TRF
by GRTgaz & Teréga

Towards TRF and PEG on 1st November 2018

Training session
4th of June, 2018

GRTgaz
Connecter les énergies d'avenir

Teréga
LE GAZ, ACCÉLÉRATEUR D'AVENIR

Glossary…

- TRF: Trading Region France
- COS: Capacité Opérationnelle Souscrite (subscribed capacity)
- CTE: Capacité Technique Effective (technical effective capacity for the day)
- COE: Capacité Opérationnelle Effective (operationnal effective capacity for the day, for one shipper)

- TRf: Taux de Restriction du ferme (restriction rate for firm capacities)
- COA garantie: guaranteed effective capacity for the day, in case of within-day restriction
- AFM: Avis de Force Majeure

Before beginning…

A few pictograms will be used throughout this presentation:

Attention points

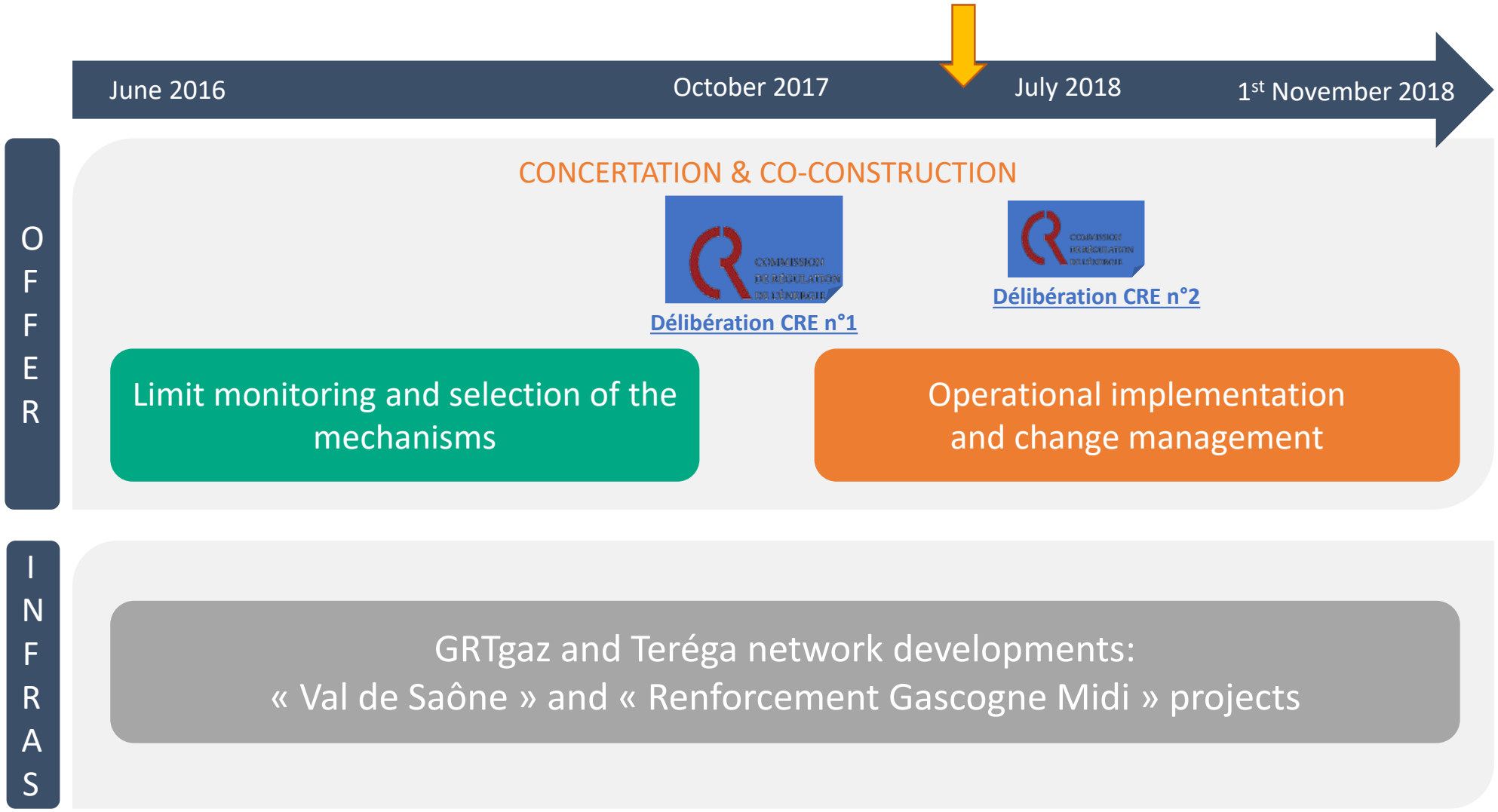
Your turn to act!

New: things changing with TRF/PEG

Agenda

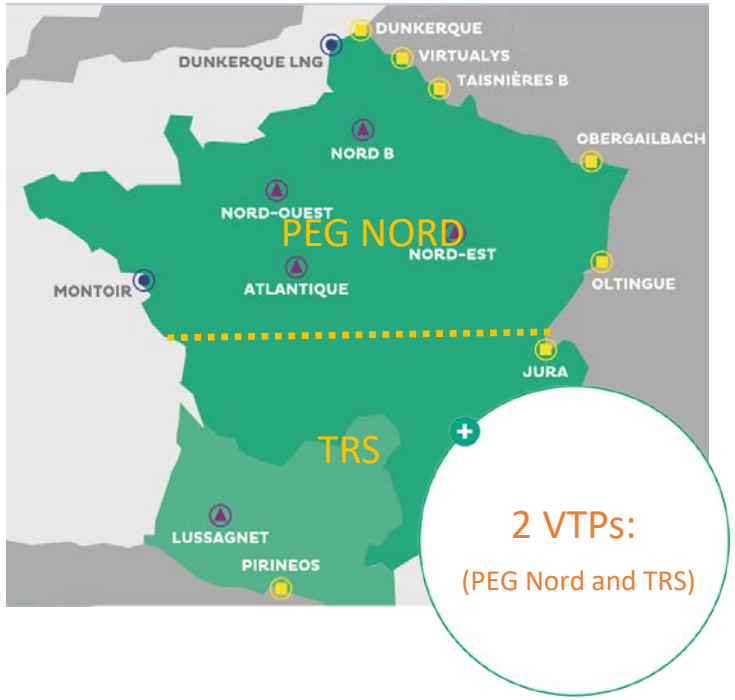
- Considerations and principles of the single market place
- Operation of the TRF and the PEG: what will change?
  - Disappearance of the North-South link, creation of the PEG
- Residual limits management
  - What is a limit? The existing limits and their occurrence. The monitoring system.
  - The mechanisms to manage the limits: swaps, interruption of interruptible capacities, non trading of unsubscribed capacities, locational spread, mutualised restriction.
  - Monitoring of downstream storages
- Focus on superpoints operation
- Maintenance in TRF zone
  - What will change: creation of new superpoints
  - The case of « small impact » maintenance
  - Use of locational spread to minimize maintenance restrictions
- Case study on a gas day

The final leg before the creation of TRF and PEG

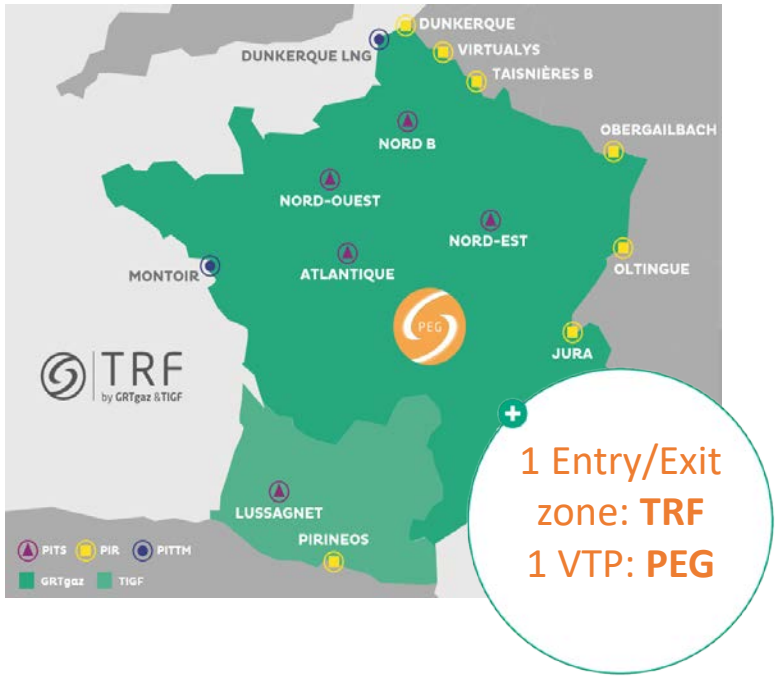


Creation of the TRF and the PEG

Today :



On November 1st, 2018 :

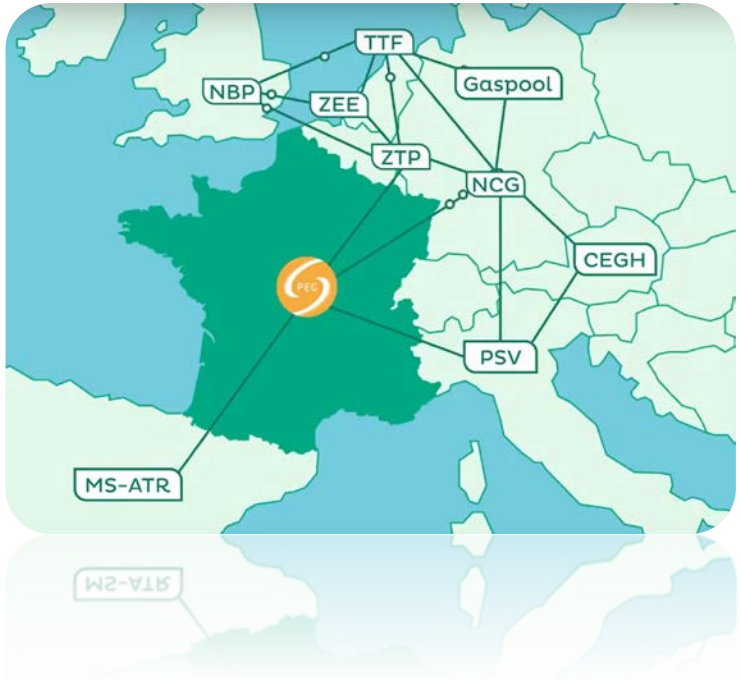


Teréga and GRTgaz have decided to call the single trading area the **TRF,** an acronym standing for Trading Region France.

The TRF will include a virtual gas exchange point, the **PEG**

The expected benefits: a more attractive gas market

A **single gas price** in France (disappearance of “North-South spreads”), for the benefit of all consumers



A French market **more fluid, less volatile, more competitive that is better integrated** into the European market

A **security of supply** of France strengthened by improving access to different gas sources and allowing a wider choice of sourcing patterns

For the benefit of a **competitive** market over the **long term**

A “mixed” solution agreed with the market

- **Well thought out investments** in infrastructures

The new structures increase the availability of the capacities and therefore allow more flows to transit from the North to the South

Val de Saône: €671m in total
Gascogne/Midi: €152m in total

Estimate:
+ 220GWh/d per day
i.e. increase of **42%**
of possible flows on
average

- Complementary **mechanisms co-built with the market**

The new structures will cover a wide range of flow patterns but will not be able to guarantee all situations.
*Some **residual limits of the network are remaining***

CRE deliberations about TRF operation:

The 5 main themes of 26 octobre 2017 CRE délibération :

- Operation of the TRF and the new PEG
- Management of the network limits
- Monitoring system of the network limits
- Management of maintenance in the TRF area
- Coverage of costs

A new CRE deliberation should be published around July 2018, mainly on the following themes:

monitoring of downstream storages and flow commitment,
use of locational spread to reduce the impact of maintenance
ajustments on locational spread operation and on long term interruptible capacities interruption
back-up plan in case of delay

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Operation of the single marketplace : what will change?

Disappearance of the North South link

- End of JTS sales and Market Coupling

Creation of the PEG on November 1st, 2018

- Code: EG001F

New

- Automatic access for customers present on the North PEG or the TRS
- Operational and contractual provisions identical as today
- Only one access to PEG fee instead of two (500 €/month)
- For “only Teréga” customers: the same shipper code for PEG as for TRS

- **Creation of PITS Atlantique** on April 1st, 2019
  (PS000CA, merge of North and South Atlantique)

New

Trading of the N<>S capacities until the single market place

The **North-South and South-North capacities will be put on the market until the merger:**

Product	Product period	Trading period
Annual	1 October 2018 to 30 September 2019	2nd of July 2018
Quarterly	4 quarters of the 1 October 2018 to 30 September 2019	6th of August 2018
Monthly	1 October to 31 October 2018	17th of September 2018
Daily	31st of october 2018 (N>S – Market coupling) JTS: a few days before	30th of October 2018 A few days before

The **North-South and South-North capacities will disappear** when the TRF is created

The **holders of capacities will therefore no longer be charged from that date.**
The shippers will no longer have to nominate to the North-South link.

Operation of the single marketplace : what will change?

Operation of the TRS extended to the TRF in terms of balancing:

- Daily imbalance calculated at the level of the TRF New
- Allocation of imbalances over the GRTgaz and Teréga perimeters, according to the shipper's portfolio each day

Merge of North and South k0 for GRTgaz:

- One single k0 GRTgaz H gas New
- Still one k0 for GRTgaz L gas (B)

Same k0 for Teréga

Other new codes (GRTgaz): New

- Consumption pool: PL001F
- Intra-D metered delivery pool for H gas (« non profilé »): DT001H
- Intra-D metered delivery pool for L gas (« non profilé »): DT001B

Switchover: impact for the shippers (1/2)

- **No impact on access to PEG contracts**
  - Automatic access to “PEG” on 01/11/18 for all shippers having an access to “PEG Nord” or “TRS”

- **But Necessity to modify all “PEG North” and “TRS” positions in “PEG” contracts**

  - All exchanges “PEG North” and “TRS” (Spot, Prompt and Futures) with a physical delivery as of the 01/11/18 (6:00 am), are maintained but must be renamed in “PEG”
  - For the contracts which have a delivery date beginning before the merger and finishing after, the gas quantity will have to be nominated:
    - On the PEG North or TRS (according to the contract) until 31/10/2018
    - And on the PEG as of the 01/11/18

5 working days before the 01.11.18: possible anticipation of nominations on the PEG for a date after the merger

Switchover: impact for the shippers (2/2)

If the shipper does not modify all his positions on “PEG North” and “TRS” for “PEG” on 01/11/18, his whole set of nominations will be rejected by Trans@ction *(the whole concerned nomination file is considered as not valid)*

<u>-> Advice to shippers:</u>

- Monitor more specifically the messages about valid integration of nomination files in Trans@ction during november 2018
- If possible, make a nominations file for the PEG separated from other contractual points nominations files.

Any questions?

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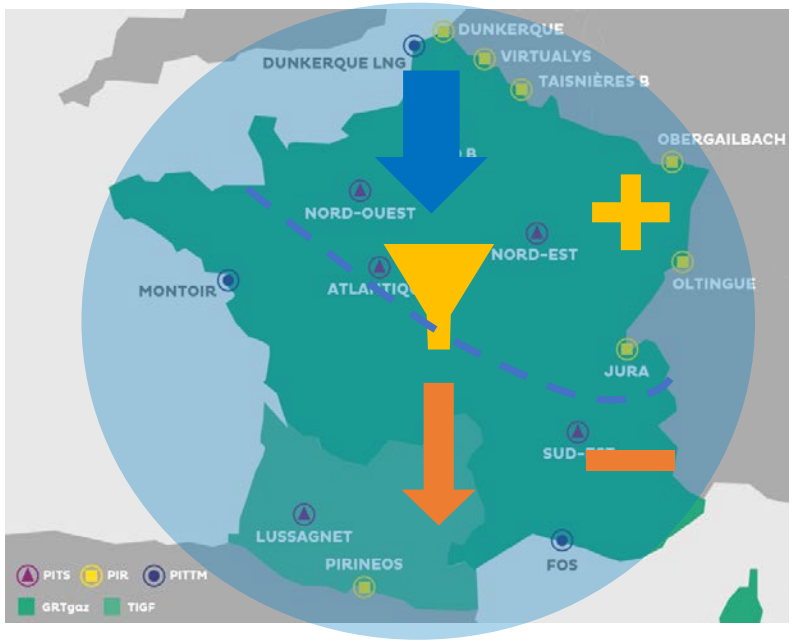
What is a limit?

In this presentation « upstream » and « downstream » mean the position relative to the limit!
(downstream network capacities are not concerned)

Principle of reaching the network limit :

→ There is an **excess of gas upstream**

→ And a **lack of gas downstream**



In this context, upstream entry capacities and downstream exit capacities are at risk

Goal: solving congestion with mechanisms to maximise the use of firm capacities

Some residual limits are remaining

3 possible market situations :

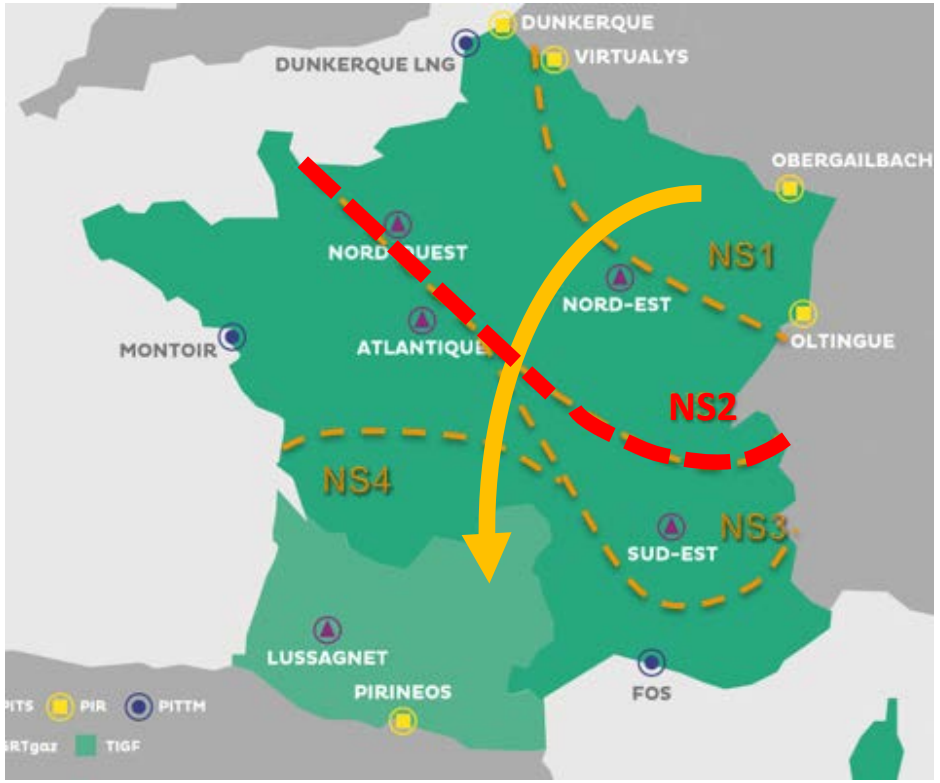
Market situation	North → South	South → North	East → West
Identified limits	4 limits: NS1, NS2, NS3, NS4 	2 limits: SN1, SN3 	2 limits: EO2, S1 
Corresponding scenario	• LNG absent in the South • Strong delivery to Spain **Current situation of expensive LNG**	• LNG very abundant in the Mediterranean only • Strong increase from Spain and strong emission from FOS terminals **Situation possible if LNG becomes cheap**	• Abundance of LNG at FOS and of Russian gas • Absence of LNG in Spain **Situation considered unlikely**

North → South market situation: 4 residual limits

- In collaboration with the market:
  the North to South market situation is considered to be the **most likely** over the next few years

- **4 possible limits** : NS1, NS2, NS3, NS4

- Example for NS2:
  Upstream points = Dunkirk PIR + Dunkirk LNG PITTM + Virtualys PIR + Obergailbach PIR + Oltingue PIR + Northeast PITS + Northwest PITS
  Downstream points = Fos PITTM + Montoir PITTM + Pirineos PITT + Lussagnet PITS + Atlantic PITS + Southeast PITS



Link towards the exhaustive list of of points and superpoints upstream and downstream from the limits:

The occurrence of residual limits is moderate

Occurrence of North > South limits

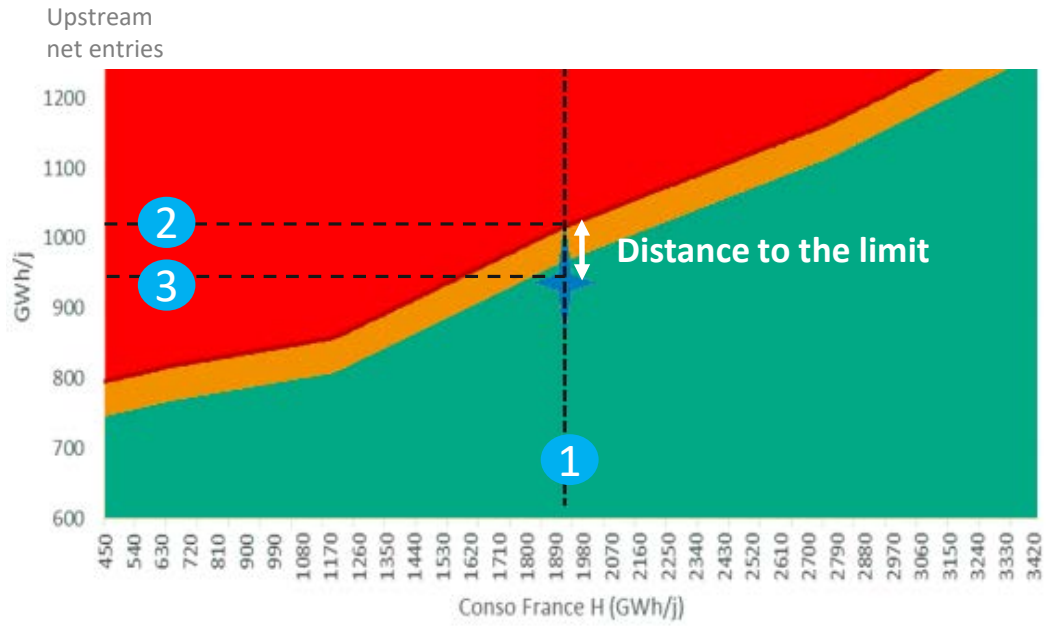
In a "**strained" market situation (reference scenario)**:

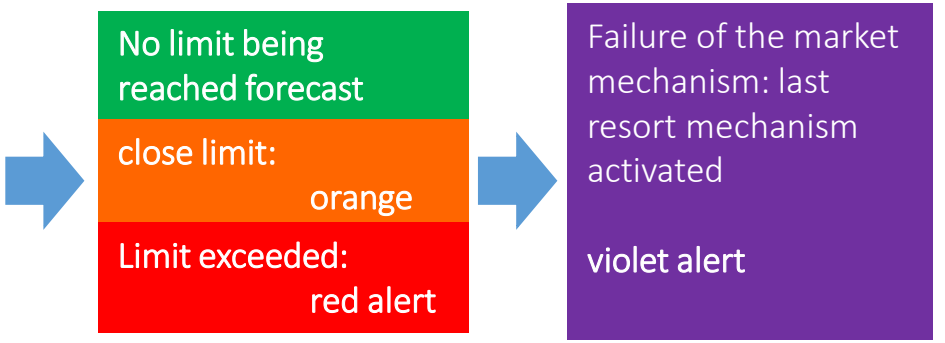
- **The occurrence of limits is moderate** *(10.5% i.e. 38 days per year)*
- Reaching limits occurs more in **spring and summer** *(approximately 80%)*

*In an extreme "crash test" situation, highly unlikely : the occurrence of limits reached of **30.1%** or 110 days per year*

Calculation and display of the limits

Each limit can be expressed **upstream** *(the network cannot accept more gas)* or **downstream** *(the network cannot output more gas)*
Example upstream:





The "distance to the limit" (and then the alert level) depends on 3 parameters:

1. The consumption level for the day *(x-axis),*
2. The level of the limit for this level of demand (dependent on the state of the network, inter-operator swaps, etc.) *(y-axis)*
3. The level of nominations upstream or downstream of the limit *(y-axis)*

Continuous information and alert system on the risk of reaching a limit

On Smart GRTgaz and Datagas

1 year before

Publication of the **maintenance works program**

Season forecast

Seasonal publication of the **Season Outlook,** with information about storage filling

New: Summer Outlook

D-5 – D-2

- Forecast **5 days** in advance about the identified risks
- Update **every day** in line with the weather forecast, of the consumption and emission forecasts of the LNG terminals

Date	J+2	J+3	J+4	J+5
NS1				
NS2				
NS3				
NS4				

Short term

- From D-1: **monitoring at each nomination cycle**
- Account taken of: consumption forecasts and the state of the network (work, tools, inter-operators)
- Establishment of the limits monitoring indicator

	Network conditions	Side of the limit management	Small impact works	interruption of sales and interruptible / UIOLI	Locational Spread	Mutualised Restriction
NS1		Upstream				
NS2		Downstream				
NS3		Downstream		x	x	
NS4		Downstream				

New

The alert system will display all possible limits (N>S, S>N, E>O):

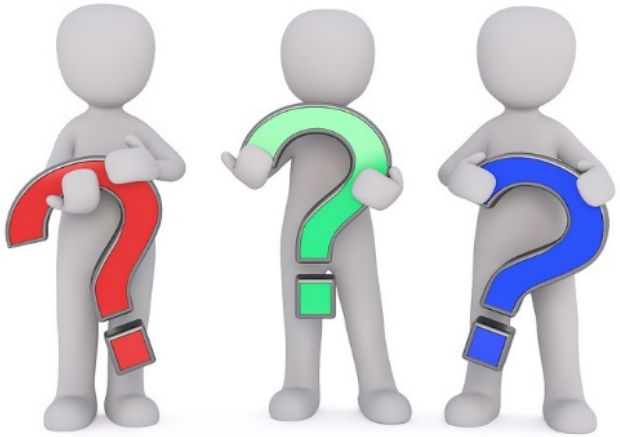
Example:

	Alert level	Side of the limit management	Small impact works	interruption of sales and interruptible / UIOLI	Locational Spread	Mutualised Restriction
NS1		Upstream				
NS2		Downstream	x			
NS3		Downstream		x	x	
NS4		Downstream				
EO2		Downstream				
S1		Downstream				
SN1		Upstream				
SN3		Downstream				

New: possibility of csv and xls export and API request

All the information about the former locational spread results (quantity, prices…) will be provided

Any questions?



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- Case study on a gas day
- Monitoring of downstream storages and flow commitment *(current consultation process)*

Mechanisms selected for management of residual limits

The selected mechanisms are activated on a short-term basis, only if the limit is imminent, following this merit order:

Existing applicable solutions

1. Agreements with adjacent operators (D-1 and D)
2. Interruption of interruptible capacities and UIOLI on D-1 and D
3. Non-trading of unsubscribed capacities on D-1 and D

Mechanisms created

New

4. Locational spread: call to the market (D)

5. Mutualised restriction of nominations: last resort (D)

Once the mechanisms are activated, it is for the rest of the day.

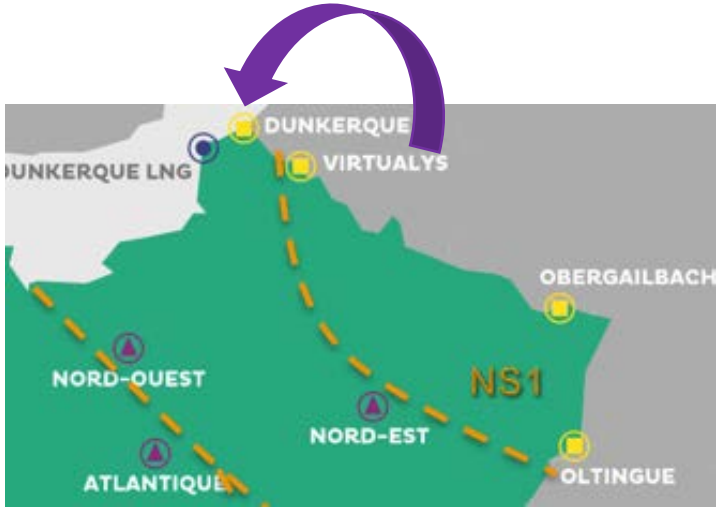
These mechanisms only concern the main network's capacities (PIR, PITS, PITTM) (downstream network capacities for customers are not concerned)

Agreements with adjacent operators (swaps)

The swaps offer the possibility of optimise the allocation of the flows between different physical points between adjacent operators

Made on the basis of the reasonable efforts of each party and interruptible during the day

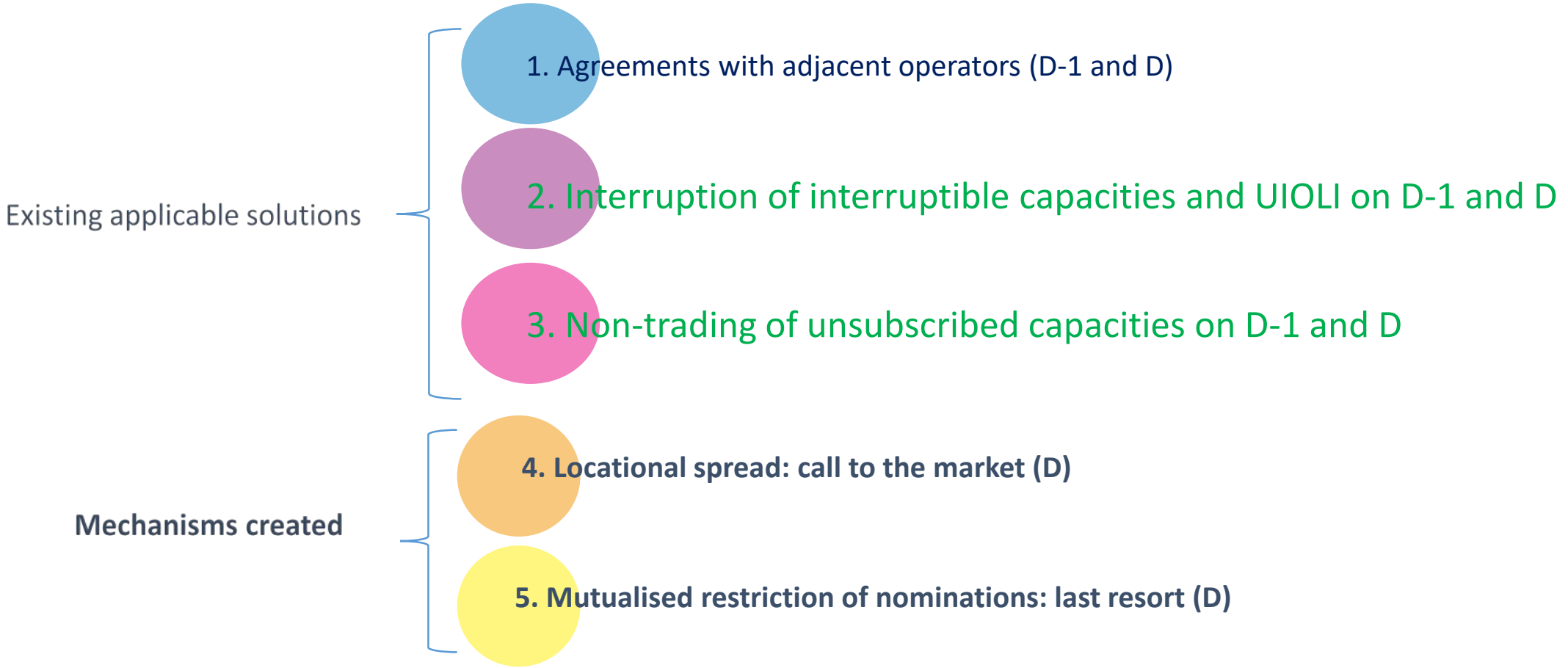
Response, at least in part, for dealing with a limit



Example with NS1:

The swap with Gassco and Fluxys allows to flow the gas physically through PIR Dunkerque instead of Virtualys

Mechanisms selected for management of residual limits



Interruption of interruptible capacities, UIOLI and capacity trading (1/2)

In the event a limit is reached (red alert), the following mechanisms are triggered in priority for the rest of the gas day:

- Interruptible capacities are interrupted (including UIOLI)
- The trading of unsubscribed capacities is stopped (and UIOLI is not opened…)

New

These mechanisms only apply on PIR that would be restricted in case of mutualised restriction (upstream entries or downstream exits).

Interruptible capacities for customers (secondary network) are not concerned

Interruption of interruptible capacities, UIOLI and capacity trading (2/2)

Concerned points according to the side of the limit management (= side of mutualised restriction application):

	Upstream (entries)	Downstream (exits)
NS1	Virtualys, Obergailbach, Oltingue	-
NS2	Dunkirk, Virtualys, Obergailbach, Oltingue	Pirineos
NS3		
NS4		

Specific case about "long term" interruptible capacities

« Long term » interruptible capacities are not made firm as of the 1st cycle (2-4 pm D-1). (in case of orange or red alert; to be validated in the on-going consultation)

Interruptible capacities are interrupted « within day » (in case of red alert)

Mechanisms selected for management of residual limits

The locational spread's history…

The locational spread arose from the works with shippers during the construction of TRF and PEG, within the Concertation Gaz working group.

This mechanism was successfully used to solve the Southeast congestion, from this winter 2017/2018.

On next November 1st, the modalities of the locational spread will be adapted to manage the residual limits of the single zone.

Locational spread main principles

Main mechanism for management of the residual limits

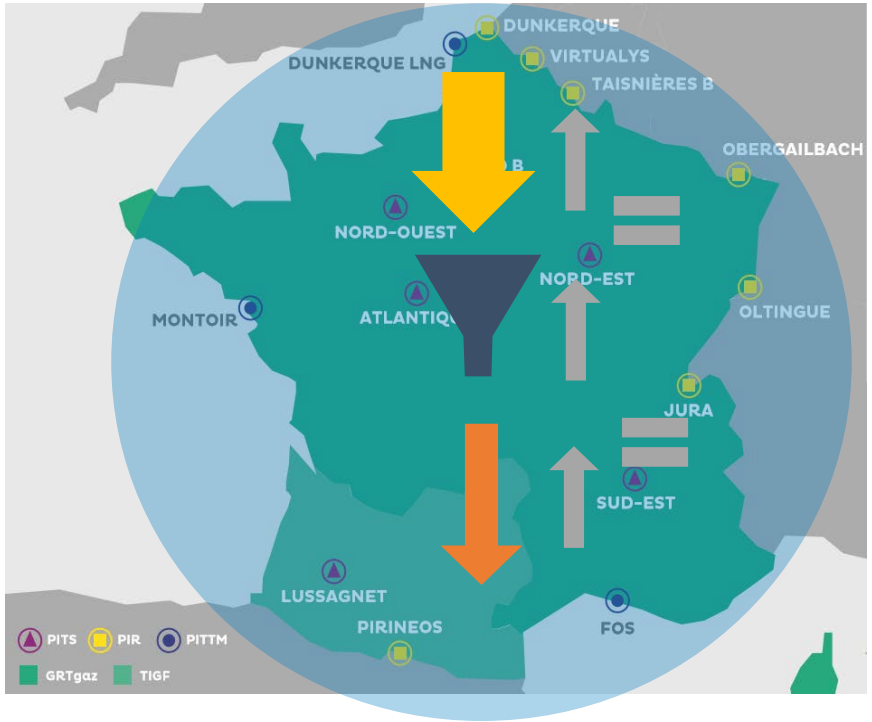
Optimised cost : activated within-day only when a proven limit is reached and only for the quantity necessary to resolve the limit

Market product, relying on the gas stock exchange with a twofold within-day locational product:

→ **Purchase** by TSOs downstream of the limit

→ **And simultaneous sale** of the same quantity by the TSOs upstream of the limit

> This amounts for the TSOs to buying a “spread”



A flexible market based mechanism open to all shippers

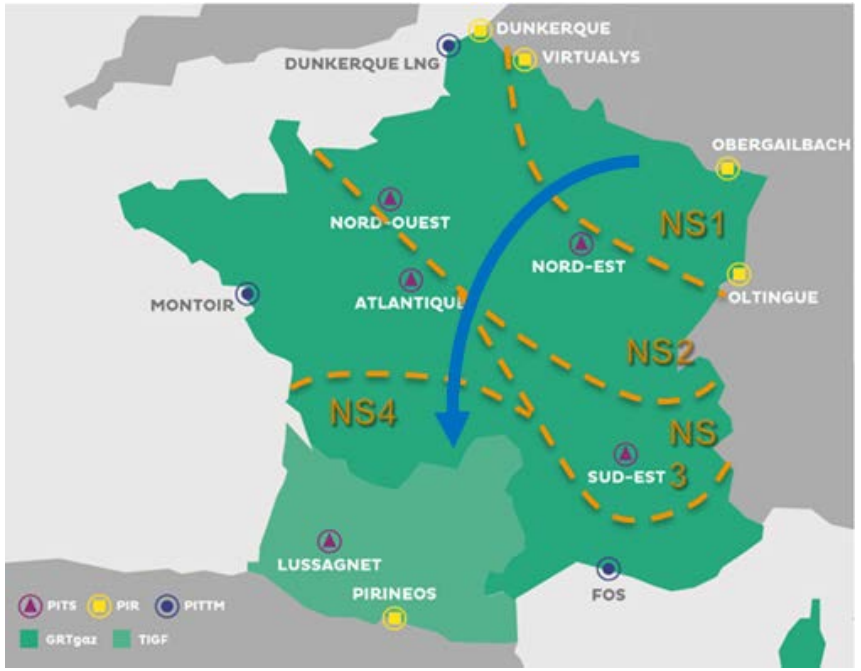
A flexible mechanism : via a call for tenders for voluntary shippers, for the purchase, sale, or both, for the quantities that they choose

Neutral impact of the locational spread **on the balancing** of the selected shipper (the PEG nomination balances the physical nomination)

Prerequisite at least : accreditation with Powernext to access on CMP platform

Which points can participate in locational spread?

- All points can participate (PIR, PITS, PITTM):
  - Upstream points: reducing entries or increasing exits
  - Downstream points: increasing entries or reducing exits



- The TSOs may exclude some points, if they are congested and that the UIOLI is open (then the locational spread would be inefficient)

- *Extension to CCGTs is being studied*

- The official list is in the mail sent to the shippers at H+10min

Operations on November 1st 2018:

TSOs

Shippers

Red Alert

Notification (email)
T ∈ [H+5min ; H+10min]

- Powernext products
- Requested volume (MWh/d) ;
- Contractual Point(s) requested by TSOs

Offers selection
T ∈ [H+30min ; H+40min]
(based on price criteria)

Confirmation of Shippers ' Nominations

Control
of Shippers ' Obligations

H

H+30min

H+1

H+2

H+3

End Of Day

Offers Submission
Offers to submit on the Powernext Congestion Plateform

Nominations of the committed quantity

- Nomination on PEG against ECC (counterparty GFBRSP)
- Nominations on the chosen point (pair of usual shippers' code)

Notification of the locational point
to TSO (email)

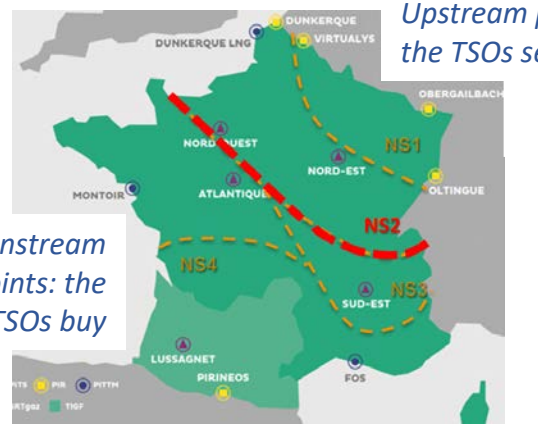
Before the end of the day

No re-nomination
on the chosen point in opposite direction

Until the end of the day

Operation on November 1st 2018: an exemple

- Example of a consultation for NS2 limit:



Upstream points: the TSOs sell

Downstream points: the TSOs buy

TSOs

Red Alert

Smart GRTgaz

Notification
9:06
- *Buying of 15 000 MWh/d on contractual points dowstream NS2*
- *Selling of 15 000 MWh/d on contractual points upstream NS2*

Offers selection
9:34 ∈ [9:30;9:40]

Shipper: +3 000 MWh at 20€/MWh

pegas

Programmation
12:05

TRANS@ctions

Control
of Shippers ' Obligations

TRANS@ctions
OK

9:00 | 9:30 | 10:00 | 11:00 | 12:00 | End Of Day

Shippers

Offers Submission
9:23 (before 9:30)
Shipper : +4 000 MWh at 20€/MWh

pegas

Nominations of the committed quantity
9:52 (before 10:00)
- *Shipper nominates:*

1/ Buys 3 000 MWh on PEG against GFBRSP
2/ + 3 000MWh injection on PITS Nord Est (code GFSHIP)
→ *Exit nomination increases to +8 500MWh/d*

TRANS@ctions

Notification of the locational point
20:00 (before EOD)
Shipper sends an email to notify the delivery point to TSO : +3 000 MWh injection at 20€/MWh on PITS Nord-Est

No re-nomination
on the chosen point in opposite direction
Until the end of the day
Shipper can't decrease his nomination (injection – withdrawal) on PITS Nord-Est after GRTgaz' needs notification email. However, Shipper can still increase his nomination

TRANS@ctions

SHIPPER (contract's code: GFSHIP) – Initial nomination at PITS Nord-Est = +5 500 MWh/d (injection)

Locational Spread's evolutions on November 1st 2018

TRF by GRTgaz & Terega

For a locational spread launched at the hour H : changes in green

New

Maybe later:
possibility to post offers:
- in MWh/h
- day-ahead

		Winter 2017/2018	On November 1st 2018
Consultation	Type of notification	Mail	**Mail (new adress)**
	Time	H+5 to 10min ⚠	**H+ 5 to 10 min**
	Window of intervention	9am, 1pm and 4pm	**Every cycles in WD Preference between 9am and 6pm (hour of consultation sending)**
Offer / Intervention	Maturity of offers	Only WD	**WD**
	Maturity of Intervention	Only WD	**WD**
	Unity	MWh/d	**MWh/d**
	Term of submission of tenders	> 30 min	**≥ 20 min : before H+30** ⚠
	Type of intervention	Manual	**Automatic (robot)**
	Time of renomination	> 1h	**≈ 20 min** ⚠
	Notification time of the locational point (by e-mail)	30 mn	**Before the end of the gas day**
Reference and control	Reference value	Nomination (H) and Programmation (H+2)	**Programmation (H+2)**
	Control value	Programmation from H+4	**Programmation from H+3**
	Control typology	By Point	**By point**
	Penalties		**Change in the formula (*ongoing CRE consultation*)**

Any questions?

Mechanisms selected for management of residual limits

Existing applicable solutions

1. Agreements with adjacent operators (D-1 and D)
2. Interruption of interruptible capacities and UIOLI on D-1 and D
3. Non-trading of unsubscribed capacities on D-1 and D

Mechanisms created

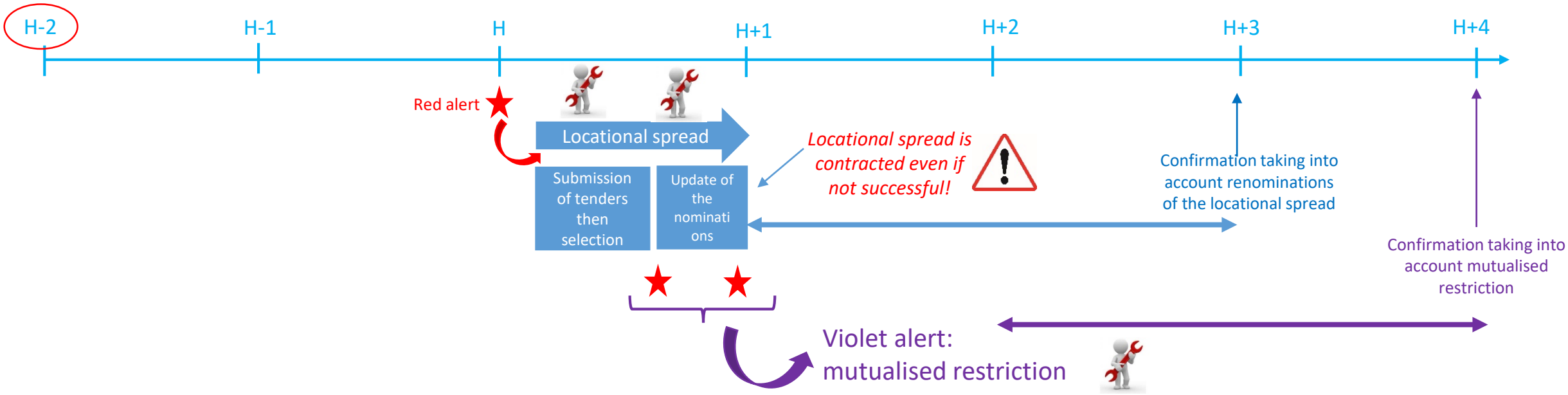
4. Locational spread: call to the market (D)

5. Mutualised restriction of nominations: last resort (D)

New

Mutualised restriction is activated only if the locational spread is not sufficient

Sequence of locational spread and then mutualised restriction, for nominations made before hour H-2:



The mutualised restriction is triggered for the cycle H+2-H+4 if:

- The locational spread launched at H is not successful
- AND the alert level is still red at H+1

No other locational spread is launched if the former one is not successful!

Mutualised restriction principles

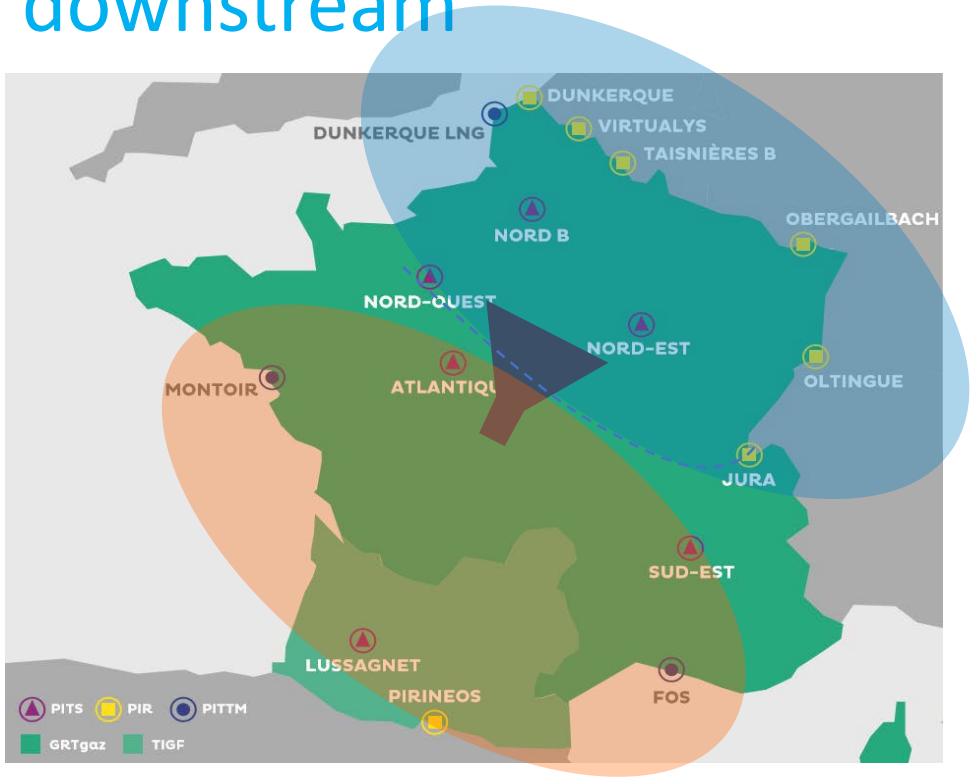
As a last resort, within the day, should the call to the market via the locational spread not be effective

Partial interruption of firm capacities :

- pro rata to the subscribed capacities
- mutualised on a group of points called **superpoint,** in order to give flexibility to the shippers

No financial compensation in the event of use of this mechanism

Mutualised restriction is applied either upstream or downstream



Either the entry flow is reduced by restricting the entries upstream of the limit

Or the exit flow is reduced by restricting exits downstream of the limit

→ The shipper is then imbalanced and must re-balance in the next cycle on the other side of the limit

The choice was made to interrupt the capacities **downstream** of the limit as often as possible to minimise the potential impact on the PEG price (*CRE deliberation, oct17*)

Mutualised restriction applies downstream preferentially

Above some consumption levels, downstream restrictions are not sufficient to solve certain limits. In these particular cases, mutualised restriction shall apply upstream.

As an illustration, side of application of mutualised restriction according to the limits and to the consumption levels:

France consumption (TWh/d)	Summer to mild winter (consumption < 1.75 TWh/d)	Average to cold winter (consumption between 1.750 et 2.8 TWh/d)	Very cold winter (consumption > 2.8 TWh/d)
NS1	Upstream		
NS2 and NS3	Downstream	Upstream	
NS4	Downstream		Upstream

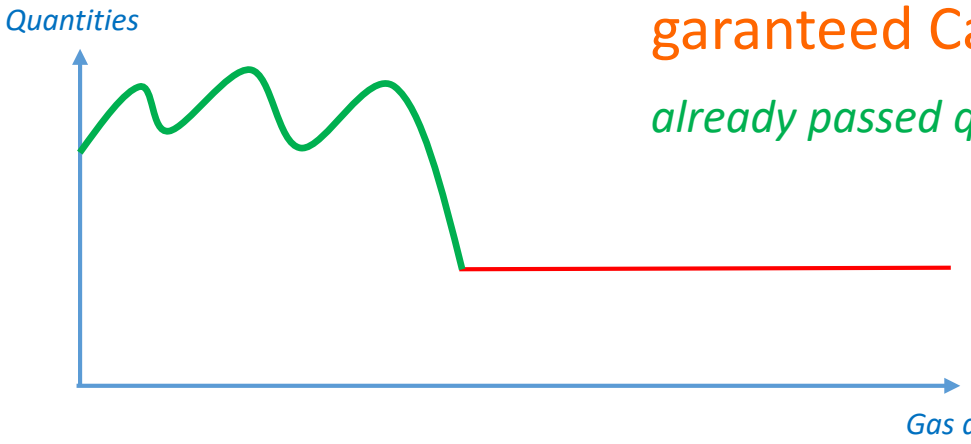
Maintenance period (summer and inter-season)

Specificities of a within-day restriction

- In case of a within-day restriction, the daily restriction rate (TRf) that is displayed should not be used to calculate your rights (like for « AFM »)
  - *This TRf is an average for the day, it does not take into account the already passed quantities before the restriction*

~~TRf~~ ~~COE~~

- To know your rights for the day:



garanteed Capacity* =

already passed quantities + COE on coming hours

(*): *For GRTgaz: « COA garantie »*

For Teréga: « capacité opérationnelle intra-journalière »

Information to customers about the mechanisms' activation

1. Agreements with adjacent operators (D-1 and D)
2. Interruption of interruptible capacities and UIOLI on D-1 and D
3. Non-trading of unsubscribed capacities on D-1 and D

→ Vigilance, UMM(*), T@ and Tetra

4. **Locational spread: call to the market (D)**

→ Vigilance, E-mail

5. **Mutualised restriction of nominations: last resort (D)**

→ Vigilance, UMM (*), T@ and Tetra, E-mail

(*) UMM: Urgent Market Messages, in accordance with European REMIT regulation

Reminder: triggered mechanisms according to the time and the alert level:

Gas day	D-1					D
cycle	2:00 PM	2 pm cycle	4 pm cycle	5 pm cycle	from 6 pm	
Green	*Pas d'action*					
Orange	interruption of long term interruptible capacities (through CTE - effective capacity)	*Pas d'action*				
Red		non tradind of unsubscribed interruptible capacities at 5.30 pm (*)	total interruption of nominated interruptible capacities			
		non trading of unsubscribed firm daily capacities at 4.30 pm (*)	non trading of unsubscribed firm within-day capacities from 7 pm (*)			
		Interruption of UIOLI (*)				
		No action				Locational spread call for orders, then offer selection
Violet		*No action*				Mutualised restriction

(*) On the PIR / direction restricted by mutualised restriction (upstream entries or downstream exits)

in green: "long term" interruptible capacities — in blue: interruptible in within-day capacities

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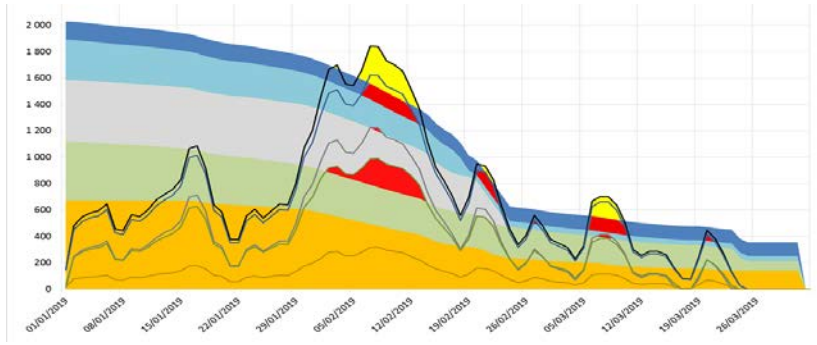
- Case study on a gas day

Monitoring of storages filling downstream of the limits

Ongoing CRE consultation

- These mechanisms work only if there is enough gas downstream of the limits, mainly in storages.
  - there might be a risk at the end of the winter (in extreme situations, considered to be exceptionnal)

- -> **the filling level of downstream storages will be monitored:**



- If a problem is detected (*very low probability*):
  - a flow commitment could be contractualized to ensure gas entry flows downstream
  - This is a complementary « *reserve* » mechanism

Any questions?

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Superpoints are extended to TRF zone

The superpoints have been used to manage maintenance in Teréga since spring 2015 (1 superpoint) and in GRTgaz since summer 2017 with Optiflow offer (4 superpoints on northern points)

They provide a maximum amount of flexibility to shippers, by mutualising the restrictions on groups of points (called superpoints), instead of restricting the points individually. Thus, each shipper can use freely his available capacity on the superpoint.

The superpoints will be used in the TRF zone:

- For limits' management (mutualised restriction, as of the 1st nov 2018)
- For maintenance management (as of 1st apr 2019)

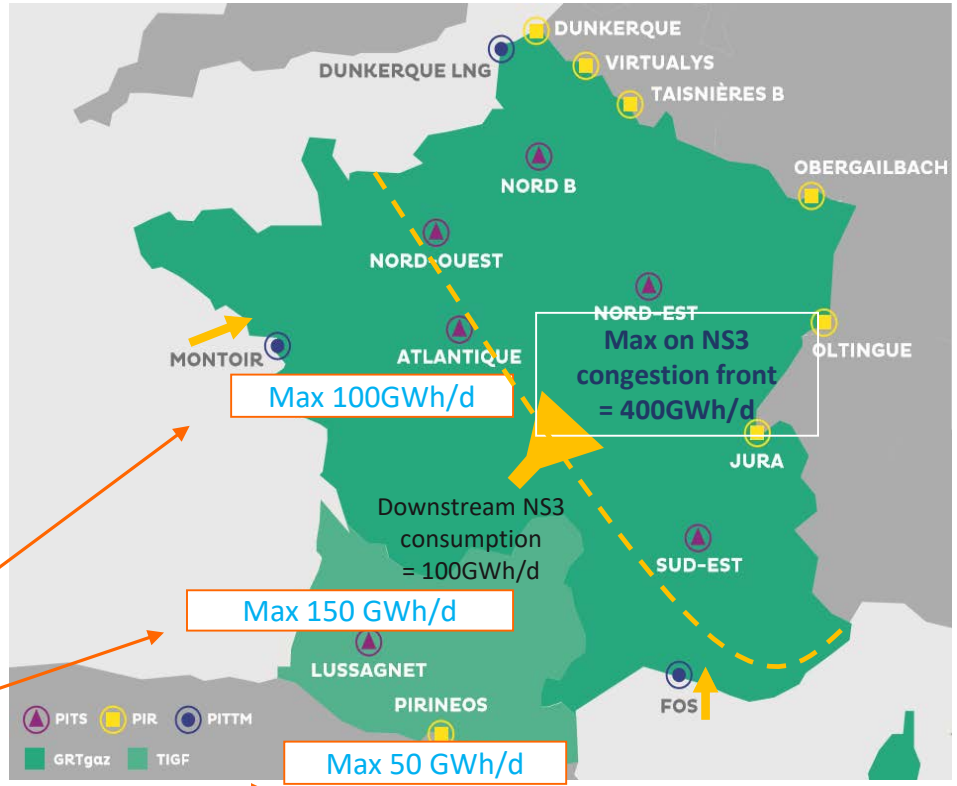
Example: use of a superpoint to manage a downstream limit

Example : restriction on NS3 limit downstream (without superpoint)

→ Restricted points: injections in Atlantic and Lussagnet PITS + Pirineos exit.

→ The physical real restriction on exits is calculated as « max on NS3 congestion front » - downstream consumption
= 400 – 100 = 300 GWh/d

But without the superpoints: the restriction is applied on each point



Example: use of a superpoint to manage a downstream limit

Example : mutualised restriction on NS3 limit downstream (with the superpoints)

- The superpoints are applied by shipper; his entries are bonus.
- All unused capacity is made available to the rest of the marked throught a UIOLI on the superpoint perimeter

With the superpoints:

The shipper allocates at his convenience his 300 GWh/d

Ex: 50 Fos (entry),
100 Piri (exit), 250 Atl (exit)

Updates about TSO's superpoints

- The superpoints will be operated in the same way as now (for each TSO)
- SP restrictions will be used either to restrict entries (upstream SP) or to restrict exits (downstream SP)

New

- For GRTgaz, new points will be included in superpoints as of 1st of november 2018 :
  - PITS (single side nomination is maintained)
  - Fos and Montoir PITTM when they are considered as bonus

New

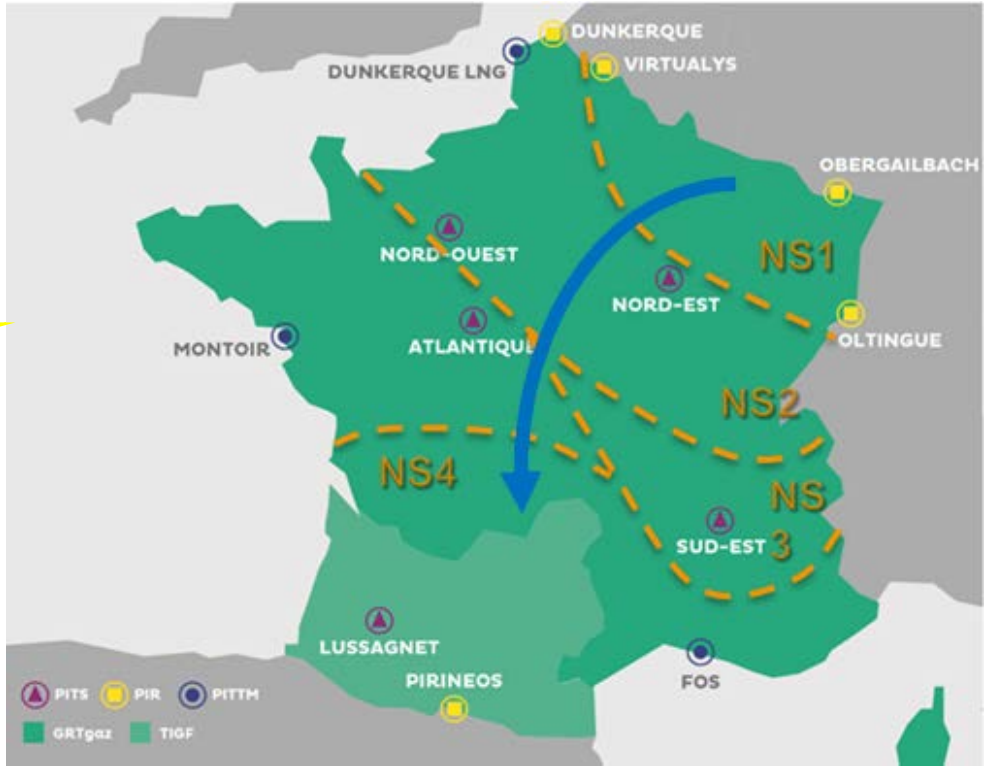
- For further information about superpoints:
  - Link towards GRTgaz documentation (Optiflow offer)
  - Link towards Teréga documentation

The main superpoints to manage residual limits

- Each limit defines 2 superpoints (upstream and downstream)
- In the N>S situation, the following superpoints could be used, depending on the consumption level:

New

Limit	Upstream superpoint (entries restricted)	Downstream superpoint (exits restricted)
NS1	SPNS1U	-
NS2	SPNS2U *(cold and very cold winter)*	SPNS2D *(summer and warm winter)*
NS3	SPNS3U *(cold and very winter)*	SPNS3D *(summer and warm winter)*
NS4	SPNS4U *(only for very cold winter)*	SPNS4D *(except for very cold winter)*



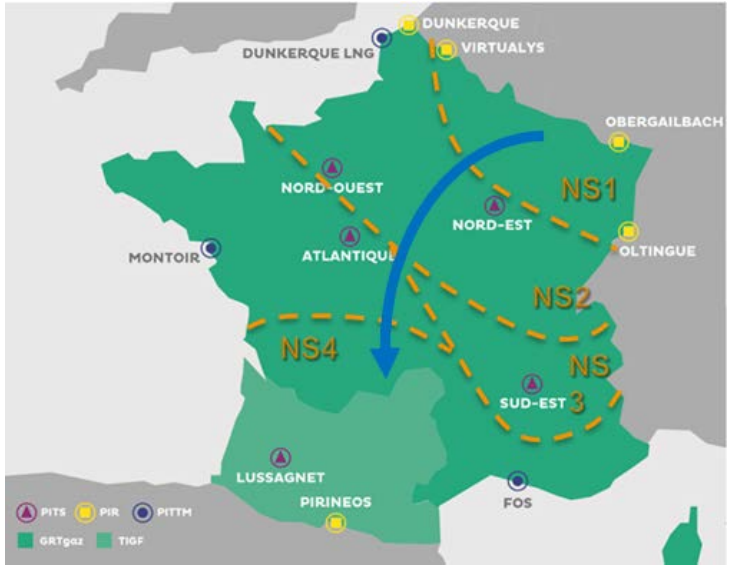
There are 3 Common superpoints GRTgaz / Terega

Link towards the list of all the points of the superpoints

Management of GRTgaz and Teréga common superpoints

The 3 common superpoints (NS2 downstream, NS3 downstream, NS4 downstream) contain restricted points in both TSOs:

- **Pirineos IP and Lussagnet PITS** for Terega,
- **Atlantique and South-East PITS** for GRTgaz. (**Fos and Montoir PITTM** are bonus.)



GRTgaz and Teréga have found a solution to co-manage these superpoints, respecting the following criteria:

- The **flexibility** for the shippers (ex: if a shipper doesn't use his capacity on Atlantique, he can use it on Lussagnet).
- Preservation of each TSO's superpoint system (which work now in the **information systems**)
- **Each TSO makes the confirmation for its point** (his responsibility), and can entirely explain it to the shippers

Management of GRTgaz and Teréga common superpoints: the solution

NS2 downstream et NS3 downstream:

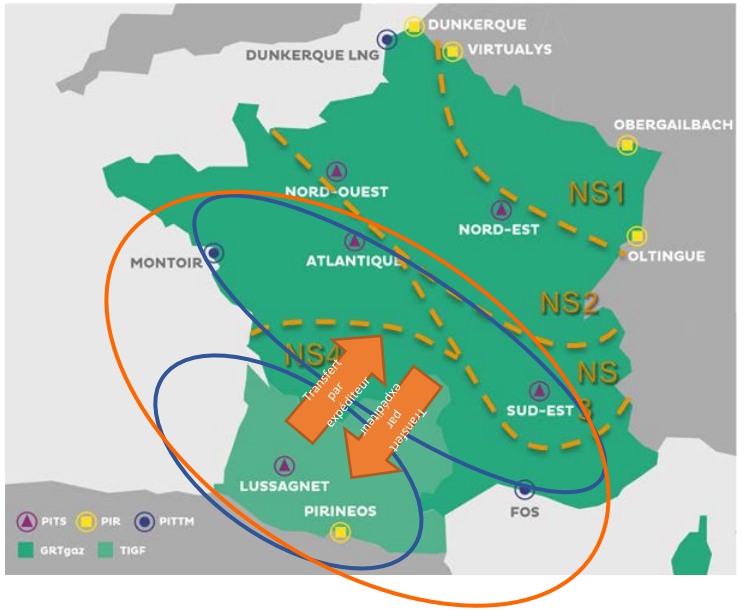
There are restricted points on both sides. These superpoints are divided in 2 sub-superpoints (SSP) with the same restriction rate.

(1 Teréga and 1 GRTgaz, which work as today).

These 2 SSP « communicate » with the 2 following tools:

- COE transfer (per shipper) from one TSO to the other (nominated by the shipper) (it is not a transfer of subscribed capacity but of operational capacity, the right to use it)
- UIOLI mutualisation between GRTgaz and Teréga (transparent for the shippers)

Optiflow for GRTgaz



« Vases communicants » for Teréga

NS4 downstream:

There is no restricted point for GRTgaz.

Fos « bonus » is automatically transfered from GRTgaz to Teréga, by shipper (transparent for the shipper)

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Management of maintenance in TRF zone

- October 2017 CRE deliberation:

What happens to **works impacting now N>S link**?
-> new maintenance superpoints

Small impact maintenance:
Managed like limits

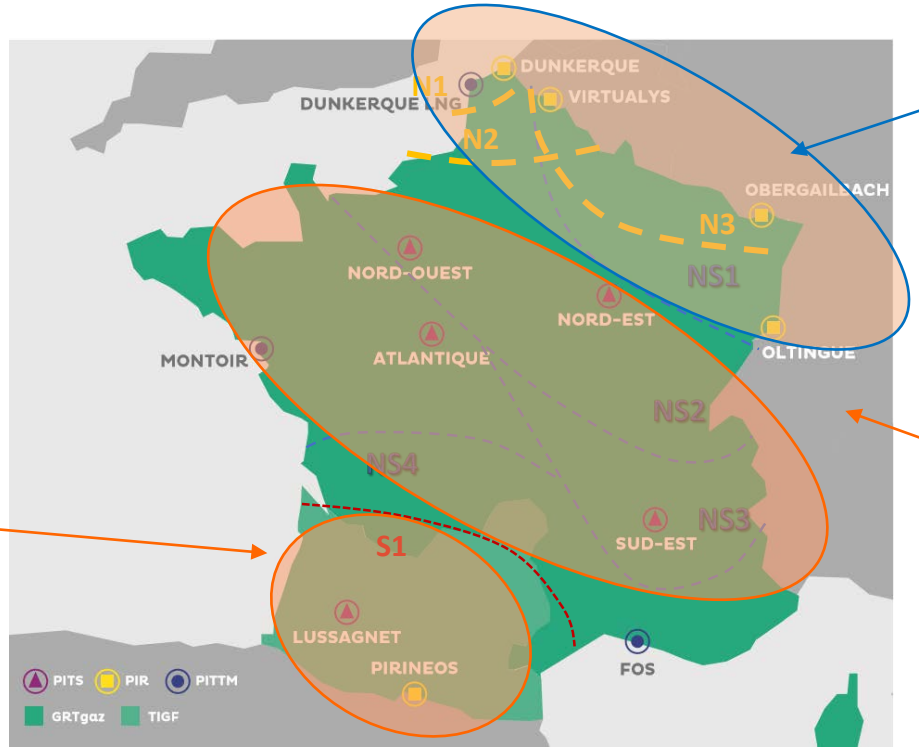
- *July 2018 CRE deliberation (on-going consultation):*

Use of locational spread *to minimize maintenance restrictions*

Management of maintenance in TRF zone

- What happens to maintenances impacting the North>South link?

Maintenance in the North impacts GRTgaz superpoints (upstream; like now, with Optiflow)



Maintenance in the South impacts Teréga superpoint (downstream, like now)

Maitenance impacting today the North>South link will be passed on the superpoints downstream of the maintenance area, when it is possible

New

- -> in the North->South marked situation : **new superpoints** are created

Management of maintenance in TRF zone

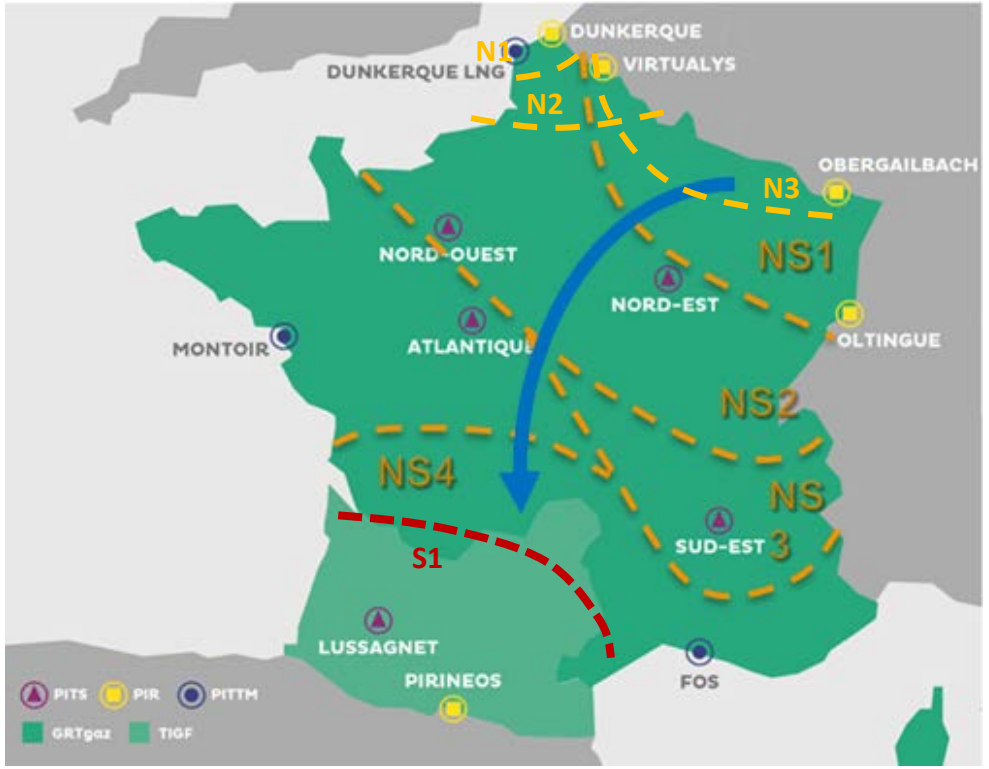
- What happens to maintenances impacting the North>South link?

- In the North to South configuration: creation of new superpoints:
  - NS2 downstream and NS2 upstream
  - NS3 downstream and NS3 upstream
  - NS4 downstream

New

These superpoints are the same as the superpoints to manage the limits.

NS2, NS3 and NS4 downstream are co-managed by GRTgaz and Teréga in the same way as for the limits.



List of maintenance limits in the N>S scenario

Maintenance restrictions apply downstream preferentialy

Above some consumption levels, downstream restrictions are not sufficient to solve certain limits. In these particular cases, maintenance restrictions shall apply upstream.

These consumption levels are different from the mutualised restriction ones (because they also depend on the restricted capacities)

As an illustration, side of application of maintenance restrictions according to the limits and to the season:

Season	Summer (mainly May-June-July-Aug-Sept)	Inter-season (mainly april and october)
N1/2/3 and NS1	Upstream	
NS2 and NS3	Downstream	Upstream
NS4 and S1	Downstream	

Indicative data, it can change according to the consumption and restriction levels

Small impact maintenance

- These works have an impact <= 30 GWh/d
- **Today:** they are managed with N>S link interruptible capacities. (they are not in the maintenance program)

-> In TRF:

- These small impact works shall not be announced in the maintenance program (like today)
- and they will be managed like limits (these days, NS2, NS3 and NS4 limits will be a little more restrictive). This information will be displayed to the shippers through the vigilance system:

	Alert level	Side of the limit management	Small impact works	interruption of sales and interruptible / UIOLI	Locational Spread	Mutualised Restriction
NS1		Upstream				
NS2		Downstream	x			
NS3		Downstream		x	x	
NS4	maintenance	Downstream				

The programmed works will be indicated with a grey box (« maintenance »)

Small impact works will also be indicated in T@ through the « publication sheet » name: « IT xxx » (instead of « PT xxx » for programmed maintenance)

New

Use of locational spread to minimize maintenance impacts

Ongoing consultation (implementation deadline to be confirmed)

- **Today:** maintenance restrictions impacting N>S link include small consumption uncertainty
- **In TRF:** the uncertainty will be higher because the consumption areas upstream and downstream from the works are larger
  - → if no risk is taken on consumption levels, the restrictions will be strong
  - → the TSOs propose to take a reasonnable risk on consumption levels (10% to 30%), in order to minimize the restrictions.
  - → and to use the locational spread in case of congestion on D-day:

New

	Alert level	Side of the limit management	Small impact works	interruption of sales and interruptible / UIOLI	Locational Spread	Mutualised Restriction
NS1		Upstream				
NS2		Downstream	x			
NS3		Downstream				
NS4	maintenance	Downstream		x	x	

On D-day: if the restriction is not sufficient (because consumption is lower than predicted (upstream) or higher (dowstream)) , and that the shipper's nominations are above the real network capacity, the TSOs propose to use the locational spread.

Applicable only for the limits followed in the vigilance process

→ *If the locational spread were not successful, the mutualised restriction would be activated*

Maintenance program publication

New

- As of summer 2018, CMXtt is the probably available capacity (and no longer the max capacity)
- For GRTgaz and Teréga common superpoints: restrictions will be indicated on each TSO's sub-superpoint (SSP)
  - the SP CMNtt/CMXtt will be split to CTN pro-rata until storage capacities sales, and to COS pro-rata after (from March)
  - Fictive example from March on NS2 downstream:

Sub-superpoint (SSP)	Teréga NS2 downstream (**Piri+Lus**)	GRTgaz NS2 downstream (**Atl + SE**+*Fos+Montoir*)
COS of restricted points	450	550
CTE SP	500	
Restriction rate (TRf)	50%	
CTE SSP	225	275
Restriction rate (TRf)	50%	50%

Maintenance program publication

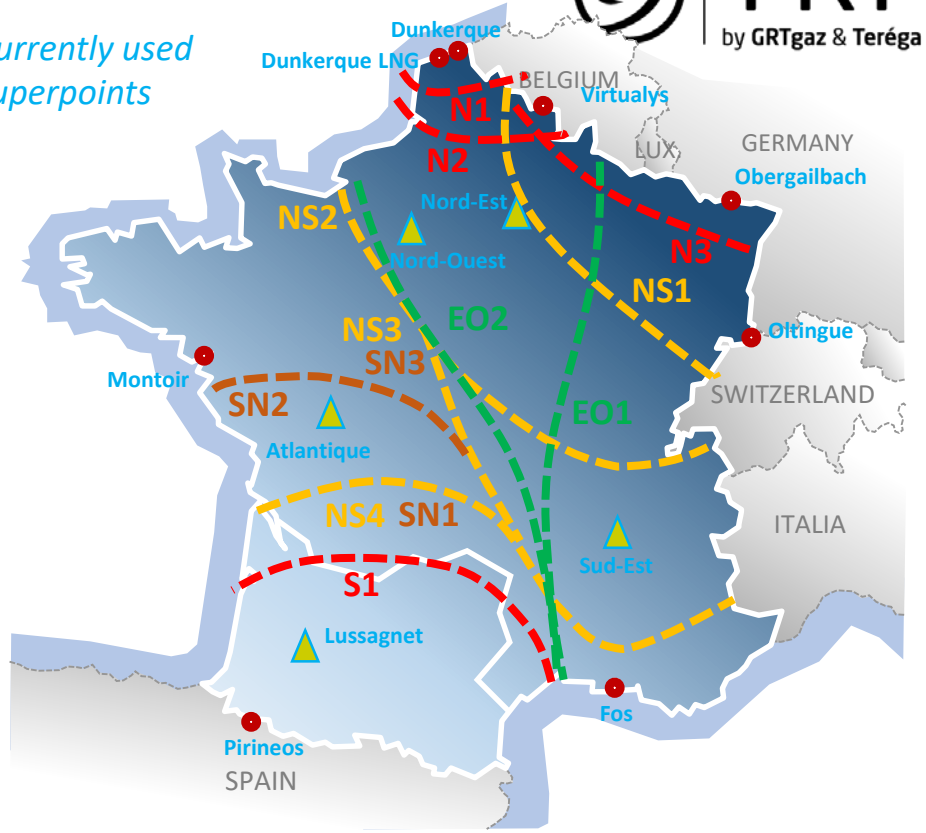
- The maintenance program will be published for restricted points in the N>S scenario
  - But other maintenance limits exist in E>O and S>N cases

Exhaustive list of superpoints (limits or maintenance):

Limit	Only works?	Upstream superpoint (entries restricted)	Downstream superpoint (exits restricted)
N1	x	SPN1U *(before: SP0001)*	
N2	x	SPN2U *(before: SP0002)*	
N3	x	SPN3U *(before: SP0003)*	
NS1		SPNS1U *(before: SP0004)*	
NS2		SPNS2U	SSPNS2D (T@)/ SSP Teréga SPNS2D
NS3		SPNS3U	SSPNS3D (T@) / SSP Teréga SPNS3D
NS4		SPNS4U + Montoir	No SSP on T@ / SSP Teréga SPNS4D
S1			SP Teréga
EO1	x	SPEO1U + Fos	
EO2		SPNS3U + Fos	SSPEO2D / SSP Teréga SPEO2D
SN1 (NS4inv)		Fos (T@) / SSP Teréga SPSN1U	
SN2	x	Atlantique + Fos (T@)/ SSP Teréga SPSN2U	SPSN2D
SN3 (NS3inv)		Atlantique + Fos + Montoir (T@) / SSP Teréga SPSN3U	SPSN3D

New

Currently used superpoints



Common SP between Teréga and GRTgaz
(-> the global SP is in blue and the T@ restriction in black)

Common SP with transfer system

« Atl + Fos + Montoir » means individual restriction on each point

Be careful: SPNS3D and SPSN3U contain the same points but are not the same superpoints! The direction is not the same (exit/entry)

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- Spring day: 24th May 2020
  - France consumption = 1 TWh/d
- Maintenance programmed restriction on NS1
  - CTE = 700 GWh/d, restriction rate (TRf) = 25%
- Small impact maintenance on NS2
  - orange alert on D-Day
- Red alert during D-1 night on NS3
  - Locational spread at 9 am: successful
  - New red alert at 2 pm, insufficient locational spread, mutualised restriction at 4 pm, TRf on coming hours = 50%

Fictive shipper:
COS (GWh/d):

Virtualys (E): 100
Obergailbach (E): 100

Pirineos (S): 50 firm
10 interruptible
Atlantique (S): 50

One year -> a few days before (Y-1 -> D-5):

- Information about maintenance and season outlook:

Time	Object	Data
August 2019	1st maintenance program publication	NS1 upstream CMNtt = 600 GWh/d
October 2019	Winter Outlook	Level of storages for next winter
Mid-November 2019	2nd maintenance program publication	NS1 upstream CMNtt = 600 GWh/d
Mid-February 2020	3rd maintenance program publication	NS1 upstream CMNtt = 700 GWh/d COE = 150 GWh/d
End of March 2020 (D-60)	Confirmation of restricted points	NS1 upstream CMNtt = 700 GWh/d COE = 150 GWh/d
≈ March 2020 New	Summer Outlook	Quantity to inject in storages during the summer: there is flexibility
19th May 2020 (D-5)	Confirmation of the restriction level	NS1 upstream CMNtt = 700 GWh/d COE = 150 GWh/d

A few days before (D-5 -> D-2):

- Information about vigilance (ex D-5, 19th May):

	D+2	D+3	D+4	D+5
NS1		Maintenance	Maintenance	Maintenance
NS2			Small impact maintenance	Small impact maintenance
NS3				
NS4				
EO2				
S1				
SN1				
SN3				

D-1 and D:

- D-1, 2:10 pm: orange alert on NS2 and NS3

	Alert level	Side of the limit management	Small impact works	interruption of sales and interruptible / UIOLI	Locational Spread	Mutualised Restriction
NS1	Maintenance	Upstream				
NS2		Downstream	x			
NS3		Downstream				
NS4		Downstream				
EO2		Downstream				
S1		Downstream				
SN1		Upstream				
SN3		Downstream				

The shipper brings 150 through Virtualys and Ober and buys 50 at the PEG,
in order to deliver 100 to his custumers, inject 50 in Atlantique and exit 50 in Pirineos

The side of NS2 and NS3 management is « downstream »,
-> long term interruptible capacities are not interrupted on northern points

Before 3 pm: TRf NS1 upstream = 25%
-> For the shipper: COE NS1 upstream = 150

shipper	Nomination	Confirmation
Virtualys (E)	100	100
Obergailbach (E)	50	50
Atlantique (S)	50	50
Pirineos (S)	50	50
Consumption (S)	100	100
PEG (E)	50	50

Balance: E-S = 200-200 = 0

D-1 and D:

- D-1, 10:10 pm: red alert on NS3

	Alert level	Side of the limit management	Small impact works	interruption of sales and interruptible / UIOLI	Locational Spread	Mutualised Restriction
NS1	Maintenance	Upstream				
NS2		Downstream	x			
NS3		Downstream		x		
NS4		Downstream				
EO2		Downstream				
S1		Downstream				
SN1		Upstream				
SN3		Downstream				

On Pirineos:
Sales, UIOLI and interruptible capacities are interrupted

For the shipper:
COE Pirineos = 50

shipper	Nomination	Confirmation
Virtualys (E)	100	100
Obergailbach (E)	50	50
Atlantique (S)	50	50
Pirineos (S)	60	50
Consumption (S)	100	100
PEG (E)	60	60

Balance: E-S = 210-200 = 10

D-1 and D:

- D, 6:10 am: still red alert on NS3

	Alert level	Side of the limit management	Small impact works	interruption of sales and interruptible / UIOLI	Locational Spread	Mutualised Restriction
NS1	Maintenance	Upstream				
NS2		Downstream	x			
NS3		Downstream		x		
NS4		Downstream				
EO2		Downstream				
S1		Downstream				
SN1		Upstream				
SN3		Downstream				

Interruption of interruptible capacities was not sufficient

The network is able to « temporise »

-> the locational spread is not yet launched

shipper	Nomination	Confirmation
Virtualys (E)	100	100
Obergailbach (E)	50	50
Atlantique (S)	50	50
Pirineos (S)	50	50
Consumption (S)	100	100
PEG (E)	50	50

Balance: E-S = 200-200 = 0

D-1 and D:

- D, 9:10 am: still red alert on NS3

	Alert level	Side of the limit management	Small impact works	interruption of sales and interruptible / UIOLI	Locational Spread	Mutualised Restriction
NS1	Maintenance	Upstream				
NS2		Downstream	x			
NS3		Downstream		x	x	
NS4		Downstream				
EO2		Downstream				
S1		Downstream				
SN1		Upstream				
SN3		Downstream				

-> the locational spread is launched. The need is 30 GWh/d.

-> the shipper participates: he sells 10 to the TSOs downstream (he has flexibility on Atlantique)

shipper	Nomination	Confirmation
Virtualys (E)	100	100
Obergailbach (E)	50	50
Atlantique (S)	50	50
Pirineos (S)	50	50
Consumption (S)	100	100
PEG (E)	50	50

Balance: E-S = 200-200 = 0

D-1 and D:

- D, 10:10 am: orange alert on NS3

	Alert level	Side of the limit management	Small impact works	interruption of sales and interruptible / UIOLI	Locational Spread	Mutualised Restriction
NS1	Maintenance	Upstream				
NS2		Downstream	x			
NS3		Downstream		x	x	
NS4		Downstream				
EO2		Downstream				
S1		Downstream				
SN1		Upstream				
SN3		Downstream				

-> The shipper's offer is accepted (between 9,30 and 9,40 am)
-> the shipper renominates before 10 am (sells 10 on PEG and injects 10 less downstream). He is still balanced

-> the locational spread is successful (evaluated at 9.40 am).

-> the vigilance is orange at 10:10 am

shipper	Nomination	Confirmation
Virtualys (E)	100	100
Obergailbach (E)	50	50
Atlantique (S)	40	40
Pirineos (S)	50	50
Consumption (S)	100	100
PEG (E)	40	40

Balance: E-S = 190-190 = 0

D-1 and D:

- D, 2:10 pm: red alert again on NS3

	Alert level	Side of the limit management	Small impact works	interruption of sales and interruptible / UIOLI	Locational Spread	Mutualised Restriction
NS1	Maintenance	Upstream				
NS2		Downstream	x			
NS3		Downstream		x	x	
NS4		Downstream				
EO2		Downstream				
S1		Downstream				
SN1		Upstream				
SN3		Downstream				

-> the locational spread is launched (20 GWh/d)

-> the answers are not sufficient (evaluated at 2.40 pm)

shipper	Nomination	Confirmation
Virtualys (E)	100	100
Obergailbach (E)	50	50
Atlantique (S)	40	40
Pirineos (S)	50	50
Consumption (S)	100	100
PEG (E)	40	40

Balance: E-S = 190-190 = 0

D-1 and D:

- D, 3:10 pm: violet alert (still red alert with SL results on NS3) (*very rare case…*)

	Alert level	Side of the limit management	Small impact works	interruption of sales and interruptible / UIOLI	Locational Spread	Mutualised Restriction
NS1	Maintenance	Upstream				
NS2		Downstream	x			
NS3		Downstream		x	x	x
NS4		Downstream				
EO2		Downstream				
S1		Downstream				
SN1		Upstream				
SN3		Downstream				

-> vigilance is recalculated with the 1->3 pm cycle; the alert level is still red even with the previous locational spread

-> Mutualised restriction is activated for the next cycle (4-6 pm)

shipper	Nomination	Confirmation
Virtualys (E)	100	100
Obergailbach (E)	50	50
Atlantique (S)	40	40
Pirineos (S)	50	50
Consumption (S)	100	100
PEG (E)	40	40

Balance: E-S = 190-190 = 0

D-1 and D:

- D, 4:10 pm: violet alert, mutualised restriction is activated

	Alert level	Side of the limit management	Small impact works	interruption of sales and interruptible / UIOLI	Locational Spread	Mutualised Restriction
NS1	Maintenance	Upstream				
NS2		Downstream	x			
NS3		Downstream		x	x	x
NS4		Downstream				
EO2		Downstream				
S1		Downstream				
SN1		Upstream				
SN3		Downstream				

-> Mutualised restriction is activated on NS3 downstream superpoint (the exits are restricted)

-> Restriction rate (hourly TRf)
= 50% on coming hours on NS3 downstream

shipper	Nomination	Confirmation
Virtualys (E)	100	100
Obergailbach (E)	50	50
Atlantique (S)	40	?
Pirineos (S)	50	?
Consumption (S)	100	100
PEG (E)	40	40

Balance: E-S = 190-xxx = ?

D-1 and D:

- Zoom on mutualised restriction on NS3 downstream:

Superpoint (SP)	NS3 downstream (**Atl**+Fos+Montoir+**Piri**+Lus)
TRf (on coming hours)	50%
Average TRf for the day	25%

Sub-superpoint (SSP)	Teréga NS3 downstream (**Piri**+Lus)	GRTgaz NS3 downstream (**Atl**+Fos+Montoir)
TRf SSP (on coming hours)	50%	50%
Hourly COS SSP	=50/24	=50/24
Hourly COE SSP (COS*(1-TRf))	=50/24*50%	=50/24*50%
COE for coming hours (*12) Already passed Garanteed capacity (COA)	12,5 25 **37,5**	12,5 22 **34,5**

D-1 and D:

- Zoom on mutualised restriction on NS3 downstream:

shipper	Nomination	confirmation
Virtualys (E)	100	100
Obergailbach (E)	50	50
Atlantique (S)	40	34,5
Pirineos (S)	50	37,5
Consumption (S)	100	100
PEG (E)	40	40

(results without UIOLI…)
Balance: E-S = 190-172 =18

-> the shipper's nominations are curtailed on Atlantique and Pirineos to respect the garanteed capacity for the day on each SSP (respectively COAg = 34,5 and 37,5) (on a firm basis; in reality the shipper could have more with UIOLI)

-> the shipper is imbalanced (he is long) and has to rebalance on the other side of the limit or by selling on the PEG

- Before the end of the day: the shipper send an e-mail to specify the point for locational spread (+10 on Atlantique)

Any questions?

In conclusion: key messages on TRF and PEG

Goal: greater gas competitiveness in France.

Created on 1 Nov. 2018

The entry-exit zone is called the TRF (Trading Region France) and includes a gas exchange point: the PEG

The North South link disappears.

Everyday balancing is done at the level of the TRF, with an allocation of the imbalances between Teréga and GRTgaz

New

Choice of a mixed solution with reasonable investments and additional mechanisms for the residual limits of the network.

Much greater gas transit thanks to the new structures

(average + 42% in transit in the North>South direction)

General operation and contractual mechanisms

co-constructed and co-operated with the market

The mechanisms chosen to manage limits are the best cost-benefit balance for shippers

- Agreement with adjacent operators
- Interruption of D-1 interruptible capacities
- Non-trading of unsubscribed capacities on D-1 and D-Day
- Locational spread: market mechanism
- Mutualised restriction: as a last resort

New

Relies on the superpoints for to both manage the limits and maintenance: leaves maximum flexibility to shippers

New

Restrictions (in the event of limit or maintenance) are implemented as much as possible downstream, in order to limit as far as possible the impacts on the price of the PEG in France

Thank you for your attention!

The next steps:

- Around 1st of September: confirmation of the merger's date
- September and October: workshops with each TSO

Back-up slides

Back-up slides – general topics

Distribution of the imbalance according to the type of shipper

Type of shipper	Characteristics	Allocation criteria	Interest
End customer supplier	Delivery to end customers	Pro rata of its allocations to delivery points	Account taken of the location of this supplier's customers
Importer / Exporter	Capacities only at PIR, PITS, and PITTM points	Pro rata of its TRF entry and exit allocations	Reflection of the quantities of gas transported in each of the balancing zones
PEG trader	Only transactions at the PEG	Imbalance assigned entirely to the GRTgaz balancing area	Simplicity (possible non-assignment of imbalances between the two areas)

- **Allocate the imbalance more accurately** in each balancing area, to **reflect the responsibility of the shippers** in the actions taken by each of the TSOs to restore the balance.

What about the switch over on November 1st 2018?

Daily imbalances

- The daily imbalances are calculated at the level of the TRF (programming and allocation)
- The daily imbalances are divided between GRTgaz and Teréga according to the allocation rule
- The imbalances are charged at the marginal price which is identical for Teréga and GRTgaz.
- The SET and Alizés services are maintained (Alizés adapted to the merger of the south and north areas of GRTgaz)
- The balancing actions of the TSOs are carried out on the basis of their respective forecast line pack indicator
- Each TSO continues to keep a financial neutrality account of its balancing activity.

Measures financed via the ATRT6 transmission tariff

- **Coverage of costs related to mechanisms for limits' management in the annual revision of the ATRT6 transmission tariff**
- The differences between the forecast and the real expenses are 100% included in CRCP (expenditure and revenue adjustment account)

For information, the use of Locational Spread is assessed at:

- in the reference scenario: between €1.3m to €10.7m / year (38d of congestion)
- in the extreme scenario: between €16.9m to €64.6m / year (110d of congestion)

Back-up slides – limits management

Quantification of limits

Modelling work: analysis of the occurrences and levels of residual limits –
Scenarios established on the basis of historical consumption and flow data from 2012 to 2016

"Reference scenario" :

Network in a strained situation

(LNG at the technical minimum (40 GWh/d), flows to Spain = subscribed capacities (-146GWh/d), CCGT = average of the highest consumption, storage and consumption =historic)

Limits reached: **10.5%** of the days
(38d/year are 29d in the summer and 9d in winter)

"Extreme scenario":

Network in an extreme situation

(LNG =0, flows to Spain = firm technical capacities (-165GWh/d), CCGT = average of the highest consumption, storage and consumption =historic)

Limits reached: **30.1%** of days *(110d/year are 51d in summer and 69d in winter)*

→ **Occurrence of the limits is moderate and takes place more in spring and summer**

Zoom about interruptible capacities

Note: 2 types of interruptible capacities:

- "Long term" capacities (made firm on D-1 before 3 pm)
(Dunkirk, Virtualys, Obergailbach, Oltingue)
-> the interruptible is not made firm in orange or red alert, only at 2 pm on D-1 (as of the first cycle)
(*on-going consultation*)

- Capacities which can be interrupted in within-day (Pirineos for Teréga, PIR backhaul for GRTgaz)
-> interrupted in red alert, all along the gas day (D-1 and D)

Back-up slides – locational spread

Exhaustive list of locational spread points

Limits	Possible upstream tender (=the TSOs sale, the shippers buy)	Possible downstream tender (= the TSOs buy, the shippers sell)
NS1	• Reduction in entries at the PIRs: Taisnières H, Obergailbach • Increase in exits at the Oltingue PIR • In summer: in some cases: increase in injections at the Northeast PITS (*). In winter: reduction in withdrawals at the Northeast PITS (*) • Increase in consumption of CCGTs (Blénod, Saint-Avold, Pont-sur-Sambre, Toul, Bouchain)	• Increase in entries at the PIR Dunkirk, at the PITTMs Dunkirk LNG, Montoir and Fos • In summer: Reduction in injections at the Northeast, Northwest, Atlantic, Southeast and Teréga PITS. In winter: increase in withdrawals at the Northeast, Northwest, Atlantic, Southeast and Teréga PITS • Decrease in exits at the Jura and Pirineos PIRs, or in consumption of the CCGTs (Bayet, Combigolfe, Cycofos, DK6, Martigues, Montoir, Gennevilliers, Montereau)
NS2	• Reduction in entries at the PIRs: Taisnières H, Obergailbach, Dunkirk, at the Dunkirk LNG PITTM • In summer: increase in injections at the Northeast and Northwest PITS. In winter: reduction of withdrawals from the Northeast and Northwest PITS. • Increase in exits at the Oltingue PIR, or in consumption of the CCGTs (Blénod, DK6, Saint-Avold, Pont-sur-Sambre, Toul, Bouchain, Gennevilliers, Montereau)	• Increase in emissions at the Montoir or Fos PITTMs • In summer: reduction in injections at the Atlantic, Southeast or Teréga PITS. In winter: increase in withdrawals at the Atlantic, Southeast and Teréga PITS • Decrease in exits at the Pirineos PIR, or in consumption of the CCGTs (Bayet, Combigolfe, Cycofos, Martigues, Montoir)
NS3	• Reduction in entries at the PIRs: Taisnières H, Obergailbach, Dunkirk, at the Dunkirk LNG or Montoir PITTMs • In summer: increase in injections at the Northeast, Northwest and Southeast PITS. In winter: reduction in withdrawals at the Northeast, Northwest and Southeast PITS. • Increase in exits at the Oltingue and Jura PIRs, or in consumption of the CCGTs (Blénod, DK6, Saint-Avold, Pont-sur-Sambre, Toul, Bouchain, Gennevilliers, Montereau)	• Increase in emissions at the Fos PITTM • In summer: reduction in injections at the Atlantic or Terega PITS, and in some cases South east PITS (*). In winter: increase in extraction at the Atlantic or Teréga PITS, and in some cases South east PITS (*) • Decrease in exits at the Jura and Pirineos PIRs, or in consumption of the CCGTs (Bayet, Combigolfe, Cycofos, Martigues, Montoir)
NS4	• Reduction in entries at the Taisnières H, Obergailbach, Dunkirk PIRs, at the Dunkirk LNG or Montoir PITTMs • In summer: increase in injections at the Northeast, Northwest, Atlantic and Southeast PITS. In winter: reduction in withdrawals at the Northeast, Northwest, Atlantic and Southeast PITS. • Increase in exits at the Oltingue and Jura PIRs, or in consumption of the CCGTs (Blénod, DK6, Saint-Avold, Pont-sur-Sambre, Toul, Montoir, Bouchain, Gennevilliers, Montereau)	• In summer: decrease in injections at the Teréga PITS, , and in some cases South east PITS (*). In winter: increase in withdrawals at the Teréga PITS, , and in some cases South east PITS (*) • Increase in emissions at the Fos PITTM • Decrease in exits at the Pirineos PIR, or in consumption of the CCGTs (Bayet, Combigolfe, Cycofos, Martigues)

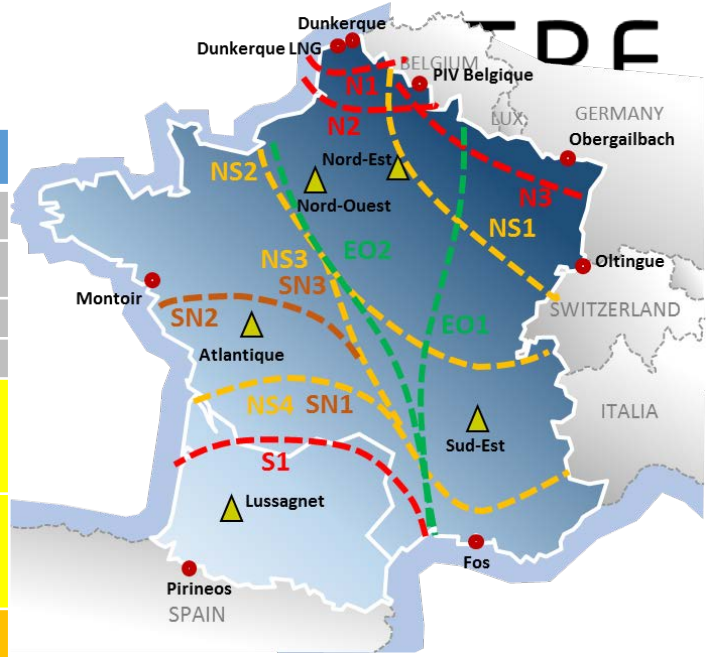
CCGTs being studied

(*) in certain cases, because North East and South East PITS have storages physically on both sides of the limits (respectively NS1 and NS3/4)

Back-up slides – superpoints

Exhaustive list of limits and superpoints

Limits	Upstream superpoint (entries restricted)	Downstream superpoint (exits restricted)
N1 (works)	**SPN1U:** Dunkirk PIR + Dunkirk LNG PITTM	
N2 (works)	**SPN2U:** Dunkirk PIR + Dunkirk LNG PITTM + Virtualys PIR	
N3 (works)	**SPN3U:** Virtualys PIR + Obergailbach PIR	
NS1	**SPNS1U:** Virtualys PIR + Obergailbach PIR + Oltingue PIR	
NS2	**SPNS2U:** Dunkirk PIR + Dunkirk LNG PITTM + Virtualys PIR + Obergailbach PIR + Oltingue PIR + Northeast PITS + Northwest PITS	**SPNS2D:** Fos PITTM + Montoir PITTM + Pirineos PIR + Lussagnet PITS + Atlantic PITS + Southeast PITS
NS3	**SPNS3U:** Dunkirk PIR + Dunkirk LNG PITTM + Virtualys PIR + Obergailbach PIR + Oltingue PIR + Northeast PITS + Northwest PITS + Southeast PITS	**SPNS3D:** Fos PITTM + Montoir PITTM + Pirineos PIR + Lussagnet PITS + Atlantic PITS
NS4	**SPNS4U:** Dunkirk PIR + Dunkirk LNG PITTM + Virtualys PIR + Ober PIR + Oltingue PIR + Northeast PITS + Northwest PITS + Southeast PITS + Atlantic PITS + Montoir PITTM	**SPNS4D:** Fos PITTM + Pirineos PIR + Lussagnet PITS
S1		Pirineos PIR + Lussagnet PITS
EO1 (works)	**SPEO1U:** Obergailbach PIR + Oltingue PIR + Southeast PITS + Fos PITTM	**SPEO1D:** Virtualys PIR + Dunkirk PIR + Dunkirk LNG PITTM + Montoir PITTM + Northeast PITS + Northwest PITS + Atlantic PITS + Lussagnet PIR + Pirineos PIR
EO2	**SPEO2U:** Obergailbach PIR + Oltingue PIR + Southeast PITS + Fos PITTM + Northeast PITS + Northwest PITS + Dunkirk LNG PITTM + Dunkirk PIR + Virtualys PIR + Fos PITTM	**SPEO2D:** Montoir PITTM + Atlantic PITS + Lussagnet PITS + Pirineos PIR
SN1 (NS4 inv)	**SPSN1U:** Fos PITTM + Pirineos PIR + Lussagnet PITS	
SN2 (works)	**SPSN2U:** Fos PITTM + Pirineos PIR + Lussagnet PITS + Atlantic PITS	**SPSN2D:** Dunkirk PIR + Dunkirk LNG PITTM + Virtualys PIR + Obergailbach PIR + Oltingue PIR + Northeast PITS + Northwest PITS + Southeast PITS + Montoir PITTM
SN3 (NS3 inv)	**SPSN3U:** Fos PITTM + Montoir PITTM + Pirineos PIR + Lussagnet PITS + Atlantic PITS	**SPSN3D:** Dunkirk PIR + Dunkirk LNG PITTM + Virtualys PIR + Obergailbach PIR + Oltingue PIR + Northeast PITS + Northwest PITS + Southeast PITS



Common SP between Teréga and GRTgaz

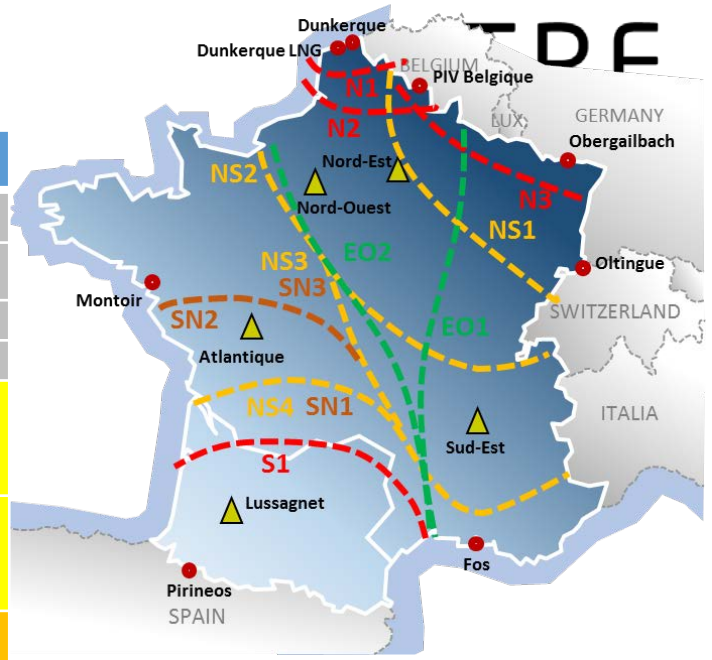
Common SP with transfer system

Be careful: SPNS3D and SPSN3U contain the same points but are not the same superpoints! The direction is not the same (exit/entry)

Pink: PITTM with individual restriction

Exhaustive list of T@ superpoints (SP) and sub-superpoints (SSP)

Limits	Upstream superpoint (entries restricted)	Downstream superpoint (exits restricted)
N1 (works)	**SPN1U:** Dunkirk PIR + Dunkirk LNG PITTM	
N2 (works)	**SPN2U:** Dunkirk PIR + Dunkirk LNG PITTM + Virtualys PIR	
N3 (works)	**SPN3U:** Virtualys PIR + Obergailbach PIR	
NS1	**SPNS1U:** Virtualys PIR + Obergailbach PIR + Oltingue PIR	
NS2	**SPNS2U:** Dunkirk PIR + Dunkirk LNG PITTM + Virtualys PIR + Obergailbach PIR + Oltingue PIR + Northeast PITS + Northwest PITS	**SSPNS2D:** Fos PITTM + Montoir PITTM + Atlantic PITS + Southeast PITS
NS3	**SPNS3U:** Dunkirk PIR + Dunkirk LNG PITTM + Virtualys PIR + Obergailbach PIR + Oltingue PIR + Northeast PITS + Northwest PITS + Southeast PITS	**SSPNS3D:** Fos PITTM + Montoir PITTM + Atlantic PITS
NS4	**SPNS4U:** Dunkirk PIR + Dunkirk LNG PITTM + Virtualys PIR + Ober PIR + Oltingue PIR + Northeast PITS + Northwest PITS + Southeast PITS + Atlantic PITS	*No T@ superpoint*
S1		*No T@ superpoint*
EO1 (works)	**SPEO1U:** Obergailbach PIR + Oltingue PIR + Southeast PITS	**SSPEO1D:** Virtualys PIR + Dunkirk PIR + Dunkirk LNG PITTM + Montoir PITTM + Northeast PITS + Northwest PITS + Atlantic PITS
EO2	**SPNS3U:** Obergailbach PIR + Oltingue PIR + Southeast PITS + Fos PITTM + Northeast PITS + Northwest PITS + Dunkirk LNG PITTM + Dunkirk PIR + Virtualys PIR	**SSPEO2D:** Montoir PITTM + Atlantic PITS
SN1 (NS4 inv)	*No T@ superpoint*	
SN2 (works)	*No T@ superpoint*	**SPSN2D:** Dunkirk PIR + Dunkirk LNG PITTM + Virtualys PIR + Obergailbach PIR + Oltingue PIR + Northeast PITS + Northwest PITS + Southeast PITS + Montoir PITTM
SN3 (NS3 inv)	*No T@ superpoint*	**SPSN3D:** Dunkirk PIR + Dunkirk LNG PITTM + Virtualys PIR + Obergailbach PIR + Oltingue PIR + Northeast PITS + Northwest PITS + Southeast PITS



Common SP between Teréga and GRTgaz

Common SP with transfer system

Sometimes there is no T@ superpoint (when the restricted points are in Teréga or Fos/Montoir PITTM)

Maintenance limits in E>O and S>N cases

Spécificity about Fos and Montoir PITTM:
They cannot be included as restricted points in a superpoint (due to Elengy offer)
-> for SN1 SN2 SN3 EO1 EO2 upstream, an individual restriction would be applied on these PITTM
(the probability of these scenarios is estimated low today)