A progressive way towards a market-based regime

2004/2005
First French gas hubs implementation

- 10 shippers
- Commercial IT system & commercial dispatching implemented
- Balancing services with SSO, imbalance tolerances with cumulative monthly accounts
A progressive way towards a market-based regime

2007/2008
Implementation of a balancing platform -> 1st market-based tools

- Numerous workshops with shippers
- Hubs liquidity improving

- 30 shippers
- Little part of imbalances traded on balancing platform
- Balancing services with SSO, imbalance tolerances with cumulative accounts
A progressive way towards a market-based regime

2009/2010

3 zones merged
Trading of imbalances directly on Powernext market place

- 50 shippers
- More important part of imbalances traded via Powernext
- Balancing services with SSO, imbalance tolerances with cumulative accounts

- « Concertation Gaz »: continuous process re customer relationship
- Hubs liquidity increasing
- Improvement of quality of allocations
A progressive way towards a market-based regime

2011 -> 2015

Balancing target project

- 130 shippers in 2015
- Annual milestones increasing the part of imbalances traded via Powernext
- No more balancing services nor tolerances in 2015
- Full compliance with BAL NC since 1st Oct 15

✓ « Concertation Gaz »
✓ Hubs liquidity increasing (particularly within-day)
✓ Achievement of projects in order to provide accurate information to shippers
A single entry/exit system operated by both French TSOs GRTgaz and Teréga since 1st November 2018

- Each TSO is managing the balancing of the system on its own network
- Balancing rules are similar for both TSOs
Balancing in a nutshell

1 – Network users
Have the primary responsibility to balance the network balancing the portfolio

Reliable transmission information in real time

2 - TSO
Manage residual balancing in order to maintain the network in its operational limits

Market based system

Imbalances reduced at marginal price

Short term market

Giving priority to short term market products
GRTgaz balancing regime

-> 1 entry/exit system including 2 balancing areas

✓ GRTgaz area
✓ Teréga area
✓ Imbalance settlements made for the entry/exit system as a whole balancing zone

-> « Base case » information provision system
-> No within-day obligations
-> No balancing services used
-> Linepack flexibility service offered
Information provision

Personal information re shipper’s portfolio:

- **Every hour**: intraday metered flows for delivery points to shipper’s customers directly connected to GRTgaz network

- **Updated twice a day**: intraday metered flows for shipper’s customers connected to DSO’s networks (data sourced from DSO)

- **Non-daily metered off-takes (profiled consumers on distribution networks)**: Forecast for the gas day D updated at every nomination cycle of D-1 and D

Via

TRANS@ctions
## Price of the last 5 days

<table>
<thead>
<tr>
<th>Date</th>
<th>Average price (€/MWh 25°C)</th>
<th>D-1 evolution</th>
<th>Marginal buying price (€/MWh 25°C)</th>
<th>Marginal selling price (€/MWh 25°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25/03/2019</td>
<td>14.327</td>
<td>-0.172</td>
<td>14.685</td>
<td>13.969</td>
</tr>
<tr>
<td>26/03/2019</td>
<td>14.398</td>
<td>0.071</td>
<td>14.758</td>
<td>14.038</td>
</tr>
<tr>
<td>27/03/2019</td>
<td>14.742</td>
<td>0.344</td>
<td>15.111</td>
<td>14.373</td>
</tr>
<tr>
<td>28/03/2019</td>
<td>14.690</td>
<td>-0.052</td>
<td>15.057</td>
<td>14.323</td>
</tr>
<tr>
<td>29/03/2019</td>
<td>14.583</td>
<td>-0.107</td>
<td>14.948</td>
<td>14.218</td>
</tr>
</tbody>
</table>

## TRF - Trend of prices from 19-03-2019 to 28-03-2019

Weighted Average Price (WAP) updated every 5 minutes
### Consumption - Daily data

<table>
<thead>
<tr>
<th></th>
<th>All GRTgaz's customers</th>
<th>Industrial customers except HMS</th>
<th>HMS</th>
<th>Public distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GRTgaz's forecast</td>
<td>GRTgaz's forecast</td>
<td></td>
<td>GRTgaz's forecast</td>
</tr>
<tr>
<td></td>
<td>Shippers' forecast</td>
<td>Consumption</td>
<td></td>
<td>Consumption</td>
</tr>
<tr>
<td></td>
<td>Consumption</td>
<td>GRTgaz's forecast</td>
<td></td>
<td>GRTgaz's forecast</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consumption</td>
<td></td>
<td>Consumption</td>
</tr>
<tr>
<td>28/03/2019</td>
<td>1 592 956 778.0 (8)</td>
<td>420 392 606.0 (8)</td>
<td>199 846 892.0 (8)</td>
<td>947 417 828.0 (8)</td>
</tr>
<tr>
<td>29/03/2019</td>
<td>1 405 883 336.0 (7)</td>
<td>405 274 196.0 (7)</td>
<td>125 931 743.0 (7)</td>
<td>858 107 399.0 (7)</td>
</tr>
<tr>
<td>30/03/2019</td>
<td>1 075 470 283.0 (5)</td>
<td>360 128 619.0 (5)</td>
<td>53 614 087.0 (5)</td>
<td>648 863 800.0 (5)</td>
</tr>
</tbody>
</table>

The number into brackets next to GRTgaz's forecast corresponds to the version of the forecast for a given gasday. More information on forecast publication can be found below.

#### Consumption > Daily data > GRTgaz - From 22-03-2019 to 30-03-2019

![Graph showing consumption data from 22-03-2019 to 30-03-2019 with bar charts and a line graph for temperature.]
### GRTgaz - Projected Closing line pack - From 29-03-2019

<table>
<thead>
<tr>
<th>GRTgaz</th>
<th>Hour</th>
<th>Projected Closing line pack value (GWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>09h</td>
<td>2,896,990</td>
</tr>
</tbody>
</table>

Projected Closing line pack value at the end of current gas day (within day)
**Principles of balancing actions**

Why?
Get the Closing Linepack in the admissible zone (« dark green zone »)

When?
Within-Day balancing actions, **7 days a week**

Where?
Trading on Powernext Exchange – Gas Spot Within-Day product

How?
Gradual actions depending on Projected Closing Linepack position and schedule:

**Projected Closing Linepack position**

- **10:25 am** No action
- **2:25 pm** No action
- **5:25 pm** No action
- **11:25 pm** No action
- **Action**
- **Action**
- **Action**
- **Action**
Balancing GRTgaz interventions

Intervention prices impact

- Extreme mode
- Very aggressive mode
- Aggressive mode
- Normal mode
- Light mode

Balancing action hour

- 10:25am
- 2:25pm
- 5:25pm
- 11:25pm

GRTgaz │ EnC meeting │ 10 Apr 2019
ALIZES: the linepack flexibility service offered by GRTgaz

- Service based on projected gas linepack
- **Total exemption of the marginal price** of imbalances settlement for the balance area concerned for each day where this service is applied (eligible day)
- Eligible day: day where GRTgaz did not have to engage balancing actions to maintain the system in its operational limits
- Monthly residual imbalance of each shipper (for the days when the service has been applied) audited to a baseline neutral price
GRTgaz’s network

1 balancing zone:
⇒ TRF

Entry / Exit points on each zone:
⇒ Interconnection with other grids (PIR)
⇒ LNG terminals (PITTM)
⇒ Storages (PITS)
⇒ Virtual Trading Point (PEG)
⇒ Delivery pools (PL)
  ⇒ Industrial customers connected to the network (LI)
  ⇒ Customers behind a distribution network (PITD)