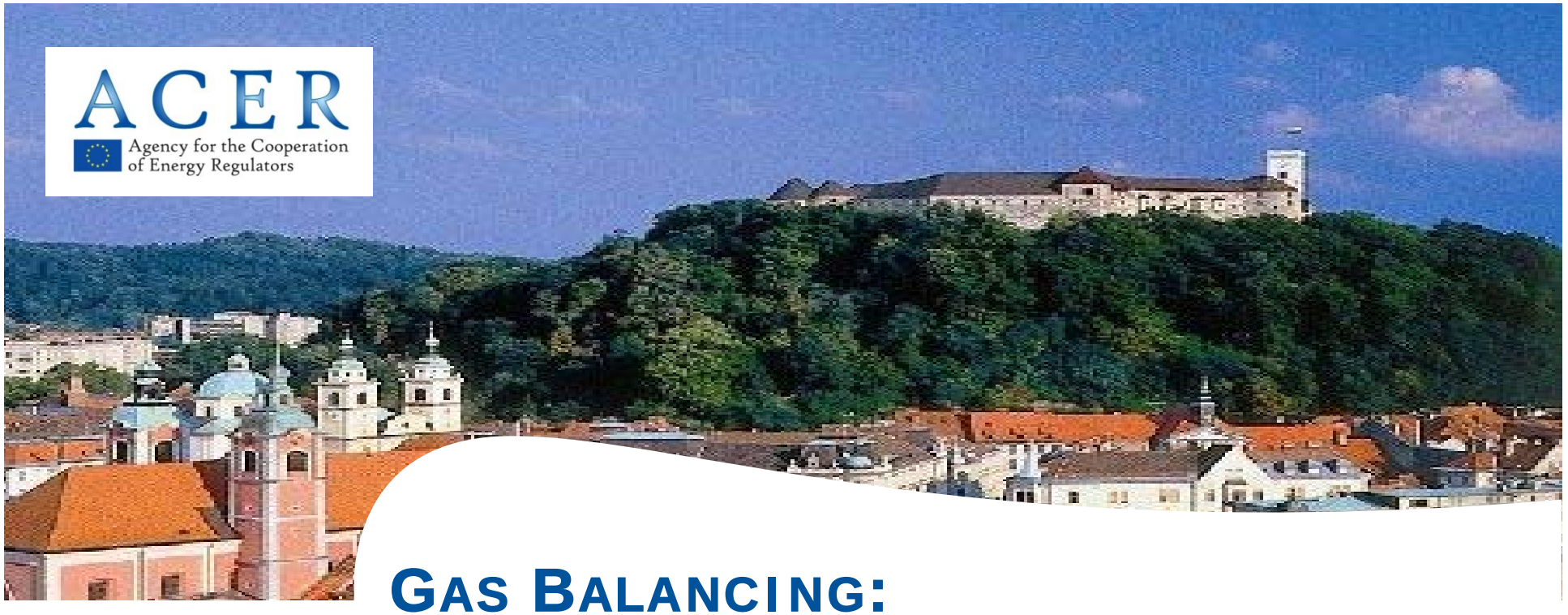
# ACER – ENTSOG Joint Workshop on Gas Balancing Code implementation

## 22 November 2017

Vienna, Austria, FLEMING'S
Conference Hotel Wien




# GAS BALANCING: THE SECOND ACER REPORT ON CODE IMPLEMENTATION

*Network Codes Team, Gas Department*

# IMPLEMENTATION MONITORING: CHOICES AND CONSIDERATIONS

- **EFFECTIVENESS AND LEGAL COMPLIANCE** - What is the role of Implementation Monitoring?
- **OUR OPINION**: That Article 9(1) of the Gas Regulation foresaw to check effectiveness. In the case of Balancing this is key, given the complexity of the design that shall be implemented:
  - The application of **inconsistent rules would hinder an effective application**.
  - The check of **mere legal compliance check** sheds less understanding about the balancing regimes in the EU and provides **limited learning**.
  - A critical and standardised view over important elements of the regime should allow for an open debate that leads to improvements or the evolution of the rules.

# THE REPORTS OF THE AGENCY

**THE FIRST (2016) REPORT,**

•covered a wide range of critical design elements of balancing implementation

•and found major differences in the extent to which different Member States had implemented the Code.

•Proposed to monitor the progress in each country and called for improved knowledge sharing and dialogue across EU.

**THE SECOND (2017) REPORT,**

•the Agency developed a ***Balancing Analytical Framework*** to measure regime performance - to which **extent balancing regimes are functioning effectively**, given the local circumstances.

•the *Framework* derives several indicators and charts illustrating the functioning of individual regimes, and compares them -> **to assess whether and if so, how, balancing regimes could evolve**.

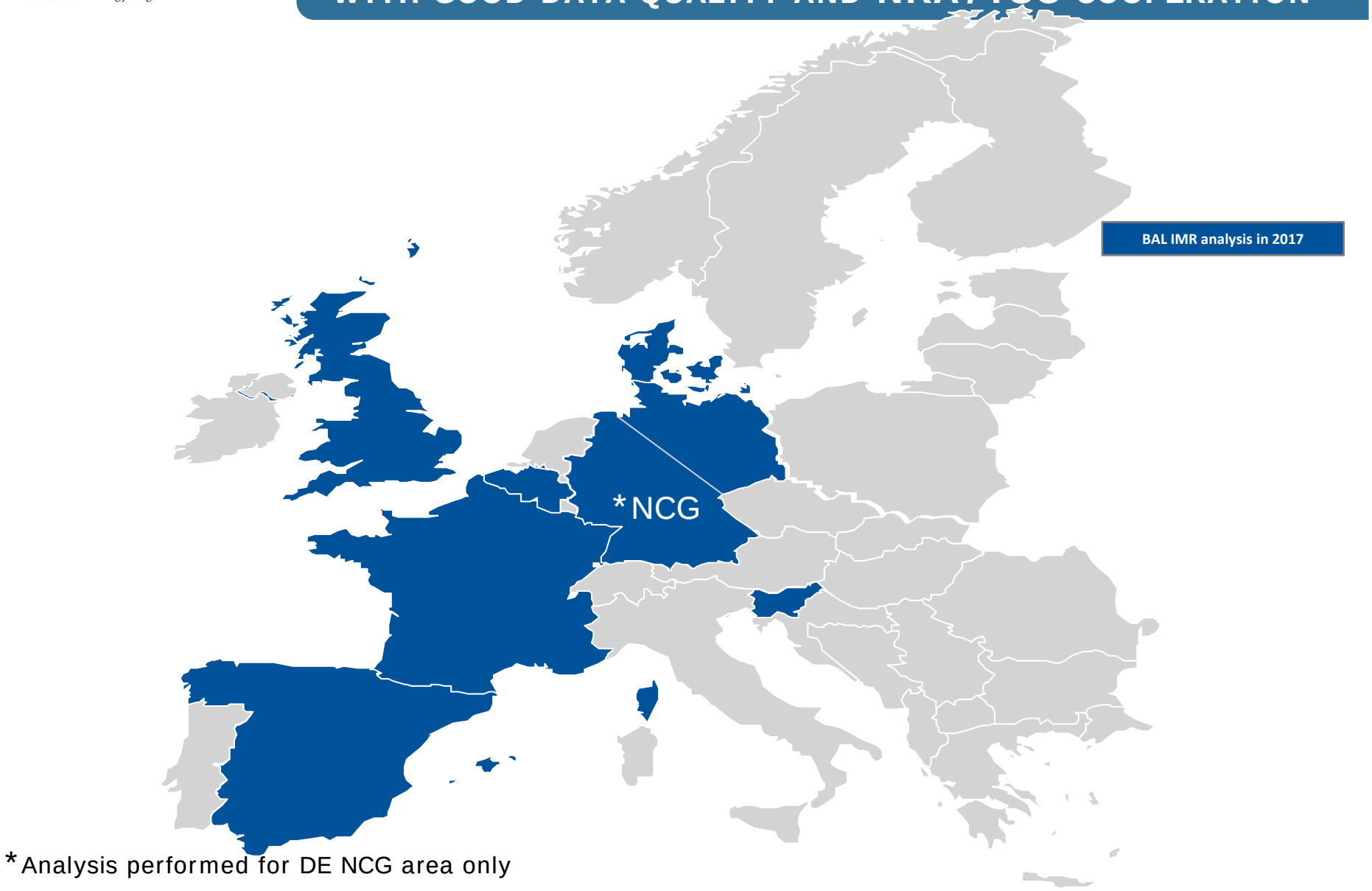
•***7 selected balancing zones***: National Grid Group (UK-GB), the H-Cal Zone Fluxys (BeLux), NCG (Germany), Energinet.dk (Denmark), GRTgaz Nord (France), Plinovodi (Slovenia) and Enagas (Spain).

•**enhanced the qualitative assessment review for 26 EU balancing zones**.

# BALANCING ANALYTICAL FRAMEWORK

- **SECOND REPORT* DIVES DEEP IN EFFECTS ANALYSIS.**
- It introduces the *BALANCING ANALYTICAL FRAMEWORK* to provide a framework for *EFFECTIVE BALANCING REGIME COMPARISON (+INDIV. REGIME PERFORMANCE)*.
  - Daily data has been collected covering:
    - TSO Balancing Actions;
    - Network Users' Imbalances;
    - Volumes of daily Opening Linepack, where available.
  - Based on this data, we calculated:
    - Neutrality quantities, cashflows and net positions;
    - & compared, where possible, Linepack changes against Cumulated Commercial Imbalance Position changes.
- **WE EXPLORED THE POSSIBLE MEANING OF THE DATA/INDICATORS:**
  - Giving a review of the *NATIONAL REGIMES* and through a *CROSS-REGIONAL COMPARISON*.
  - The framework *DOES NOT DETERMINE A PREFERRED DESIGN*; rather it analyses and reflects on the outcomes the regimes deliver.

# BALANCING ANALYSIS FOR 7 MEMBER STATES IN 2017 WITH GOOD DATA QUALITY AND NRA/TSO COOPERATION

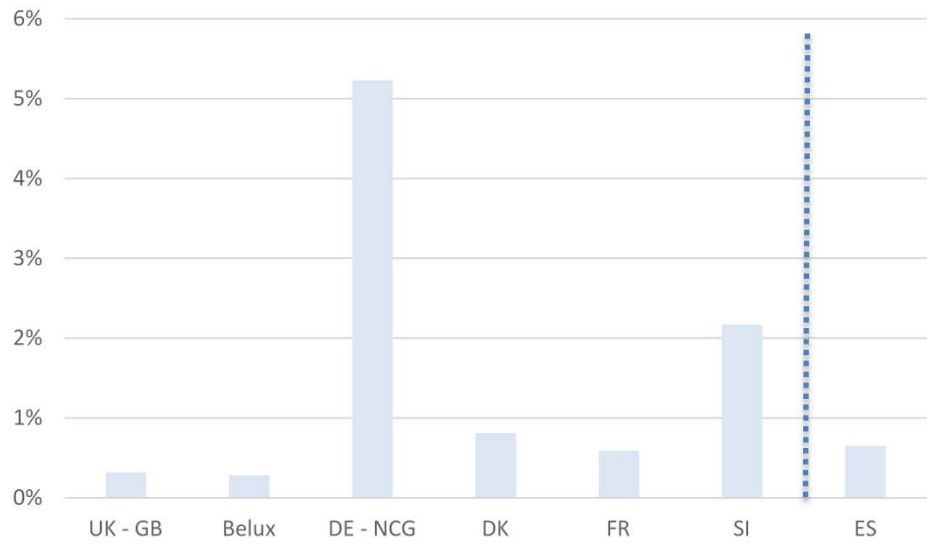



*Analysis performed for DE NCG area only

# TSO / MAM Balancing Actions

- **Definition:** TSO/MAM balancing actions mean that the TSO is buying or selling on behalf of the system (System Buys & System Sells).
- Considerations: to measure whether TSO is a residual player
  - contributor data to the neutrality energy transactions.

Total Balancing Action Quantities (% of zone entry quantities, GY 2015/16)



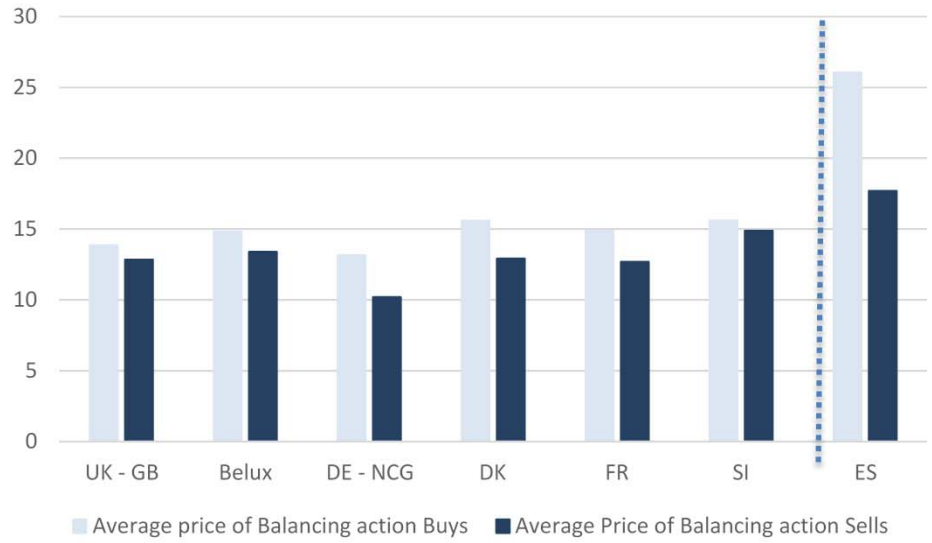

*Source: ACER*

** Data for Spain refer to a later and shorter period (1 Oct 2016 – 31 Mar 2017) therefore the values in the table are not directly comparable.*

# TSO / MAM Balancing Actions

- **Definition:** TSO/MAM Buy and Sell Prices.
- <u>Considerations</u>: from modest to considerable differences
  - Contributes to the costs the balancing regime generates;
  - Completes the picture on whether the TSO plays a residual role.

Figure 7-4: Average Prices of Balancing action Buys and Sells (EUR/MWh, GY 2015/16)




*Source: ACER*

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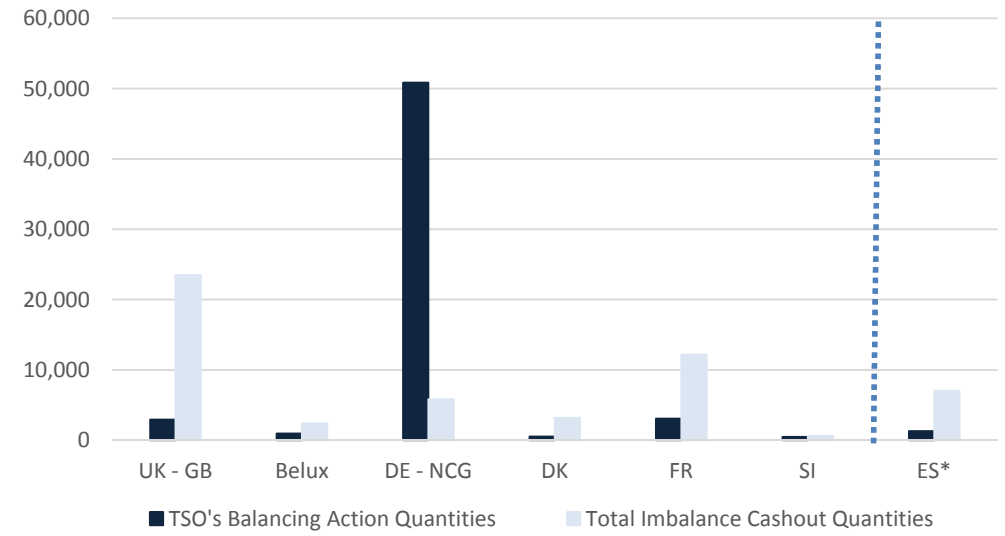
# ANALYTICAL FRAMEWORK – TSO / MAM BALANCING ACTIONS

- Network users are tasked primarily to keep the system balanced on a daily basis, by being balanced individually at the end of the Gas Day ('GD').
- If the operational safety is in danger, the TSO acts as a residual player and buys gas for a short system or sells gas if the system is long.

Figure 7-5: Total TSO's balancing actions and Network Users' Imbalances (GWh, GY 2015/16)




*Source: ACER*
** Data for Spain refer to a later and shorter period (1 Oct 2016 – 31 Mar 2017) therefore the values in the table are not directly comparable.*

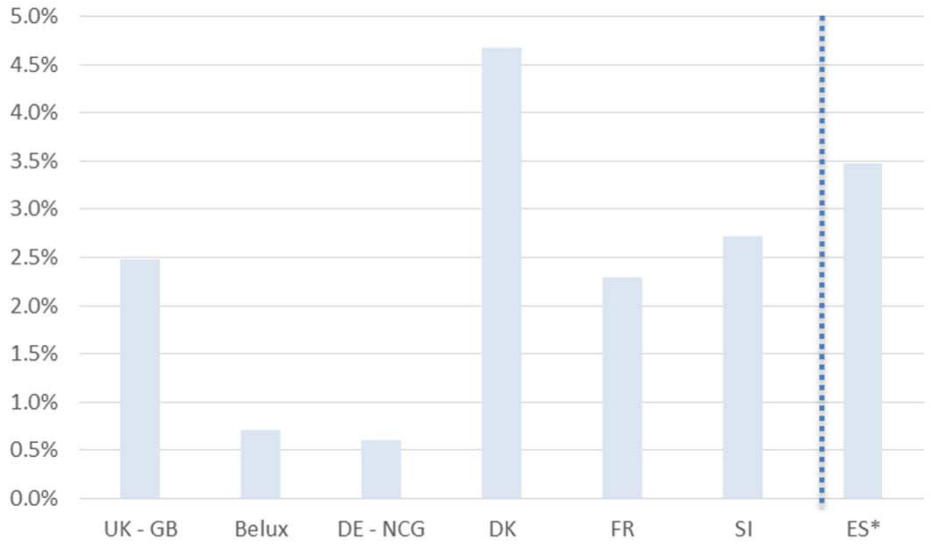
# NETWORK USERS' IMBALANCES

- **Definition:** The difference between each network user's injections into and withdrawals from the transmission network, plus the net gas exchanged at the VTP, defines the network user's imbalance.
- Considerations: The individual network users' imbalances are not publicly available. The Report analyses their aggregated behaviour.
  - Network Users' Imbalances contribute to the neutrality energy transactions, cumulated over the period of analysis: Network User Imbalances Long & Short Positions.
  - The end-of-day Imbalance Short Positions to indicate whether there is any bias (systemic bias) in their behaviours.
  - Spread of Short and Long Prices may give an indication of the strength of the incentive to achieve balance (large differentials).
  - Comparisons across countries and indicators put in perspective against each other.
- What is important that the market is convinced that the TSO is playing a residual role and prices reasonably incentivise balancing.

# ANALYTICAL FRAMEWORK – NETWORK USERS' IMBALANCES

- At the end of the GD, if a network user injected less gas than it has withdrawn, it is cashed out for the missing gas at the marginal buy price.
- At the end of the GD, if a network user injected more gas than it withdrew, it is cashed out for the excess gas at the marginal sell price.

Figure 7-6: Total Imbalance Cash-out Quantities (% of zone entry quantities, GY 2015/16)




*Source: ACER*

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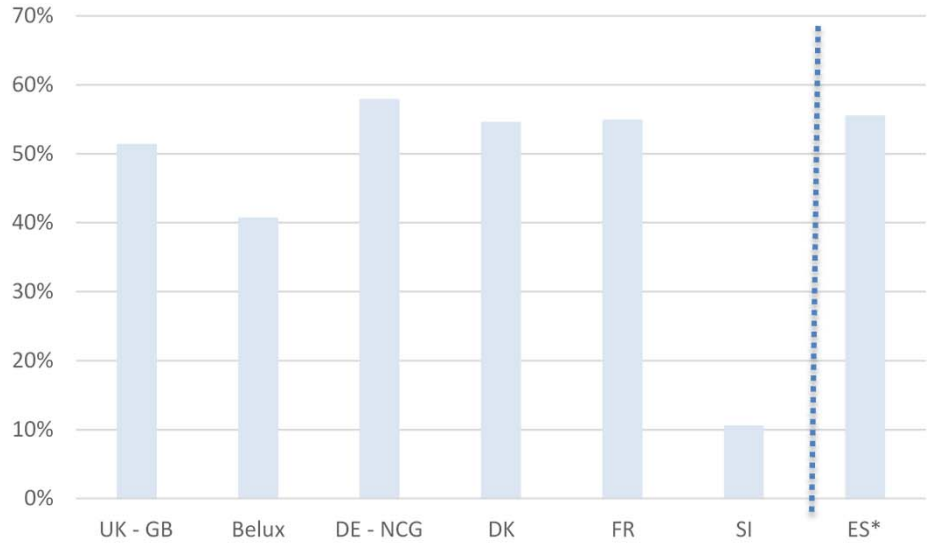
# ANALYTICAL FRAMEWORK – NETWORK USERS' IMBALANCES

- Slovenia stands out as a regime, where a high proportion of network user's cash-out quantity arise from an over-delivered position.

Percentage of Total Network Users' Buy Quantities (of all Cash-Out Imbalance Quantities, GY 2015/16)




*Source: ACER*

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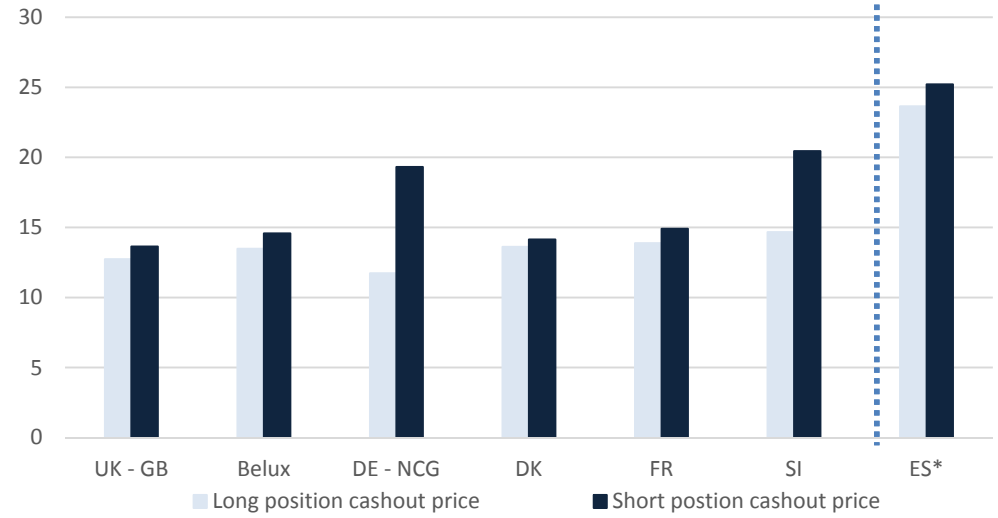
Figure 7-8: Network Users' Imbalance Cash-out average prices (EUR/MWh, GY 2015/16)

# ANALYTICAL FRAMEWORK – NETWORK USERS' IMBALANCES

- several countries have average price differentials just above 1 EUR/MWh (2 exceptions).
- wide variations may warrant investigation and explanation - on how widely differing average imbalance costs contribute to a well-functioning regime?

Figure 7-8: Network Users' Imbalance Cash-out average prices (EUR/MWh, GY 2015/16)




*Source: ACER*
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# NEUTRALITY

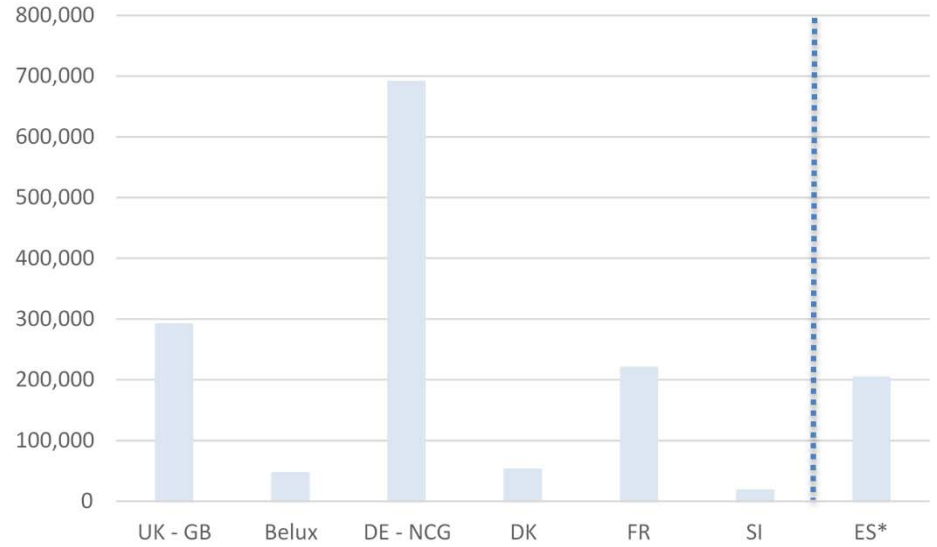
- **Debate:** Is it sufficient that the TSO is neutral? How could the specific provisions of Articles 29 and 30 be adopted at national level?
- Our opinion is: to deliver objectively on the neutrality the following play a role:
  - The neutrality cashflows are not split and users are charged in the same way.
  - The charges are not targeted back at imbalances. There is a reason for this: net costs/revenues cannot be precisely debited/credited back to individual users, therefore should be redistributed over a large tax/credit base to avoid any distortions.
  - Neutrality is charged separately, so users know how much it costs. Explanations for the costs and revenues are appropriately given. Relevant data publication on neutrality is aligned with charging the users (no less than once/ month).
- What is important that the market is convinced that the TSO is neutral and that charges/revenues are applied uniformly to network users using the above principles.

  (The cash-out price being the only incentive applied.)

# Analytical framework – Neutrality Cash flows 1

- The Neutrality account gets money when the TSO is selling gas to the system (when *system short*) and from the network users' short positions that are cashed out.
- The Neutrality account pays money when TSO is buying gas from the system (when *system long*) and from the network users' long positions that are cashed out.

Absolute sum of cashflows (thousand EUR, GY 2015/16)



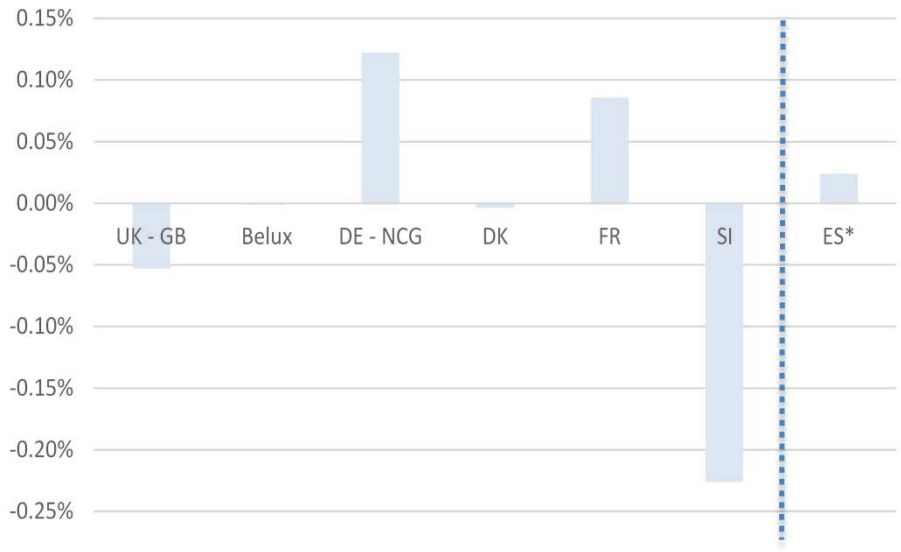

*Source: ACER*

** Data for Spain refer to a later and shorter period (1 Oct 2016 – 31 Mar 2017) therefore the values in the table are not directly comparable.*

# ANALYTICAL FRAMEWORK – NEUTRALITY CASH FLOWS 2

- Another way to look at neutrality cash flows is netting the balances for the payments explained above.
- **Three types** of net positions could be calculated:
  - (1) net energy stands for the net effects on the gas quantity/volumes from the 4 types of transactions (SEE THE SLIDE BEFORE ON THE 4 COMMERCIAL TRANSACTION TYPES)

Figure 7-11: Statistic 2 - Net energy position (% of market entry volume, GY 2015-16)

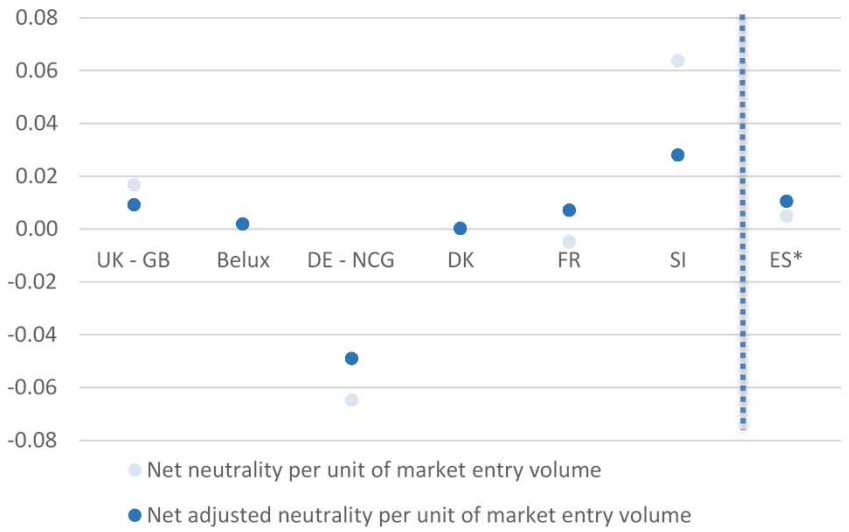



*Source: ACER*

# Analytical framework – Neutrality Cash flows 3

- (2) net financial neutrality (LIGHT BLUE DOT): shows the net sum of cashflows represented by revenues – costs being part of neutrality.
- (3) net adjusted (financial) neutrality (DARK BLUE DOT): shows neutrality volume neutral, and attributes financial value only to the unmatched (separate) purchased (or sold) volumes.

Net financial and net financial adjusted neutrality per unit of market volume (EUR/MWh, GY 2015/16)




*Source: ACER*

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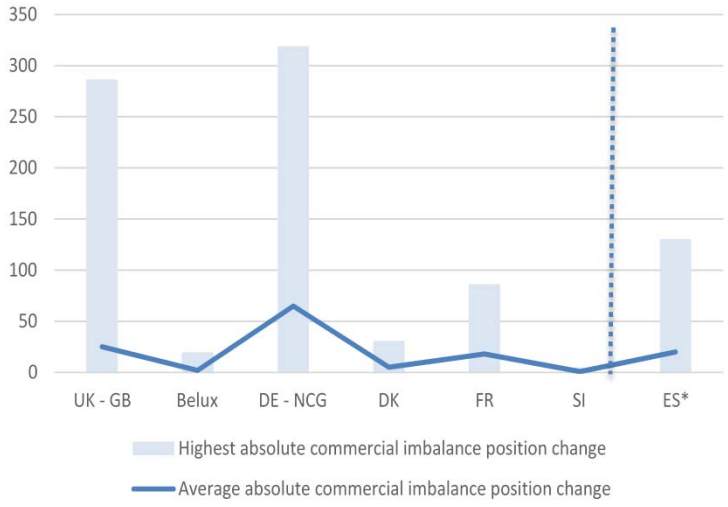
# Cumulated Commercial Imbalance changes and Linepack changes

- **Debate:** Why is it in the Report? Can this be important?
- Changes in the linepack position (i.e. difference between the opening and closing linepack position) should at least partly reflect the net daily commercial imbalance position changes. (We focused on day-on-day.)
- Our opinion is: It is important to understand how the commercial activities of gas balancing align with the physical system.
  - Very little information is available about this. The daily linepack variability could inform on the extent to which zones can absorb substantial imbalances (under some circumstances). –Transport flexibility
  - Linepack flexibility: critical design element of balancing design. Having access to economic and efficient amount of flexibility without unduly constrain network user's freedom.
  - Where day-on-day physical linepack changes are not close to the anticipated effect arising from the day's commercial imbalances, the reasons should be investigated and explained to ensure confidence in the operation of the regime. – Interaction of the two
  - Linepack is in the core of TSOs' business. If anyone, TSOs are the ones to explain how it works, what the constraints are, and whether certain constraints are necessary or not. – Economic & efficient operation

# Commercial Imbalance Position changes (CCI) and Linepack changes (LC)

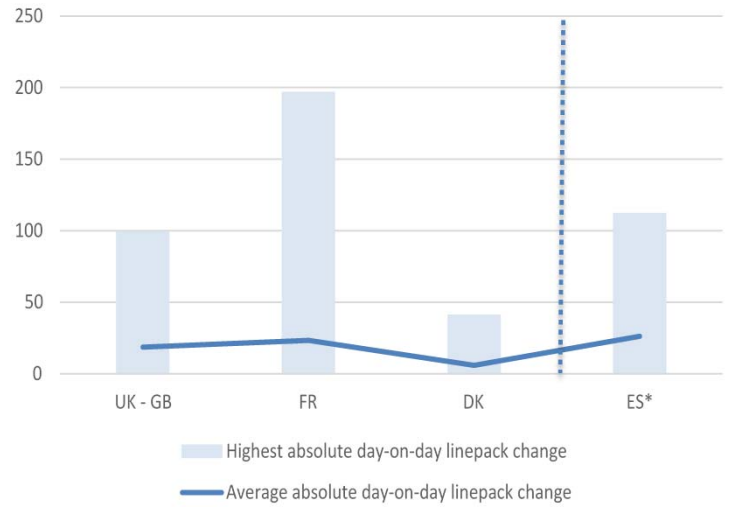
- The Network Users' Imbalances and TSO Balancing Actions together constitute the Commercial Imbalance Position.
- The Cumulated* Commercial Imbalance Changes contribute to Linepack Changes (but not-exclusively).
- CCI=LC under certain circumstances & if there are no other change factors.
- Deviations between commercial and physical gas accounting may be due to technical reasons. Deviations could have repercussion on the commercial side, so they may need to be explained.

Figure 7-18: Statistics 6 and 7 - Highest and average absolute commercial imbalance position change (GWh, 2016)




Source: ACER

Figure 7-17: Statistics 4 and 5 - Highest and average absolute day-on-day linepack changes (GWh, GY 2015-16)




Source: ACER

*cumulating the daily net effects

# CONCLUSIONS, OUTCOMES, GOALS

- BASIC NEUTRALITY is a key indicator for wider REGIME PERFORMANCE and a tool for robust GAS ACCOUNTING.
- DISCREPANCIES ACROSS the normalised values of country indicators and between the physical and commercial indicators should be assessed by all actors to help improve the effectiveness of the regime.
- We would like to cooperate with NRAs who did not take part in this year's analyses, but wish to do so.
- We would like to see ENTSOG using this analytical framework and take part in a broader data collection (INCLUDING IMBALANCE PRICES, LINEPACK DATA).
- **CONCERNING COUNTRY ASSESSMENTS**
- We are concerned about **PROGRESS IN SOME COUNTRIES APPLYING INTERIM MEASURES**. We believe that those who do not set up a functioning platform by end-2017, ***WILL NOT MEET*** **THE LEGAL DEADLINE OF CODE IMPLEMENTATION OF APRIL 2019.**

# Conclusions, Outcomes, Goals

**Finally,**

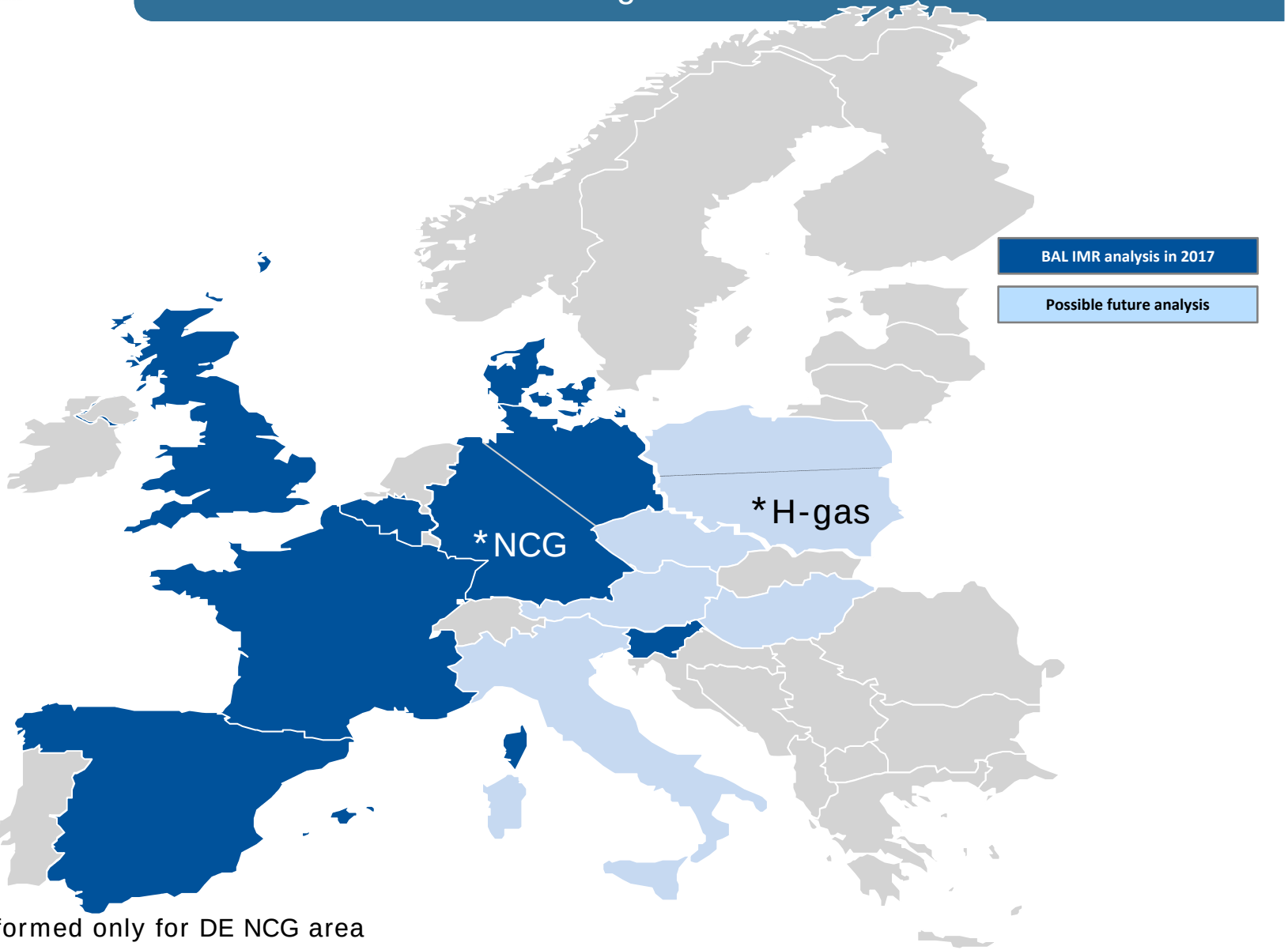
- The *Balancing Analytical Framework* should become an integral part of regime performance monitoring. The necessary data limit the application of the framework.

- The Agency promotes the use of the *Balancing Analytical Framework*, where the relevant data is available.

  - The relevant data should be available;
  - In the interim countries, additional parameters might be needed (e.g. tolerances).

GIVEN THAT THIS FRAMEWORK COULD BE USED BY MANY, THE AGENCY WOULD WELCOME FEEDBACK FROM INDUSTRY STAKEHOLDERS ON THE MERITS OF THE ***FRAMEWORK.***

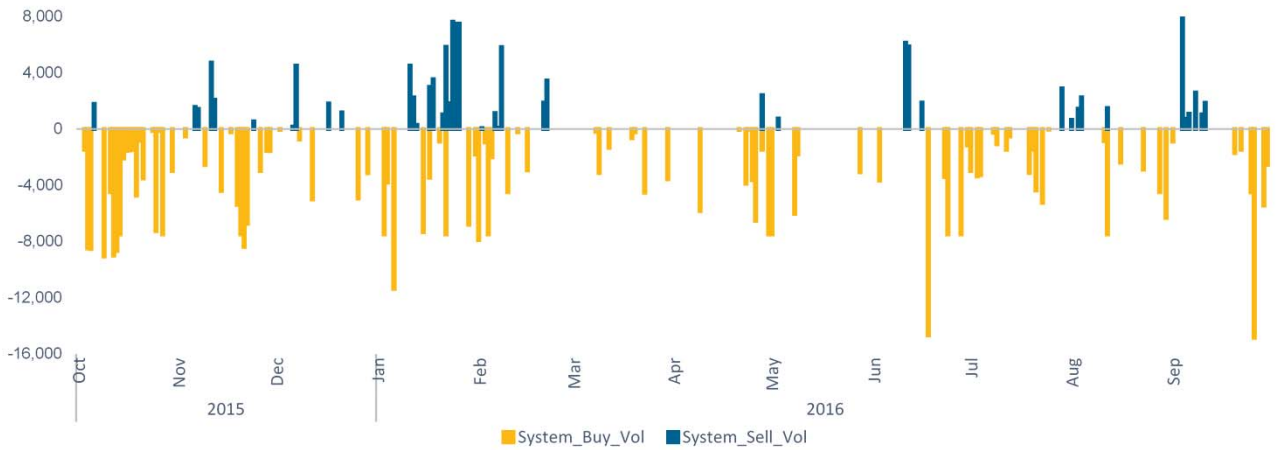
# Going further?
## What could be the next region to be looked at?




*Analysis performed only for DE NCG area

# ANNEXES

TSO's balancing action, Denmark (MWh)

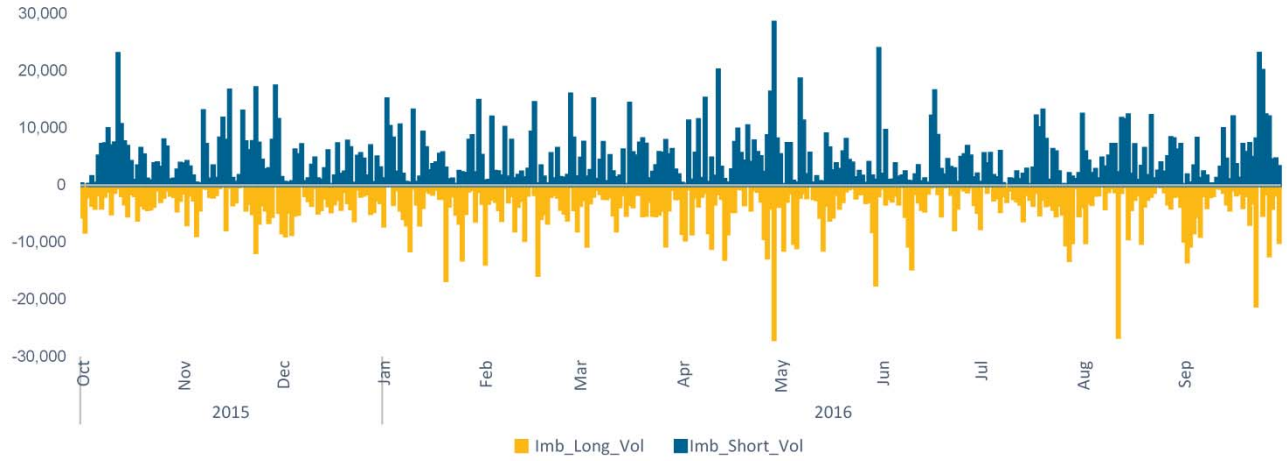



TSO's balancing actions statistics, Denmark

| | Annual quantity | Share of annual market | Number of days | Average daily quantity | Max daily quantity | Share of activity | Average price |
|---|---|---|---|---|---|---|---|
| | MWh | % | n° | MWh | MWh | % | EUR/MWh |
| System Buys | 406,530 | 0.60 | 102 | 3,986 | 14,880 | 77.3 | 15.59 |
| System Sells | 119,400 | 0.17 | 43 | 2,777 | 9,150 | 22.7 | 12.91 |
| **Total** | **525,930** | **0.77** | **141** | | | | |

# ANNEXES

Network Users' imbalance quantities, Denmark (MWh)

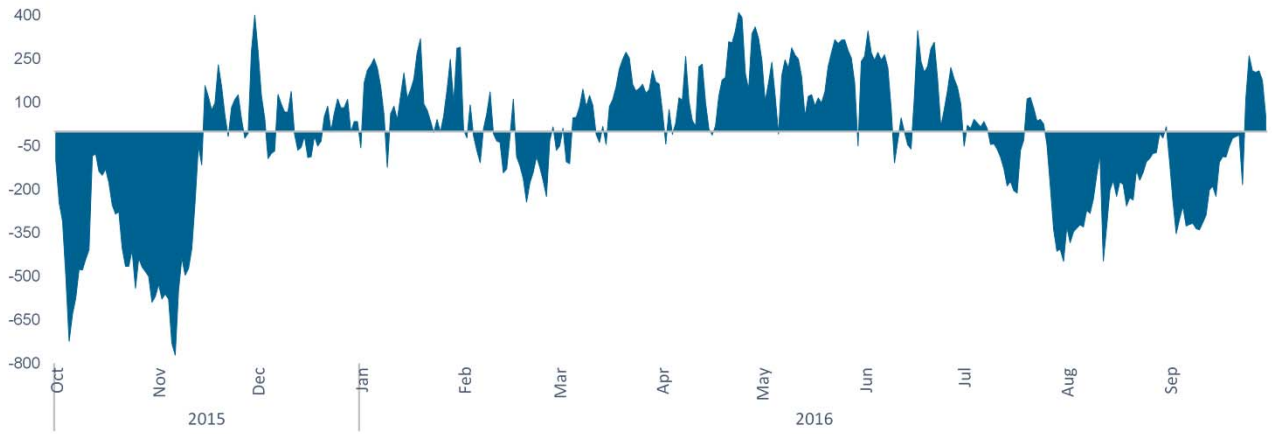



Network users' imbalance statistics, Denmark

| | Annual quantity | Share of annual market | Min daily quantity | Average daily quantity | Max daily quantity | Share of activity | Average price |
|---|---|---|---|---|---|---|---|
| | MWh | % | MWh | MWh | MWh | % | EUR/MWh |
| Network user Long | 1,450,625 | 2.13 | 14 | 3,963 | 26,981 | 45.5 | 13.62 |
| Network user Short | 1,740,080 | 2.55 | 0 | 4,754 | 28,436 | 54.5 | 14.15 |
| Total | **3,190,705** | **4.67** | | | | | |

# ANNEXES

Cumulative neutrality financial position, Denmark (thousand EUR)

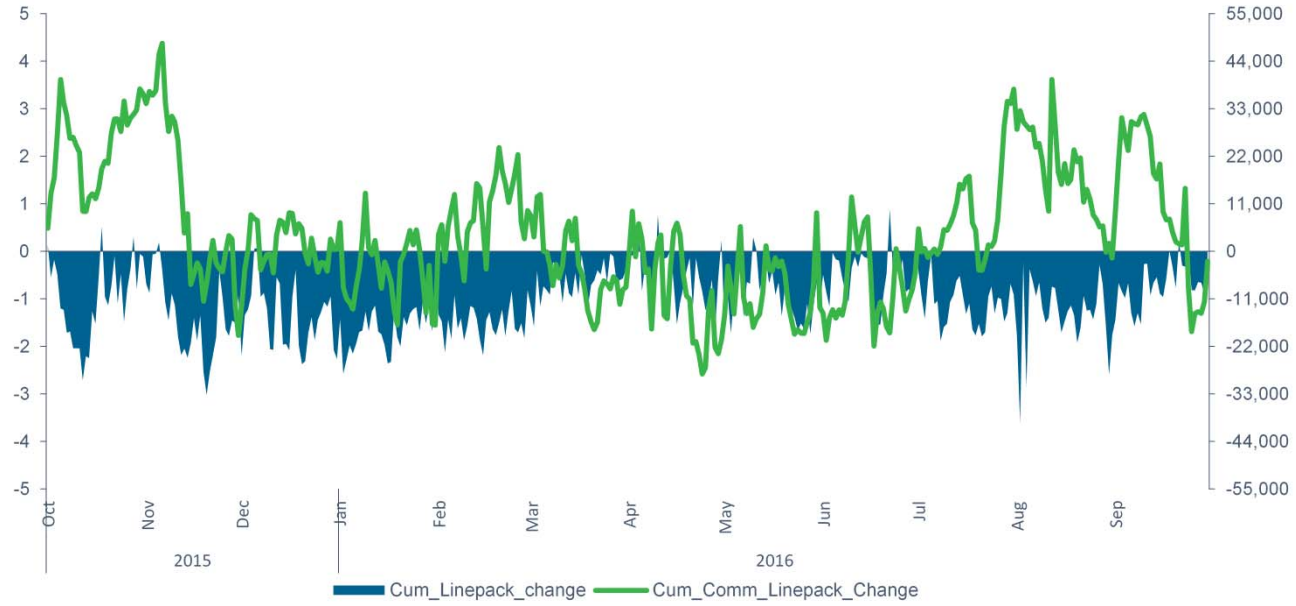



Cumulative *neutrality position, Denmark*

| | Quantities (MWh) | Cashflows (thousand EUR) | Relative share (%) |
|---|---|---|---|
| **Financial credits to neutrality** | | | |
| **TSO System Sells** | 119,400 | 1,542 | 6% |
| **Network User Imbalance shorts** | 1,740,080 | 24,614 | 94% |
| **Sub-total** | | **26,156** | |
| **Financial debits to neutrality** | | | |
| **TSO System Buys** | 406,530 | 6,338 | 24% |
| **Network User Imbalance longs** | 1,450,625 | 19,764 | 76% |
| **Sub-total** | | **26,102** | |
| **Net** | **-2,325** | **54** | |
| **Net neutrality per unit of market volume 0.0008 €/MWh** | | | |

# ANNEXES

Linepack (mcm, left axis) and overall commercial imbalance position (MWh, right axis), Denmark



# PUBLICATION

**Publication is available:**

The piece of news :
http://www.acer.europa.eu/Media/News/Pages/Second-ACER-Report-on-the-implementation-of-the-Balancing-Network-Code-available-online1116-1654.aspx

Direct access to the Report:
Volume I:
http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ACER%20Report%20on%20the%20implementation%20of%20the%20Balancing%20Network%20Code%20(Second%20edition)%20Volume%20I.pdf
Volume II:
http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ACER%20Report%20on%20the%20implementation%20of%20the%20Balancing%20Network%20Code%20(Second%20edition)%20Volume%20II.pdf

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# Thank you for your attention!

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european network
of transmission system operators
for gas

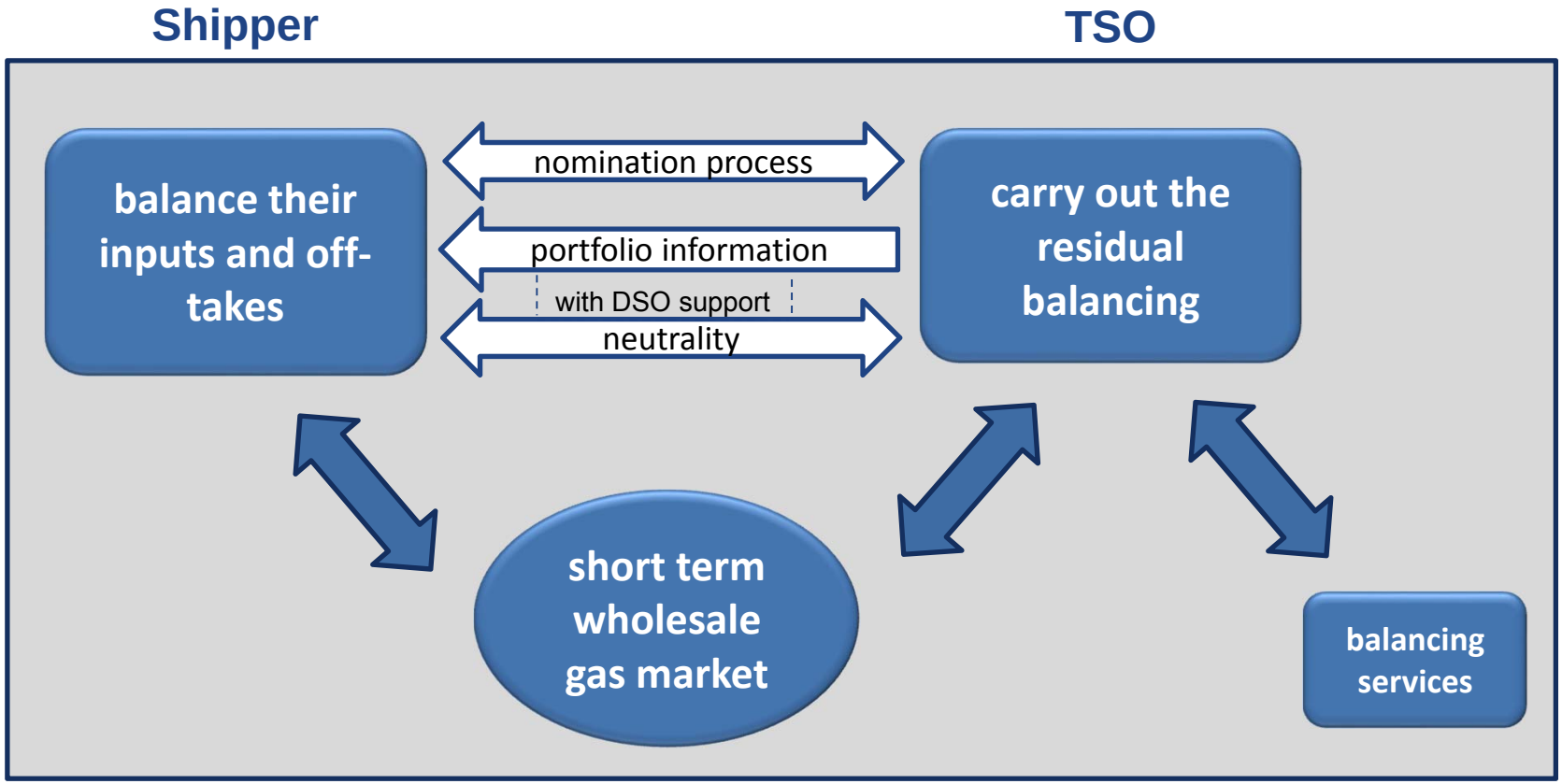
Vienna, 22 November 2017

# Balancing Implementation and effect monitoring 2016

## 3rd ENTSOG/ACER Workshop on Balancing

Image Courtesy of Thyssengas

# Delivering the “Balancing Target Model”




- **3 implementation deadlines foreseen in the BAL NC:**
  - 1 October 2015: 10 countries
  - 1 October 2016: 5 countries (transitory period option)
  - 16 April 2019: 11 countries (with interim measures)

# BAL Implementation monitoring 2016

- **Balancing implementation status by 1 October 2016:**
  - **Implementation deadline by 1 October 2015 applicable for 10 countries**
    - 9 countries (AT, BE/LU, DE*, DK, FR, NL, SI and UK-GB) have implemented the BAL NC.
    - 1 country (HU) has most of the provisions in place.
  - **Implementation deadline by 1 October 2016 applicable for 5 countries (transitory period option)**
    - 2 countries (ES and IT) have implemented the BAL NC.
    - 3 countries (CZ, HR, PT) still have to perform further implementation steps.
  - **Implementation deadline by 16 April 2019: 11 countries (with interim measures)**
    - **Interim measures:**
    - 8 countries (DE*, IE, LT, PL, RO, SE, SK and UK-NI) have interim measures in place.
    - 2 countries (EE** and EL) partially implemented the interim measures.
    - 1 country (BG) is planning to implement the interim measures during 2017.
    - **All other provisions *(with implementation deadline by 1 October 2015)*:**
    - 3 countries (DE*, IE, and UK-NI) have also all other provisions in place.
    - 8 countries (BG, EE**, EL, LT, PL, RO, SE and SK) partially implemented the other provisions.

*Germany is doubled categorized as it applied in addition to its implemented trading platform an additional balancing platform under interim measures.
**Estonia, holding derogation, provided partially data on a voluntary basis.

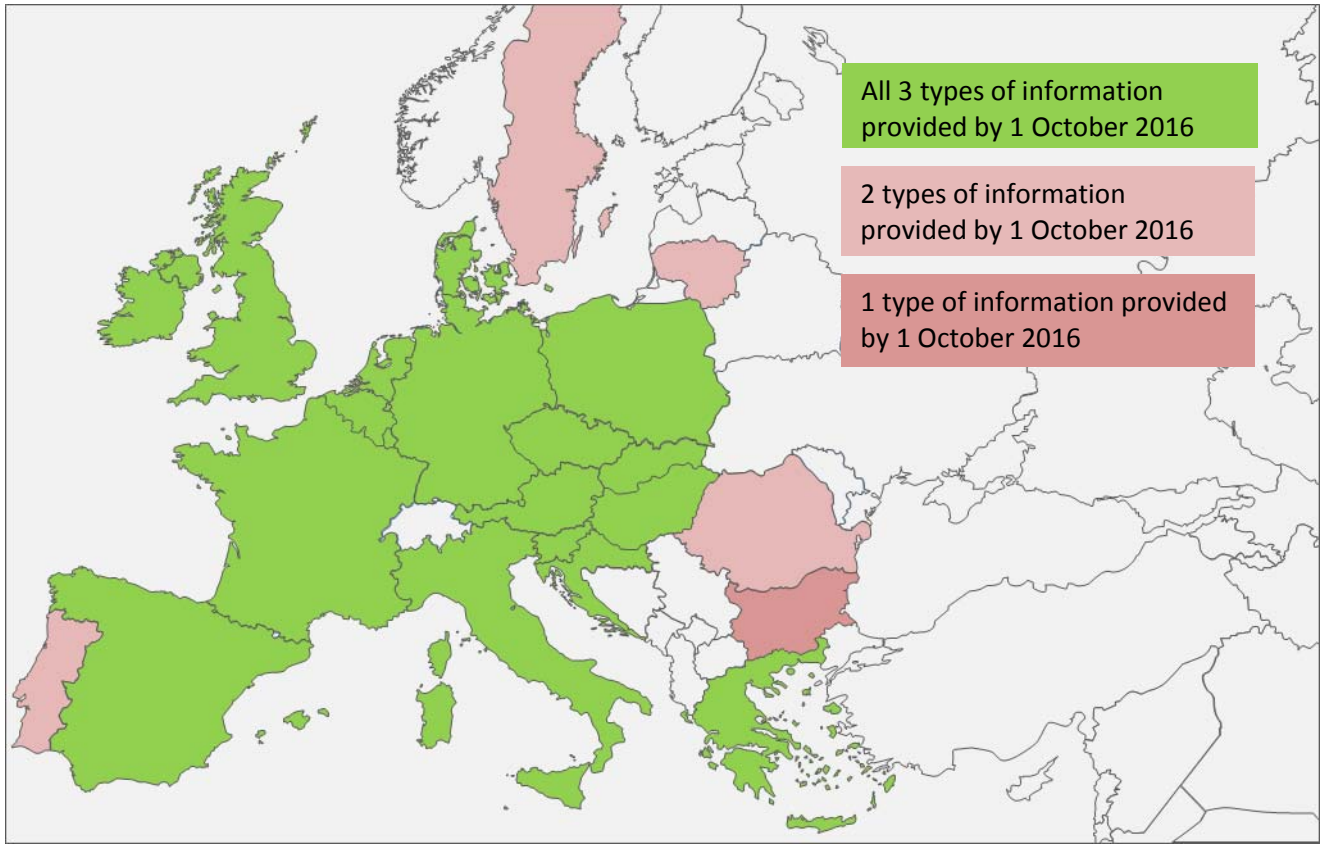
# Information provisions by TSOs towards network users

The information provided to network users by the TSOs shall refer to:

(1) the overall status of the transmission network;

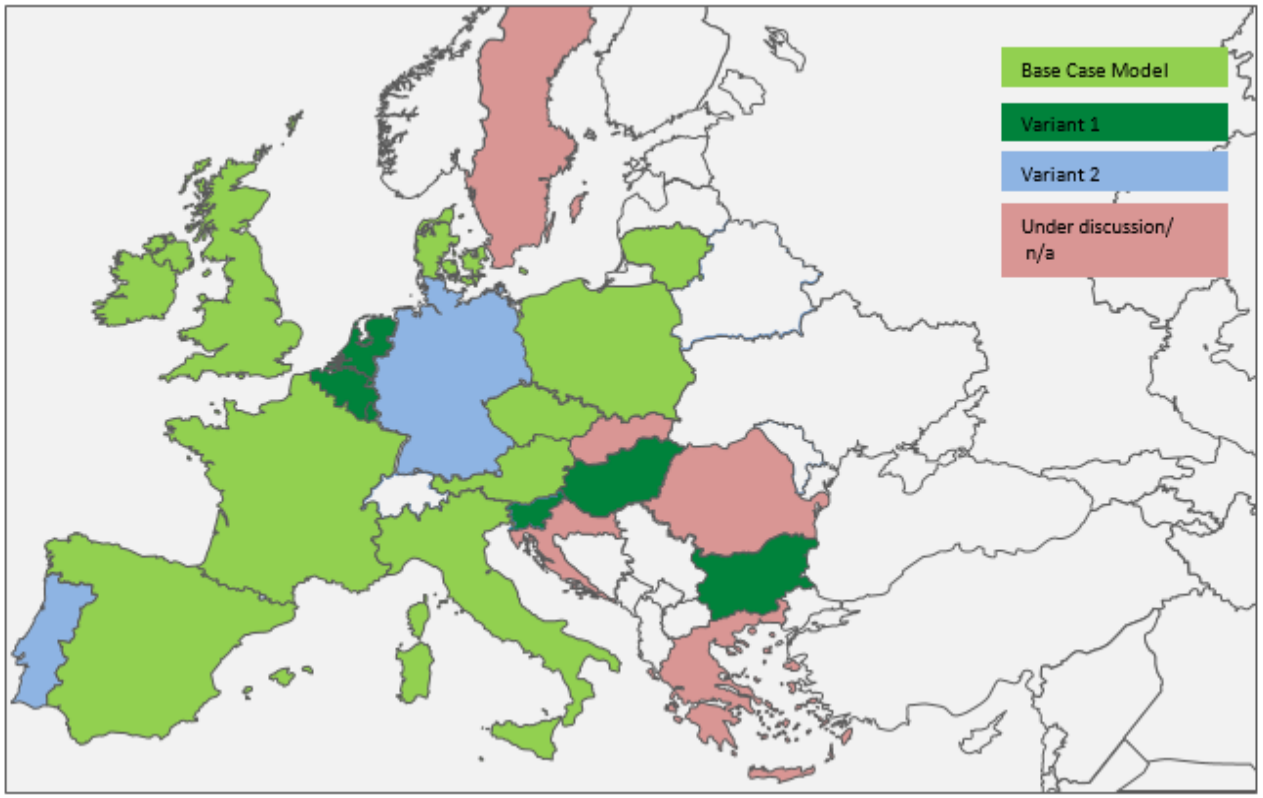
(2) TSO's balancing actions;

(3) the network user's inputs and off-takes for the gas day.




- 19 countries reported the information provisions of all 3 categories towards the network users while 5 countries partially provide them.

# Information model and forecasting party

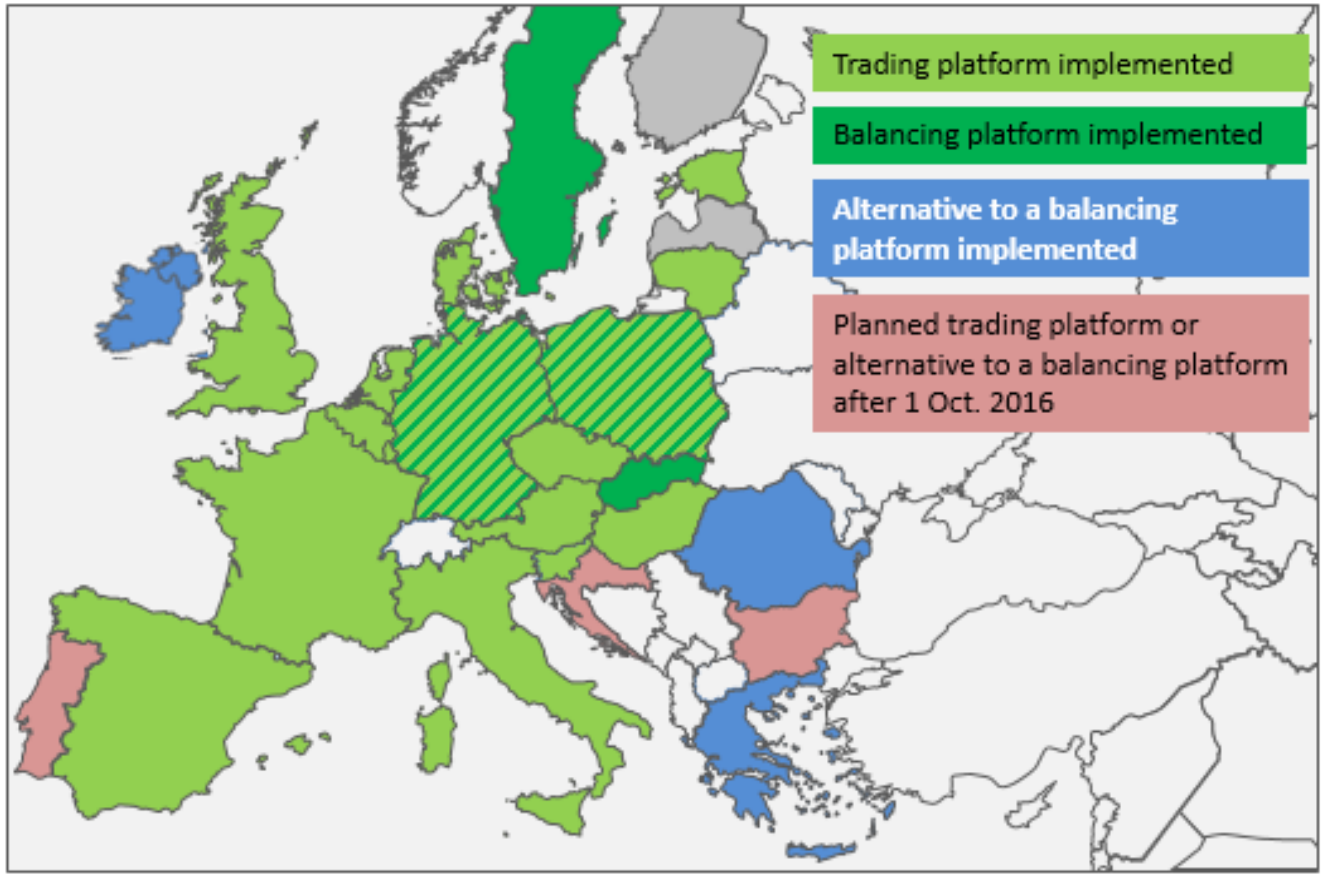



| Forecasting party | | | | |
|---|---|---|---|---|
| **TSO** | **DSO** | **Third party** | **Under discussion** | **No forecasting party foreseen** |
| BE, DK, FR, IE, IT, LU, PT, SI, UK-GB, UK-NI (10) | DE, HU*, LT, PL (4) | AT, CZ, ES, NL (4) | HR*, RO* (2) | BG, EE, EL, SE, SK (5) |

* Countries planning to establish a forecasting party.

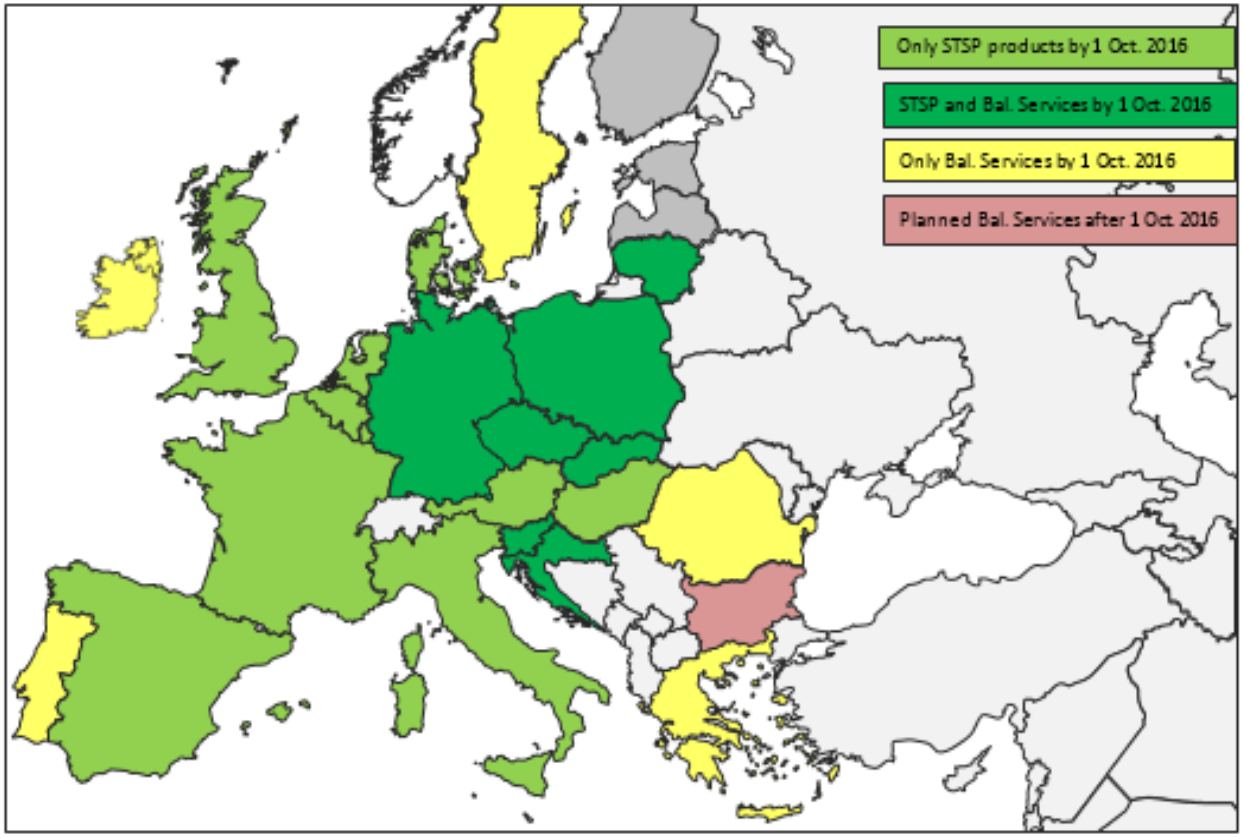
- 19 countries have already chosen one of the three information models.
- Information model: On-going implementation regarding the provision of forecasts, updates and allocation can be noticed as several updates and new implementation happened by 1 October 2016.
- Some countries e.g. provide more frequent updates than the minimum foreseen in the BAL NC while some other countries have still not designated an information model and/or the forecasting party.

# Trading vs. Balancing platform vs. Alternative to a Balancing platform by 1 Oct. 2016




- 15 countries (AT, BE, CZ, DE, DK, ES, FR, HU, IT, LT, LU, NL, PL, SI and UK-GB) have a trading platform in place.

# STSPs and Balancing services by 1 Oct. 2016




| Type of STSP product | Country where it is offered on a trading platform or balancing platform |
|---|---|
| Title products | AT, BE/LU, CZ, DE, DK, ES, FR, HU, IT, LT, NL, PL, SI, SK, UK-GB (16) |
| Locational products | DE, ES, FR, HR, HU, IT, UK-GB (7) |
| Temporal products | DE, HU, NL (3) |
| Temporal locational products | DE (1) |

# BAL Effect Monitoring Report 2016

## *BAL.1 (yearly) – TSO balancing through STSPs as % of total TSO balancing*

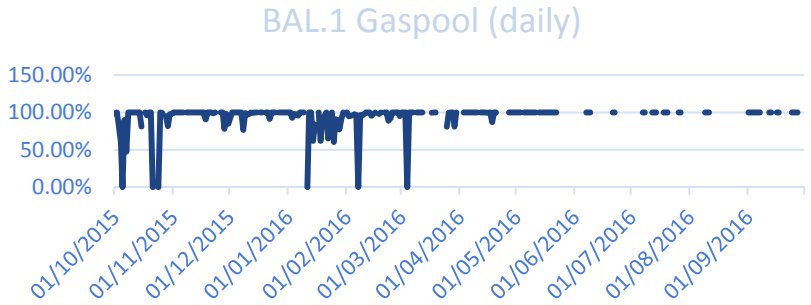
| Cluster | Country/ balancing zone | BAL.1 indicator (GY 2015/2016) |
|---|---|---|
| 2015 | AT | 100% |
| | BE/LU | 100% |
| | DK | 100% |
| | FR (GRTgaz North/ TRS) | 100% |
| | HU | 100% |
| | NL | 100% |
| | UK-GB | 100% |
| | DE (Gaspool) | 96.88% |
| | DE (NCG) | 81.58%; (as of 1 May 2016) 100% |
| | SI | 85.85% |
| 2016 | CZ* | 100% |
| 2019 | PL (H-Gas) | 99.91% |
| | SK | 33.66% |
| | LT | 0% |
| | EL, SE, IE, UK-NI | No STSP, only interim measures/ balancing services in place* |
| | BG, PL (L-Gas, TGPS), RO | - |

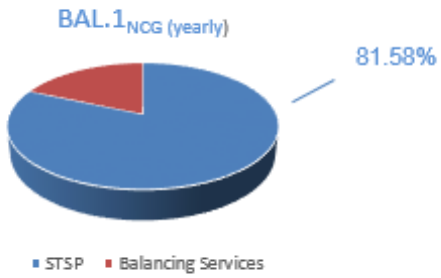
- In total 13 countries (AT, BE/LU, CZ, DE, DK, FR, HU, NL, SI, SK, PL and UK-GB) were using STSP products on a trading and/or balancing platform during GY 2015/2016.

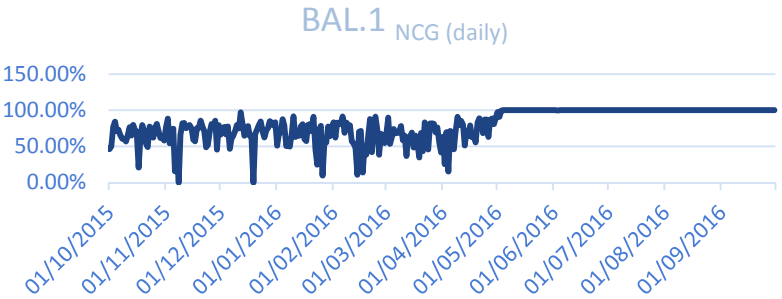
*Czech Republic data has been used only as of 1 July 2016 in GY2015/2016 due to its implementation deadline 1 July 2016. Spain, Italy, Croatia and Portugal have not participated in effect monitoring due to their implementation deadline 1 October 2016.

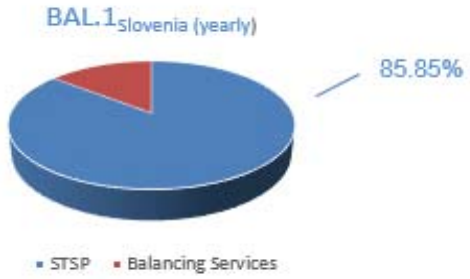
# BAL Effect Monitoring Report 2016

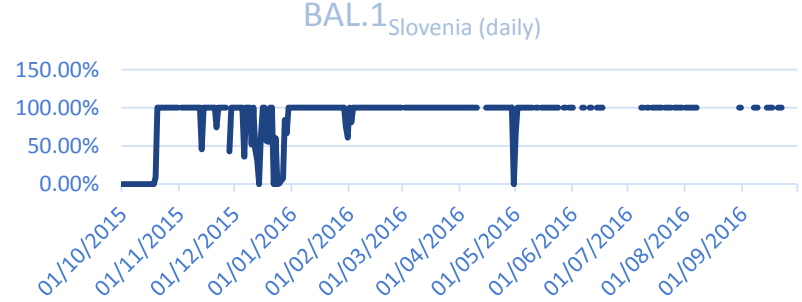
## *BAL.1 (daily) – TSO balancing through STSPs as % of total TSO balancing*

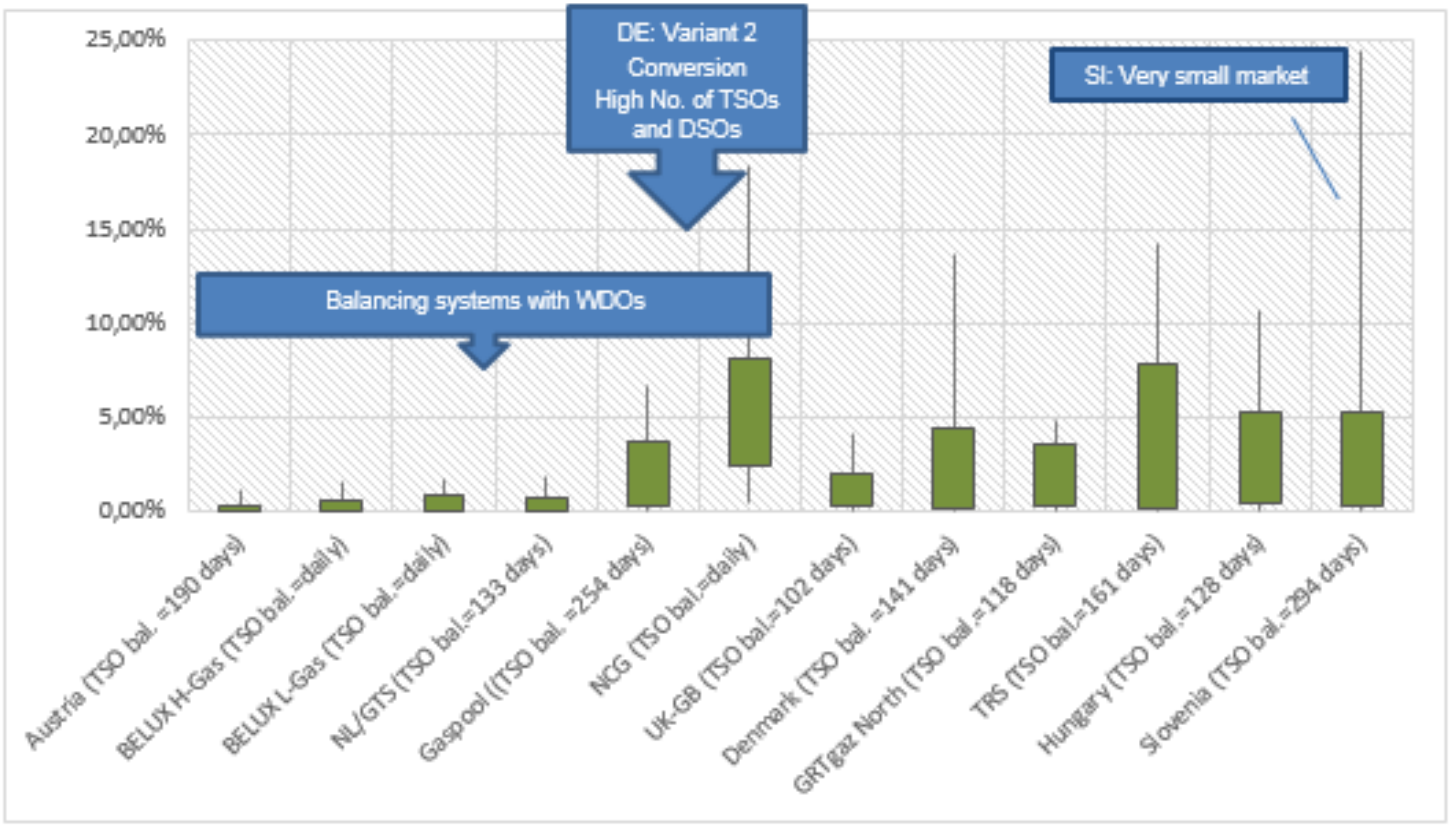



# BAL Effect Monitoring Report 2016

## *BAL.2 (daily): Total TSO balancing volume as % of market volume*

**Cluster 2015 countries**



# Next balancing monitoring

- ***Next balancing monitoring report is planned to be published June 2018***
  - Implementation status of BAL NC by 1 Oct. 2017
- ***Cluster 2016 countries will be included in effect monitoring (GY2016/2017)***
- ***Suggestions for development of indicators***
  - More information on STSP e.g. on title products
  - Evolution from GY 2015/2016 to GY 2016/2017

# Thank You for Your Attention

ENTSOG -- European Network of Transmission System Operators for Gas
Avenue de Cortenbergh 100, B-1000 Brussels

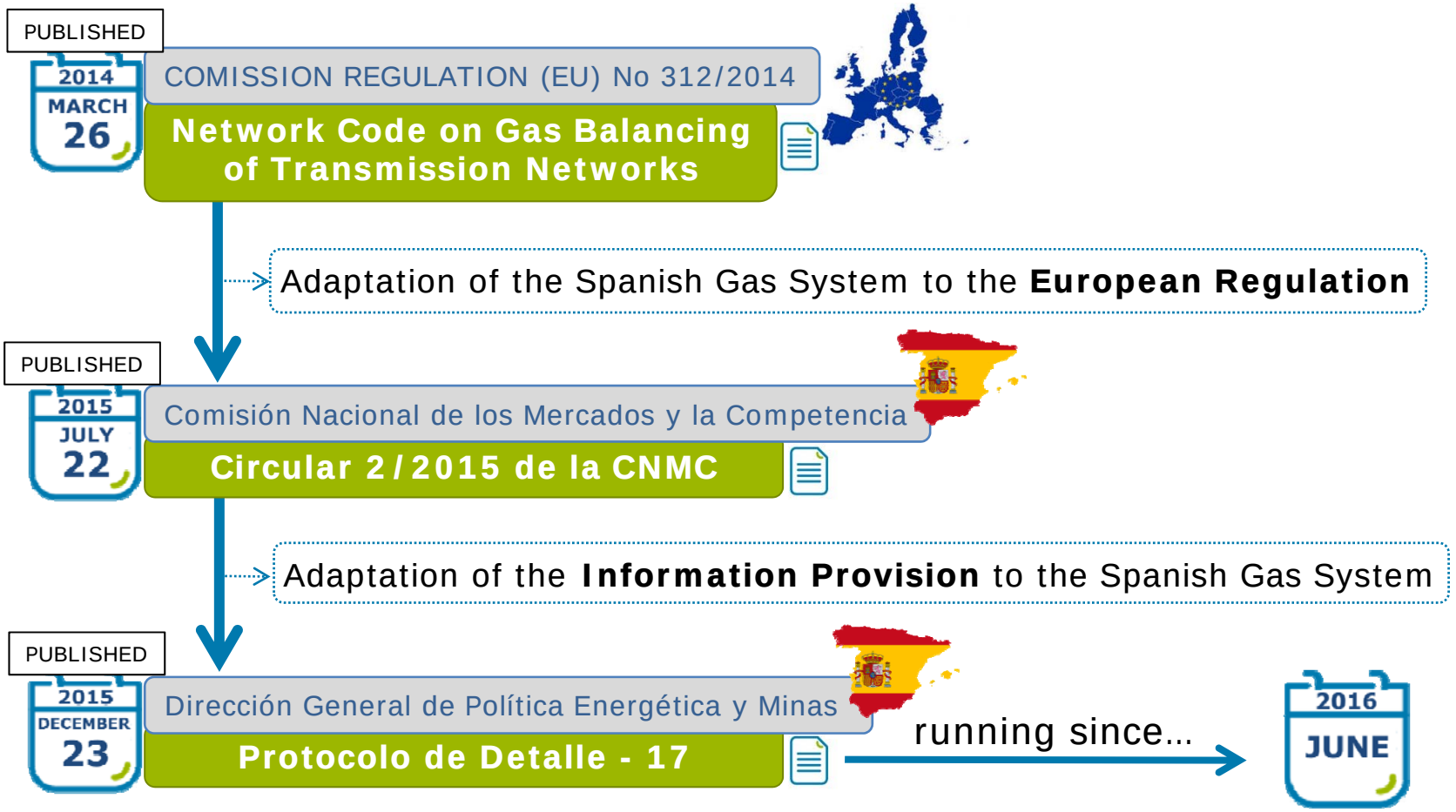
EML: veronika.herter@entsog.eu
WWW: www.entsog.eu

# Information Provision in Spain

Balancing & Reporting
Enagas GTS S.A.U.
22nd November 2017

# INDEX

# 1. INTRODUCTION: Regulatory Framework



# 1. INTRODUCTION: Chosen Option

**INFORMATION PROVISION PROCESS**

built upon…

**BASE CASE**

**Non Daily Metered FORECAST**

**DAY AHEAD**

**WITHIN DAY**

**Who are involved??**

I **Transmission System Operators**

II **Distribution System Operators**

**12 OPERATORS**

III **Transmission System Manager** → **ENAGAS GTS**

TSO DSO TSM

**PROCESS involves a MIX of OPERATORS**
(TSO, DSO & TSM)

# INDEX

# 2. SPANISH MODEL: Operator´s Responsibilities

## I Transmission System Operators

**OFF-TAKES INFORMATION**

- DAY AHEAD → Daily / Intradaily Metered FORECAST
- WITHIN DAY → Daily / Intradaily Metered → TWO UPDATES

## II Distribution System Operators

**OFF-TAKES INFORMATION**

- DAY AHEAD
  - Daily / Intradaily Metered FORECAST
  - Non Daily Metered FORECAST
- WITHIN DAY
  - Daily / Intradaily Metered → TWO UPDATES
  - Non Daily Metered FORECAST

DETAILS
- Interconnection POINT
- NETWORK USERS

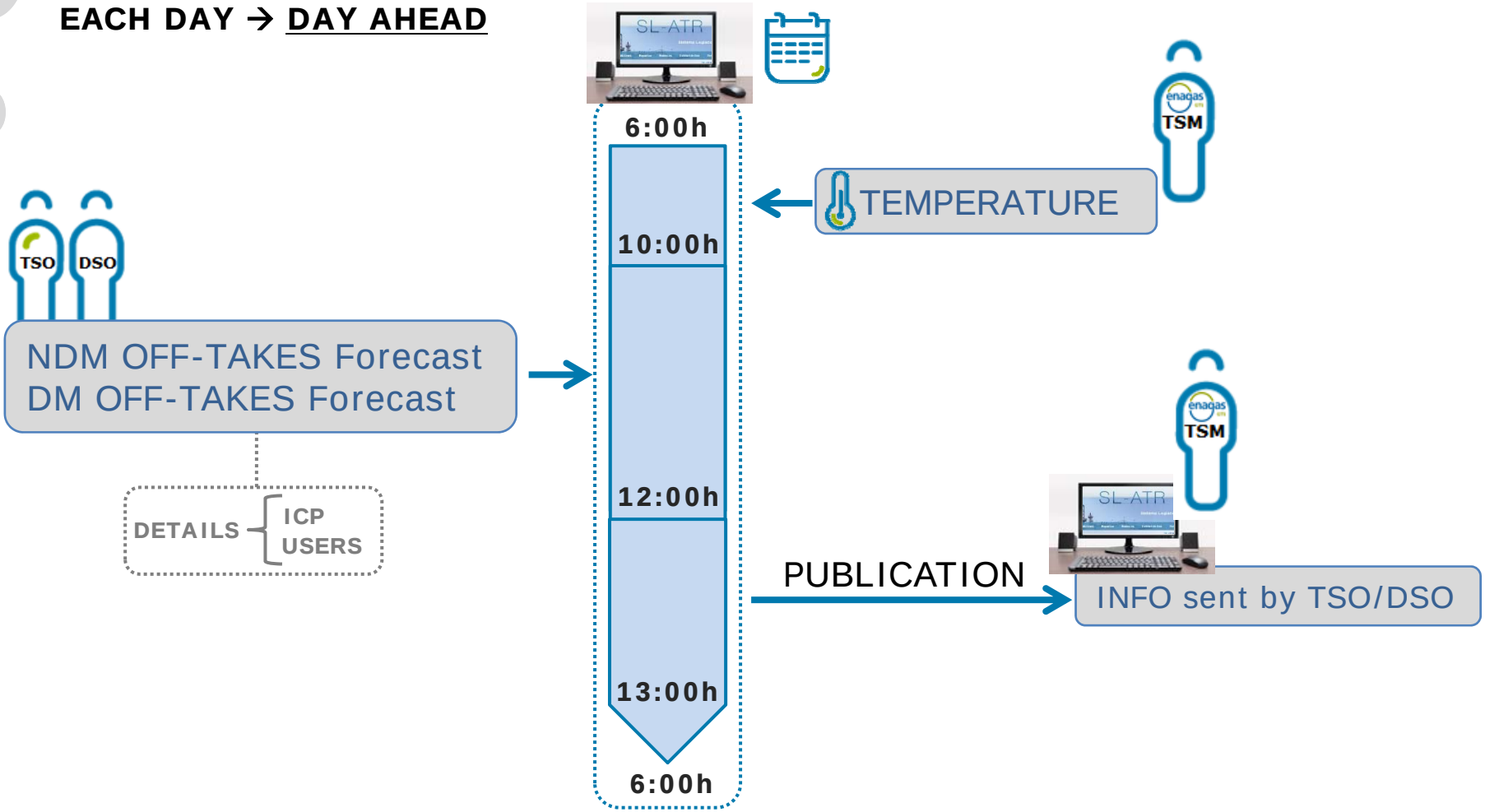
## III Transmission System Manager

**OFF-TAKES and INPUTS INFORMATION**

- Confirmed Quantities
  - Temperature → NDM FORECAST
  - Coordination of INFORMATION EXCHANGE → IT SYSTEM (SL-ATR)
  - PUBLICATION of INFORMATION PROVISION

# 2. SPANISH MODEL: Information Provision timetable

**EACH DAY → DAY AHEAD**



# 2. SPANISH MODEL: Information Provision timetable

**EACH DAY → <u>WITHIN DAY</u>**


DSO

NDM OFF-TAKES Forecast

TSO DSO

DM OFF-TAKES INFO
accumulated flow until 11:00h (5h)

DETAILS — ICP, USERS

6:00h

10:00h

13:30h

14:00h

TSM

TEMPERATURE

PUBLICATION

TSM

INFO sent by TSO/DSO
Confirmed Quantities
(INPUTS and OFF-TAKES)

# 2. SPANISH MODEL: Information Provision timetable

**EACH DAY → <u>WITHIN DAY</u>**


DSO

NDM OFF-TAKES Forecast
(update)

TSO DSO

DM OFF-TAKES INFO
accumulated flow until 18:00h (12h)

DETAILS — ICP USERS

14:00h

17:00h

20:30h

21:00h

6:00h

TSM

TEMPERATURE (update)

PUBLICATION

TSM

INFO sent by TSO/DSO
Confirmed Quantities
(INPUTS and OFF-TAKES)

# INDEX

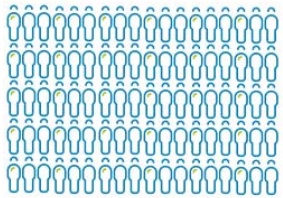
# 3. OUR EXPERIENCE: How is Information Provision working?

**Information Provision Process running since** 2016 JUNE → Almost 18 months

12 TSO/DSO INOLVED

1 TSM INOLVED

Information Provision → About **90** NETWORK USERS



**No significant incidents since then**

Information available in almost **100%** of landmarks

**Very low feed-back from network users**

## 3. OUR EXPERIENCE: Possible next steps

2018 ...

**Daily Allocation: OFF-TAKES Non Daily Metered**

**IMPROVEMENT** of the calculation method of **Non Daily Metered Forecast**

**INCREASE ACCURACY**

**INDICATORS** INFORMATION PROVISION

**INDICATORS** to analyze:

- **QUALITY** of the Daily Metered Information Provision

- **COMPLIANCE** with established **SCHEDULES**

INFORMATION PROVISION **DETAILS**

**DETAILS** of the Information Provision:

- Interconnection Point
- Network USERS
- **Number of Customers per TYPE**

NEW!

**Proposed by USERS**

**DEVELOPING...**

# THANKS FOR YOUR ATTENTION

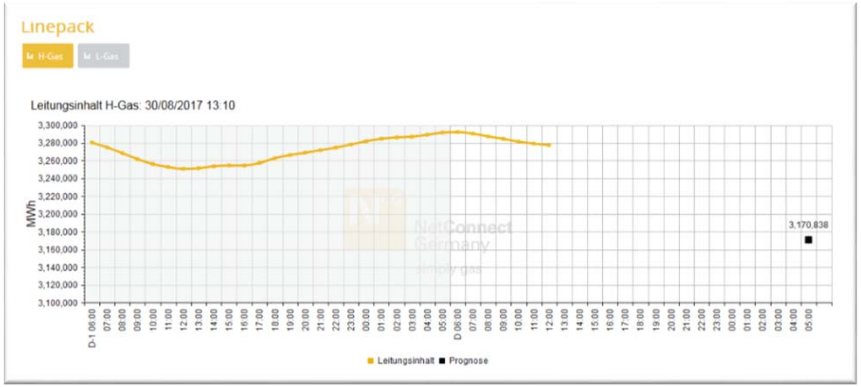
NetConnect Germany
simply gas

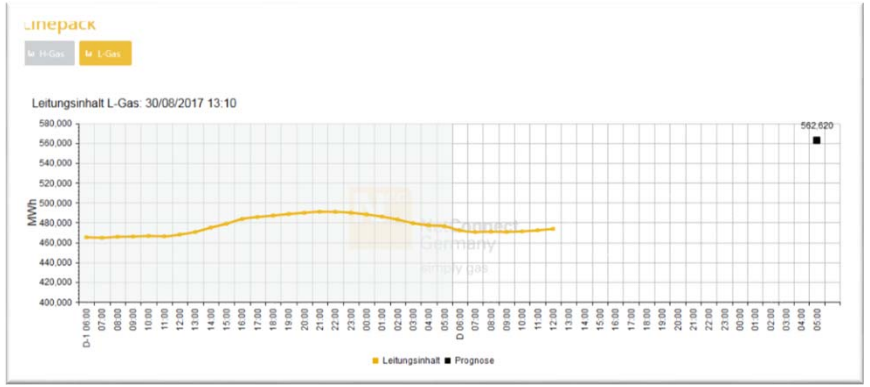
# ACER-ENTSOG Workshop on the Implementation of the Balancing Network Code

Linepack transparency session

Vienna, 22.11.2017

# Publication of linepack levels by NCG




- On an hourly basis, the amount of gas in the transmission system in the last hour and an end of day forecast are being published separately for H-Gas and L-Gas
- To allow putting the current data into perspective, the hourly values for amount of gas in the transmission system of the last gas day are published too
- The end of day forecast is entirely based on the valid network user nominations at the time of the calculation and own end consumer demand expectations

# LINEPACK – WHAT DOES IT MEAN?

## OPERATIONAL LINEPACK OR MARKET POSITION

$$V_{LP}(t) = \frac{\pi}{4}\frac{273{,}15}{0{,}1013}\sum_{k}^{i=1}\left( d_i^2 \int_0^l \frac{z_n(x,t)\,p(x,t)}{z(x,t)T(x,t)}\,dx \right)$$

$$E_{LP}(t) = \frac{\pi}{4}\frac{273{,}15}{0{,}1013}\sum_{k}^{i=1}\left( d_i^2 \int_0^l \frac{z_n(x,t)\,p(x,t)}{z(x,t)T(x,t)}\,Cv(x,t)\cdot dx \right)$$

$$MP = \sum_{i=1}^{n} N_{ENT_i} - \sum_{j=1}^{m} N_{EX_j}$$

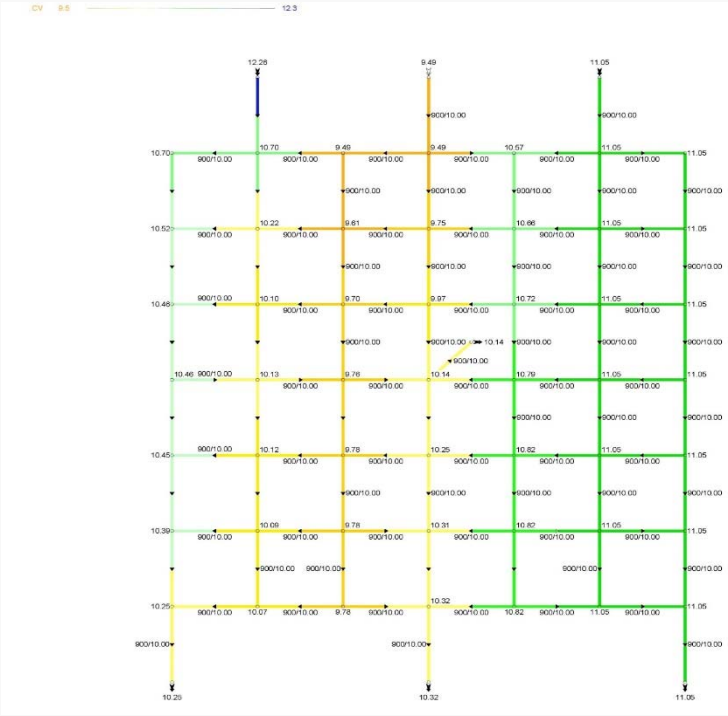
$$\frac{\partial E}{\partial x}\frac{\rho}{C_{Vmix}} + S\frac{\partial \rho}{\partial t} = 0$$

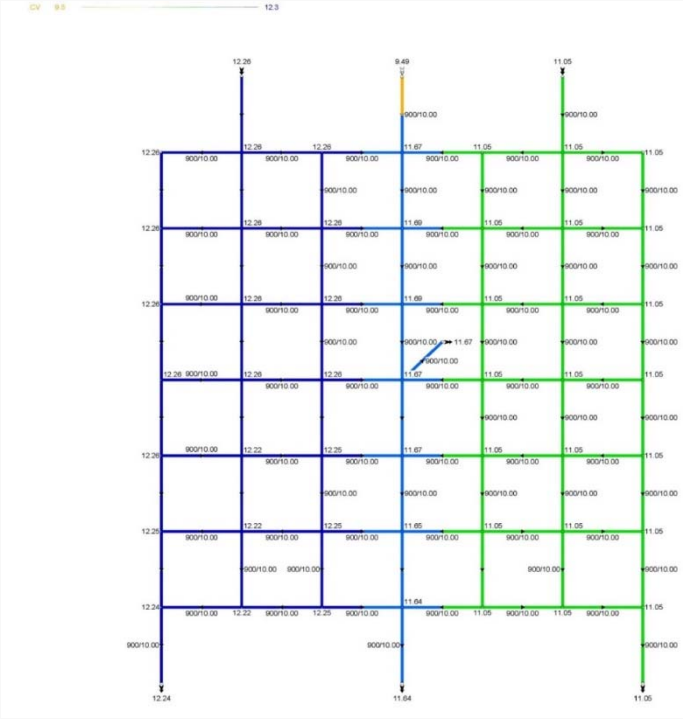
$$T(x,t) = T_O(t) + \frac{T(0,t) - T_O(t)}{C_c \cdot x}\left(1 - e^{-C_c x}\right)$$

$$\frac{\partial p}{\partial x} = -g\rho\frac{\partial h}{\partial x} - \frac{\lambda}{2d_i S^2}\frac{|E|\cdot E}{\rho}\frac{\rho}{C_{Vmix}} - \rho\left(\frac{\partial v}{\partial t} + v\frac{\partial v}{\partial t}\right)$$

$$\rho = \frac{p}{ZRT}$$

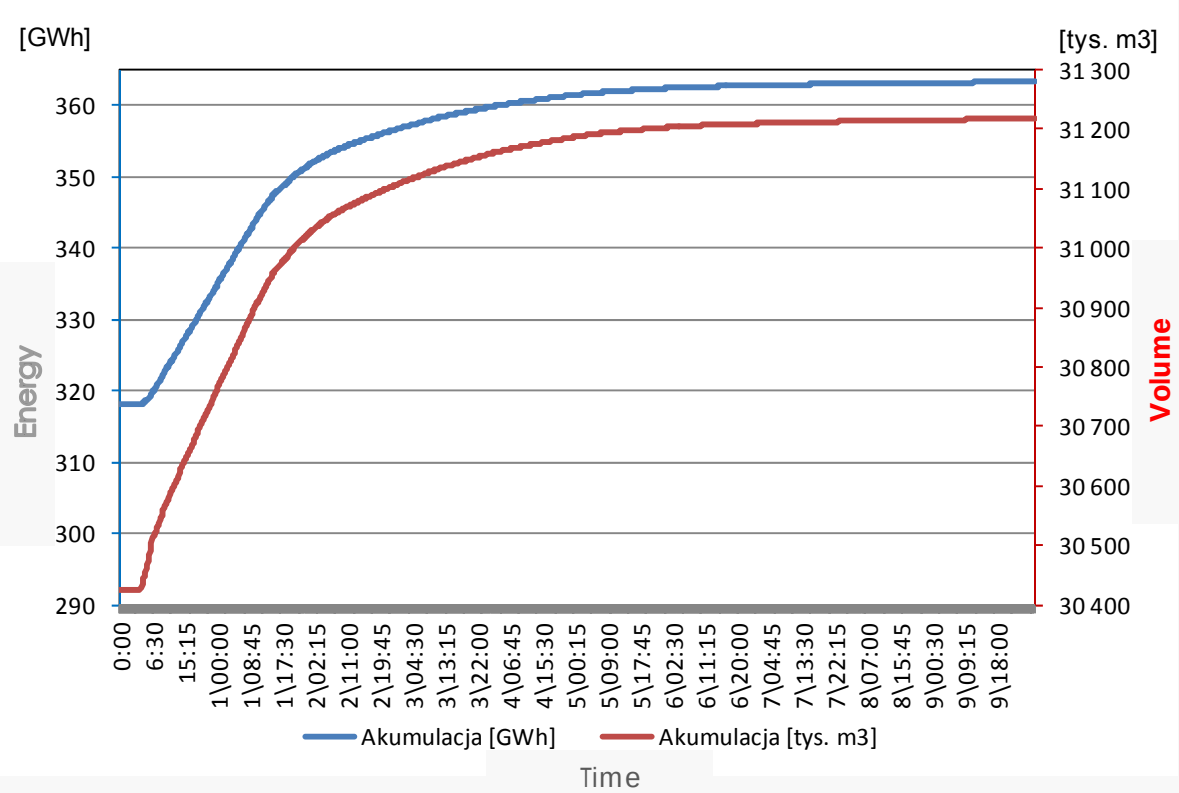
# IMPACT OF ENTRY QUALITY AND FLOW CONFIGURATION ON LINEPACK



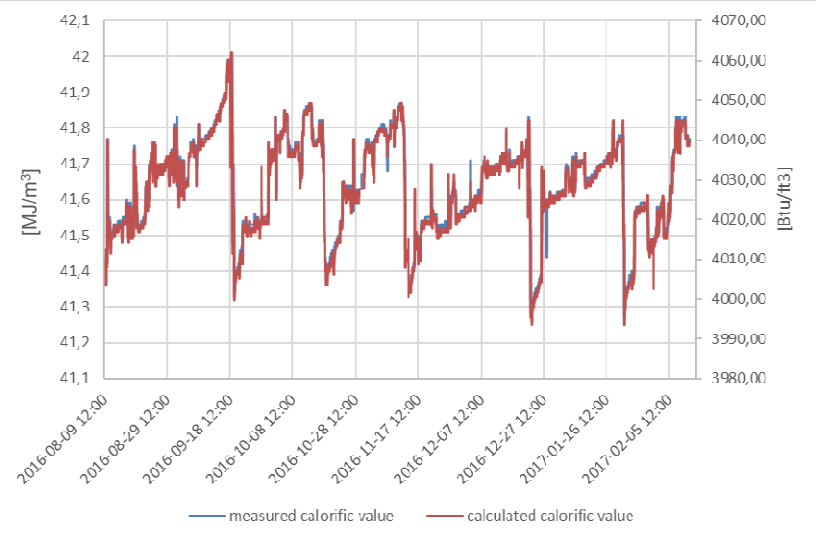


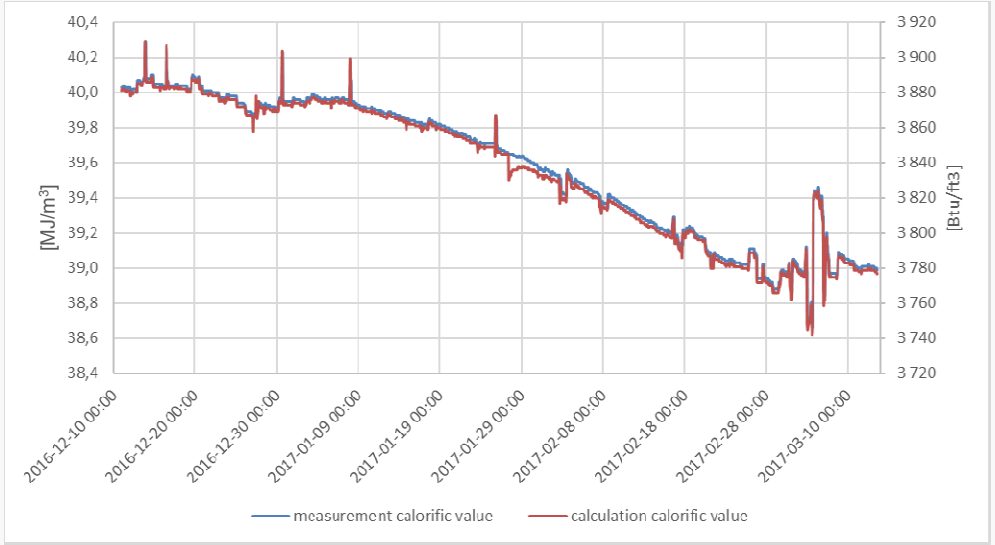
# LINEPACK – UNITS DIFFERENCIES

## Evaluation of linepack



# GAS QUALITY
# VARIATION AT ENTRIES



## OPERATIONAL LINEPACK OR MARKET POSITION

$$E_{LP}(t) = \frac{\pi}{4}\frac{273{,}15}{0{,}1013}\sum_{k}^{i=1}\left( d_i^2 \int_0^l \frac{z_n(x,t)\,p(x,t)}{z(x,t)T(x,t)} Cv(x,t)\cdot dx \right)$$

World of physics phenomena:

- Dispatchers
- Engineers
- Scientists (fluid mechanics)

$$MP = \sum_{i=1}^{n} N_{ENT_i} - \sum_{j=1}^{m} N_{EX_j}$$

World of market participants:

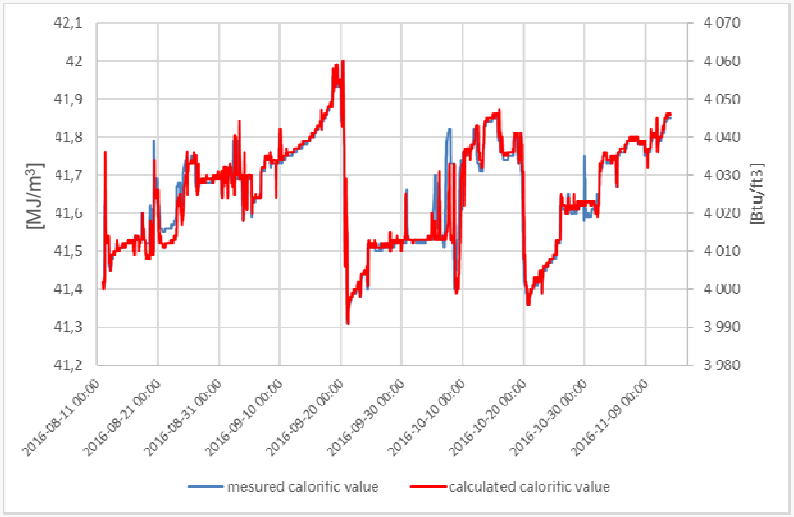
- Traders
- Market analysts
- Scientists (economy)

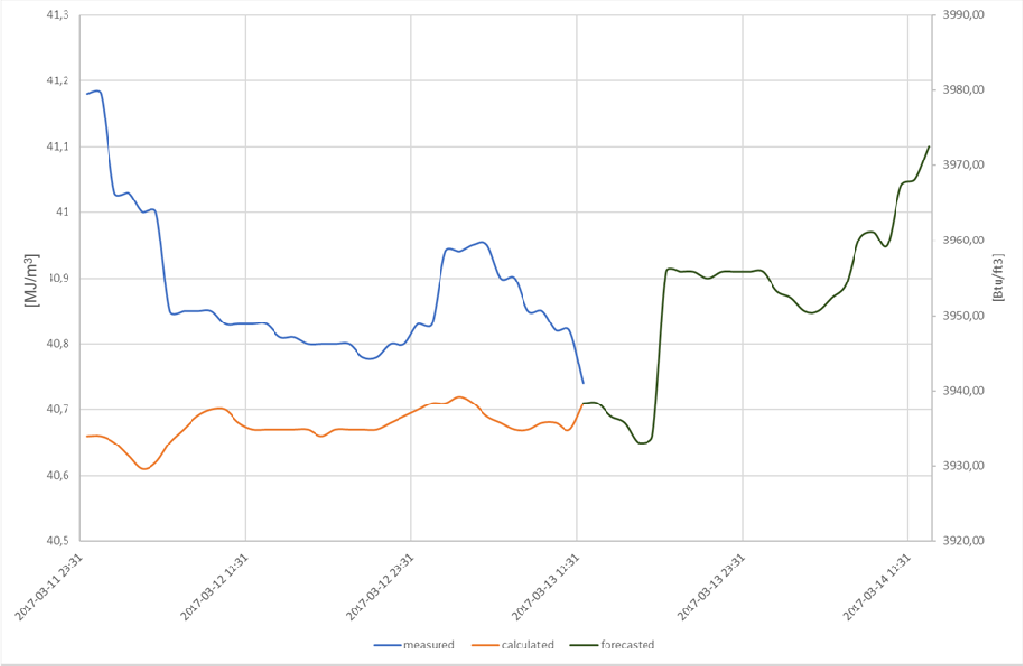
THANK YOU FOR YOUR ATTENTION

GAZ system

# INTEROPERABILITY - GAS QUALITY

## VARIATION AT EXITS




# ACER BALANCING IMPLEMENTATION MONITORING REPORT 2017:

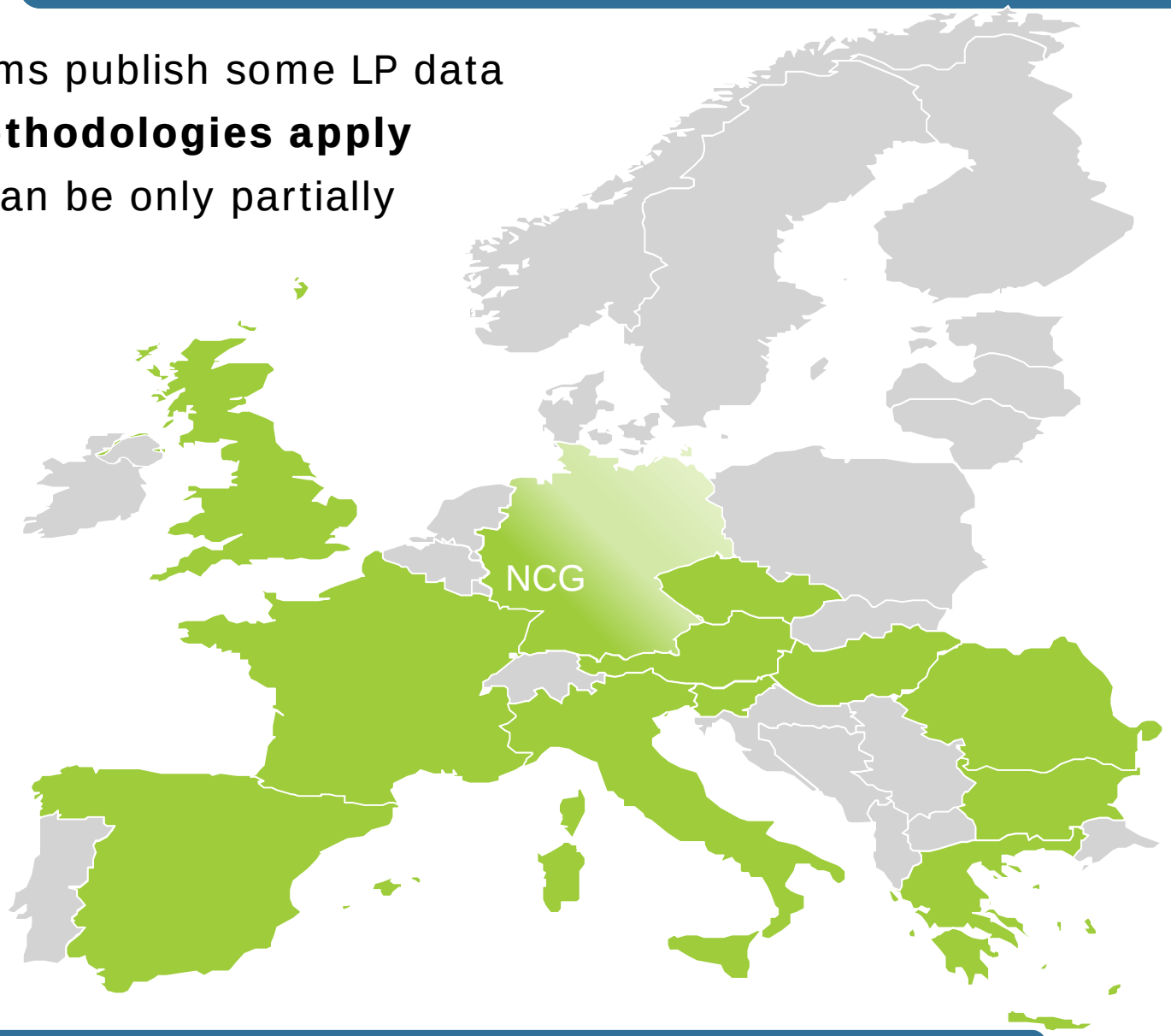
## *INTRODUCTION TO PANEL DISCUSSION ON LINEPACK TRANSPARENCY*

*Network Codes Team, Gas Department*

*ACER – ENTSOG workshop, 22 November 2017, Vienna*

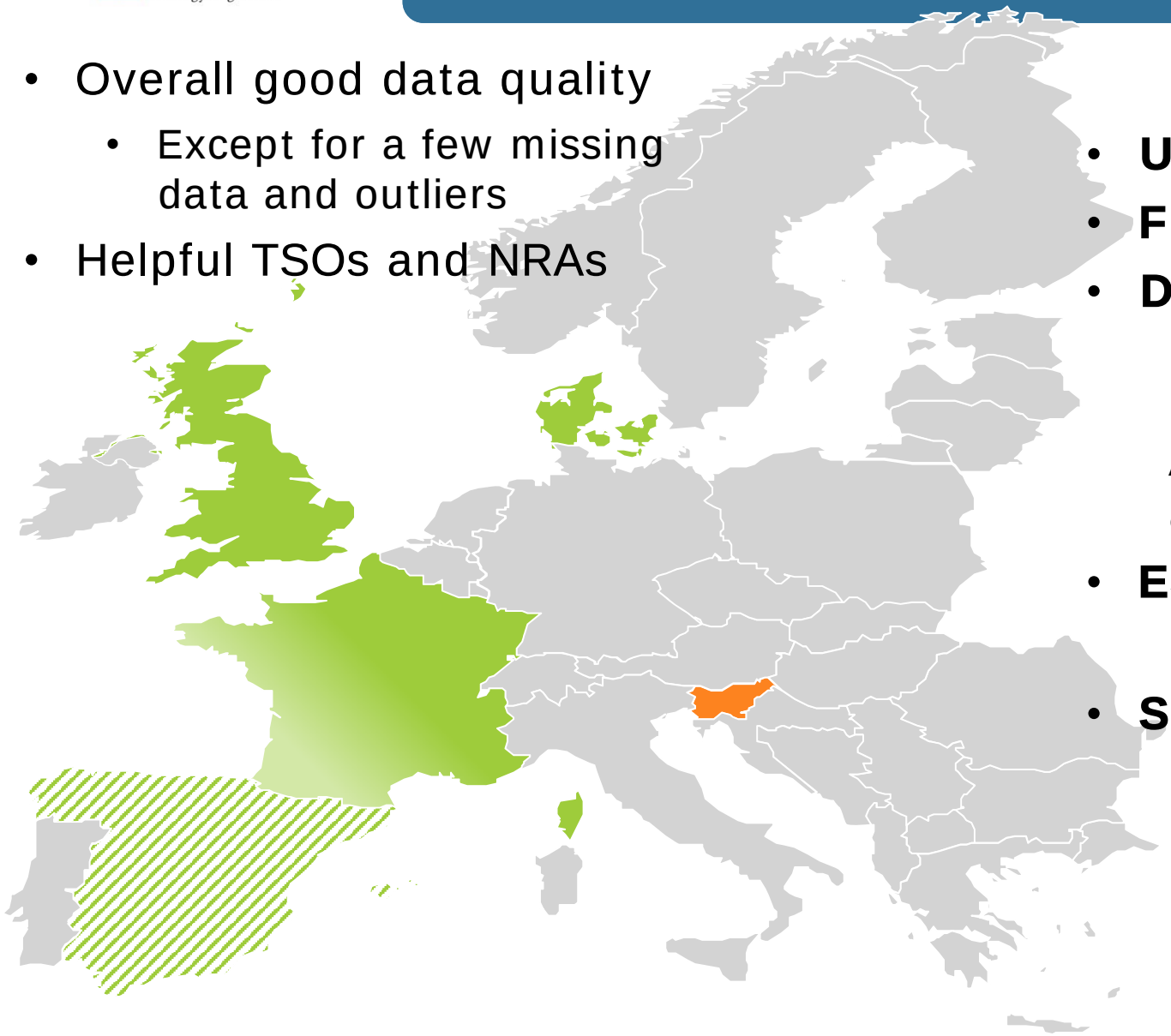
# Balancing zones publishing linepack (LP) data

- Several systems publish some LP data
- **Different methodologies apply**
  - systems can be only partially compared



# Linepack analysis in the ACER BAL IMR 2017

- Overall good data quality
  - Except for a few missing data and outliers
- Helpful TSOs and NRAs



- **UK–GB (NGG)**
- **FR (GRTgaz Nord)**
- **DK (Energinet)**

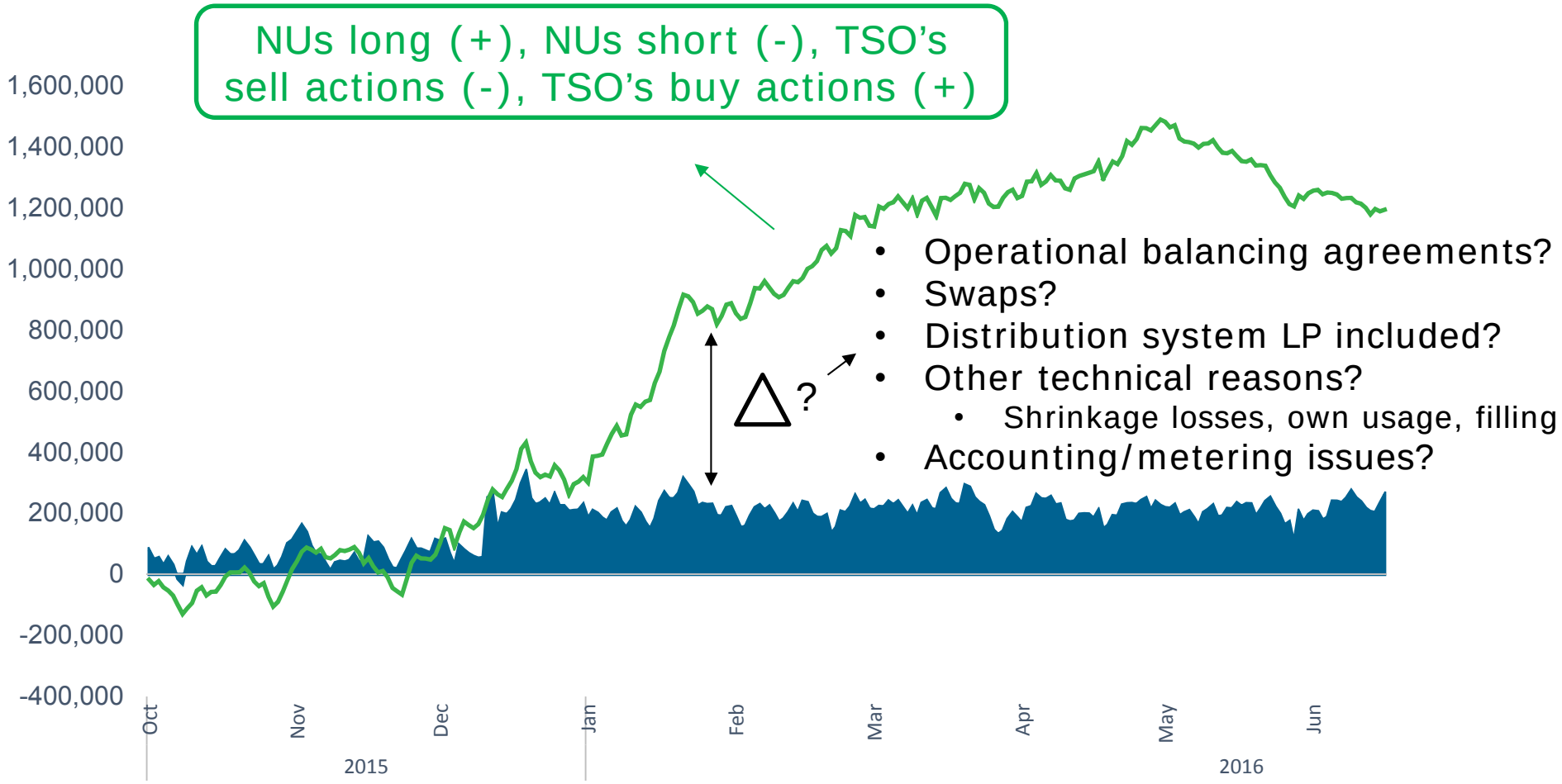
  → data provided on purpose to the Agency (not publicly available otherwise)
- **ES (Enagas)**

  → Shorter time series
- **SI (Plinovodi)**

  → Only commercial LP “usable” by network users

# Analytical framework – Commercial Imbalance Position changes and Linepack changes

Figure 6-25: Day-on-day linepack change (blue area) and net cumulated daily commercial imbalance (green line), France (MWh)



# TSO and NUs' usage of LP: what's the optimal split?

Two principles have to co-exist:

**TSO has to keep sufficient control in securely managing the network**

**Network users are primarily responsible for balancing their positions**

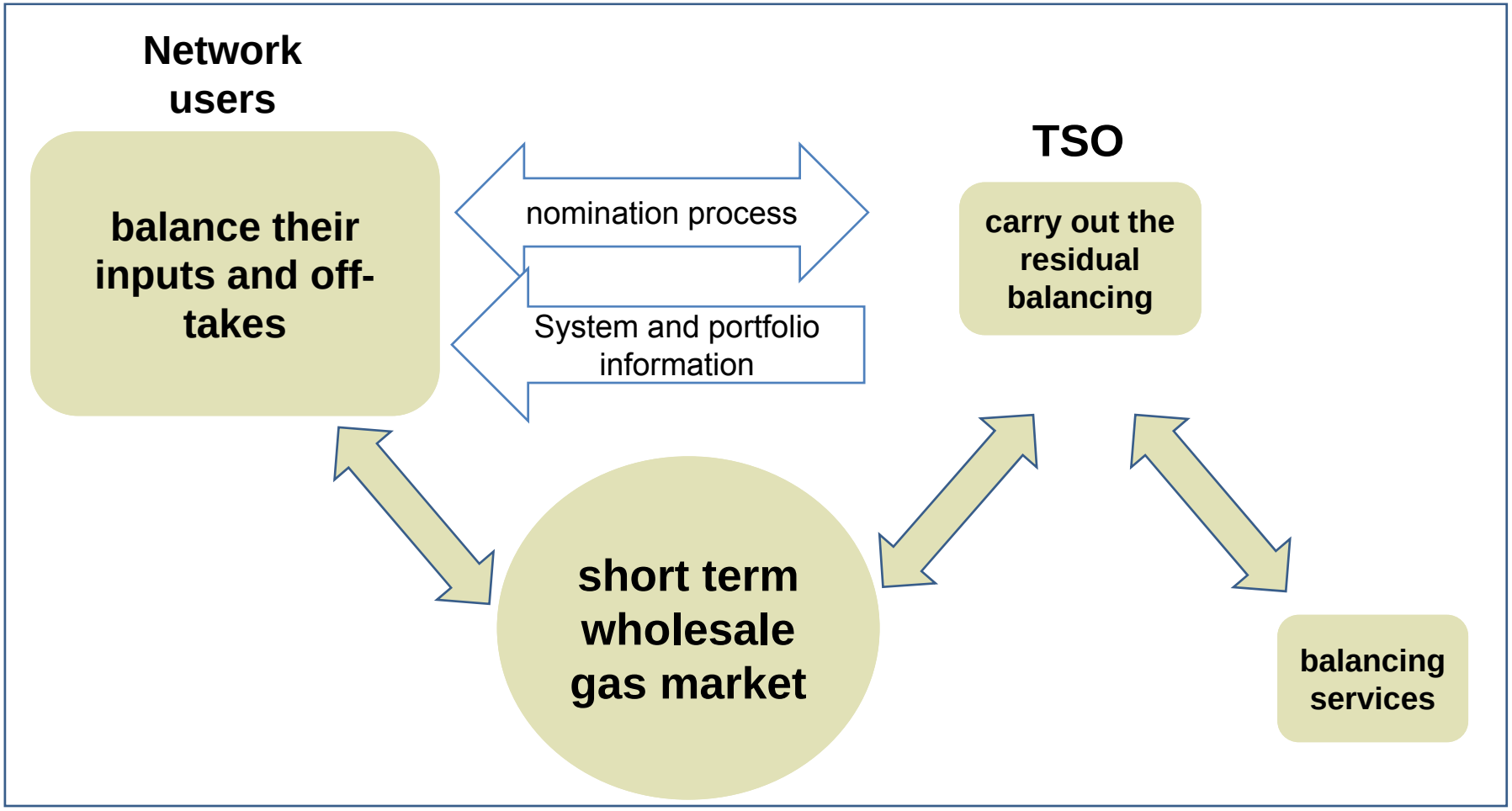
**Any margin for the TSO to give up the exclusive use of additional linapack and let the market use it?**

# Balancing Network Code
# -
# The role of Trading Platforms

*sisman energy consultancy ltd*

ACER-ENTSOG Joint Workshop, *The Implementation of the Balancing Network Code*, Vienna 22 November 2017

# Understanding the Balancing code aspiration




***Let the market balance itself; TSO to have a residual role***

sec

# The VTP – the TSO bequest to the market

**Virtual Trading Point (VTP)**

## What is it?

**A construct to allow network users to swap quantities of gas**

## What does it do?

- **enables trading**
- **focusses liquidity**
- **enables gas exchanges, balancing platform, market price determination**

The VTP

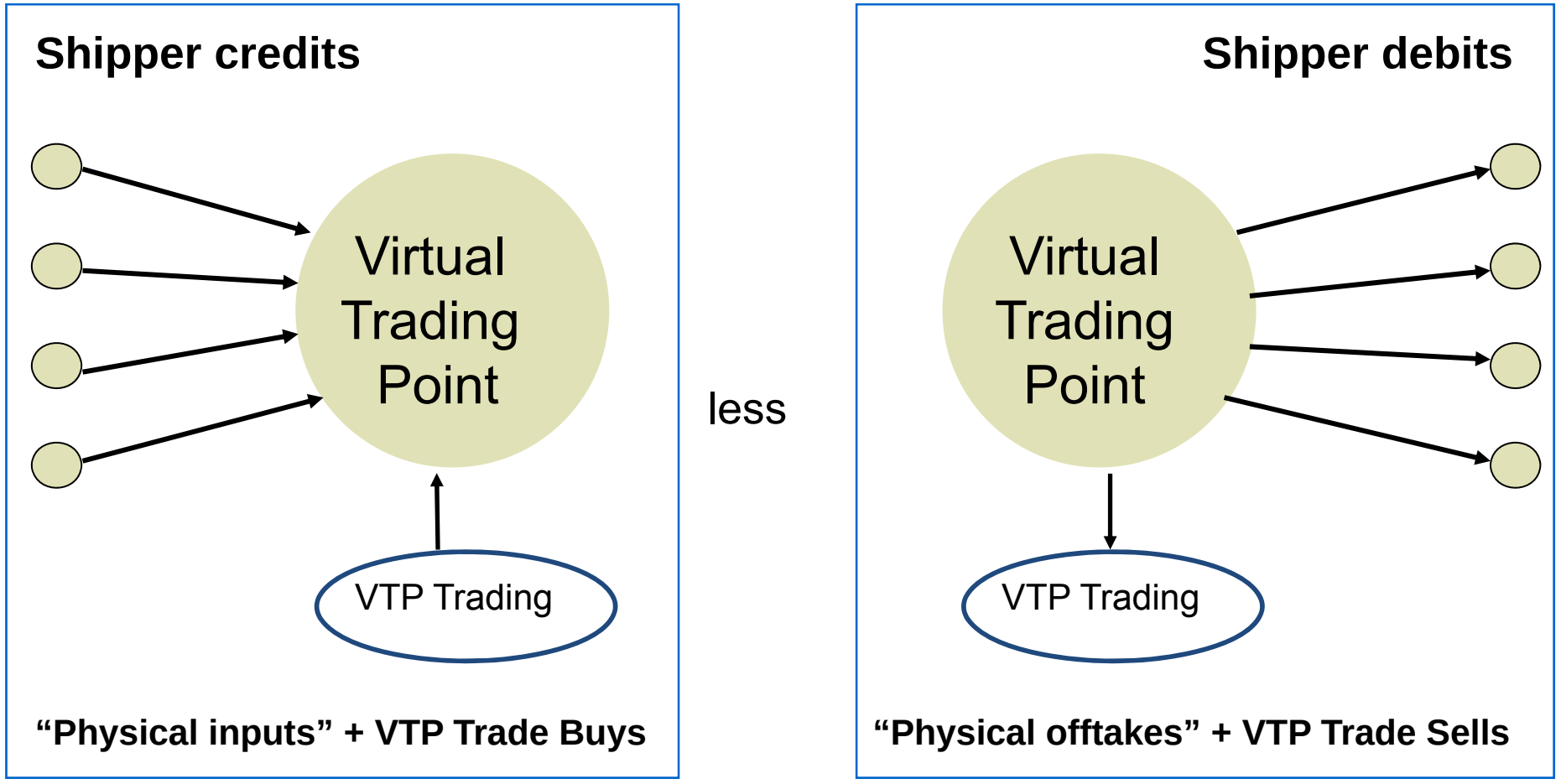
- A virtual or notional point - not directly linked to any entry or exit point – “turns gas into a commodity”
- Enables a commercial transfer of “gas” via a trade
- Invented to facilitate the commercial daily balancing regime

**This simple trading enabler becomes a foundation for the commercial regime**

**But it’s the rules of the balancing regime that make the magic happen**

sec

# The VTP is the foundation of the market




= imbalance

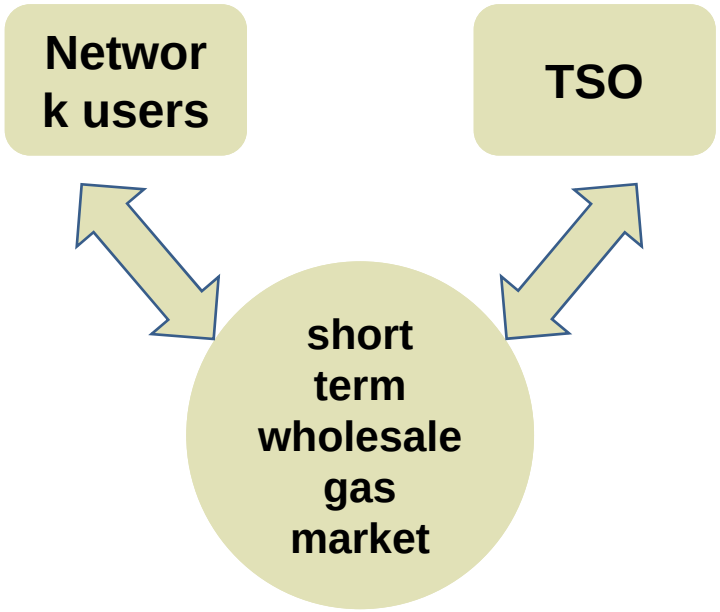
# The balancing code is designed to deliver efficient outcomes by devolving balancing responsibilities to network users

**Key enablers**

| | |
|---|---|
| **Information** | • system status<br>• balancing actions<br>• demand forecasts |
| **Access to gas flexibility** | • physical flexibility<br>• (Trading) platform flexibility<br>• markets |
| **Access to network flexibility** | • renomination<br>• (linepack) |

**The Trading Platform is just one of the enablers**

# The Balancing code's Trading Platform




**Centralised platform mandated**
- **Short Term Standardised Products**
- **High levels of accessibility**
- **Trades submitted into TSO systems**
- **Transacted prices influence cashout prices**

**Very low levels of specificity enable tailored "fit for purpose" solutions to meet local conditions**

**Necessary conditions for effective Trading Platform**
- **Proportionate, "fit for purpose" design**
- **At least emerging balancing market (e.g. information, "market cashout")**
- **TSO willingness to use the TP and "more commercial products"**

sec

# But whilst a Trading Platform is mandated the broader trading environment is determined by the market actors

Types of Trading

OTC – “over the counter”

- Standardised deals
- Bilateral contact
  - Dealt direct or via broker
  - Electronic media mainly
  - Counter party risk management

Exchange based

- Anonymous trading
- Electronic platforms
- Clearing
  - to negate credit risk but at a cost
- Usually goes to delivery

Critical elements:

1. Standardised Products and the trading curve
2. Anonymity
3. Credit Risk
4. Transparency & price discovery

**The products and activity levels evolve to meet the requirement of the market**

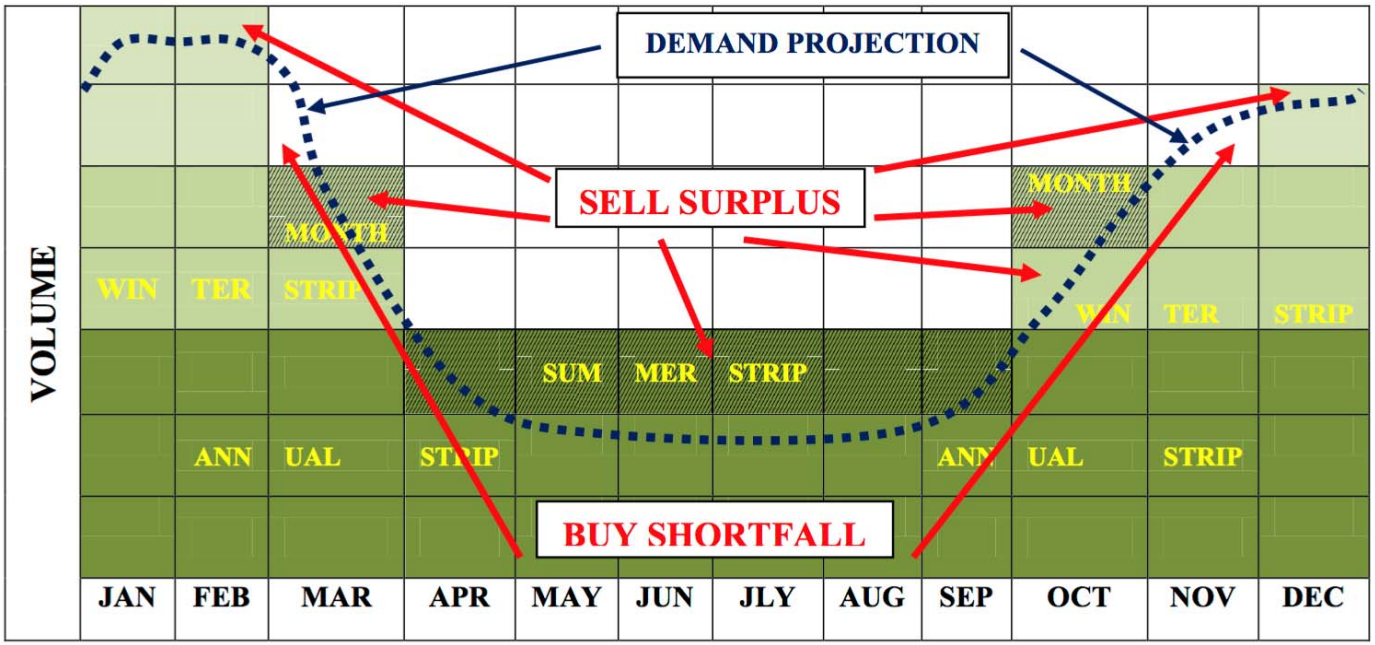
**… and we should not anticipate that there is sufficient demand to have deep, liquid trading down the curve at all VTPs**

But don’t forget Physical (“going to delivery”) or Financial swap options

sec

# Using Standardised Products to manage a portfolio

**Figure 21: Portfolio 'layering' example**




Source: P. Heather

Standardised product durations define building blocks for network user supply/demand matching

**Risk management delivered via a mix of forward trading and spot market transactions. Market confident that it can secure gas in prompt (when short) or sell gas (when it is long)**

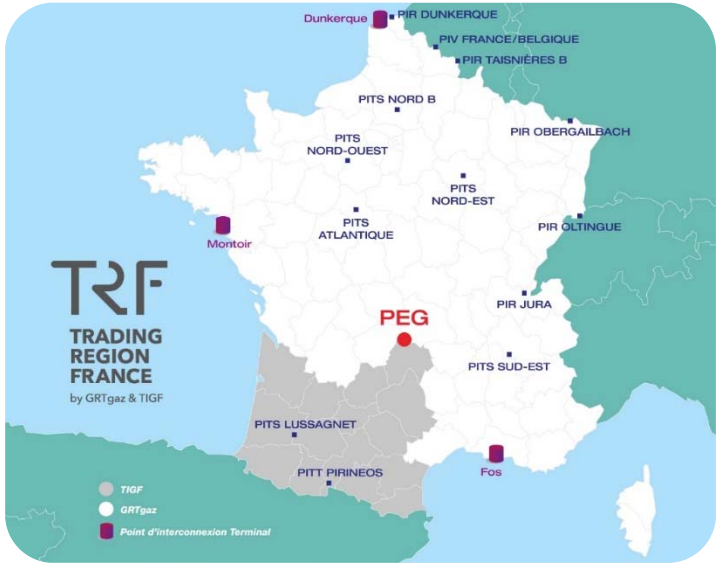
Graphic sourced from NG63 Continental Gas Hubs: Are they fit for purpose (Patrick Heather)

# Thematic areas for panel and audience discussion

- VTP / trading platform interactions?
- What Trading Platform designs have been chosen?
- How well are Trading Platforms contributing towards well functioning balancing regimes?
- Are Trading Platforms contributing to efficient deployment of gas flexibility across balancing zones?

sec

# Towards a French single marketplace for gas in 2018



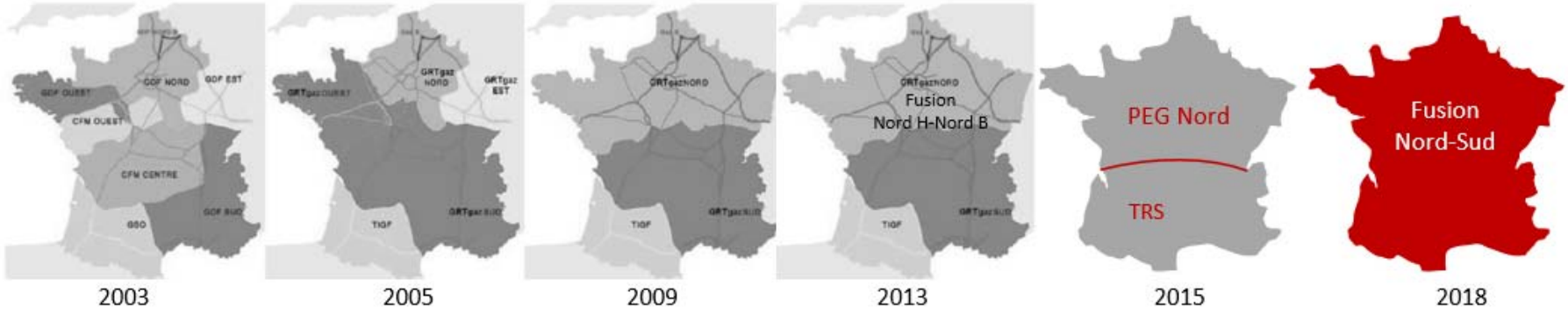
# Towards a single market place in 2018

- A merger that started in 2005
- TRS experience valued
- TRF in a nutshell
- TRF relevant points
- TRF management
    - Balancing in the TRF
    - An optimized solution
    - Building a marketplace together
    - Main elements to keep in mind
    - IT implementation in progress

# Towards a single market place in 2018

## A merger that started in 2005

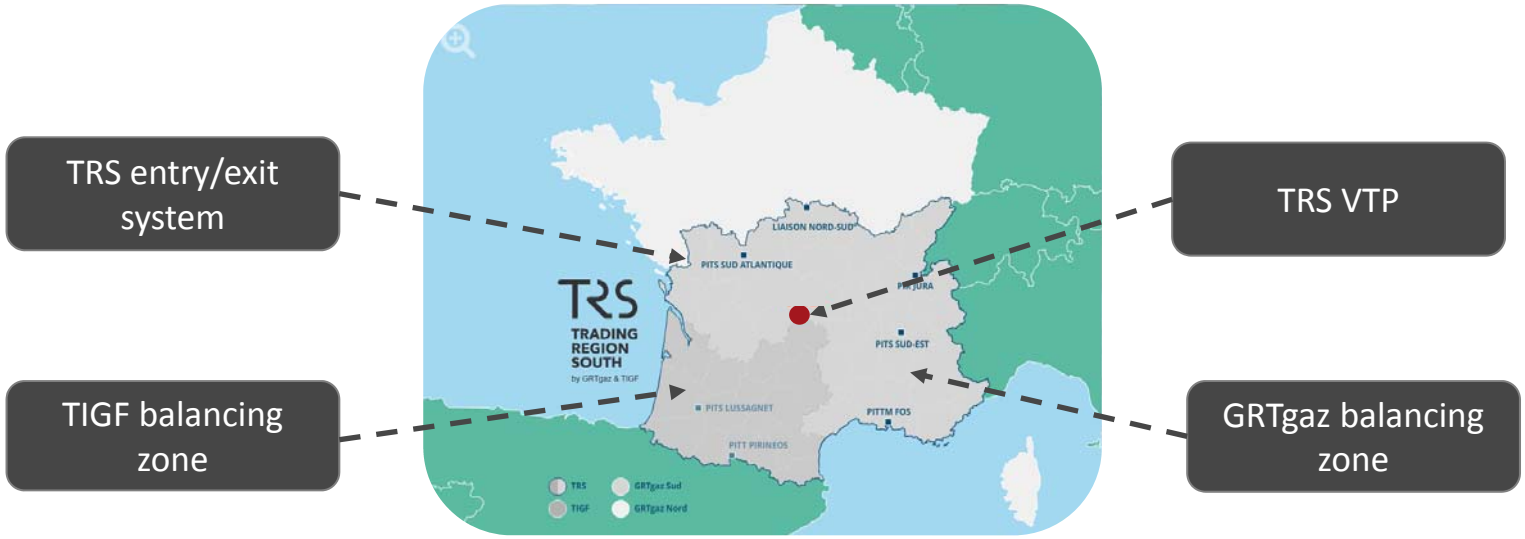
In more than 10 years, French TSOs have built an effective **market integration**.




The commercial offer has been getting **simplified** whilst reinforcing the operational network management by TSOs.

# Towards a single market place in 2018

## TRS experience valued



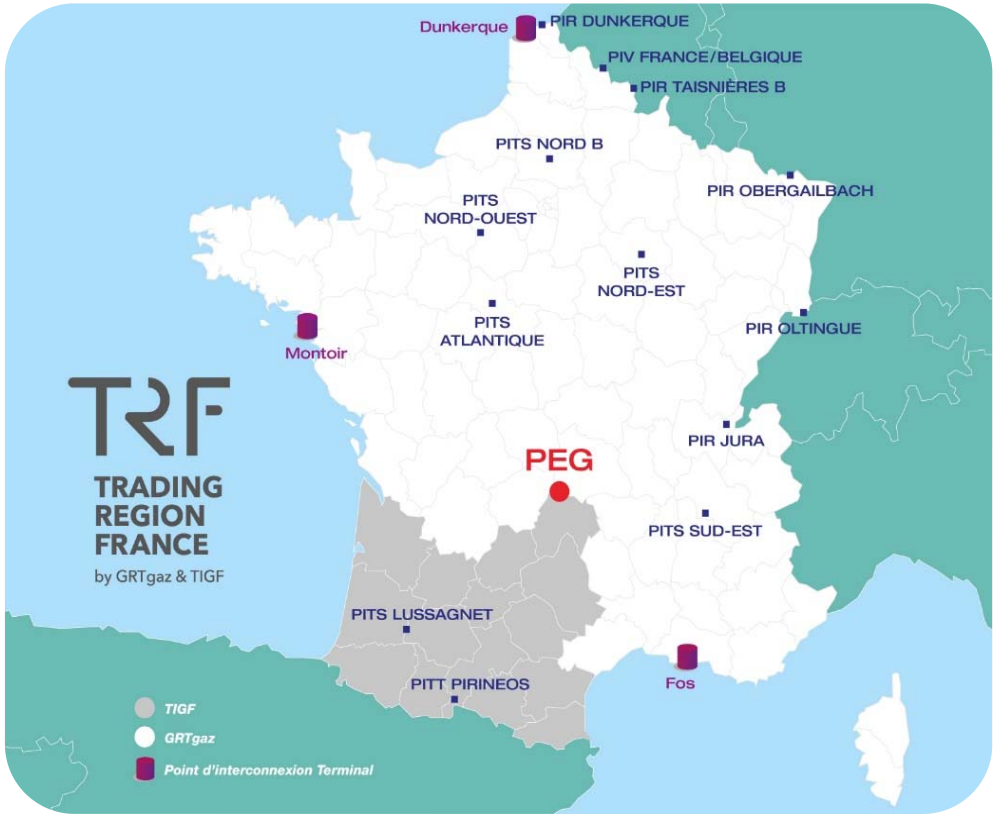

Trading Region France (TRF) model will extend TRS principles:

- **a single Entry/Exit system**
- **1** VTP: the **PEG**
- **2 balancing areas**

*"The **trading region model,** first market merger involving both GRTgaz & TIGF, has successfully enabled the simplification of the networks' use, a better balancing of shippers and the emergence of a more liquid market." said the regulator.*

# Towards a single market place in 2018

## TRF in a nutshell



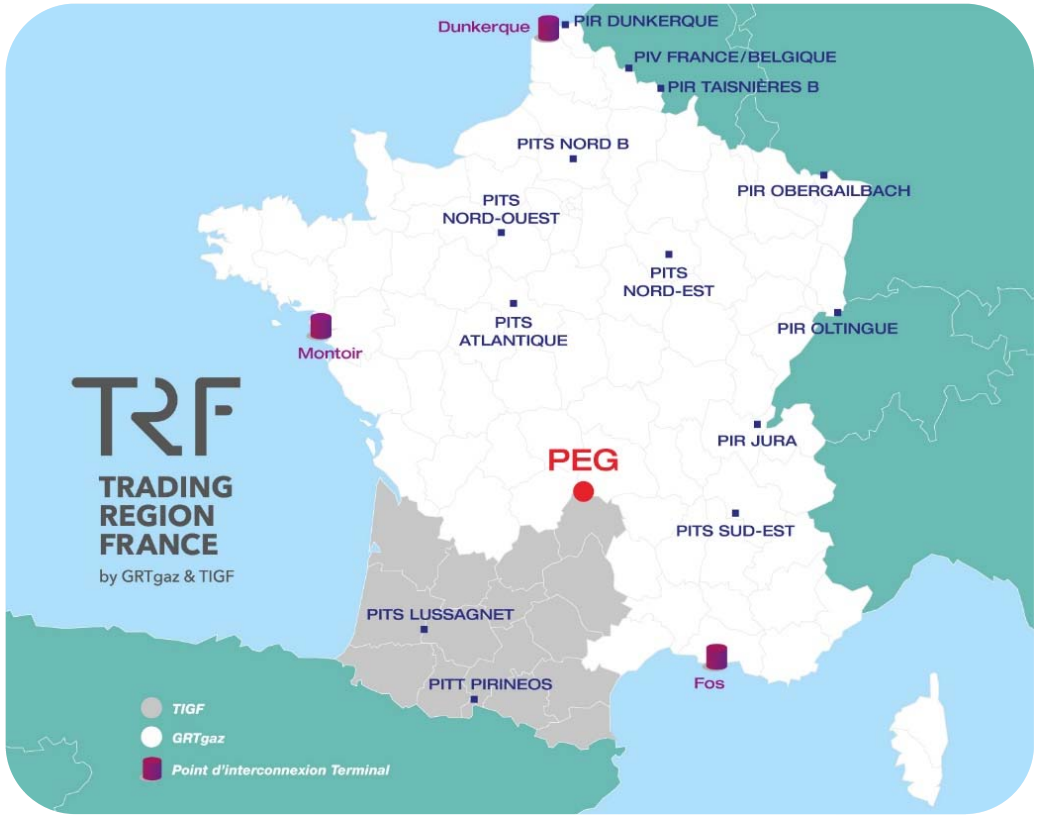

- From 1st November 2018
- A French Entry/exit system
- one VTP = PEG
- two balancing areas = TIGF and GRTgaz

Contractual path to transport gas between GRTgaz north and GRTgaz south will be **removed** (merger of GRTgaz north and south balancing zones)

# Towards a single market place in 2018

## TRF relevant points

- 3 LNG terminals
- 4 adjacent gas markets
- 6 storage groups
- 1 VTP : PEG
- Consumption : ~480 TWh/y




GRTgaz TIGF

# Towards a single market place in 2018

## TRF management

**TIGF and GRTgaz share the TRF functionalities on the basis of an agreement cooperation**


Each TSO will remain **independent** regarding other activities *(Capacity management* , Nomination process, Information provision, Balancing actions, Neutrality arrangements …)*

* except for maintenance restrictions and residual congestion

GRTgaz TIGF

# Towards a single market place in 2018

## Balancing in the TRF

### TRS principles remain with 2 independent balancing zones

- **Implicit physical flow between GRTgaz and TIGF**
- **Balancing actions undertaken separately**
  - Robot parameters modified in order to enable TSO trade prices even more incentive for network users

### Balancing rules

- **Network user has to be balanced within the TRF entry/exit system zone**
- **Imbalance settlement shared between TIGF and GRTgaz**
- **Same marginal price for both balancing areas**
  - Locational product trades included in marginal price

GRTgaz TIGF

# Towards a single market place in 2018

## An optimized solution

- **Reasonable investments regarding the building of new infrastructures to**:
  - Increase the **availability of gas capacity** (**+42%**)
  - Enable the transit of **more gas flows from North to South**

- **Additional mechanisms have been built with stakeholders:**
  - New infrastructure won't cover all flow schemes : **residual limits** can remain
  - Contractual mechanisms will ensure the **use of firm capacities subscribed during the residual cases when limits exceptionally occur**

# Towards a single market place in 2018

## Building a market place together

**Solutions have been designed with network users, adjacent operators, consumers and French NRA**

Concertation gaz
Un travail commun des transporteurs avec le marché

Since June 2016 : **15 working sessions**

**3 questionnaires** sent to customers to know their vision and position on several topics

Serious game:
**Game of Flows**

GRTgaz TIGF

# Towards a single market place in 2018

## Main elements to keep in mind

Called **TRF** (Trading Region France), the single marketplace will be created on November 1st 2018 and have a single VTP : the **PEG**

**Goal:** improving **gas competitiveness** in France

Same operational features than **TRS**

**Daily balancing at TRF level**, with a distribution of imbalances between TIGF & GRTgaz (just like TRS)

The NRA has selected a new mechanism to manage the limits with the **best costs/benefits ratio for the shippers**

**- Locational spread:** market-based mechanism consisting for the TSO in **simultaneously buying gas downstream** the congestion front and **selling gas upstream** the congestion front

**reasonable investments** & **additional mechanisms** as a solution to networks residual limits

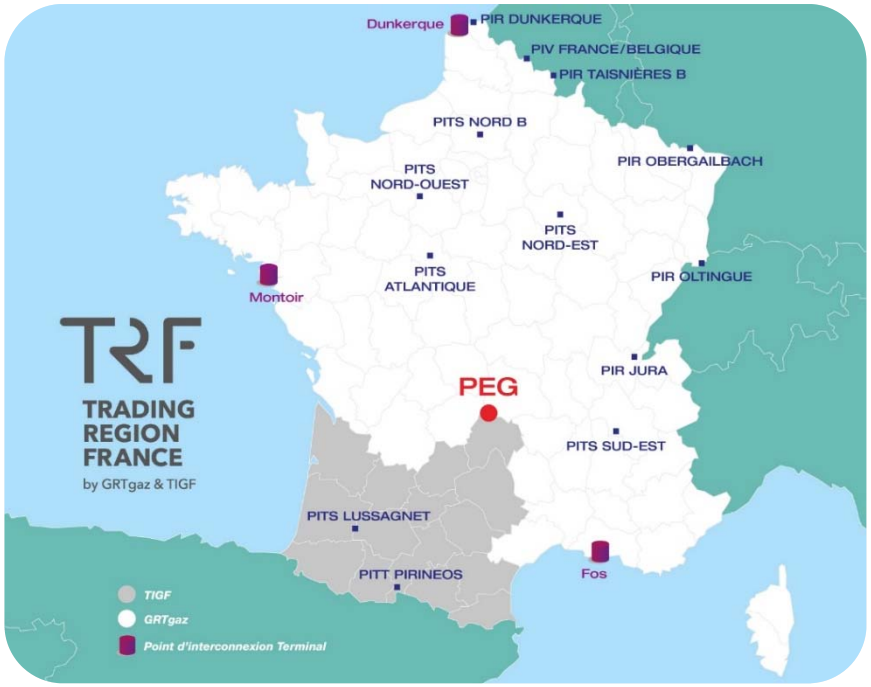
General operating & contractual mechanisms **co-built & co-operated with stakeholders**

GRTgaz TIGF

# Towards a single market place in 2018

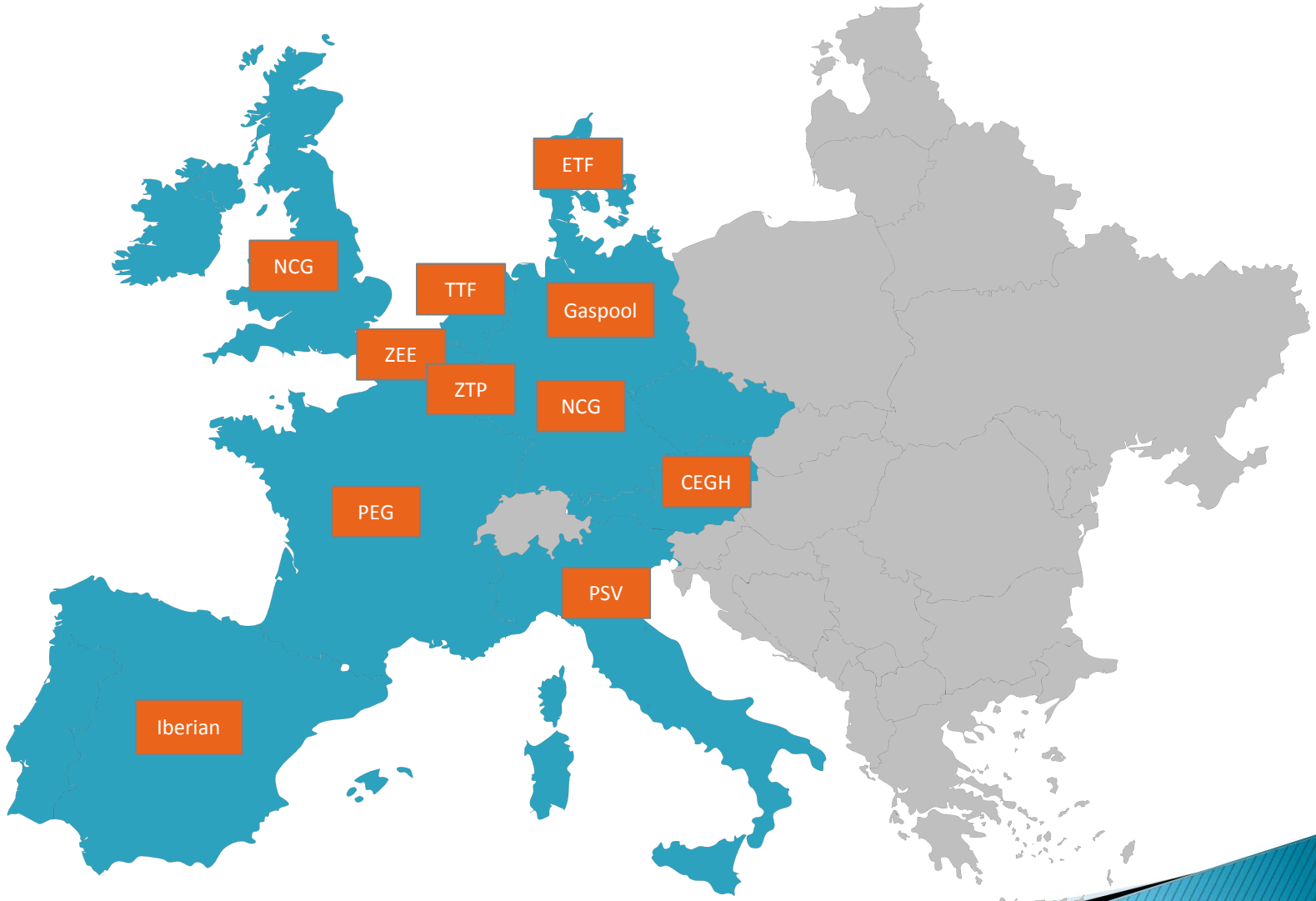
## IT implementation in progress

IT implementation




**See you on 1st November 2018!**

# Backup – VTPs overview at end of 2018



# Backup

## Merit order of tools used for the residual congestions

- **Agreements with adjacent operators** (swaps)
- **Interruption of interruptible capacities in D-1**
- **Non-commercialization of capacities that are not booked in D-1 and D**
- **Locational spread**
  - **A market-based mechanism** consisting for the TSO in **simultaneously buying gas downstream** the congestion front and **selling gas upstream** the congestion front
- **Mutualised restriction of nominations**
  - **Ultimate constraint mechanism** applied by TSOs curtailing network users nominations on relevant points relating to the residual congestion
  - Allows and guarantees to solve the congestion in last resort without requesting actions to the network users

# Closing remarks

ACER
Agency for the Cooperation of Energy Regulators

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european network of transmission system operators for gas

# Thank you for your kind attention