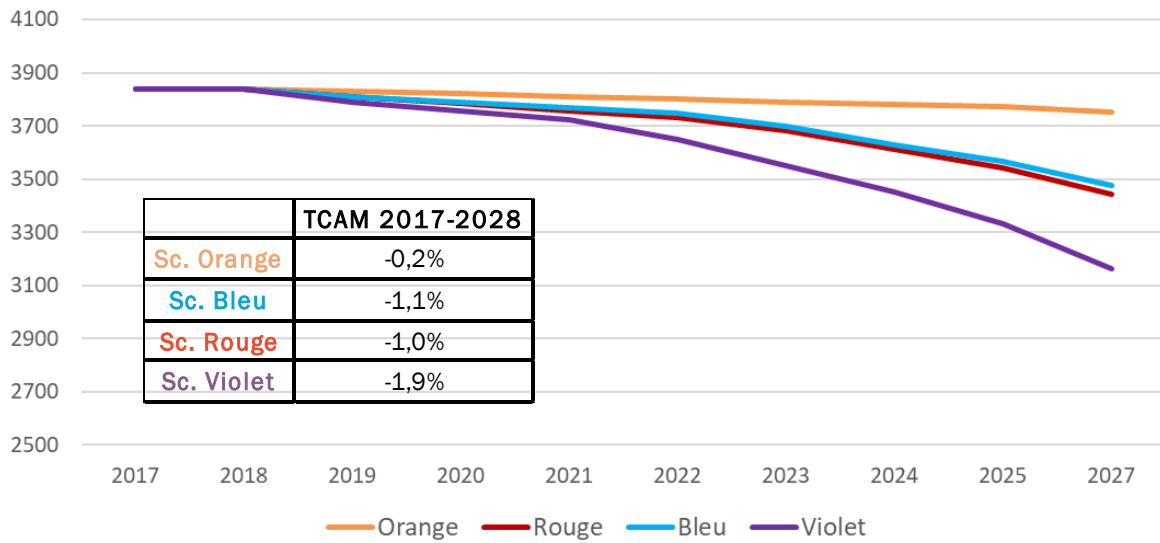
The evolution of peak gas consumption is based on the peak observed in 2017-2018 and the four scenarios of demand evolution, taking into account factors that may cause a divergence of trends in peak demand and average annual demand. This is the case for the residential and tertiary sectors, where GRTgaz notes a deterioration in the efficiency of gas-fired heat pumps in very cold temperatures.

The capacity for peak demand in the GRTgaz zone for the winter 2017-2018 is estimated at 3,839 GWh/d (excluding self-sufficiency), of which 74% (2,830 GWh/d) is for public distribution and 24% (1,009 GWh/d) for customers connected directly to the transmission network. GRTgaz forecasts a reduction in peak gas consumption in all scenarios.

The **Orange** scenario shows a decline in the P2 peak of public distribution, offset by an increase in the number of customers connected directly to the transmission network,

The **Blue** and **Purple** scenarios show a sharper decrease in the peak of public distribution by winter 2027-2028, as well as a decrease in the peak of customers connected directly to the transmission network. The **Red** scenario sees a decline in the peak of public distribution but a stagnation in that of customers connected directly to the transmission network.

Evolution of peak capacity in the GRTgaz zone by 2027 (in GWh/d)



Source: GRTgaz 2018 ten-year development plan

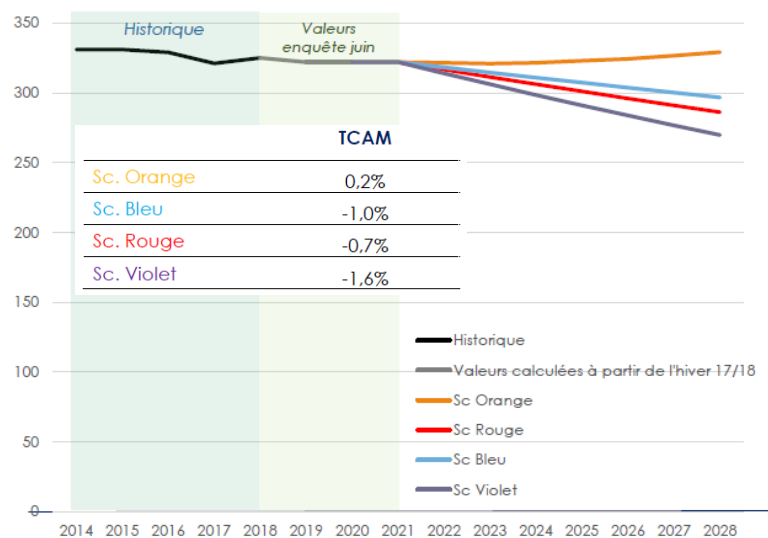
### 2.2.2 The evolution of peak gas consumption in the Teréga area by 2027

The evolution of peak gas consumption in the Teréga balancing zone is established according to the four scenarios of demand evolution by 2027-2028.

The capacity for peak demand in the Teréga zone for the winter of 2017-2018 is estimated at 325 GWh/d, of which 90% (293 GWh/d) is for public distribution and 10% (32 GWh/d) for customers connected directly to the transmission network. Teréga forecasts an increase in the peak of public distribution for the next three winters, estimated following the June survey, due to the integration of heat networks. In its ten-year development plan, Teréga estimates that heat networks represent 1.7% of Teréga's P2 peak.

Teréga forecasts a reduction in peak gas consumption in three out of four scenarios (Red, Blue and Purple) and one constant peak consumption scenario (Orange). Teréga estimates that industry's peak capacities are changing at the same pace as annual consumption.

Evolution of peak capacity in the Teréga zone by 2027 (in GWh/d)



Source: Teréga's 2018 Ten-Year Development Plan

### 2.3 Assumptions for gas consumption in Europe in the ENTSOG network development plan

As creating the TYNDP requires two years of work, the data transmitted by the TSOs for the creation of the 2018 TYNDP are derived from the 2016-2025 ten-year plans. The figures presented in the 2018-2027 ten-year plans will be used to develop the 2020 TYNDP.

Unlike previous years, the 2018 TYNDP scenarios were jointly developed by ENTSOG and ENTSOE. The 2018 TYNDP was the subject of numerous exchanges and publications during the year, and was published in December 2018. The scenarios used for this exercise were published in March 2018.

Several scenarios are presented according to the time horizon taken into account (2025, 2030 and 2040). The scope of the TYNDP concerns the 28 countries of the European Union, enlarged to include member countries of ENTSOG but not members of the EU (EU 28+).

Thus, for 2025, two scenarios are taken into account according to the level of profitability of gas with respect to coal: the CBG scenario for “**Coal before gas**” and the GBC scenario for “**Gas before coal**”.

For 2030, two scenarios produced by ENTSOE and ENTSOG are presented as well as an external scenario produced by the European Commission:

- the “**Sustainable Transition**” scenario: **gas replaces coal in electricity generation:**

Total gas consumption in the EU 28+ increases by 13% between 2020 and 2030 (+10% by 2040). This growth is driven, in particular, by electricity generation, whose gas needs increase by 82% between 2020 and 2030 (+74% by 2040), and by consumption in the transport sector multiplied by 4 (by 5 by 2040), while consumption in the residential and tertiary sectors decreases, in line with an improvement in energy efficiency. Industrial demand is relatively stable;

- the “**Distributed Generation**” scenario: **electrification of uses and use of gas to manage peaks:**

Total gas consumption in the EU 28+ falls by 2% between 2020 and 2030 (-5% by 2040). This decrease is mainly due to consumption in the residential and tertiary sectors, mainly related to electric heating technologies and building insulation measures, and in the industrial sector, whose gas consumption decreases due to electrification of industrial heating. However, gas remains essential to cover peak demand, and electricity generation from gas increases by 29% between 2020 and 2030 (+36% by 2040). Gas demand for the transport sector more than doubles between 2020 and 2030 (quadrupled by 2040);

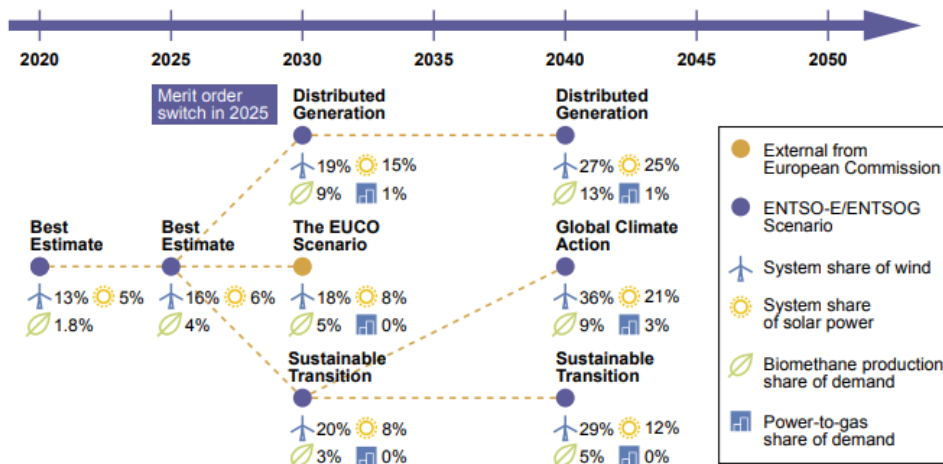
- the “**EUCO**” scenario: **external scenario focused on the development of renewable energies:**

It models the achievement of the 2030 targets set by the Council of Europe in 2014, adding an energy efficiency target of 30%. This scenario has replaced the previous Global Climate Action scenario as the third scenario for 2030. In this scenario, total gas consumption increases by 3% between 2020 and 2030. This growth is driven, in particular, by electricity generation, which uses more gas (+79% between 2020 and 2027), and by the transport sector (multiplication by 2.7). The residential and industrial sectors post a decrease of 21% and 13% respectively, linked to an improvement in energy efficiency.

For 2040, the 2018 TYNDP provides for a third scenario in addition to the “**Sustainable Transition**” and “**Distributed Generation**” scenarios:

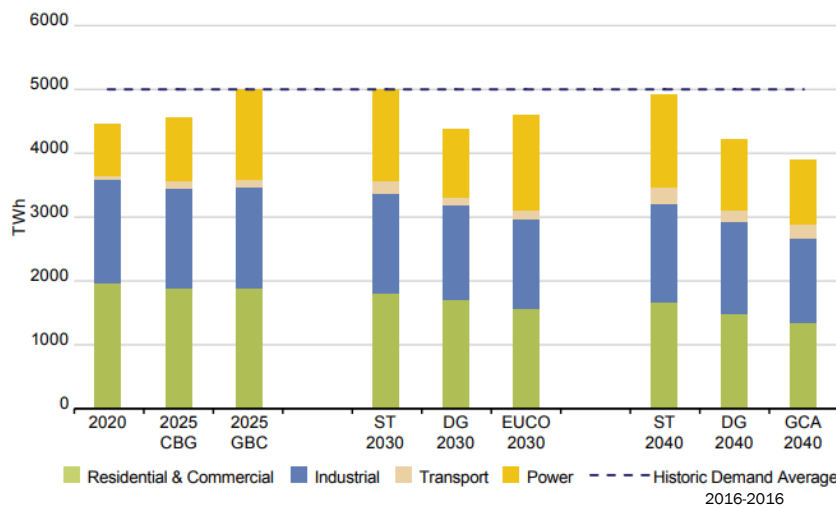
- the “**Global Climate Action**” scenario, in which total gas consumption in the EU 28+ decreases by 13% between 2020 and 2040. This decrease is mainly due to a 33% decrease in consumption in the residential and tertiary sectors, linked to an improvement in energy efficiency and building insulation measures. As gas is essential to cover peak situations, electricity generation is up 21% between 2020 and 2040. Gas demand for the transport sector more than quadruples between 2020 and 2040.

Structure of the scenarios selected for the 2018 TYNDP



Source: ENTSOG

Total gas consumption in Europe according to the 2018 TYNDP scenarios (TWh)



Source: ENTSOG

2.4 Preliminary analysis of the CRE

Comparison of the 2016 ten-year development plan and the 2018 TYNDP scenarios

The scenarios that led to the development of the 2018 TYNDP are derived from the 2016-2025 ten-year development plans. In their ten-year plans, the operators had chosen three scenarios: central (A), high (B), low (C).

The scenarios, presented in the deliberation of the CRE of 22 March 2018<sup>14</sup>, were structured as follows:

- the so-called reference scenario A, constructed with a choice of assumptions in line with the likely evolution of the structural, economic and regulatory context: continuation of the 2016 trend for the development of renewable energies and energy savings;
- scenario B is the high trajectory. It is characterised by high gas availability on the market, increased needs for electricity generation, an increase in uses in industry and for domestic and tertiary heating;
- scenario C is the low trajectory. It is characterised by new environmental regulations aimed at reducing gas demand. The objective of a 30% reduction in fossil energy consumption compared to the 2012 level is applied uniformly to the uses of gas, oil and coal, without taking into account the better environmental performance of gas compared to oil and coal.

These three scenarios are respectively used up by ENTSOG for the **Distributed Generation**, **Sustainable Transition** and **Global Climate Action** scenarios.

<sup>14</sup> Deliberation of the CRE of 22 March 2018 relating to the examination of the ten-year development plans of GRTgaz and TIGF



### Similarity of the 2016 ten-year development plan and the 2018 TYNDP consumption scenarios

|  |                        |                        |                       |
|--|------------------------|------------------------|-----------------------|
| 2016_2025 ten-year development plans of the TSOs | Scenario A             | Scenario B             | Scenario C            |
| ENTSOG scenario                                  | Distributed Generation | Sustainable Transition | Global Climate Action |

The CRE considers that the duration of the development of the TYNDP (for gas as for electricity) results in a harmful mismatch between the data used in the TYNDP and the national ten-year development plans. However, it notes that the three A, B and C scenarios were used as a whole by ENTSOG to create the three 2018 TYNDP scenarios. All three scenarios show a downward gas demand trajectory by 2035.

### Comparison of consumption scenarios for the 2018 forward estimate with the objectives of the 2028 draft PPE

The objectives of the draft PPE for 2028 are:

- consumption of 387 TWh<sup>15</sup> of gas in France in 2028;
- a total demand for gas of 420 TWh in France in 2028.

In their 2018 forward estimate produced as part of the development of the 2020 TYNDP, two scenarios out of four (**Blue** and **Purple**) make it possible to achieve the objectives of the draft PPE in terms of fossil gas consumption. In fact, the draft PPE indicates a target of 387 TWh of fossil gas consumption in 2028: the **Orange** scenario has a fossil gas consumption that is 18% higher than the objective of the draft PPE, and the proactive **Purple** scenario has a fossil gas consumption of 10% less than the target of the draft PPE.

### Fossil gas consumption in France 2028 trajectory

| TWh PCS                | 2028 Draft PPE Target | Forecast 2028* |     |      |        |
|------------------------|-----------------------|----------------|-----|------|--------|
|                        |                       | Orange         | Red | Blue | Purple |
| Fossil gas consumption | 387                   | 455            | 421 | 373  | 347    |
| Total gas consumption  | 420                   | 497            | 445 | 439  | 400    |

\* The target date chosen here for the analysis is 2028, as the objectives of the draft PPE are identified for this target date

Source: 2018 forward estimate

In addition, the previous 2016-2023 PPE aimed at a target of at least 20% bioNGV in NGV by 2023. The CRE notes that this objective is achieved regardless of the scenario.

### Comparison of electricity generation scenarios with RTE scenarios

In its forward estimate published in 2017, RTE had developed the scenarios for the evolution of the Ampere and Volt electric mix, used by the MTES [Ministry for the Ecological and Solidarity Transition] in the debate on the PPE:

- in the Ampere scenario, where the place of nuclear power is reduced at the rate of growth in renewable energies, the existing thermal generation facilities are extended until their technical end-of-life date without construction of additional resources;
- in the Volt scenario, which has sustained development of renewable energy sources and development of the nuclear generating estate according to economic opportunities at the European level, relies on exchange capacity with neighbouring countries. Thermal resources are used less.

The CRE notes that the trajectories selected are based on data from the Volt and Ampere scenarios in RTE's forward estimate (2017 edition). A trajectory reflecting the level of gas consumption for electricity generation reached in 2017 was also adopted.

<sup>15</sup> The draft PPE provides for 349 TWh PCI (lower calorific value) i.e. 387 TWh PCS (higher calorific value)

### Gas-based electricity generation trajectory in 2027

| TWh  | 2017 Consumption | 2027 Forecast     |                 |                 |        |
|--|------------------|-------------------|-----------------|-----------------|--------|
|  |                  | Orange            | Red             | Blue            | Purple |
| Gas-based electricity generation               | 73               | 73                | 71              | 59              | 59     |
| Scenario from RTE in its 2017 forward estimate | 73               | Stable trajectory | Ampere scenario | Volt trajectory |        |

Source: 2018 forward estimate

The CRE notes that the TSOs have established contrasting consumption scenarios, taking into account possible changes in uses. It also notes that the TSOs responded to its request made in its deliberation of 22 March 2018 to bring the electricity generation assumptions into line with the RTE assumptions in its forward estimate published in 2017.

Question 2 What is your analysis of the consumption forecasts presented by the TSOs in the multiannual forward estimate and the ten-year plans of the TSOs?

## 3. ASSUMPTIONS FOR INJECTING GAS OF RENEWABLE ORIGIN INTO THE NETWORKS

### 3.1 Assumptions for injecting gas of renewable origin into the networks in the ten-year plans of the French TSOs

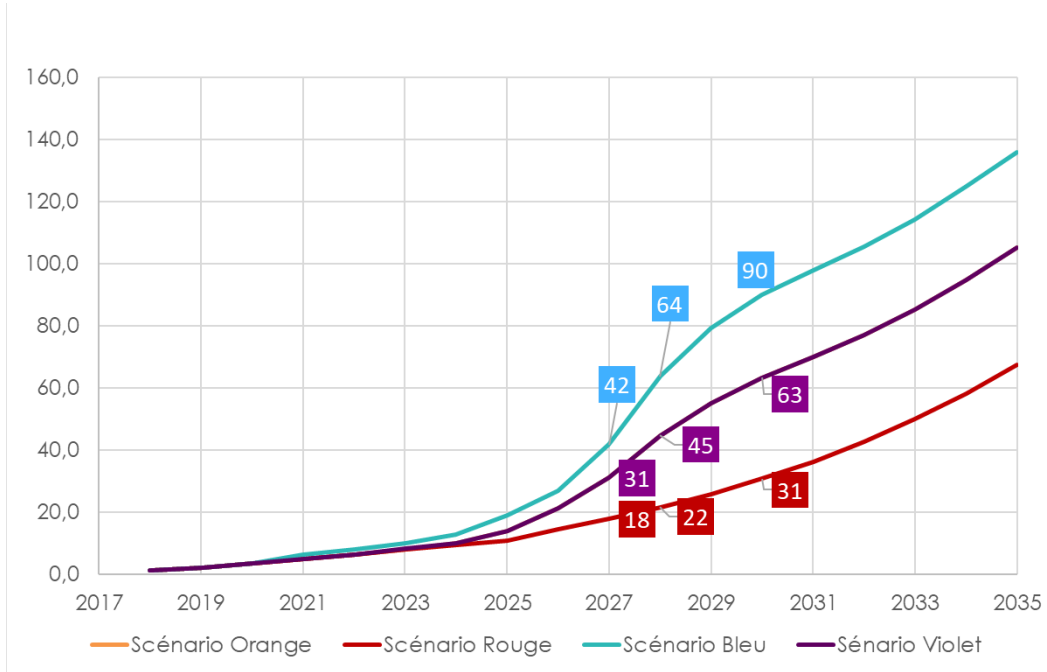
#### 3.1.1 Biomethane

At the end of December 2018, 76 biomethane injection sites were in service in France and injected approximately 0.7 TWh/year of biomethane, an increase of 75% compared to 2017. Of these, nine sites are directly connected to the transmission networks, two of which are connected to that of Teréga. The capacity register shows 661 projects in the queue, representing a maximum capacity of 14 TWh/year.

In the forward estimate, injection forecasts vary between 18 and 42 TWh by 2027, and between 31 and 90 TWh by 2030:

- in the **Orange** (the energy transition is based on mature technologies and existing networks) and **Purple** (energy transition centred on the electrification of uses, rapid emergence of the biomethane sector) scenarios, the operators estimate a level of 31 TWh injected in 2027 (60 TWh injected in 2030);
- in the **Red** (weak development of the sector) scenario, the operators plan to inject 18 TWh in 2027 (31 TWh in 2030);
- in the **Blue** (the energy transition is based on existing infrastructures and the emergence of new technologies) scenario, the operators estimate a level of 42 TWh in 2027 (90 TWh injected in 2030).

Renewable gas injection trajectory for France in 2027



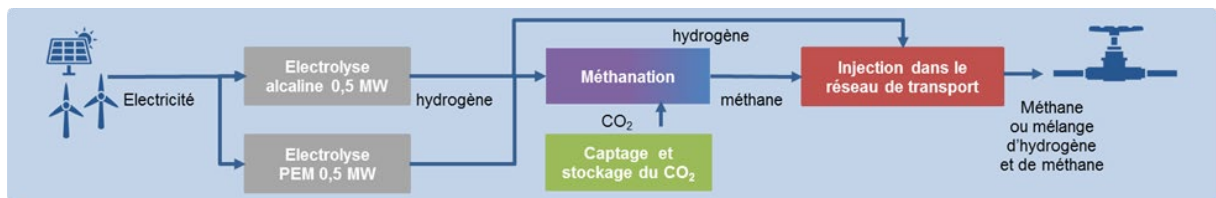
NB: the Orange trajectory is identical to the Purple trajectory

Source: 2018 forward estimate

3.1.2 Power to gas

Power to gas consists of transforming electricity into gas, to enable the storage of electricity. The aim of the sector is to promote the integration of intermittent energies, by facilitating the balancing of electricity networks and by promoting surplus electricity generated from renewable sources. The hydrogen produced during the electrolysis process can then be injected directly into the networks (in limited quantities) or converted into synthetic methane (CH<sub>4</sub>) by association with CO<sub>2</sub> (recovery after capture of CO<sub>2</sub> emissions from industrial, agricultural or electricity generation processes), injected into the gas networks. Synthetic methane produced is by nature a renewable gas.

Plan of the JUPITER 1000 project principle



Source: 2018 forward estimate

As part of their research and development programmes, in 2016 RTE, GRTgaz and Teréga signed a partnership aimed at identifying and enhancing the coupling between gas and electricity. In this context, operators have committed to a Power to gas project, the Jupiter 1000 project, located in Fos sur Mer, which is expected to be operational in 2019.

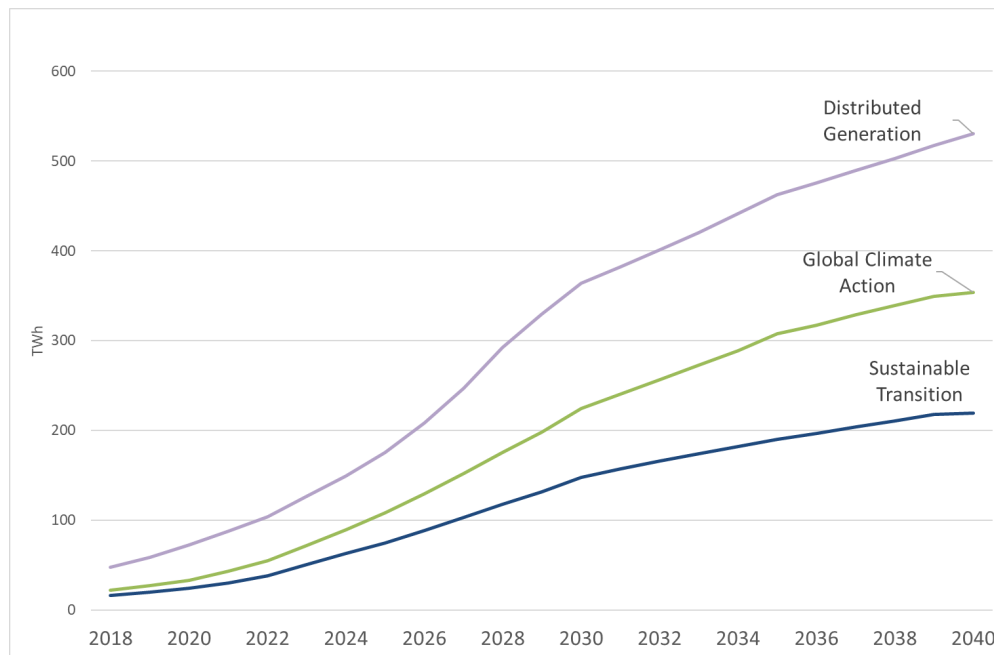
Nevertheless, the TSOs do not, at this stage, anticipate rapid development of the sector on an industrial scale.

3.2 Assumptions for the development of the injection of renewable gas into the networks in Europe in the ENTSOG network development plan

3.2.1 Biomethane

At the European level, the work carried out as part of the 2018 TYNDP takes into account an increase in biomethane injections by 2040 according to the three scenarios:

### Evolution of biomethane production in the EU 28+ zone by 2040



Source: ENTSOG

At the France level, the ENTSOG scenarios from the 2018 TYNDP predict the following trajectories:

- “**Sustainable Transition**” where the level of injection expected at the end of 2018 amounts to 1 TWh in France and could reach 18 TWh by 2035 (21 TWh in 2040);
- “**Distributed Generation**” where the level of injection expected at the end of 2018 amounts to 1 TWh in France and could reach 132 TWh by 2035 (152 TWh in 2040);
- “**Global Climate Action**” where the level of injection expected at the end of 2018 amounts to 1 TWh in France and could reach 64 TWh by 2035 (73 TWh in 2040).

#### 3.2.2 Power to gas

The work carried out as part of the 2018 TYNDP take into account an increase in Power to Gas injections by 2040 according to the “**Distributed Generation**” and “**Global Climate Action**” scenarios:

- “**Distributed Generation**” where the level of injection could reach 48 TWh by 2040, including 6 TWh in France;
- “**Global Climate Action**” where the level of injection could reach 95 TWh by 2040, including 11 TWh in France.

### 3.3 Preliminary analysis of the CRE

#### 3.3.1 Biomethane

##### Comparison of the 2017 ten-year development plan and the 2018 TYNDP scenarios

The scenarios that led to the development of the 2018 TYNDP are derived from the 2017-2026 ten-year development plans. In their ten-year plans, the operators had chosen three biomethane injection scenarios: central (A), high (B), low (C).



### Similarity of the 2017 ten-year development plan and the 2018 TYNDP injection scenarios

| France scope            | By 2035*                        |                                   |                                  |
|-------------------------|---------------------------------|-----------------------------------|----------------------------------|
|                         | Scenario A                      | Scenario B                        | Scenario C                       |
| Renewable gas injection | 64 TWh                          | 132 TWh                           | 18 TWh                           |
| ENTSOG scenario         | Global Climate Action<br>64 TWh | Distributed Generation<br>132 TWh | Sustainable Transition<br>18 TWh |

\* The analysis is carried out for 2035, in line with the target date chosen by the TSOs in the 2016 forward estimate

Source: 2018 forward estimate and 2018 TYNDP

The CRE notes that the ENTSOG scenarios for the 2018 TYNDP are derived from the trajectories proposed by the TSOs in the 2016 forward estimate.

### Consistency of the 2018 ten-year development plan scenarios with the objectives of the 2028 draft PPE

The objectives of the draft PPE for 2028 are:

- 14 to 22 TWh of biomethane injection into the networks in 2028;
- 7 to 10% biogas (cogeneration and biomethane injection) out of total gas consumption in 2028. The TSOs refer to cogeneration in their consumption scenarios within the “Centralised electricity generation and cogeneration” consumption sector.

The CRE notes that, of the four scenarios presented by the TSOs in their 2018 Ten-Year Development Plans resulting from the future estimate, only the **Red** scenario has an injection trajectory in line with the highest objective of the draft PPE (22 TWh in 2028); the other three scenarios far exceed the upper range, up to four times higher than the target of the draft PPE in the **Blue** scenario.

The CRE is surprised by the pace of forecasts for injecting biomethane proposed by the TSOs in their ten-year development plans. This almost doubles between 2027 and 2030 in all scenarios.

### Renewable gas injection evolution trajectory in 2028

| TWh   | 2028 Draft PPE Target | Forecast 2028* |     |      |        |
|---|-----------------------|----------------|-----|------|--------|
|   |                       | Orange         | Red | Blue | Purple |
| Renewable gas injection                     | [14 - 22 TWh]         | 45             | 22  | 64   | 45     |
| TCAM [Average Annual Growth Rate] 2017-2028 | 42%                   | 46%            | 37% | 51%  | 46%    |

\* The target date chosen here for the analysis is 2028, as the objectives of the draft PPE are identified for 2028

Source: 2018 forward estimate

The objectives of the draft PPE are based on the prospect that biogas will reach 7% of gas consumption by 2030 if the cost reductions set out in the reference trajectory are indeed achieved and up to 10% in the event of a higher cost reduction. The CRE notes that the **Red** scenario enables achievement of the draft PPE target range of 9%, and that the **Orange** scenario reaches 14% of gas consumption.

### Share of biogas (biomethane + cogeneration) out of total gas consumption in 2028

| TWh  | 2028 Draft PPE Target | Forecast 2028* |     |      |        |
|--|-----------------------|----------------|-----|------|--------|
|  |                       | Orange         | Red | Blue | Purple |
| share of biogas (biomethane + cogeneration) out of total gas consumption | [7 - 10%]             | 14%            | 9%  | 23%  | 20%    |

\* The target date chosen here for the analysis is 2028, as the objectives of the draft PPE are identified for 2028

Source: 2018 forward estimate

### 3.3.2 Power to gas

For the gas TSOs, *Power to gas* is a major avenue for developing green gas by 2030, in particular to enable the storage of intermittent energy generation. However, it noted that they did not anticipate commercial development before 2026, at this stage.

The CRE notes that the 2018 TYNDP scenarios, which are constructed from the TSO's 2017 Ten-Year Development Plan scenarios, show prospects in terms of Power to Gas in 2030 and 2040.

The CRE also notes that the TSOs have not used the of Power to Gas trajectories from the 2018 TYNDP in their 2018 Ten-Year Development Plans.

The CRE considers that the levels of biomethane injection achieved and the rate of growth of the scenarios proposed by the TSOs seem ambitious in the case of the Red scenario, or even unrealistic for the other three scenarios.

Question 3 What is your analysis of the forecasts for the injection of gas of renewable origin presented by the TSOs in their ten-year plans?

## 4. DEVELOPMENT PROJECTS IDENTIFIED BY THE TSOS IN 10-YEAR PLANS

### 4.1 Supply of transmission capacity on the French network in 2018

In 2018, firm entry capacities in France amounted to 3,585 GWh/d, up more than 53% compared to 2005, and were divided between entry capacities from adjacent networks and entry capacities from LNG terminals. Firm exit capacity is 695 GWh/d, up 129% compared to 2005.

| GWh/d                        | 2005         | 2018         | Change 2005-2018 |
|------------------------------|--------------|--------------|------------------|
| <b>Firm entry capacities</b> | <b>2,345</b> | <b>3,585</b> | <b>+53%</b>      |
| Of which pipeline            | 1,805        | 2,285        | +27%             |
| Of which LNG                 | 540          | 1,300        | +141%            |
| <b>Firm exit capacities</b>  | <b>304</b>   | <b>695</b>   | <b>+129%</b>     |

The Concertation did not reveal any demand for additional capacities. The CRE considers that the current capacities are sufficient to ensure the proper functioning of the French gas market and that there is therefore no need to develop additional capacities.

Question 4 Do you have any observations on the level of input and output capacities?

### 4.2 Developments in the main transmission network commissioned in 2018

#### 4.2.1 The single marketplace in France

The CRE adopted, in its decision of 7 May 2014<sup>16</sup>, the plan associating the Val de Saône project, on the GRTgaz network, and Gascogne-Midi, on the GRTgaz and Teréga networks, to enable the creation of a single marketplace in France by 2018. In its deliberation of 30 October 2014<sup>17</sup>, it set the target budgets for these projects (€650m and €152m respectively) and determined the incentive regulation parameters applicable to them. These two projects were selected as projects of common interest in the list drawn up on 18 November 2015. The Val de Saône project benefited from a grant capped at €74 million from the European Union, as part of the 2011 stimulus plan<sup>18</sup>.

The single marketplace came into force on 1 November 2018, as initially planned. The costs for completion of the facilities are €696m for Val de Saône (target budget of €650m), €160m for Gascogne-Midi for Teréga (target budget of €152m) and €23m for Gascogne-Midi for GRTgaz (target budget of €21m).

<sup>16</sup> Deliberation of 7 May 2014 on guidelines for the creation of a single marketplace in France in 2018

<sup>17</sup> Deliberation of 30 October 2014 regarding the decision on the incentive regulation mechanism for the Val de Saône and Gascogne-Midi projects

<sup>18</sup> GRTgaz obtained the transfer of the subsidy initially allocated to the ERIDAN project to the Val de Saône project.

## 4.2.2 Creation of input capacities at Oltingue

In its decision of 17 December 2014, the CRE approved the project to create 100 GWh/d of capacity at the Oltingue interconnection point for an amount of €12 million in 2018. This project started in June 2018, as initially planned.

The project completion cost is €18m, 50% higher than the target budget, set at €12m. GRTgaz has encountered many difficulties (complexity related to carrying out work on sites in operation) in upgrading the facilities (metering and Morelmaison station).

## 4.3 Investment projects under way or under review

### 4.3.1 MidCat and STEP projects

The possibilities for developing additional interconnection capacities between France and Spain were the subject of a joint technical study by GRTgaz, Teréga and Enagás in 2015.

The MidCat project, which assumes the development of additional firm capacity of 230 GWh/d in the Spain-France direction and of 160 GWh/d in the France-Spain direction, would require, in addition to the new interconnection itself, the strengthening of the French internal network via, in particular, the implementation of the Eridan and Est Lyonnais projects. The total cost of the necessary investments on the French side was estimated at more than 2 billion euros by the three TSOs (GRTgaz, Teréga, Enagás). The MidCat project was identified as a project of common interest in 2015. The cost-benefit analysis carried out as part of the 2017 TYNDP shows benefits that are not sufficient to offset the cost of the project.

The STEP project (*South Transit East Pyrenees*) is made up of only part of these investments, namely those located on the Teréga and Enagás networks. On the French side, it would include a 120 km pipeline between Le Perthus and Barbaira, for an estimated investment cost of €290 million. The joint study of the TSOs concluded that, in this case, only interruptible capacities would be created. This project was the subject of an *ad hoc* cost-benefit analysis commissioned by the European Commission and published on 27 April 2018<sup>19</sup>.

The STEP interconnection project has been identified as a Project of Common Interest in the 3<sup>rd</sup> list established in 2017.

#### Preliminary analysis of the CRE

The CRE notes that ENTSOG lists the STEP project in its 2018 TYNDP for commissioning expected in 2022, in accordance with the dates displayed by the TSOs in their 2017 ten-year development plans. It also notes that the TSOs maintain the 2022 provisional commissioning date in their 2018 ten-year development plans.

In its deliberation of 17 January 2019<sup>20</sup>, the CRE adopted the decision jointly developed with the Comisión Nacional de los Mercados y la Competencia (CNMC), which concluded that the investment request for the STEP interconnection project proposed by Teréga and Enagás was rejected. The CRE and the CNMC consider that the STEP project does not meet market needs and does not have sufficient maturity to be subject to a favourable decision from the regulators and, even more so, to be subject to a cross-border cost allocation decision. In this respect, the CRE considers that the project should not be maintained with a date of commissioning in 2022 in the ten-year development plans or in the data sent to ENTSOG for the TYNDP.

### 4.3.2 Reverse flows to Germany and decentralised odourisation

The possibility of allowing physical flows from France to Germany, up to 100 GWh/d of firm output capacities at the Obergailbach interconnection point, is studied by GRTgaz, in connection with the European network code on interoperability. Such a project would require, in addition to the structures to be built to enable the creation of capacities, a change in odourisation practices.

Unlike most European countries, France and Spain carry out this operation centrally, at entry into the transmission network. As things stand, gas exports from France to Germany are therefore not possible. With this in mind, the Odicée project is studying solutions consisting of decentralising the odourisation of gas on the GRTgaz network. The total cost of the investments needed to implement the decentralised odourisation and build the structures needed to allow the reverse flow to Germany was estimated in 2013 at around €600m. A pilot installation is being implemented by GRTgaz at two sites, in Etroeungt and Bas Lieu (Nord), in order to assess the technical feasibility and cost of this solution in a more detailed manner. The first elements of cost-benefit analysis, resulting from ENTSOG's 2015 network development plan, showed insufficient benefits to cover the cost of deploying such a project.

An alternative solution is to install a deodorising unit on the North-East artery. Odourised gas would be treated by adsorption of THT by a molecular sieve. This solution has the advantage of being more economical in terms of investments and of generating operational charges that are proportional to the use, making it suitable for intermittent flows. This solution is also envisaged between Switzerland and Germany. A new evaluation will be carried out based on this

<sup>19</sup> Cost-benefit analysis of STEP, as first phase of MIDCAT. Final report - Study

<sup>20</sup> Deliberation of the CRE of 17 January 2019 adopting the joint decision on the investment request submitted by Teréga and Enagás regarding the STEP gas interconnection project

solution as part of the 2018 TYNDP.

#### Preliminary analysis of the CRE

The CRE notes that the capacity creation project is indeed listed in the 2018 TYNDP, with commissioning in 2022, in line with the 2017 ten-year development plan of GRTgaz.

With regard to decentralised odourisation, this project is not one of the priority projects identified in the 3<sup>rd</sup> list of Products of Common Interest published in 2017. Consistently, given the high costs of implementing such a solution, the CRE, in its deliberation of 22 March 2018<sup>21</sup>, asked GRTgaz not to continue this project. It considers that the project should not be maintained with the decentralised odourisation solution in the ten-year development plan nor in the data transmitted to ENTSOG for the TYNDP.

#### 4.3.3 The conversion of zone L into H gas

Part of the north of France, called "zone L" (in reference to gas with a low calorific value), is supplied by gas from the Groningen production field in the Netherlands. In a context of falling L gas production, the supply contracts for the zone expire in 2029.

Decree No. 2016-348 of 23 March 2016<sup>22</sup> specifies the regulatory framework and the general organisation of the conversion. In this context, on 23 September 2016, GRTgaz and the operators of adjacent infrastructures (Storengy, GRDF and two DNOs) proposed to the ministers responsible for energy, industrial safety and the economy a conversion plan with the objective of ending the conversion of import contracts on the due date, i.e. 2029. After conducting a technical-economic study of the plan, the CRE, in its deliberation of 21 March 2018, issued an opinion on the conversion plan<sup>23</sup>, in accordance with Article 5 of Decree No. 2016-348.

The conversion project was selected by the European Union as a project of common interest in October 2017.

It provides for the conversion into two phases:

- a pilot phase over the 2016-2020 period; the target budget for the part to be carried out by GRTgaz, was set at €42 million. The project completion cost is estimated at €43m at this stage;
- a deployment phase over the period of 2020-2029 for which the CRE and the CREG (the Belgian regulatory authority) took a joint decision on 4 October 2018 on the processing of the request for the cross-border distribution of the project costs<sup>24</sup>.

The conversion plan, subject to its approval by the ministers concerned, provides for a reduction in the firm entry capacity at Taisnières L from 230 GWh/d to 115 GWh/d in 2025. GRTgaz specifies that the development of new H gas entry capacities will depend on the demand of market players.

#### Preliminary analysis of the CRE

The CRE notes that the 2018 TYNDP does indeed list the conversion project, but that the date of completion of the project indicated in ENTSOG's 2018 TYNDP, scheduled for 2025, corresponding to the planned date of a reduction in Taisnières L capacities, is not consistent with the date chosen by GRTgaz in its 2017 ten-year development plan, namely 2028.

GRTgaz and the operators of adjacent infrastructures, in the 2018 ten-year plan, foresee the commissioning of the pilot project in 2019. This time lag is due to a deferral of the conversion date of the Doullens pilot zone. The CRE has no observations at this stage.

#### 4.3.4 Reinforcement of AGU's compression station in the Teréga zone

The CRE approved, in its deliberation of 8 December 2005<sup>25</sup>, the project to reinforce the Guyenne artery, which makes it possible to cope with gas flows in the "South to North" direction, linked to the commissioning at that time of the Fos-Cavaou terminal, the Biriadou and Larrau interconnections and storage capacities in the south-west of France.

The CRE, in its deliberation of 15 December 2016, considers that the Teréga project to build an additional compressor of 8 MW will make it possible to meet the needs for additional compression of the flow plans by 2020. The TSO will thus be able to ensure its supply in the event of a cold peak.

#### Preliminary analysis of the CRE

<sup>21</sup> [Deliberation of the CRE of 22 March 2018 relating to the examination of the ten-year development plans of GRTgaz and TIGF](#)

<sup>22</sup> [Decree no. 2016-348 of 23 March 2016](#)

<sup>23</sup> [Deliberation of the CRE of 21 March 2018 regarding the opinion on the project to convert the northern zone of France from low calorific gas to high calorific gas](#)

<sup>24</sup> [Deliberation of the CRE of 4 October 2018 adopting the joint decision on the processing of the request for the cross-border distribution of the adaptation costs of parts of the Belgian and French transmission networks to H gas](#)

<sup>25</sup> [Deliberation of the Energy Regulatory Commission on the allocation of an increased rate of remuneration to the Guyenne artery reinforcement project](#)

The reinforcement project is subject to incentive regulation. The deliberation of the CRE of 15 November 2016<sup>26</sup> set the project's target budget at €25.5 million. The cost at completion is estimated at €23.2 million to date for commissioning expected in November 2019.

### 4.3.5 The creation of an additional compressor in the Teréga zone

In its ten-year development plan, Teréga provides for the possible implementation of additional compression power, depending on the gas movement scenarios initiated by the TRF [Trading Region France]. Commissioning is planned for 2027 and the launch of studies in 2023.

This reinforcement project has not been decided upon at this stage and is not subject to the approval of the CRE.

#### Preliminary analysis of the CRE

The CRE is in favour of launching studies by 2023, as proposed by Teréga, in order to allow sufficient time to observe flows to confirm the possible occurrence of an additional compression requirement.

### 4.3.6 The development of adjacent infrastructures

#### 4.3.6.1 Regasification capacities

Fosmax LNG, the owner of the Fos-Cavaou terminal, is studying the possibility of doubling its regasification capacities by 8 Bcm up to 16.5 Bcm per year (i.e. an additional 330 GWh/d), with an intermediate phase of 11 Bcm (i.e. an additional 110 GWh/d). In the 2018 TYNDP, the project to extend the terminal is planned for 2023, with an intermediate phase in 2021, and the development of the facilities needed to evacuate the gas is planned by 2023 on the GRTgaz network.

In the 2018 ten-year development plan, which will serve as the basis for developing the next 2020 TYNDP, the date of commissioning of the Fos-Cavaou terminal extension project is postponed to 2024, with an intermediate phase in 2022.

Elengy, the owner of the Montoir-de-Bretagne terminal, plans to increase regasification capacity from 10 to 12 Bcm per year, with the possibility of building a new tank. In the 2018 TYNDP, the project to extend the terminal is planned for 2021, and the development of the facilities needed to evacuate the gas is planned by 2023 on the GRTgaz network.

#### Preliminary analysis of the CRE

The CRE notes that the projects to extend capacity on the French terminals are indeed listed as part of the 2018 TYNDP. The 2018 TYNDP distinguishes between the commissioning of adjacent infrastructures and the commissioning of the transmission capacities necessary for the installations. The development of the facilities needed to extend the Fos-Cavaou terminal on the GRTgaz network planned for 2023 is in line with the date of commissioning of the terminal extension project.

However, the CRE notes that the date of commissioning of the new capacities of the Montoir-de-Bretagne LNG terminal has not been updated in the 2018 TYNDP.

In the 2018 ten-year development plan, which will serve as the basis for developing the next 2020 TYNDP, the date of commissioning of the Fos-Cavaou terminal extension project is postponed to 2022, and the construction of the new tank to 2024.

With regard to the Fos-Tonkin terminal, Elengy is planning to extend the terminal to maintain capacity between 3 Bcm and 1 Bcm by 2021. This project will not affect transmission capacities.

The CRE points out that any new capacity development must meet a market need. It must therefore be backed by subscription commitments.

#### 4.3.6.2 Storage capacities

Geomethane, as part of the work relating to the approval of the 2018 investment programme, has announced that it has suspended the project to increase capacity at the Manosque site.

Moreover, Storengy has also begun commissioning new capacities at the Hauterives site until 2019. GRTgaz states in its 2018 ten-year development plan that this increase will not affect the GRTgaz transmission network. The site benefits from the commissioning of the Val de Saône artery in 2018.

In its 2018 ten-year plan, GRTgaz states that certain "investment projects aimed at maintaining the performance [of storage sites could] have an impact on the transmission network".

#### Preliminary analysis of the CRE

<sup>26</sup> [Deliberation of the CRE of 15 December 2016 relating to the examination of GRTgaz's ten-year development plan and approving GRTgaz's investment programme for 2017](#)

As part of the reform of regulated access to storage capacity in 2018, the CRE approves the investment projects of storage operators, taking into account the regulated scope chosen as part of the new multiannual energy programme.

In the 2018 TYNDP, no project to strengthen storage or strengthen the transmission network is mentioned. Géométhane has suspended the Manosque capacity increase project. The CRE considers that this change is consistent with the decree of 26 December 2018 which modified the scope of the regulated storage infrastructures provided for by the PPE.

### 4.3.7 Investment projects in the regional networks

#### 4.3.7.1 Investment projects on the GRTgaz regional network

##### Strengthening southern Brittany

GRTgaz plans to connect the Landivisiau Combined Gas Cycle (CCGT) plant to its zone by 2021. To supply natural gas to this power plant, it is necessary to strengthen the natural gas transmission network in the south of Brittany, by installing a new 98 km pipeline between Pleyben (Finistère) and Pluvignier (Morbihan) and adapting the Prinquiau interconnection station (Loire Atlantique).

The reinforcement project, whose initial budget submitted by GRTgaz amounted to €148.3 million, is subject to incentive regulation. The deliberation of the CRE of 28 November 2018<sup>27</sup> set the target budget for the reinforcement project at €137.8 million.

Expenditure on works will take place in 2019 and 2020 to enable the commissioning of the new artery for the CCGT tests from 1 November 2021.

##### Strengthening the Normandy network

In its 2018 Ten-Year Development Plan, GRTgaz announced that it has launched the “Artère du Cotentin II” project in the Calvados department, in order to respond to requests from customers already connected to the network or who plan to be connected. This project, whose application for authorisation was submitted in 2017 with a view to obtaining a Declaration of Public Utility in 2019, consists of doubling the Cotentin artery between the municipalities of Iles and Gavrus over 12 km for expected commissioning in 2021.

This project has not been decided upon at this stage.

#### 4.3.7.2 Investment projects on the Teréga regional network

In its ten-year development plan, Teréga plans one new connection per year (industrial or public distribution) on its transmission network, apart from biomethane injection site and NGV station connection projects.

##### Regional network development projects

Teréga states that it wants to develop regional development projects in areas not served by the gas transmission network, by draining or initiating biomethane projects.

In its ten-year development plan, Teréga has identified the development project for the Nord Lot-et-Garonne, for which Teréga has planned to launch feasibility studies in mid-2019 for commissioning in 2023, as well as the Cantal development project, for which Teréga has planned to launch feasibility studies in 2021 and commissioning in 2026.

These development projects have not been decided upon at this stage. The CRE points out that any participation by Teréga in biomethane projects must comply with the independence rules applicable to transmission system operators. It also reiterates that the prospects for the growth of gas consumption make it necessary to be as cautious as possible with regard to all network development investments: infrastructures must be developed where there is economic relevance and demand.

##### Regional network strengthening projects

Teréga noted localised increases in consumption in its zone, due to population displacements around large conurbations or towards municipalities that had become accessible by motorway.

In its ten-year development plan, Teréga has identified two projects to strengthen the regional network, justified by forecasts of consumption increases at the ends of the antennae.

Teréga is planning the Perpignan reinforcement project, whose studies are planned for 2022 and commissioning for 2026. According to Teréga, the completion of the STEP project would avoid the strengthening of regional networks in the Narbonne and Perpignan zones, for an amount estimated at €52m.

Teréga is also planning the Aveyron reinforcement project, the studies of which are planned for 2023 and the commissioning in 2027.

<sup>27</sup> [Deliberation of the CRE of 28 November 2018 regarding the decision on the definition of the target budget of the project to adapt the GRTgaz Breton network with a view to connecting the Landivisiau combined cycle gas power plant](#)

These reinforcement projects have not been decided upon at this stage.

### Preliminary analysis of the CRE

The CRE reiterates that the prospects for the growth of gas consumption make it necessary to be as cautious as possible with regard to all network strengthening investments: infrastructures must be developed where there is economic relevance and demand.

#### 4.3.8 Receiving biomethane in the networks: the use of reverse flows

The gas networks are initially sized to supply natural gas by import via around ten entry points into French territory. With the development of biomethane injection sites, the distribution networks could be rapidly saturated, especially in summer, when gas consumption is low. The French gas networks will thus have to evolve to accommodate renewable gas production in France.

To cope with these injections, several solutions can be implemented: the development of the mobility sector will make it possible to increase extraction from the networks, some injection sites can be connected directly to the transmission networks (seven are currently connected to the GRTgaz zone and two to the Teréga zone), finally, compression installations called reverse installations, which make it possible to move the gas upstream to networks with a higher pressure regime (distribution/transmission reverse).

##### 4.3.8.1 Change in the number of reverses

GRTgaz has conducted a statistical study in France to estimate the number of reverses required according to the hypotheses of biomethane injection **Red** and **Blue** (the most proactive) scenarios presented in paragraph §3.1.

GRTgaz has estimated the number of reverses required, assuming in particular that the distribution in size will be identical to that observed in 2017 in the capacity register (78% connected to the distribution network and 22% to the transmission network)

*Number of reverses needed in 2030 in France according to GRTgaz's 2018 ten-year development plan scenarios*

|   | 2030 Forecast |        |
|---|---------------|--------|
|   | Red           | Blue   |
| Renewable gas injection                                   | 30 TWh        | 90 TWh |
| Number of producers connected to the distribution network | 1300          | 2600   |
| Number of producers connected to the transmission network | -             | 400    |
| Number of reverses required                               | 100           | 150    |
| <i>Of which transmission /distribution reverses</i>       | 90            |        |
| <i>Of which transmission/transmission reverses</i>        | 10            |        |

Source: GRTgaz's 2018 ten-year development plan

Based on these assumptions, GRTgaz estimates that the budget required for each reverse project is on average €3 million, which represents a €300 million budget in the context of the **Red** scenario and €450m for the **Blue** scenario.

### Preliminary analysis of the CRE

The CRE considers that the data published by the TSOs on the consequences on their networks of the development of biomethane injections is, at this stage, insufficient:

- as regards consistency between the two TSOs: the exercise is carried out by GRTgaz on the basis of the French injections. However, Teréga does not envisage carrying out reverses in its zone (with the exception of the pilot validated by the CRE): this raises a question of data consistency. The CRE considers it necessary for the two TSOs to carry out the exercise jointly;
- with regard to the temporality of the financial year: the data presented by GRTgaz correspond to the forecast costs for 2030. GRTgaz presents neither the budget for the 2027 ten-year outlook, nor the trajectory for the evolution of costs over this period.
- with regard to the number of infrastructures planned: GRTgaz does not present the criteria leading to the tripping of reverses. The CRE works with the TSOs and the DNOs [Distribution Network Operators] to determine a triggering assessment methodology (see next paragraph).

In view of the significant amounts announced by GRTgaz in its ten-year development plan, the CRE considers that the level of detail communicated by the two TSOs is insufficient and that it is necessary, on the one hand, for the two TSOs to agree on a common methodology to ensure consistency between the injection forecasts and their consequences on the strengthening of the networks and, on the other hand, to give the market a better vision on the pace and conditions for the realisation of these reinforcements.

#### 4.3.8.2 Reverse projects under way or under review

On an experimental basis, the CRE approved, in its deliberation of 21 December 2017, the West Grid Synergy project, which aims in particular to build two pilot reverse distribution/transmission facilities in the municipalities of Pouzauges (Vendée) and Pontivy (Morbihan) by 2019, for a provisional budget of €6 million. The deliberation stated in particular that: *“the launch of other identified projects cannot take place before the definition of a framework setting out the rules for triggering and financing these projects”*.

Article L. 453-9 of the Energy Code, as amended by Article 94 of Law no. 2018-938 of 30 October 2018, the so-called “EGalim” law, provides that: *“when a biogas production plant is located near a natural gas installation, the managers of the natural gas networks carry out the necessary strengthening to allow injection into the networks of the biogas produced, under the conditions and limits defined by decree issued after the opinion of the Energy Regulatory Commission”*. In accordance with the deliberations of 21 December 2017 on the approval of the 2018 investment programmes of GRTgaz and Teréga, the network operators and the CRE have set up an “Adapting the networks” working group, in order to assess the economic relevance of the reverse in relation to the possible alternatives and thus to determine a methodology for evaluating and optimising the needs of the reverse facilities. This work is still ongoing.

As in 2017, in its ten-year plan, Teréga plans to experiment with a D/T reverse in its zone. This project was approved by the CRE in its deliberation of 21 December 2017 and is included in the budget allocated to research and innovation.

In its ten-year plan, GRTgaz also plans for seven distribution/transmission reverse-flow projects, for commissioning planned for 2021. In its 2019 investment programme, GRTgaz asked for the approval of three of them, in the Chessy, Soissons and Bourges zones, for a budget of around €3m per reverse.

In its deliberation of 20 December 2018 approving GRTgaz’s investment programme for 2019, the CRE approved only the study costs of the Chessy and Soissons reverses for 2019 and asked GRTgaz to submit for approval, if necessary, the costs associated with the construction phase during the revision of the investment programme in mid-2019.

#### Preliminary analysis of the CRE

The CRE notes at this stage that the TSOs do not have a transmission/transmission reverse development project. The TSOs believe that these reverses will give rise to investments but these will be less costly than the distribution/transmission reverses.

### 4.3.9 Investment projects in hydrogen

#### 4.3.9.1 The Jupiter 1000 Power to Gas pilot project

The Jupiter 1000 pilot project was expected in 2018 in the previous ten-year plans of the TSOs. Following difficulties on the site, commissioning is now planned for 2019, initially with the part relating to electrolysis, then at the end of the year, CO<sub>2</sub> capture and methanation.

The project, approved by the CRE in its deliberation of 17 December 2014<sup>28</sup>, represents an investment of a total amount of €30.3 million. After deduction of public subsidies, the share to be financed by GRTgaz amounts to €13.1 million (of which €10.2 million in investments) and that of Teréga to €1.8 million. The completion costs are currently €12.6 million for GRTgaz’s investments and €2.3 million for Teréga’s share.

#### 4.3.9.2 The demonstrator project for injecting hydrogen into the FenHYx networks

As part of the development of new gases, GRTgaz is considering facilitating the start-up of industrial hydrogen production. The project consists of the construction of an R&D and innovation platform operated by RICE (GRTgaz’s R&D centre). The objectives of the project are to enable innovation, support the adaptation of the business lines and gas infrastructures to hydrogen and create an ecosystem of partners in the sector. The project is scheduled to begin operating in 2021.

#### Preliminary analysis of the CRE

In its decision of 20 December 2018, the CRE decided not to approve the costs for the launch of the feasibility studies and reiterated at this time that it was not opposed to GRTgaz participating in this type of project, which may be of

<sup>28</sup> [Deliberation of 17 December 2014 on the review of the ten-year development plan and on the decision to approve the GRTgaz investment programme for 2015](#)



interest to the carrier's activity in terms of research and development and the ability to integrate new gases into its networks in the future.

The CRE pointed out, however, that the transmission rate is intended to cover the costs of the regulated operator in the context of the execution of its missions. In the case of the FenHYx project, the objectives of the planned platform go beyond this scope: consequently, the costs associated with this project should not be exclusively borne by the tariff.

However, the CRE stated that it was in favour of GRTgaz continuing its work in order to search for partners and to build a financing plan. Maintaining, in the future, this project in the ten-year development plans may be studied according to the next steps that GRTgaz will conduct on the project.

Question 5 Do you have any observations on projects under way or being studied?

Question 6 Do you have any other comments regarding the ten-year development plans of GRTgaz and Teréga?

## 5. QUESTIONS

- |            |  |
|------------|--|
| Question 1 | Are you satisfied with the TSOs' current procedures for consulting the market?   |
| Question 2 | What is your analysis of the consumption forecasts presented by the TSOs in the multiannual forward estimate and the ten-year plans of the TSOs? |
| Question 3 | What is your analysis of the forecasts for the injection of gas of renewable origin presented by the TSOs in their ten-year plans?               |
| Question 4 | Do you have any observations on the level of input and output capacities?  |
| Question 5 | Do you have any observations on projects under way or being studied?   |
| Question 6 | Do you have any other comments regarding the ten-year development plans of GRTgaz and Teréga?  |

## 6. PROCEDURES FOR RESPONDING TO THE PUBLIC CONSULTATION

The CRE invites interested parties to send in their contributions by 7 March 2019 at the latest:

- by email to the following address: [dr.cp6@cre.fr](mailto:dr.cp6@cre.fr);
- by contributing directly to the CRE website ([www.cre.fr](http://www.cre.fr)), in the “Documents/Public consultations” section;
- by post: 15, rue Pasquier - F-75379 Paris Cedex 08;
- by asking to be heard by the Commission.

For the sake of transparency, the contributions will be published by the CRE.

**If your contribution contains elements that you wish to preserve confidentiality of, a version that obscures these elements must also be sent.** In this case, only this version will be published. The CRE reserves the right to publish elements that may prove essential for informing all actors, provided that they do not fall under secrets protected by law.

**In the absence of a hidden version, the full version is published,** subject to information in the form of secrets protected by law.

The interested parties are invited to answer the questions by justifying their answers.