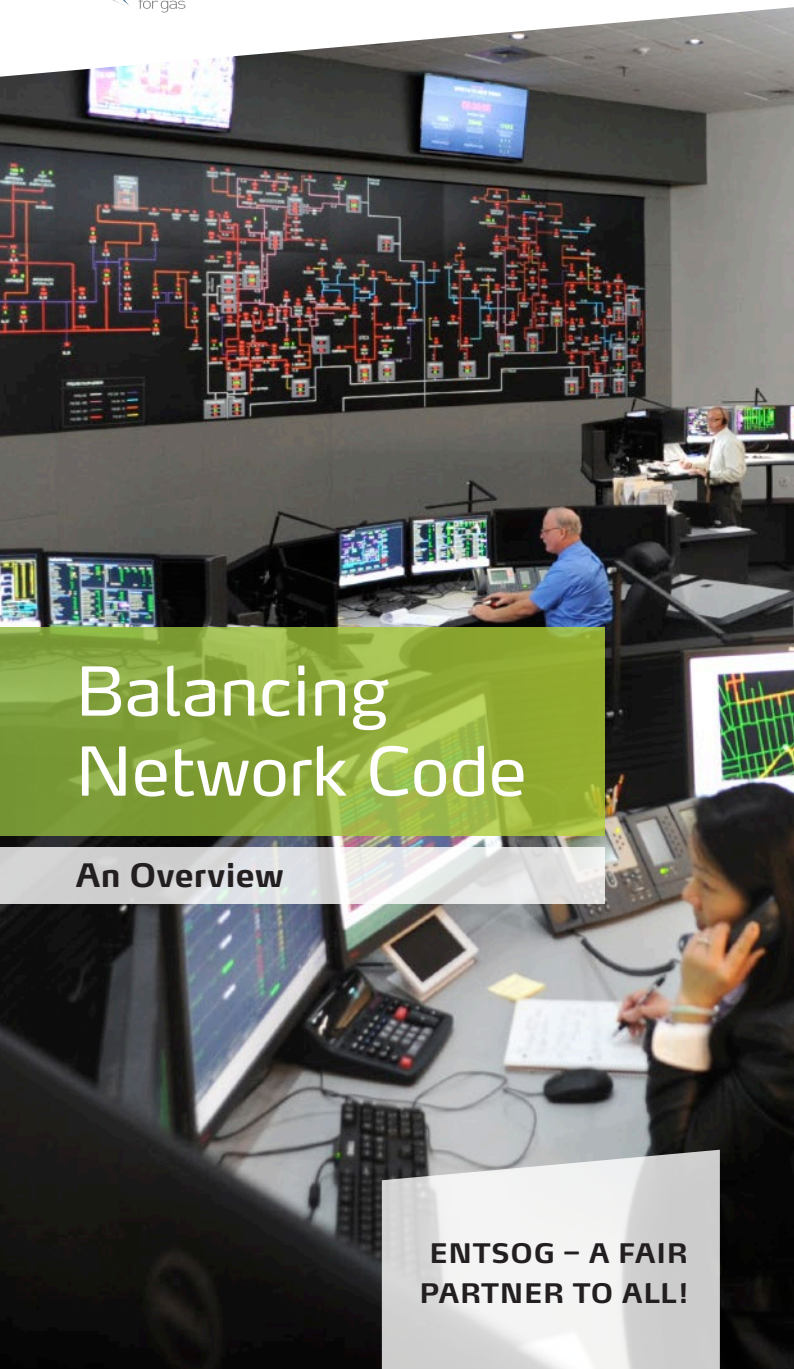
entsog

european network
of transmission system operators
for gas



Balancing Network Code

An Overview

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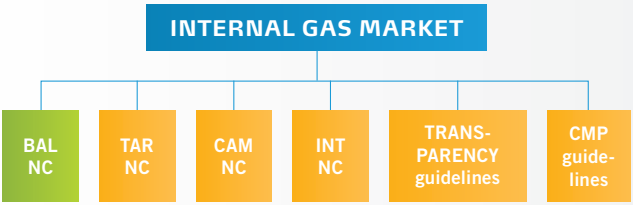
Content

Introduction

As part of the Third Energy Package[1)], the European Parliament and the European Council published Regulation 715/2009 on 13 July 2009, better known as the EU Gas Regulation. This regulation has been enacted to improve the functioning of the internal gas market. In this Regulation (article 6), it is stated that ENTSOG should prepare network codes (NCs) in line with the framework guidelines which are developed by the Agency for Cooperation of Energy Regulators (ACER).

1) The package was proposed by the European Commission in September 2007, and adopted by the European Parliament and the Council of the European Union in July 2009. It entered into force on 3 September 2009.

In November 2011, the European Commission asked ENTSOG, based on Regulation 715/2009, to draft a network code (NC) covering balancing rules, including network-related rules on nominations procedure, rules for imbalance charges and rules for operational balancing between transmission system operators' systems. The BAL NC entered into force on the 16 April 2014.



There are a number of building blocks to improve the internal gas market. Together with other NCs and guidelines the BAL NC is contributing to that.

In a nutshell, the aim of this document is to answer the following questions:

- Why is the BAL NC needed?
- What is the aim of the BAL NC?
- What are the key elements of the BAL NC?

The information is written for introduction purposes, for new stakeholders of Gas Market Regulation and can be used for training purposes and as background information.

Setting the Scene – Why is the BAL NC needed?

To ensure that the gas system is managed safely and efficiently, a balance between supply and demand is required. Previously, Transmission System Operators (TSOs) were responsible for balancing the supply and demand within their network.

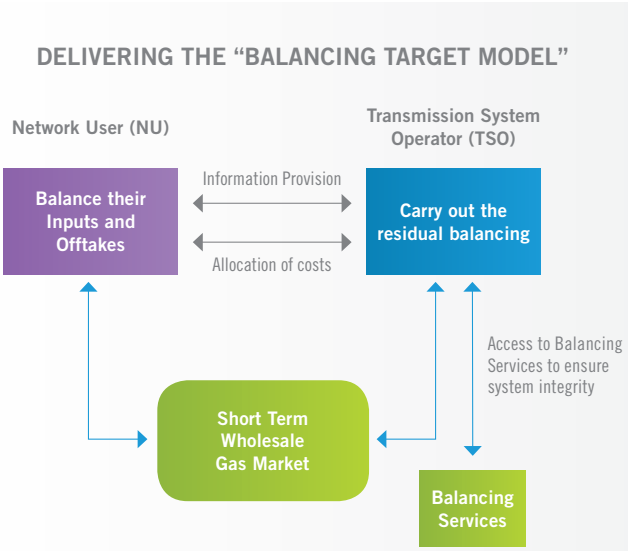
The TSO undertook most of the network balancing tasks, holding options for significant amounts of flexible gas via long-term contracts e.g. using large storages. The aim of the code is to stimulate liquidity in a short term market and to enable and incentivise NU to balance their own portfolios.

It was decided to move the responsibility for balancing from the TSO to the NU, so that those best placed to manage gas supply and demand were also responsible for balancing. This resulted in the development of the Balancing Target Model. To successfully implement this model, it was important to create some key elements that form the building blocks for the BAL NC.

BALANCING TARGET MODEL

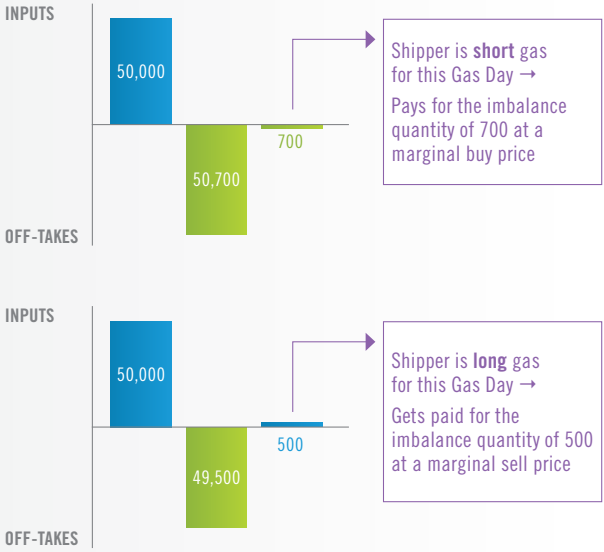
NU, to have responsibility of balancing themselves instead of being balanced by the TSO, need:

- information about their balancing position/imbalance quantity and
- access to flexible gas.



The balancing position of a NU is the difference between its inputs (e.g. the gas it has shipped into the balancing zone from adjacent balancing zones, LNG terminal or storage, or bought on the market) and its off-takes (e.g. the gas consumed by its end-customer's portfolio or sold on the market). If the difference is negative, the NU is short and, at the end of the Gas Day, the NU will buy from the TSO the missing gas at a marginal buy price. If the difference is positive, the NU is long and, at the end of the gas day, the NU will sell to the TSO the long gas at the marginal sell price. These prices are set in a way that the NU will be incentivised to be balanced. The process takes place at the end of the day with all the NU balancing positions set to zero at the end of the gas day. See the schematic on the following page:

DAILY IMBALANCE CHARGES



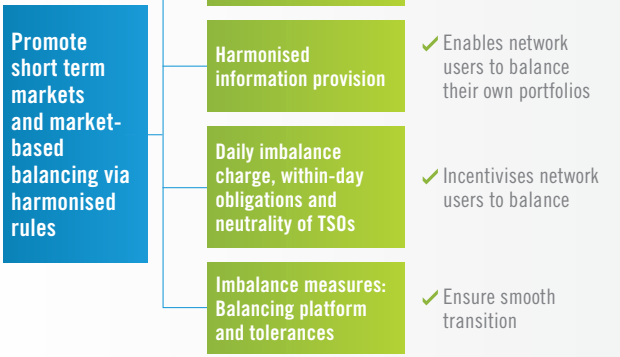
In the above-mentioned schematic, the blue blocks are the inputs/supply and the green blocks are the offtakes/demand. Gas Day is defined as the period from 5:00 to 5:00 UTC the following day for winter time and from 4:00 to 4:00 UTC the following day when daylight saving is applied. This 24 hours period is a trade-off between having enough time for a NU to source flexible gas and having a reasonably timeframe to allow the TSO to manage the system.

Information provision is then a key element to evaluate the NU's balancing position. The TSO has to provide information, starting on D-1, on the NU inputs and offtakes for the Gas Day (e.g. forecasts and allocations). This information shall generally be updated at least two times during the Gas Day to have more accurate information. Of course, the forecast is unlikely to represent the real gas consumption. That is why the NU balancing position will unlikely be zero. There will sometimes be a need for residual balancing actions to be taken by the TSO. The aim of the Balancing Target Model is to stimulate liquidity in a short term market and to enable and incentivise NU to balance their own portfolios.

The Aim of the Code

To meet the aim of the Balancing Target Model and to move towards greater market integration, it is important that rules on gas balancing of transmission networks facilitate access to flexible gas via trading, thus contributing towards the development of short term market liquidity.

The BAL NC therefore sets out rules to give NU the certainty that they can manage their daily imbalance positions in different balancing zones throughout the European Union in an economically efficient and non-discriminative manner. To enable NU to balance their balancing portfolios, the BAL NC also sets out minimum requirements for information provision to implement a market-based balancing regime. The information flows provided under the BAL NC therefore aim to support the daily balancing regime and seek to be a set of information to support the NU managing its risks and opportunities in a cost-efficient way.



To reach the objective of the BALNC, it provides a number of key elements based on the following assumptions:

- Provide financial incentives on NU to balance their supply and demand via imbalance charges;
- Ensure that imbalance charges are cost-reflective;
- Ensure that TSOs are held neutral to any balancing costs that are incurred as the residual balancer;
- Harmonised procedures and information provision to provide TSOs and NU with the appropriate information;
- Provide flexibility to NU to update their information provision to the TSO on an hourly basis;
- Provide harmonised features of Within-day obligations in case they are needed;
- Ensure NU and TSOs use the same trading platforms to facilitate trade and balancing.

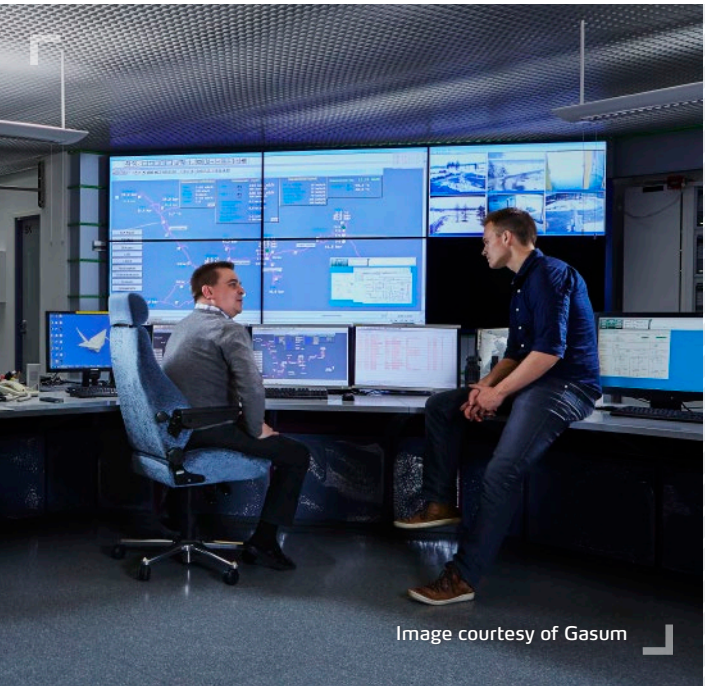


Image courtesy of Gasum

Description of Key-Elements

The BAL NC offers a path to NU to be able to balance their position via the creation of a liquid short-term wholesale market and the provision of information regarding their end-customers' portfolio (to better know their imbalance).

Network-related rules on information provision, imbalance charges, settlement processes associated with daily imbalance charges and provisions on operational balancing underpin the operation of balancing markets. To meet the aims of the BAL NC, the following tools or features are being described in the code:

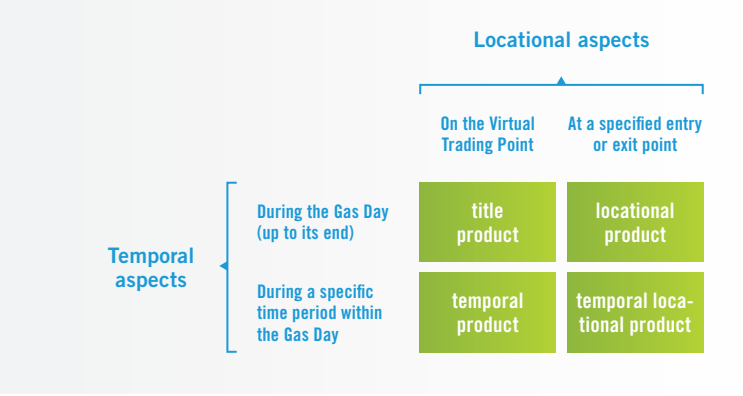
- Trading Platform and Short Term Standardised Products
- Virtual Trading Point & Trade Notifications
- Operational Balancing
- Nominations
- Daily Imbalance Charges
- Within Day Obligations
- Information Provision
- Linepack Flexibility Service
- Neutrality Arrangements
- Interim Measures

TRADING PLATFORM AND SHORT TERM STANDARDISED PRODUCTS

TSOs should trade gas for residual balancing purposes on the same trading platforms as NU using Short Term Standardised Products (STSPs) with the aim of increasing competition and liquidity of the short-term wholesale gas market.

Short Term Standardised Products (STSPs)

The STSPs has to be traded for delivery on a within day or day ahead basis seven days a week in accordance with the applicable rules. The STSPs are defined in the BAL NC as:



The ultimate aim is that the TSO will use only Within-Day title products.

Trading platform

For the procurement of STSPs, the TSO shall trade on a trading platform that meets all of the following criteria:

- provides sufficient support to both the NU and the TSOs to undertake balancing actions using the relevant STSPs;
- provides transparent and non-discriminatory access;
- provides services on an equal treatment basis;
- ensures anonymous trading at least until a transaction is concluded;
- provides a detailed overview of the current bids and offers to all trading participants;
- ensures that all trades are duly notified to the transmission system operation.

Where trading is limited or products needed by TSOs for balancing purposes are not available on the trading platform, it may be appropriate, as an interim step, for the TSO to procure balancing services via a tender and/or balancing products on a balancing platform. A balancing platform means a trading platform where a TSO is a trading participant to all trades. On a trading platform trades can be made between a NU and a TSO or between NU only.

VIRTUAL TRADING POINT & TRADE NOTIFICATIONS

Implementation of a Virtual Trading Point (VTP) is an essential requirement of a functioning entry-exit system. It allows for the tracking of who is financially responsible for gas supplies within the entry/exit system. A trade between two parties is a transfer of title from the account of the seller to the account of the buyer:

- This transfer is registered by the TSO to each NU account;
- This transfer takes place on a notional point in the "centre" of the system – a VTP;
- Gas is notionally delivered to this notional point for entry and then taken from this point for exit.

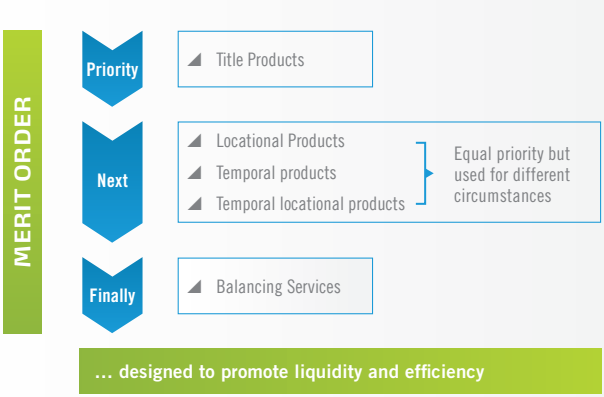
The Balancing NC describes the underlying features of trading at the VTP, such as the lead time and the information to be provided in the trade notification process.

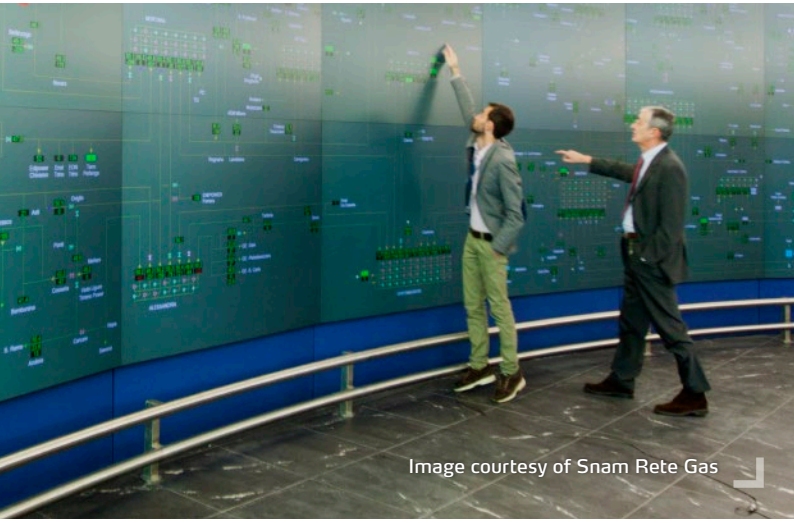
OPERATIONAL BALANCING

The TSO shall take residual balancing actions in a non-discriminatory basis and in an economic and efficient way.

- Merit Order

When deciding upon the appropriate balancing actions, the TSO, shall prioritise the use of title products where and to the extent appropriate over any other available short term standardised products or balancing services.

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NOMINATIONS

The NU provides nomination information to the TSO. This section of the code harmonises the information the NU has to provide to the TSO to have or to change the gas flow (i. e. nomination or re-nomination) at Interconnection Points (IPs). It also sets some common rules about this process: re-nomination should be possible every hour of the Gas Day, with the general rule that the lead time of the re-nomination is two hours ahead.

DAILY IMBALANCE CHARGES

NU has to be bound to pay or be entitled to receive (as appropriate) daily imbalance charges in relation to their daily imbalance quantity for each Gas Day. These charges shall be cost reflective.

Daily Imbalance quantity calculation

The TSO[1)] shall calculate a daily imbalance quantity for each network user's balancing portfolio for each Gas Day in accordance with the following formula:

daily imbalance quantity = inputs – off-takes

Daily Imbalance Price & Daily imbalance charges

For daily imbalance charge calculation, the applicable price and charges shall be determined as follows:

(a) marginal sell price where the daily imbalance quantity is positive (i. e. the network user's inputs for that Gas Day exceed its off-takes for that Gas Day); or

(b) marginal buy price where the daily imbalance quantity is negative (i. e. the network user's off-takes for that Gas Day exceed its inputs for that Gas Day).

1) BAL NC: In a balancing zone where more than one TSO is active, this Regulation shall apply to all the TSOs within that balancing zone. In case the responsibility of keeping their transmission networks in balance has been transferred to an entity, this Regulation shall apply to that entity to the extent defined under the applicable national rules.

Mechanism is a daily imbalance charge calculation methodology:

- process: TSO proposal → NRA approval → publication on a relevant website
- parameters: daily imbalance quantity, applicable price, other parameters
- calculation of charges as follows: daily imbalance quantity × applicable price

Daily imbalance quantity:

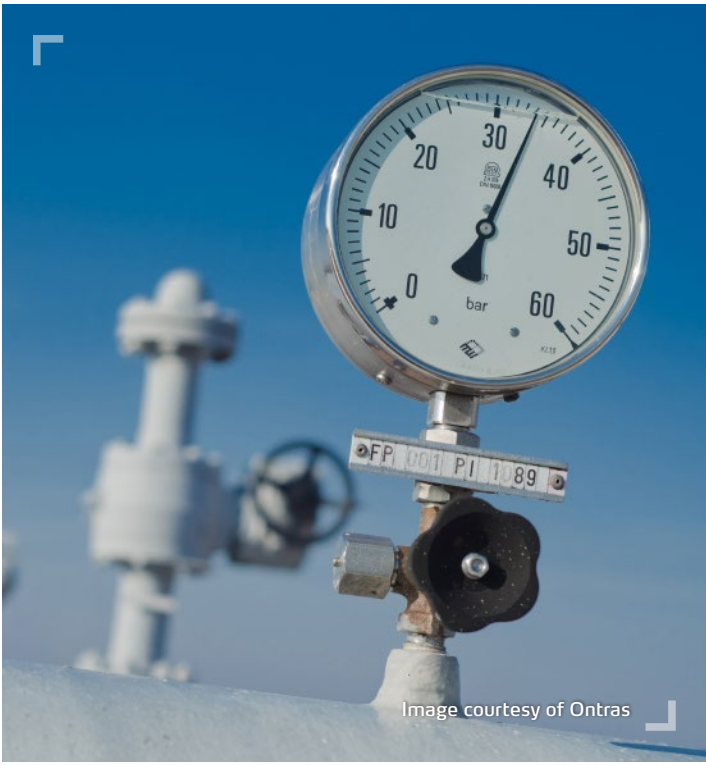
- is calculated by TSO for each shipper for each Gas Day according to the formula:

$$\text{daily imbalance quantity} = \text{inputs} - \text{off-takes}$$

- daily imbalance quantity ≠ 0 → daily imbalance charge is applied

Applicable price:

- inputs < off-takes → shipper is short → marginal buy price is applicable
- inputs > off-takes → shipper is long → marginal sell price is applicable



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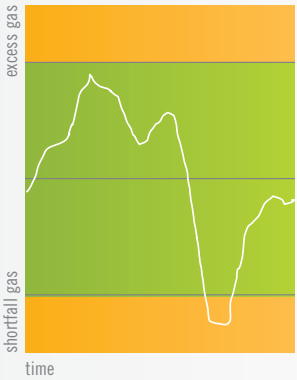
WITHIN DAY OBLIGATION (WDO)

In a daily balancing regime NU must be balanced at the end of the day. WDOs are additional within day constraints. The Code provides for three types of WDOs:

1) System-wide WDOs. They are designed to provide incentives for NU to keep the transmission system within its operational limits.
2) Balancing portfolio WDOs. They are designed to incentivise NU to keep their individual position during the Gas Day within a pre-defined range and,
3) Entry-exit WDOs. They are designed to provide incentives for NU to limit the gas flow or the gas flow variation under specific conditions at specific entry-exit points.

Where WDOs are applied, TSOs must give information during the day. Then, NU can evaluate performance at an individual point or portfolio.



Within day obligation

Represents:

- a set of rules imposed by a TSO on its shippers with regard to their inputs and off-takes within the Gas Day

Can be applied to:

- system position – to keep it within its limits
- a shipper's position – to keep it within the range
- specific entry-exit points – to limit the flow/its variation

Within day charge

Results from a within day obligation as:

- a charge levied by a TSO on its shipper; or
- a payment made by a TSO to its shipper.

NEUTRALITY ARRANGEMENTS

The TSO should not financially gain or lose by the payment and receipt of daily imbalance charges, within day charges, balancing actions charges and other charges related to its balancing activities, which should be considered as all the activities undertaken by the TSO to fulfil the obligations set out in the BAL NC.

A balancing neutrality mechanism will be used to enable the TSO to recover and appropriately apportion charges and revenues related to its balancing activities. The apportionment of charges and revenues to all NU will be based on each NU usage of the system within the balancing period.

INFORMATION PROVISION

To allow the shippers to balance their portfolios, information is provided to them regarding their inputs and off-takes from the TSO. The information provided to NU by the TSO should refer to the overall status of the transmission network, the TSO balancing actions and the network user's inputs and off-takes for the Gas Day.

Inputs are Intraday Metered (IM) or "allocated as nominated", i.e. NU's allocation equals its confirmed quantity. Off-takes are treated in three different ways:

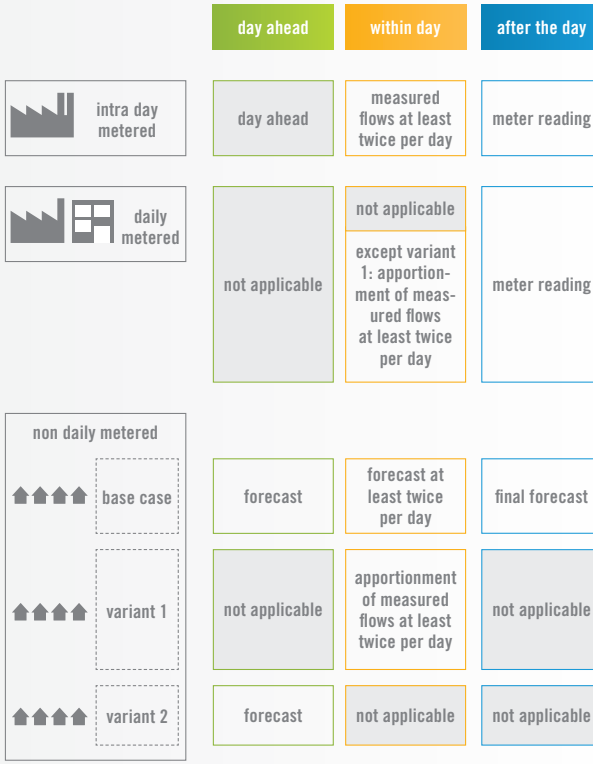
- For Intraday Metered (IM) for example for large industrial factories, a minimum of two updates during the Gas Day of their measured flows have to be provided to the NU.
- For Daily Metered (DM) for example smaller commercial entities, only for Variant 1 (see next paragraph for the definition), a minimum of two updates of their apportionment of measured flows must be provided to the NU.
- For Non-Daily Metered (NDM) for example domestic house-holds, forecast has to be provided on Gas Day D-1 (except for Variant 1). This forecast is updated during the Gas Day D for some information models.

Three models for information provision can be applied:

- The base case where the information for NDM off-takes consists of a day ahead and within day forecasts.
- Variant 1 where the information for NDM and DM off-takes is based on apportionment of measured flows during the day.
- Variant 2 where the information for NDM off-takes is equal to the day ahead forecast.

Forecasting temperature dependent end-customers like households is a complex task. TSO, DSO and sometimes a third party, the forecasting party are working together to provide them.

INFORMATION PROVISION



LINEPACK FLEXIBILITY SERVICE (LFS)

The LFS service is an additional tool to allow NU to be balanced at the end of the day. A TSO may offer the provision of LFS to NU after the approval of the related terms and conditions by the national regulatory authority (NRA).

INTERIM MEASURES

In the absence of sufficient liquidity of the short-term wholesale gas market, suitable interim measures shall be implemented by the TSO. Balancing actions undertaken by the TSO in case of interim measures has to foster the liquidity of the short-term wholesale gas market to the extent possible.

Balancing platform

Where the short-term wholesale gas market has or is anticipated to have insufficient liquidity or where temporal products and locational products required by the TSO cannot reasonably be procured on this market, a balancing platform has to be established for TSO balancing.

Interim imbalance charge

Where interim measures are necessary, the price derivation may be calculated in accordance with the report which aims to substitute the daily imbalance charge calculation methodology.

Tolerance of imbalance level

Tolerances may only be applied in case NU do not have access.

a) to a short-term wholesale gas market that has sufficient liquidity;

b) to gas required to meet short term fluctuations in gas demand or supply; or

c) to sufficient information regarding their inputs and offtakes

Abbreviations

ACER	Agency for the Cooperation of Energy Regulators
BAL NC	Balancing Network Code
DSO	Distribution System Operator
ENTSOG	European Network of Transmission System Operators for Gas
EC	European Commission
EU	European Union
LFS	Linepack Flexibility Service
NC	Network Code
NRA	National Regulatory Authority
NU	Network Users
STSP(s)	Short-Term Standardised Product(s)
TSO	Transmission System Operator
VTP	Virtual Trading Point
WDO	Within-day Obligation
IDM	Intraday metered
DM	Daily metered
NDM	Non-daily metered

Disclaimer

This document is non-binding, prepared for information and illustrative purposes, and offers a brief overview of the BAL NC illustrated with generic examples without any purpose of interpreting it. If in any respect the present document is not consistent with the BAL NC, then the BAL NC prevails.

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If you have any comments and for further information please contact us:

balancing@entsog.eu

ENTSOG AISBL

Avenue de Cortenbergh 100
1000 Brussels, Belgium
Tel. +32 2 894 51 00

info@entsog.eu
www.entsog.eu