COMMISSION DE RÉGULATION DE L'ÉNERGIE

The French Energy Regulatory Commission (CRE) is consulting market participants.

# PUBLIC CONSULTATION NO 2021-06 OF 10 JUNE 2021 RELATING TO THE FUNCTIONING OF THE TRADING REGION FRANCE (TRF) AND THE FIRMING OF ADDITIONAL WINTER CAPACITY TOWARDS SPAIN

The single marketplace, Trading Region France (TRF), went live as at 1 November 2018. As of that date, there has been a single entry/exit zone in France, and one virtual gas exchange point, the PEG, concentrating gas purchases/sales for the TRF.

After two and a half years of operation, CRE considers that the overall functioning is satisfactory and that the objectives set out for this project have been reached: creation of a single price for all French consumers, access to varied and competitive supply sources depending on the configurations of the global market, strengthening of the liquidity and attractiveness of the French market and better integration into the European market.

The creation of the single market zone was possible thanks to optimised investment, adding transmission capacity but not removing all congestion. The assessment of congestion is positive: the French gas system is not at all tight in winter, and the congestion management mechanisms have demonstrated their effectiveness in summer. In particular, the measures taken in response to the frequent congestion in spring 2019 (CRE's decisions and actions by natural gas transmission system operators (TSOs)) made it possible to generally control subsequent congestion, at a limited cost.

This result was also due to the 2018 reform on the conditions for accessing underground storage which ensures optimal filling of storage. **This strengthens security of supply and today makes it possible to consider the firming of 60 GWh/d of additional capacity to Spain during winter.**

Moreover, for the purpose of continuously improving the functioning of the TRF, infrastructure operators have proposed several adaptations to its operating rules concerning:

- firming of interruptible capacity at the Nord-Est and Atlantique transmission/storage interface points;
- change in the conditions for overbooking capacity at network interconnection points (PIRs), UBI and netting;
- increase in the "small maintenance" threshold during October and November for work on transmission infrastructure.

The purpose of the present public consultation is to present a review after two years and half of functioning of the TRF and consult on those propositions.

**Paris, 6 June 2021**

**For the Energy Regulatory Commission,**

**The Chairman,**

**Jean-François CARENCO**

## To participate in the consultation

CRE invites interested parties to send in their contribution, by 11 July 2021 at the latest, entering it on the platform set up by CRE: https://consultations.cre.fr.

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

**If your contribution contains elements that you wish to keep confidential, a version concealing those elements should also be provided.** In this case, only that version will be published. CRE reserves the right to publish elements that could be essential for all participants, provided that they are not secrets protected by law.

**In the absence of a redacted version, the full version will be published,** except for information falling under secrets protected by law.

Interested parties are invited to provide well-grounded answers to the questions.

# CONTENTS

# 1. SUMMARY OF FEEDBACK AFTER TWO AND A HALF YEARS OF OPERATION OF THE SINGLE MARKET ZONE

The single market zone, the Trading Region France (TRF), went live as at 1 November 2018 in line with the timetable established by CRE in 2014. As of that date, there has been a single entry/exit zone in France, and one virtual gas exchange point, the PEG, concentrating gas purchases/sales for the entire TRF. After two and a half years of operation, CRE considers that the overall functioning is satisfactory and that the objectives set out for this large-scale project have been reached: creation of a single price for all French customers, access to varied and competitive supply sources depending on the configurations of the global market, strengthening of the liquidity and attractiveness of the French market and better integration into the European market.

The French wholesale market, PEG, is more attractive and more liquid. French consumers today have a single wholesale gas price, at a competitive level: since the merging of zones, the PEG price is lower on average than the TTF price, the Dutch market price which serves as a benchmark in Europe.

Security of supply is ensured in winter thanks to additional transmission capacity and the elimination of north/south separation. The south zone therefore is no longer isolated and dependent on LNG arrivals from Fos. The effects of the merging of zones combine with the storage reform which ensures filling of storage in winter. In addition, France was able to fully take advantage of the return of LNG in Europe. The French market has a diversity of supply sources, thanks to its complementary infrastructure.

Markets downstream of the TRF (Iberian Peninsula, Switzerland, Italy) enjoy optimised transit and the Pirineos and Oltingue interconnections have been used more heavily.

As projected upon the merging of zones, residual congestion occurs occasionally. This congestion is concentrated in summer, particularly at the start of the gas summer and in August. The measures taken by CRE and the TSOs following episodes of major congestion in April and May 2019 reduced congestion costs. The winter situation is satisfactory, no call for locational spread has ever been made.

CRE establishes a detailed review of these two and a half years of operation in **Annex 1** of the present consultation.

| | |
|---|---|
| Question 1 | Do you have any comments concerning the review after two and a half years of operation of the TRF? |

# 2. EXPERIMENT ON FIRMING CAPACITY AT THE PIRINEOS PIV TO SPAIN IN WINTER

Exit capacity from the French network to Spain at the Pirineos virtual interconnection point (PIV) currently totals 165 GWh/d of firm capacity and 60 GWh/d of interruptible capacity. All of this capacity is firm on the Spanish side.

Interruptible capacity is sold by Teréga in the form of daily products, through PRISMA auctions, and intraday products, through overnomination. Since January 2021, Teréga also sells interruptible capacity in the form of quarterly and monthly capacity when 98% of the firm capacity is already booked.

The Pirineos interconnection has been more accessible and used more heavily since the go-live of the TRF. Investments made within the framework of the merging of zones, for a total amount of almost €900 M for the Val de Saône and Gascogne-Midi projects, guaranteed firmness of the transmission capacity from the entry points in the north of France to the exits in the south, for the benefit in particular of the transit of gas to Spain.

The gas storage reform ensured greater filling of French storages. As such, the gas network is under less pressure in winter, since security of supply has been reinforced. This guarantees more availability at the exit to Spain. Exit flow at Pirineos reached the maximum level possible (225 GWh/d) for almost all of the month of January 2021.

Firming in winter the capacity that is currently interruptible at Pirineos would improve transit to Spain, for the benefit of the gas market of the Iberian peninsula (including Portugal). Shippers would have opportunities to optimise flows between France and Spain with capacity that is guaranteed, therefore without having to incorporate a risk of interruption. Terega has transmitted such a proposition to CRE.

CRE indeed noted that interruptible capacity has been available almost all the time in winter (from November to March) since the go-live of the TRF. CRE therefore proposes that the 60 GWh/d of interruptible capacity become firm during winter 2021-2022, after which feedback will be sought. Therefore, there would be 225 GWh/d of firm capacity at Pirineos in the exit direction (France to Spain) for the months of November to March. The 60 GWh/d of firm capacity would be sold as quarterly products for the first quarter January-March, as monthly products for the

months of November, December, January, February and March, and also as daily and intraday products over that period.

This additional firm capacity would benefit shippers, who would have the guarantee of being able to use their capacity. In addition, the possibility of directly booking all firm capacity as quarterly and monthly products would enable shippers to enjoy attractive market conditions and optimise their gas flows between France and Spain.

Teréga has estimated the additional income that firming could represent, using the record of bookings over the three winters passed since the creation of the TRF (November 2018-March 2019, November 2019-March 2020 and November 2020-March 2021). The conversion of booked interruptible to firm capacity alone represents a gain of an average €548 k/year over these three years.

Teréga considers that firming could also enable additional bookings to be made. Indeed, at certain infra-annual firm capacity auctions over the last few years (quarterly products for the fourth quarter 2018 and first quarter 2019, and monthly products for the months of December, January and February 2021), all capacity proposed was booked.

In total, based on the record since the go-live of the TRF, Teréga estimates additional income at an average €1.45 M/year.

In addition, Teréga also conducted an analysis to calculate the potential impact of such a measure on congestion, confirmed by GRTgaz's analyses. With the Pirineos exit being located downstream of the network in the main north-south flow pattern, the increase in firm capacity could increase congestion even if the congestion risk in the TRF in winter is generally low (no congestion seen during the three winters since its implementation, see Annex 1).

Teréga replayed the flows over these three winters maximising the use of Pirineos. It created a scenario increasing exit flow at Pirineos by 60 GWh (not exceeding the technical limit of 225 GWh/d of capacity) on the days that this exit was in great demand, with a level higher than the average daily flow of 123 GWh/d. The result is a single congestion in March 2019 for a volume of 48 GWh, which would generate a cost of €100 k[1]. In addition, the number of orange alert days, where the system is close to being congested without reaching the state of congestion, would increase by an average seven days per year. The TSOs also created an "extreme" 2020-2021 winter scenario, lowering the LNG arrivals to 100 GWh/d at Montoir and Fos. In this crash test scenario, the increase in flows at Pirineos does not have a significant impact.

The additional income would lower the average tariff, for the benefit of all network users, and particularly French consumers. The risk of additional congestion costs appears limited. Congestion risks are generally low in winter, with a flow configuration much less tight than in summer, even in the case of low LNG entries.

Lastly, the risk of an increase in gas prices in the French market seems to be low, with high flows to Spain already occurring during previous winters.

At this stage, CRE proposes firming for winter 2021-2022.

**Question 2** Are you in favour of the firming of the 60 GWh/d of interruptible capacity to Spain at the Pirineos PIV for winter 2021-2022?

## 3. OTHER DEVELOPMENTS AT THE MAIN NETWORK ENTRY AND EXIT POINTS

After more than two gas years, the implementation of the single French marketplace has therefore been positive. From a systemic point of view, these two and a half years of experience have also shown that the levels of firm capacity sold at the different network points are a major aspect in this overall balance. With the goal of continuously improving the functioning of the TRF, operators proposed changes related to these firm capacity levels, which are presented in this chapter. In addition, the TSOs also made development proposals concerning the operational mechanisms for capacity overbooking by shippers.

### 3.1 Nord-Est and Atlantique PITS

In its deliberation of 12 December 2019, in order to take into account the physical limits of the French network and limit summer congestion, CRE defined nominal exit capacity levels for each PITS, above which the capacity becomes interruptible during tight periods. The nominal levels currently in effect are as follows:

[1] Locational spread cost with a locational spread price hypothesis at €2/MWh

| PITS | Firm exit capacity, in GWh/d |
|---|---|
| Nord B | 115 |
| Nord-Ouest | 145 |
| Nord-Est | 115 |
| Sud-Est | 145 |
| Atlantique | 340 |
| Sud-Ouest | 300 |

Storengy requests a revision of these levels for the Nord-Est and Atlantique PITS. In order to assess the impact of these proposals, the operator requested the transmission system operators Teréga and GRTgaz to perform a cost/benefit analysis in the first quarter of 2021. The conclusions of this analysis were presented within the framework of the Concertation Gaz meeting on 4 May 2021.

Storengy's proposal

In order to take into account the change in the characteristics of its Serene Nord and Serene Atlantique storage products, Storengy proposes an upward revision of the nominal levels of firm exit capacity of the Nord-Est and Atlantique PITS, setting them respectively at 124 GWh/d and 371 GWh/d.

Due to the drop in the physical performance of its two storage sites, Storengy in fact had to revise upwards the withdrawal duration of the Serene Nord (+16 days) and Serene Atlantique products (+26 days). This forced lengthening of the winter withdrawal period mechanically reduces the period available for filling storage capacity during summer. In order to have more time and guarantee the operability of its products over an entire year, the operator therefore also increased injection capacity (to offset a shorter injection period of 22 days for both Serene products). This increased flexibility in summer also aims to partly offset the loss of the use of these storage facilities by shippers. The change in the characteristics of the Serene Nord and Serene Atlantique products is summarised in the tables below:

| | Serene Nord product 2020-2021 | Serene Nord product 2021-2022 |
|---|---|---|
| Actual withdrawal duration (days) | 149 | 165 |
| Actual injection duration (days) | 151 | 129 |
| Nominal injection flow rate (GWh/d) | 111 | 124 |
| Total working volume (TWh) | 15 | 15 |

| | Serene Atlantique Product 2020-2021 | Serene Atlantique Product 2021-2022 |
|---|---|---|
| Actual withdrawal duration (days) | 138 | 164 |
| Actual injection duration (days) | 151 | 129 |
| Nominal injection flow rate (GWh/d) | 333 | 371 |
| Total working volume (TWh) | 45 | 45 |

These new specificities imply reaching higher maximum injection flow rates, above the values of 115 GWh/d and 340 GWh/d of firm capacity defined by the deliberation of 12 December 2019 for the Nord-Est and Atlantique PITS. Storengy therefore wishes for an upward revision of these values, to 124 GWh/d and 371 GWh/d, in order to guarantee firmness of the injection capacity sold, and thus ensure both the operability of its storage products over a year and better use by shippers at annual auctions.

CRE's analysis

The proper sizing of firm injection levels requires finding the right balance between a level of flexibility creating value for the gas system and a level taking into account the physical limits of the network in order to avoid too frequent and costly congestion. CRE considers it relevant to review the nominal levels previously defined when the characteristics of a storage product have evolved considerably, subject to an overall cost/benefit analysis.

CRE is therefore in favour of the action taken by Storengy with transmission system operation to establish an impact assessment for these proposals.

With regard to the Nord-Est PITS, as presented to market participants within the framework of Concertation Gaz, the TSOs consider that the development proposed would have little to no impact on congestion. The Nord-Est PITS is located upstream of all of the normal limits of the TRF (S1, NS4, NS3, NS2, EO2), where congestion occurs in the north to south direction. In such a configuration, the increase in the injection flow rate at the Nord-Est PITS by 9 GWh/d could in fact be beneficial: upstream of the limits, any new outlet enabling surplus gas to be reduced tends to ease summer congestion. The opposite configuration, i.e. a south>north congestion scenario, has never been seen at this stage in the two and a half years of existence of the TRF.

As for the expected benefits, the balance between the firm level at the PITS and the injection flow rates sold to shippers would ensure the non-interruption of their capacity during summer, and would therefore create value for the users of this storage facility. The increase in the level of firm exit capacity will also be a source of additional annual income for the transmission operator (GRTgaz). The cost/benefit analysis of this development therefore seems favourable for all market participants.
CRE agrees with setting the level of firm exit capacity at the PITS Nord-Est at 124 GWh/d.

**Question 3** Are you in favour of setting the level of firm exit capacity at the Nord-Est PITS at 124 GWh/d?

With regard to the Atlantique PITS, its role concerning the occurrence of congestion is more important than that of the Nord-Est PITS: the Atlantique PITS is in fact sometimes located upstream of the normal limits of the TRF (in NS4 and S1 configurations, see map in Annex 1), and sometimes downstream of the limits (in NS3, NS2 and EO2 configurations). When it is located downstream, any additional injection flexibility tends to aggravate the magnitude of the congestion and mechanically increase the costs of the locational spread needed to resolve the congestion. Since the go-live of the TRF, it has been seen that the most costly congestions correspond to these cases, because the locational spread volumes called for are greater. The tables below present the figures since the go-live of the TRF.

| | Frequency of occurrence |
|---|---|
| Atlantique PITS upstream of the congestion | 59% |
| Atlantique PITS downstream of the congestion | 41% |

| | Relative weight in location spread costs |
|---|---|
| Atlantique PITS upstream of the congestion | 24% |
| Atlantique PITS downstream of the congestion | 76% |

In their joint study, presented to market participants within the framework of Concertation Gaz, the TSOs estimated the impact of an increase in the firm capacity level to 371 GWh/d at the Atlantique PITS exit in terms of additional costs for lifting congestion, by replaying the last two years of the TRF based on a scenario favourable for congestion (high LNG supply and low flows to Spain), and based on a more extreme scenario for the limits (LNG supply from Fos and Montoir capped at 100 GWh/d and high flows to Spain).

Against these costs, the firming of 31 GWh/d of additional capacity at the PITS exit would provide limited tariff income to GRTgaz. The balance between the firm capacity level at the PITS and the injection flow rates sold would also generate value for shippers and could improve interest in the storage product at annual auctions.

In a favourable flow scenario in terms of congestion occurrence, close to the historical trend, the cost/benefit analysis estimated by the TSOs reaches a balance. A more unfavourable scenario in terms of limits however implies non-negligible additional costs for lifting the congestion, of about two million euros for each summer period. With regard to the expected benefits, estimating the additional use of the storage product at annual auctions is delicate since shippers value above all storage withdrawal performance in order to supply their client portfolio during periods of high demand in winter, and only afterwards do they value the storage injection performance. CRE reiterates that the flow patterns causing costly congestion episodes cannot be excluded in the future, since the summer flow levels to Spain and LNG supply are volatile by nature because they depend on external market conditions.

With regard to operability of the Atlantique storage over a complete season, CRE considers that the injection performance of the Serene Atlantique product enables filling of capacity within the time allowed, including for a firm level of 340 GWh/d of exit capacity at the Atlantique PITS and for high maintenance scenarios during summer.

CRE is therefore not in favour, at this stage, of setting the level of firm exit capacity at the Atlantique PITS at 371 GWh/d.

| | |
|---|---|
| **Question 4** | Are you in favour of maintaining the level of firm exit capacity at the PITS Atlantique at 340 GWh/d? |

## 3.2 Development in nomination conditions at PIRs: netting and bidirectional UBI

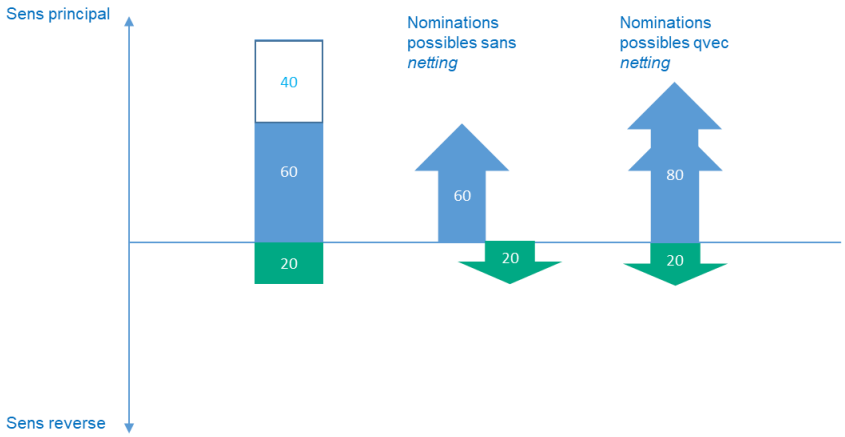
With a view to continuously improving the functioning of the single market zone, the TSOs also wish to propose developments related to the capacity selling process, mainly at the network interconnection points (PIRs). These developments, presented in this section, do not concern the general principles for auctioning interconnection capacity, governed by the European CAM code, but rather the operational mechanisms for the overbooking of capacity by shippers.

### 3.2.1 Implementation of netting at the Pirineos PIV

Teréga's proposal

At the Pirineos PIV, Teréga proposes the implementation of the netting mechanism, currently in effect at the Virtualys, Obergailbach and Oltingue PIRs operated by GRTgaz.
This mechanism, available only during work periods restricting the capacity available at the PIRs, allows shippers nominating capacity in the reverse direction to release an identical quantity of capacity in the main flow direction (at the Pirineos PIV, the main flow direction oscillates regularly between exit to Spain and entry to France, based on the gas day in question). Netting consists only in a virtual replay of nominations and does not change the physical flows in the network. It enables shippers to nominate more capacity in the main direction and therefore facilitate compliance with their Take or Pay commitments included in long-term transmission contracts.

*The following diagram shows the different possibilities offered to shippers, with or without the netting mechanism, for a period of work imposing a 40% restriction in the main direction. The case in question is that of a shipper holding 100 MWh/d of capacity in the main flow direction and 20 MWh/d in the backhaul direction:*



For shippers with capacity booked in both directions of a PIR, the netting mechanism therefore consists in prioritising their overnomination rights in the main direction, using their own capacity in the opposite direction. In the absence of netting, this overnomination in the main direction during work periods necessarily requires a purchase of additional capacity through the Use It and Buy It mechanism, prorated between all shippers in demand.

From a tariff point of view, the use of this netting mechanism in itself is free of charge, subject to the shipper having sufficient capacity in both directions of the PIV.

This proposal was presented to market participants within the framework of the Concertation Gaz meeting of 11 May 2021.

CRE's analysis

CRE considers that the implementation of the netting mechanism could be valuable at the Pirineos PIV. On the one hand, the PIV is booked heavily in both the entry direction (Spain to France) and the exit direction (France to Spain). Since the mechanism requires capacity in both directions of the same PIR in order to be operational, its implementation therefore appears suitable in the case of Pirineos. On the other hand, the interconnection between France and Spain is a major natural gas transit point, partly because of long-term transmission contracts within the framework of which non-compliance with Take or Pay constraints can penalise shippers. Within this context, the netting mechanism would enable shippers during periods of restrictions due to work to more easily comply with their long-term contracts without being penalised financially.

CRE is not opposed to the implementation of the netting mechanism at the Pirineos PIV.

**Question 5** Are you in favour of the implementation of the netting mechanism at the Pirineos PIV?

### 3.2.2 Implementation of UBI in both directions at the Virtualys, Obergailbach and Oltingue PIR

GRTgaz's proposal

GRTgaz proposes to implement the Use It and Buy It (UBI) mechanism simultaneously in both flow directions at the Virtualys, Obergailbach and Oltingue PIRs.

When all the firm capacity of a PIR has been booked, and when capacity selling is closed due to work restrictions at a PIR, the UBI mechanism enables shippers to acquire additional daily capacity within the gas day, making available to them the capacity booked by other shippers but not used by their owners. At each nomination cycle of a gas day, GRTgaz determines the UBI capacity available at a given point by calculating the difference between the sum of the capacities held by shippers and the sum of nominations at this same point. To obtain UBI capacity, a shipper nominates above their rights.

Currently, the UBI offer is only available at each PIR in the main flow direction, either at the entry of the Virtualys and Obergailbach PIR and at the exit of the Oltingue PIR. For each of the three PIRs, GRTgaz wishes to implement this mechanism in both flow directions, main and reverse, simultaneously within the same gas day.

GRTgaz has in fact been observing more and more regularly at these three PIRs short-term subscriptions (daily and intraday) in the reverse direction, by shippers seeking to occasionally seize market opportunities in neighbouring countries. In such a context, the operator considers it essential to implement an emergency mechanism in the case of a failure of the European PRISMA platform or of GRTgaz's information system related to selling capacity. The UBI mechanism specifically guarantees shippers the possibility of acquiring additional capacity in the case of failure of computer sales systems, simply through overnominations in the direction desired.

Over a day, the implementation of UBI in both directions, proposed by the operator, however cannot co-exist with either the netting mechanism or the operational implementation of superpoints, enabling shippers to share the impact of work restrictions across several network points.

GRTgaz has stated that the netting mechanism was used at the three PIRS only on two days in 2019 and none in 2020. GRTgaz considers that the implementation of UBI in both directions would be more valuable for shippers than maintaining the netting mechanism.

However, the operator considers that the superpoint mechanism is very beneficial for shippers, and does not wish to make changes to this mechanism in order to introduce UBI in both directions.

GRTgaz's proposal therefore is as follows:

- when the superpoints are not active, UBI in both directions is activated at these three PIRs when one of the three following conditions is met: all of the capacity has been sold, work restrictions are impacting the PIR, in the case of failure of GRTgaz's information system or of the PRISMA platform;

- when the superpoint mechanism is activated, the netting offer by point is maintained and UBI is only active in the main flow direction (current system).

This proposal was presented to market participants within the framework of the Concertation Gaz meeting of 11 May 2021. It would go live as of the end of 2022, with GRTgaz implementing its new information system.

CRE's analysis

CRE generally agrees with GRTgaz's analysis. Moreover, it notes the incompatibility between the UBI offer in both directions and the netting mechanism. For the Virtualys, Obergailbach and Oltingue PIVs, GRTgaz's proposal therefore implies revising the existence of this mechanism, which, moreover was proposed by Teréga for the Pirineos PIR.

CRE however highlights the difference between these interconnections: unlike Pirineos, which is fully bidirectional, the three PIRs concerned are mainly booked in the main flow direction. The netting mechanism, which requires having capacity booked in both directions of the interconnection, therefore appears less useful. CRE however highlights that in any case, GRTgaz's proposal could represent a loss of service for a shipper holding capacity booked in both directions of one of these three PIRs, particularly when work occurs specifically at that PIR.

CRE is not opposed to the implementation of UBI simultaneously in both flow directions at the Virtualys, Obergailbach and Oltingue PIRs, as proposed by GRTgaz.

| | |
|---|---|
| Question 6 | Are you in favour of the implementation of the Use it and Buy It (UBI) mechanism in both flow directions at the Virtualys, Obergailbach and Oltingue PIRs, as proposed by GRTgaz? |

# 4. MAINTENANCE

Maintenance has a major role in the functioning of the TRF. Maintenance is performed each year and is essential for keeping infrastructure in good condition and therefore for the proper functioning of the network. However, it reduces network transmission capacity and therefore leads to either restrictions on the capacity available *ex ante*, or an increase in the risk of congestion. It must be optimised so as to minimise the impact on network users (capacity use constraints for shippers and congestion costs).

## 4.1 The functioning of maintenance in the TRF

Each year, the TSOs publish a maintenance programme, with capacity restrictions during a part of the gas summer, in order to conduct large-scale work in the network. The availability of capacity during the maintenance period depends on the impact of work, but also on the flow pattern and the consumption during this period. Therefore, the TSOs take consumption hypotheses into account when they establish the levels of restrictions for maintenance. As such, in case of maintenance on the core network, the greater the consumption in the area located downstream of work, the greater the unavailability of capacity; the lower the consumption upstream of the work, the greater the unavailability of capacity.

Climate hazards can cause major uncertainty about consumption, particularly for maintenance scheduled inter-season. There can therefore be considerable uncertainty about the level of availability of capacity related to this type of maintenance.

In order to guarantee the functioning of the network by avoiding leaving capacity available that in reality is not available because of work, the TSOs would have to establish forecast restriction rates adopting extreme levels of forecast consumption (the lowest upstream and the highest downstream) over the period in question. However, this conservative approach would lead to restricting a lot of capacity for no reason and putting back on the market almost all of this capacity finally available on maintenance days.

At the proposal of the TSOs and after consulting the market, CRE therefore decided in its deliberation of 24 July 2018 that the TSOs would not take into account 10% of the most extreme cases in the consumption level hypotheses when they establish the capacity restrictions related to the work programme. The restrictions published are therefore lower than if 100% of cases were covered. Congestion management mechanisms cover this 10% of the most extreme cases, where capacity not restricted in advance finally turns out to be unavailable. Since the go-live of TRF, none of these extreme cases has happened, thus no congestion has been triggered for this reason.

In addition, yet again to avoid an increase in capacity restrictions making this capacity unavailable to shippers, CRE decided in the deliberation of 26 October 2017, that the TSOs would not apply restrictions *a priori* when the forecast impact of maintenance is lower than 30 GWh/d (termed "small maintenance"). The day on which small maintenance occurs, if congestion effectively arises, it is handled by the congestion management mechanisms, even if it is partly due to maintenance. CRE confirmed the functioning of small maintenance in the deliberation of 12 December 2019 and also decided that the TSOs would have to publish the impact of small maintenance (in GWh) the day after the occurrence of congestion, for the purpose of informing the market and following the functioning of the TRF.

Lastly, in its deliberation of 12 December 2019, CRE decided that operators must publish a common maintenance programme. An initial publication common to the TSOs and storage operators must be produced in October of each year, in order to provide the best visibility to shippers in view of storage capacity auctions. A definitive programme must be published in February of each year, integrating elements for LNG terminals. All operators must publish this single document on their respective websites.

In order to comply with this obligation of a joint publication, gas infrastructure operators now publish capacity restrictions for maintenance in a single table on a page on the open data/réseaux énergies platform[2].

### 4.2 Proposal to increase the "small maintenance" threshold in October and November

GRTgaz's proposal

As part of its reflections on the maintenance programme, GRTgaz proposes an increase in the threshold for triggering capacity restrictions for maintenance for the months of October and November, differentiated by network limit (corresponding to a geographical congestion front, see map of limits in Annex 1). GRTgaz's proposal entails changing this threshold of 30 GWh/d to 90 GWh/d in October for the NS4 and S1 (the limits most frequently reached), and from 30 GWh/d to 120 GWh/d in October and November for the rest of the limits.

This measure would enable scheduling of large-scale maintenance work in the core of the network without restricting capacity *ex ante*, during the months in which congestion risks are lower. Therefore, for a given annual maintenance programme, restrictions for shippers would be lower, without congestion increasing considerably.

The benefit of such a measure is hard to quantify because it depends on the maintenance programme which changes every year, but GRTgaz gives as an example the work on the Berry, Sologne Nord and Centre-Est pipelines, and on the Chazelles compressor station. Work on pipelines gives rise to capacity restrictions within the framework of the annual maintenance programme, but also to small maintenance when the work duration is long. This is the case for example with the Centre-Est pipeline, the work of which represents an average 140 days per year between 2019 and 2021.

Having a high "small maintenance" threshold in October and November for limits in the network core would enable scheduling of this work with significant impacts and long durations in those months, without restricting capacity for shippers. GRTgaz's proposal would therefore lead to less capacity being restricted over the rest of the year. Having more capacity availability generally over summer would enable better distribution of nominations at the different main network entry and exit points, and potentially less concentrations of exits downstream of the network on certain days in summer, reducing congestion. This can be illustrated for the first two summers in the TRF: with fewer restrictions in June and July, shippers would have less pressure to quickly fill storage in April and May in order to reach the minimum required as at 31 July. The network would therefore be less tight in April and May.

GRTgaz estimated the additional congestion that would result from its proposal based on the record of flows for the months of October and November in the TRF (the first three years). The impact estimated is one additional day of congestion per year on average, representing 25 GWh and €30 k in locational spread costs, with locational spread price hypotheses identical to those of the assessment of the increase in firm capacity at the Atlantique PITS presented in section 3.2.

GRTgaz's proposal stems from the search to optimise the existing rules with regard to the flows observed and the network limits. GRTgaz therefore studied the distances encountered between the flows and the capability of the network, at each network limit. The distance at the limit, for each limit and for each gas day, is the difference between:

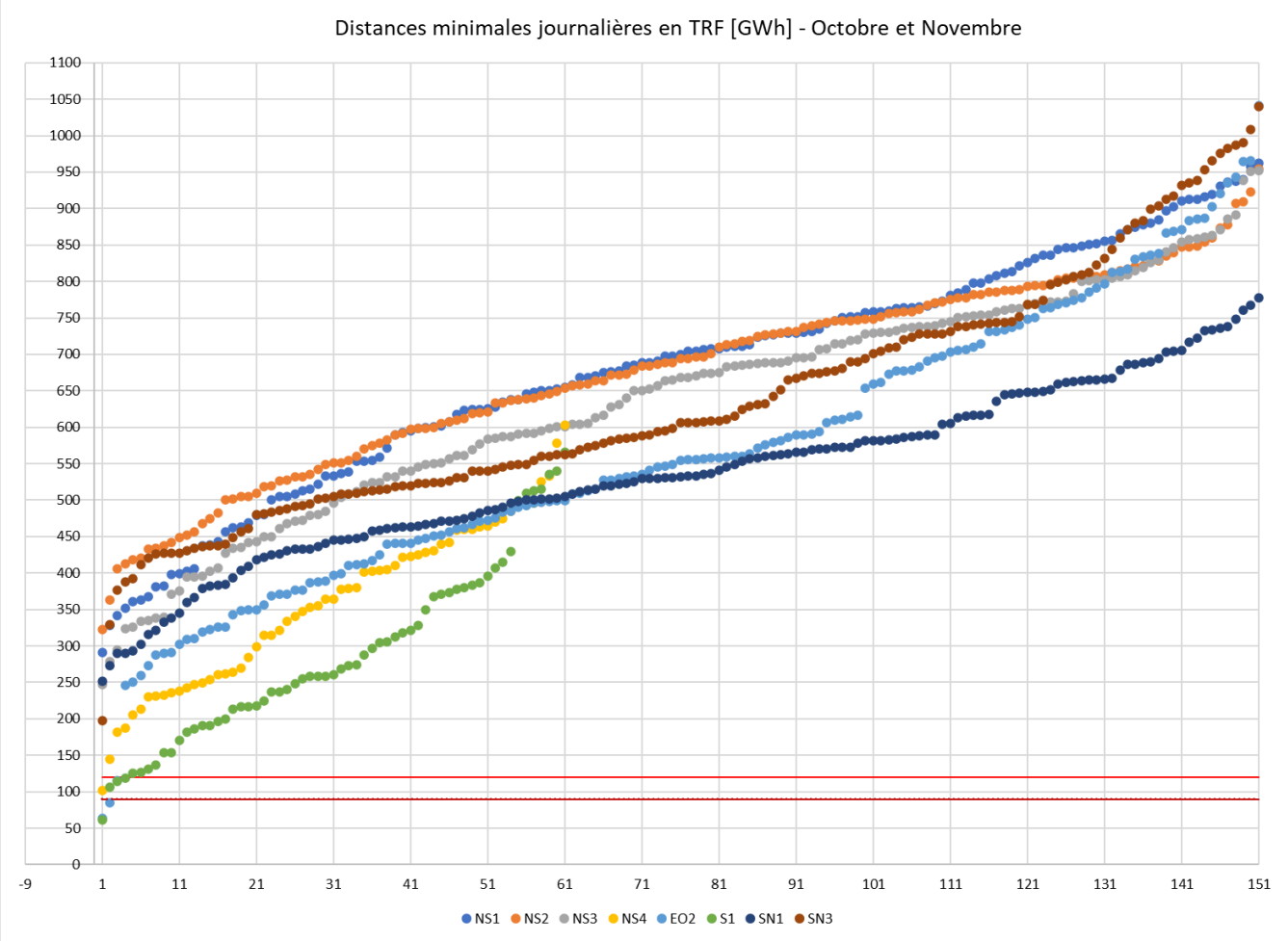
[2] https://opendata.reseaux-energies.fr/explore/dataset/joint-maintenance-schedule-of-french-gas-operators-for-the-period-20202021/information/?disjunctive.calendar_date

- the network's capacity to transmit gas through this limit on this day;

- the flow of gas to be transmitted through this limit on this day.

For example, a value of 90 on a day D in EO2 means that the network could have transmitted an additional 90 GWh/d from the area upstream of the EO2 to the downstream area. On the contrary, a negative value means that the flow exceeds the limit on this day, causing congestion. The distance at the limit thus corresponds to the network's leeway: for example, a limit distance of 100 GWh at the NS4 on day D enables maintenance which reduces capacity by 90 GWh at the NS4 without creating congestion.

The daily limit distances seen since the go-live of the TRF as at 1 November 2018, during the months of October and November (and October alone for NS4 and S1), per limit, are as follows:




*(in dark red the level at 90 GWh/d and in bright red the level at 120 GWh/d)*

There has never been any congestion during the months of October and November since the implementation of the TRF, and therefore no negative value. For the NS1, NS2, NS3, SN1 and SN3 limits, the distance has never dropped below 200 or even 250 GWh/d. For the EO2, apart from the rare occurrences between 60 and 120 GWh/d, the daily limit distance is higher than 250. For S1 and NS4, the minimum distances seen in October were roughly 60 GWh and 100 GWh respectively over a day, but quickly increase above 100 then 150 GWh for S1 and 150 and 200 GWh for NS4.

GRTgaz therefore shows that there is some leeway between the flows that have been seen until presently and the network's capacity in the months of October and November. GRTgaz states that differentiating the thresholds between NS4 and S1 and the other limits would optimise the evolution to not increase congestion considerably. Therefore, GRTgaz proposes to not change the 30 GWh/d threshold for NS4 and S1 in November. Indeed, if the measure to firm interruptible exit capacity in winter at Pirineos were implemented (see proposal in section 2), there would be less leeway with the increase in exit capacity downstream of the network in the north to south direction.

In addition, the threshold proposed by GRTgaz exceeds certain limit distance values: the threshold of 120 GWh/d is almost twice the minimum seen in October at the EO2, and the 90 GWh/d for S1 also exceeds the minimum seen in October at this limit. However, as indicated by the result of the impact assessment on congestion performed by GRTgaz, these occurrences are rare and limit distances would generally remain high for most days.

In addition, GRTgaz's proposal is beneficial only if the increase in the threshold is sufficiently significant to perform substantial maintenance without triggering capacity restriction. For example, increasing the 30 GWh/d threshold to 50 GWh/d at certain limits in October and November would not enable major maintenance to be scheduled without triggering new restrictions a priori.

Terega has been consulted by GRTgaz and is in favour of such a proposition.

**CRE's analysis**

CRE considers that it would be beneficial to take advantage of the capacity offered by the network and limit capacity restrictions without increasing congestion significantly.

The goal is to find a global optimum balance for the TRF, capitalising on configurations where maintenance can be managed without capacity restrictions and without increasing congestion. The cost/benefit analysis presented by GRTgaz supports this.

CRE thus notes that GRTgaz's study on limit distances shows that congestion risks at all the limits in October, and at the limits other than NS4 and S1 in November, appear to be very limited.

CRE however considers that the study must be completed by a scenario in which shippers inject gas late into the filling season to reach full storage capacity as at 1 November, taking into account the reduction factors applicable to storage operators' offer.

At this stage, CRE is in favour of GRTgaz's proposal, provided that the assessment of the scenario of late storage filling confirms the absence of too high a risk of increasing congestion significantly.

**Question 7** Are you in favour of the proposal to increase the "small maintenance" threshold from 30 GWh/d to 90 GWh/d in October for NS4 and S1 and to 120 GWh/d in October and November for the other limits?

# 5. LIST OF QUESTIONS

**Question 1** Do you have any comments concerning the review after two and a half years of operation of the TRF?

**Question 2** Are you in favour of the firming of the 60 GWh/d of interruptible capacity to Spain at the Pirineos PIV for winter 2021-2022?

**Question 3** Are you in favour of setting of the level of firm exit capacity at the Nord-Est PITS at 124 GWh/d?

**Question 4** Are you in favour of maintaining the level of firm exit capacity at the Atlantique PITS at 340 GWh/d?

**Question 5** Are you in favour of the implementation of the netting mechanism at the Pirineos PIV?

**Question 6** Are you in favour of the implementation of the Use it and Buy It (UBI) mechanism in both flow directions at the Virtualys, Obergailbach and Oltingue PIRs, as proposed by GRTgaz?

**Question 7** Are you in favour of the proposal to increase the “small maintenance” threshold from 30 GWh/d to 90 GWh/d in October for NS4 and S1 and to 120 GWh/d in October and November for the other limits?

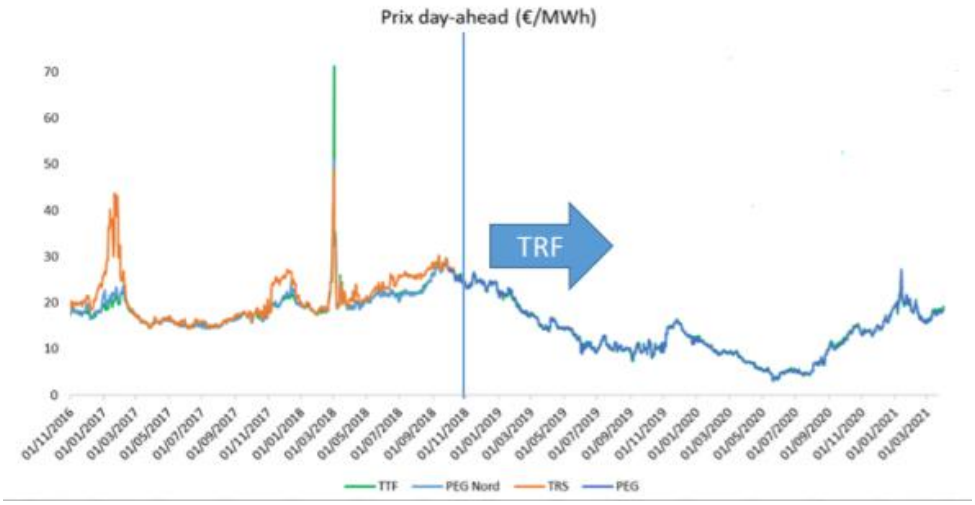
# ANNEX 1 – FEEDBACK AFTER TWO AND A HALF YEARS OF OPERATION OF THE TRF

## The wholesale market

The gas exchange point (PEG), the single virtual gas exchange point in France resulting from the merging of the previous PEG Nord and the Trading Region South (TRS) marketplaces, went live on 1 November 2018. This progress for natural gas exchanges in France led to a more attractive and liquid wholesale market that is better integrated into north-west Europe.

In Q1 2021, the TSOs identified 127 active participants at the PEG, compared to an average 105 active participants at the French marketplaces over the pre-TRF period (2017-2018). The volumes exchanged daily have also increased, with 2,649 GWh exchanged in 2020, compared to 2,565 GWh in 2019. By way of comparison, the average volume exchanged daily over the 2017-2018 period in the PEG Nord and TRS marketplaces was 2,169 GWh and 537 GWh respectively. A large portion of these exchanges was however devoted to domestic transit through the north-south link. The average bid-ask spread at the end of the day for the day-ahead contract, marker of the price difference between supply and demand, increased from an average €0.08 and €0.18/MWh at the PEG Nord and TRS during the "pre-TRF" period, to an average €0.06/MWh at the PEG in 2020. For the month-ahead contract, this difference rose from €0.13 and €0.43/MWh at the PEG Nord and TRS respectively to €0.07/MWh at the PEG since the go-live of the TRF. The launch of the single zone therefore improved the liquidity of the French gas marketplace.

With regard to the integration of this marketplace into north-west Europe as a whole, the price difference compared with the benchmark marketplace in Europe, the Dutch TTF, has narrowed sharply since the last two and half years, with an average spread of -€0.3/MWh. By way of comparison, the average spread was -€1.8/MWh for the TRS and -€0.1/MWh for the PEG Nord over the 2016-2018 period.




Lastly, this market liquidity and depth offered by the TRF, particularly with major underground storage capacity, combined with the advantageous geographical position of France having LNG terminals on the North Sea, Atlantic and Mediterranean fronts, enabled the French marketplace to attract a large portion of the global LNG surplus when LNG returned to Europe as from 2019. Since 1 November 2018, France thus represents, with 461 TWh sent out, 19% of European LNG emissions, second behind Spain (520 TWh, 22%).

After two and a half years of operation, CRE notes that the implementation of the single market zone has benefited the French wholesale market, with a net improvement of liquidity and depth of the PEG which is now fully integrated into the north-west European gas area. The French marketplace has also turned out to be very attractive with regard to the world LNG market. This general improvement ultimately benefits French consumers who enjoy more competitive natural gas prices.

## Gas flows

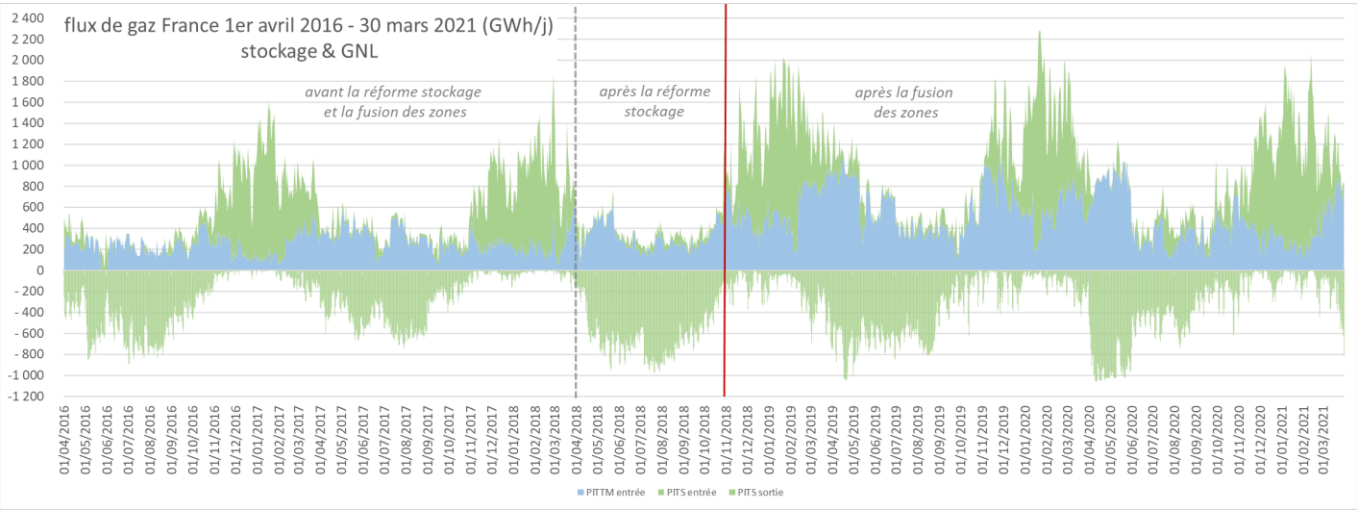
### France's security of supply is guaranteed

In the public consultation of 24 October 2019 on the functioning of the single gas market zone in France, CRE had gathered feedback and considered that: "*feedback for the winter period confirms the robustness of the system*

*implemented for the functioning of the TRF, which, combined with the storage reform, ensure a high level of capacity availability and therefore, security of supply."*

The last two winters confirmed this feedback, reinforced by the reform of third-party access to natural gas storage. Supply during winter 2019-2020 and 2020-2021 was smooth, thanks in particular to full storages and significant send-out from LNG terminals. Moreover, the fill level of storages at the end of winter remains high, which provides for comfortably planning the reconstitution of storage until the following winter. At the end of March 2021, after being used heavily during winter, the volume remaining in storage was 25 TWh, i.e. 19% of total storage capacity.

As a result, monitoring by TSOs of the fill level of storage downstream of each congestion front, as decided by CRE in its deliberations of 26 October 2017 and then 24 July 2018, never gave rise to an alert. The storage reform taking effect after the creation of this mechanism, and in particular the selling of capacity at auctions, ensured that storages were almost full, making it unnecessary to use the preventive measures to respond to a deficit of gas in storage downstream of congestion fronts (flow commitment, etc.). The cyclical increase in LNG supply in Europe since 2018 accompanied this development to the benefit of the French gas market. The growth in LNG imports reveals the attractiveness of the French market. Indeed, while all of Europe was concerned, because of a price drop in Asia, France particularly benefited from this surge of LNG in Europe thanks to the opportunities offered by the TRF.




From a demand point of view, French consumption since the merging of zones was generally stable compared to the previous five years, while the long-term trend is down slightly. The months of January 2019 and 2021 were marked by heavy consumption related to cold spells, with over 70 TWh, a level which had been exceeded only once since 2013 (in January 2017). These episodes demonstrate the resilience of the French gas system in winter.

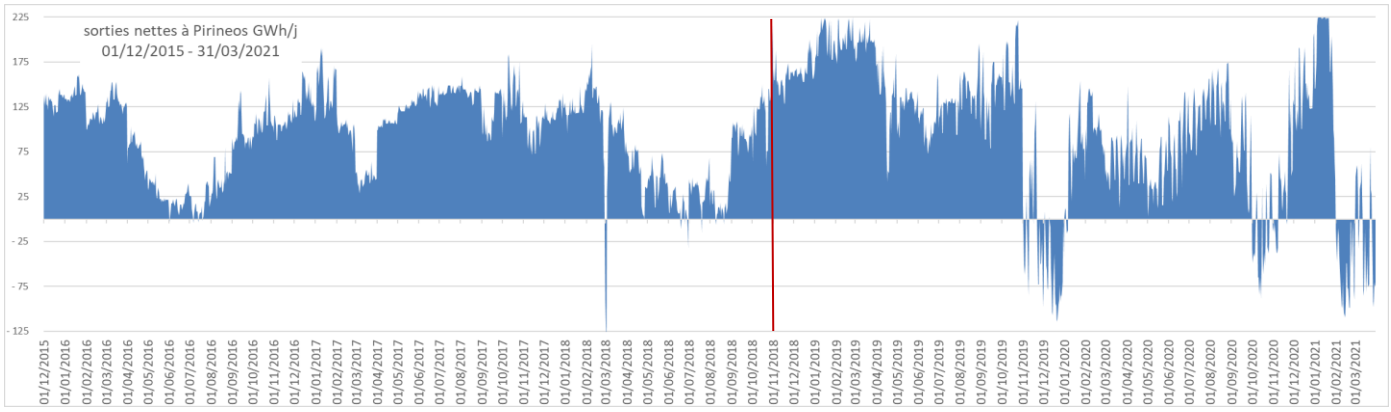
### Interconnections with downstream European markets (Spain, Switzerland, Italy) are used more

The abundance of gas in the French market allowed for a steady flow to Spain through the Pirineos PIV and to Switzerland and Italy via the Oltingue PIR.

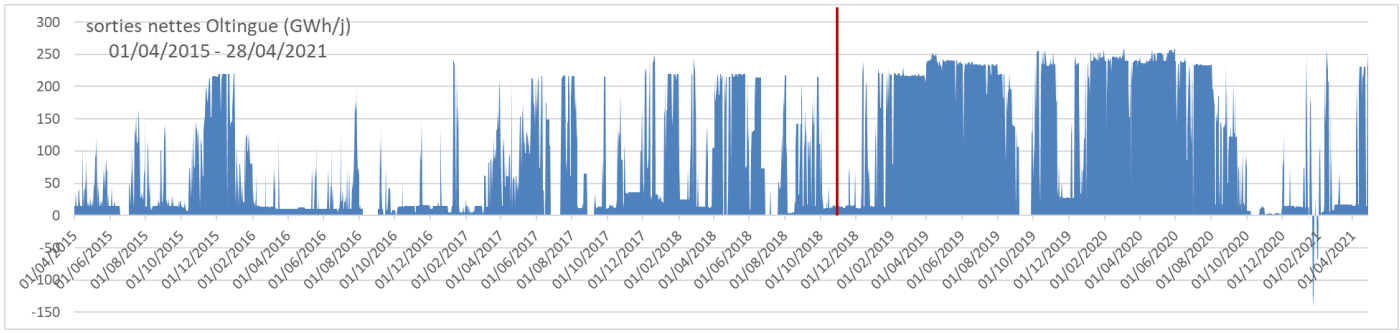
The Pirineos interconnection with Spain was used at levels never reached before the go-live of the TRF in the historic France to Spain direction.

The TSOs operating this interconnection, Enagas on the Spanish side and Teréga on the French side, have proposed since 1 December 2015, an additional 60 GWh/d of capacity in addition to the firm capacity of 165 GWh/d already sold. While this capacity is interruptible on the French side, its availability has increased sharply since the implementation of the TRF, mainly in winter, enabling shippers to optimise their arbitrage between the French and Spanish markets. Before the implementation of the TRF, over the period from 1 December 2015 to 31 October 2018, the daily exit flow from the French network to Spain at Pirineos had exceeded 165 GWh on 2% of days, and had only periodically surpassed 175 GWh/d, reaching a maximum of 194 GWh one day. Since the go-live of the TRF, over the period from 1 November 2018 to 31 March 2021, the daily level of 165 GWh was exceeded on 18% of days, and the interconnection was used at its maximum capacity (225 GWh/d) in winter 2018-2019 and continuously over the period from 5 to 21 January 2021.

Moreover, flow at Pirineos was reversed exceptionally only during a brief and intense cold peak in France, from 28 February to 2 March 2018, with gas from Spain supplying France this time. Since the go-live of the TRF, there have been several episodes of gas flows entering France from Spain: at the start of winter 2019-2020 (November and December), in the inter-gas season in October and early November 2020, then again in winter in February and March 2021.




The Oltingue interconnection had already been used regularly to the maximum of its firm capacity (223 GWh/d until 30 October 2018) before the TRF. Firm capacity was increased to 253 GWh/d as at 1 Novemebr 2018, then to 260 GWh/d as from 1 October 2019. Since the go-live of the TRF, it has been used much more frequently at its maximum or at a level close to its maximum capacity. It therefore served as a relay to supply Switzerland and Italy during long maintenance periods at the Wallbach interconnection, which connects Germany and Switzerland. Its use rate then dropped at the end of the year 2020 following the commissioning of the Trans-Adriatic Pipeline (TAP).




The market zone merging and the gas storage reform in France therefore also benefited markets in the south of Europe located downstream of the TRF on the main gas routes.

## Congestion

In its deliberation of 7 May 2014, CRE adopted an investment plan associating the reinforcement of the Val de Saône pipeline and the Gascogne-Midi project. These new infrastructures were sized to enable the creation of a single zone at an optimised cost. It was therefore projected that in certain configurations of network use, residual congestion could occur, particularly in summer. The storage reform initiated in 2018 guaranteed the sustainability of the system in winter, with the increase in French storage capacity subscriptions ensuring coverage of the winter peak. After two and a half years of operation of the TRF, i.e. three full winters and two full gas summers, CRE has assessed congestion.

### A satisfactory winter situation

Since 1 November 2018, no major congestion was observed during the three gas winters. Since the go-live of the TRF, only six days saw flow patterns triggering a red alert in winter, causing the preventive cut in interruptible capacity. The first level of anticipation of congestion sufficed at each occurrence: no locational spread restricted the capacity subscribed by shippers during the gas winter, a critical supply period in which French consumption reaches its maximum.

This result is even more notable because very high transit flows to Spain were seen on multiple occasions in winter. These high flows downstream of the TRF could have generated north-south congestion in theory, but the system demonstrated its robustness and the complementarity of its infrastructure, thanks in particular to major French storage capacity enabling withdrawals within France itself of a large portion of the gas consumed in winter.

### Residual congestion in summer

Summer is characterised by major underground storage injections, with shippers seeking to fill capacity acquired at annual auctions before the following winter withdrawal period. Once these major injections are combined with high

transit flows to Spain and limited LNG supplies at the Fos and Montoir terminals, north-south congestion appears, where the configuration and magnitude of the lacking volume depend on the flow levels seen at the different network points. The opposite case, i.e. south-north congestion, has never been seen at this stage since the introduction of the single zone.

The different limits observed to date in the TRF and the positioning of the different network points in regard to these limits are recapped in the diagram below:


The distribution of the attainment of the different limits to date is as follows:

| Distribution of congestion per limit | |
|---|---|
| North-south limit (NS2) | 3% |
| East-west limit (EO2) | 16% |
| North-south limit 3 (NS3) | 17% |
| North-south limit 4 (NS4) | 42% |
| South limit 1 (S1) | 22% |

When congestion is particularly severe, the TSOs have no choice but to force a replay of shippers' nominations, through a locational spread call, in order to redefine the flow pattern of the gas day in progress. In particular, the months of April and May, marking the start of the storage injection period, then August, once capacity restrictions for infrastructure maintenance have passed, account for most of the occurrences of congestion. To date, 80 gas days have been subject to a red alert in summer since the go-live of the TRF, 48 of which required the use of locational spread, and 2 the use of shared restrictions.

The record to date of these limit occurrences and the costs generated by the summer congestion management mechanisms is as follows:

| | Summer 2019 | Summer 2020 | Summer 2021 (to 20 May) |
|---|---|---|---|
| Number of days of congestion | 57 | 19 | 4 |
| Number of days of congestion without locational spread calls | 21 | 8 | 3 |
| Number of days of congestion with locational spread calls | 36 | 11 | 1 |
| Frequency of occurrence of days with congestion (%)[3] | 27 % | 9 % | 8 % |
| Volumes of locational spread called for (GWh) | 1,880 GWh | 659 GWh | 17 GWh |
| Average weighted price of the locational spread (€/MWh) | €3.99/MWh | €1.29/MWh | €0.99/MWh |
| **Total cost (€ million)** | **€7.2 million** | **€0.85 million** | **€0.02 million** |
| Number of shared restrictions | 2 | 0 | 0 |

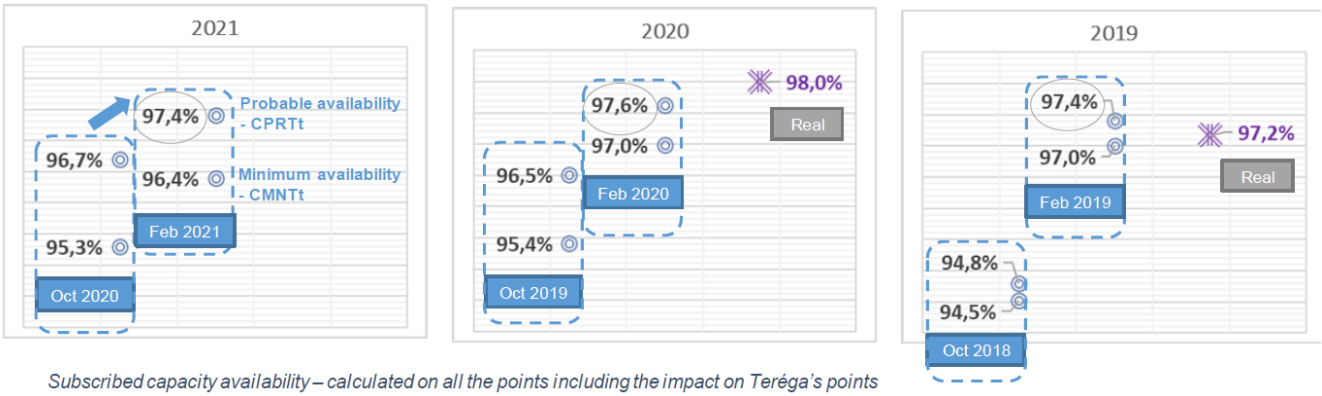
Therefore, while the single zone appears to be particularly robust in winter when high consumption is distributed across the territory, the gas summer and its major storage injections downstream of the network has proven to be a tighter period in terms of congestion. In certain flow configurations, the network can reach its limits to deliver all of the capacity sold to shippers and require replaying nominations through a call for locational spread.

The proper sizing of firm capacity sold at the different network points (PIR, PITS, PITTM) is therefore a decisive element for the smooth operation of the single market zone: high levels of firm capacity provide maximum value for shippers in their activities (export at borders, use of storage, LNG imports, etc.), but taking into account the physical limits of infrastructure is essential for limiting the occurrence of congestion and the costs it generates.

## Maintenance

The availability rate of firm capacity booked by shippers was 97.2% in 2019 (within the range given at the publication of the definitive maintenance programme in February 2019) and 98% in 2020, slightly higher than the range set out in the maintenance programme of February 2020.

For 2021, the forecast availability rate is lower than that of 2020, and close to that of 2019.




*Subscribed capacity availability – calculated on all the points including the impact on Teréga's points*

*Source: TSOs' presentation in the Concertation Gaz meeting of 4 May 2021*

The rates presented above are calculated globally over the calendar year. They do not show the disparity between periods of the year, with maintenance being performed at target periods in certain months of the gas summer.

[3] *For the years 2019 and 2020, these frequencies are calculated over the period from 1 April to 31 October, i.e. 214 days. For the year 2021, they are calculated over the period from 1 April to 20 May, i.e. 50 days.*

Capacity booked is therefore fully available during the gas winter, and to a great extent at the start and end of the gas summer. Maintenance is concentrated in the heart of the gas summer, when it penalises the network less, but with significant restriction levels.

The operating conditions of the single market zone, and in particular the creation of superpoints, make it difficult to make comparisons with the period preceding its implementation. CRE however notes that there has been no deterioration in the restriction rates and that the capacity booked is globally available for shippers. It will continue to closely follow the service quality indicators related to maintenance specified by the ATRT7 tariff.

In addition, since the creation of the TRF, small maintenance not giving rise to the publication of restrictions (forecast impact lower than 30 GWh/d) has been considerable.

There is less small maintenance in winter. There was almost none during the three winters since the existence of the TRF, outside of the month of November 2019. However, there was small maintenance in summers 2019 and 2020 on all of the days where capacity had not been restricted within the framework of the maintenance programme. In 2019, there were restrictions for maintenance on 67 days, mainly in june and julyer, and small maintenance without restriction on 139 days from April to October, over a period of 214 days. In 2020, there restrictions for maintenance on 58 days, mainly in August and September, and small maintenance without restriction on 154 days from April to October, over a period of 214 days. The same trend has been observed since the start of summer 2021. As at 18 May 2021, there had been 12 days of maintenance and 36 days of small works since 1 April.

GRTgaz therefore conducts small maintenance continuously in summer, which has a significant impact on congestion. In August 2020, 77% of quantities subject to a call for locational spread were due to small maintenance (i.e. 508 GWh/660 GWh), and 79% of costs ((€670 k/850 k).

CRE notes the important role of small maintenance in the creation of congestion, at a cost which proved to be acceptable in summer 2020. This small maintenance prevents greater capacity restrictions for shippers. Feedback on small maintenance remains limited to only summer 2020, which means that it is not sufficient to identify a trend. CRE therefore does not intend, at this stage, to revise the global threshold of 30 GWh/d. An adjustment could be made for a part of summer (see GRTgaz's proposal in section 4.3).

Moreover, the TSOs continue to work to optimise both small works and the calculation of limits. On this point, which is based on good coordination between GRTgaz and Teréga, work covers in particular the interdependency between the NS3 and NS4 limits, according to the levels of injection in the Atlantique storage and the capacity made available at the interface between GRTgaz's and Teréga's networks in Castillon. As a consequence of this work, since this year, NS3 and NS4 has been optimised, with the first gains, in terms of congestion avoided, realised in April and may 2021.