

Daily Imbalance charge

Draft paper for Balancing network code development process – SJWS1

The concept on balancing charges is quite well developed within the gas balancing framework guidelines. However, there are some decisions that will have to be made when translating this concept into a network code:

1. Initial Scoping Assumptions

The scope of the Balancing network code does not include:

- the Reconciliation process¹.
- Rules pertaining to shrinkage gas².
- Full Detail of the Allocation process

2. The establishment of the quantities that will feed into the imbalance quantity determination.

The Imbalance Quantity³ is described in the launch document as the difference in energy of a Network Users Inputs and Offtakes from the balancing zone for each Balancing Period,

Therefore taking into account the definition in the framework guideline the Imbalance Quantity can be expressed as follows:

Imbalance Quantity = (Final Entry Allocation + VTP Buy Confirmations) – (Final Exit Allocation + VTP Sell Confirmations)

[The detailed definitions of Final Entry Allocation and Final Exit Allocation require further articulation in a later version of this paper – this paper will pay particular attention to the NDM contribution (or

¹ The preliminary view of TSOs and DSOs prior to the start of the Balancing network code was also that reconciliation processes for non-daily metered customers (i.e. the treatment of the differences between allocated offtake quantities and the final actual consumed quantities determined on the basis of the (less than daily) metered information are outside of the scope of the network codes envisaged under Reg (EC) 715/2009.

² Shrinkage is not explicitly addressed in the framework guidelines or this paper.

³ Imbalance is defined in the framework guideline although it includes two alternatives. It is clear however that Imbalance Quantity determination for an individual system user needs to take account of both physical gas and gas exchanged at a virtual point in the market.

component) in the Final Exit Allocation. It is to be decided what level of specification of the allocation processes needs to be reflected in the Balancing network code]

Allocations Process

After the balancing period (gas day) has ended, an allocation process is used to determine how much gas actually flowed into and out of the system and to whom it belonged so that the appropriate charges can be made.

The basic principle derived from the primary objectives of the Balancing code is that on all points the total flow should be allocated⁴. For offtake points with Intraday or daily meters the allocation can be based upon measured flows associated with the balancing period

Assumption: The Balancing network code will not seek to reopen allocation processes that already exist unless they are detrimental to the efficiency of the balancing regime. The key principle is that the allocation process should generally allocate the total entry flows onto and exit flows from the system and give rise to an accurate determination of the system user's actual inputs and offtakes.

Suggestion: The above assumption should be reflected in a principle and documented in the Balancing network code.

The following issues have surfaced in early interaction with stakeholders and warrant particular attention:

2.1 Application of Final NDM Exit Allocation in the Imbalance Quantity Formula:

The framework guidelines indicate that "in the absence of information being metered during the balancing period and in order to facilitate new entry, the network code on gas balancing shall oblige TSOs to provide detailed forecasts of offtake volumes for non-daily metered customers at the day ahead stage. The TSO shall provide updates of this forecast at appropriate intervals during the balancing period, at least twice a day, unless network users are able to fulfill their balancing obligations with information provided day ahead, e.g. they are cashed out against day-ahead offtake forecasts".

The NDM forecasts are part of a suite of information to be provided by TSOs and the detail associated with this issue will be dealt elsewhere and discussed in the SJWSs under Information Provision. The intention of this section is to explore the role of the NDM Derived Forecast in terms of its relationship to the NDM Exit Allocation and the linkages as described in the framework guidelines to imbalance charges.

An important element of the Final Exit Allocation is the NDM Exit Allocation. This is gas quantity offtaken by non-daily metered customers, who typically lie on the distribution system. As mentioned earlier, the network user is to be provided with end of day forecasts within the balancing period. ENTOSOG proposes that these are referred to as NDM Derived Forecasts. A key principle that underpins the Balancing Target Model (BTM) envisaged within the framework guideline is that networks users should seek to balance their portfolios, with inputs (Final Entry Allocations +VTP Buy Confirmations)

⁴ However the framework guideline envisages one exception that is addressed later in this paper.

matching as close as possible to actual offtakes (Final Exit Allocations + VTP Sell Confirmations), thereby minimising the TSOs role. Thus the provision of NDM Derived Forecasts (provided that they are sufficiently close to the NDM Exit Allocation) should allow the network users to secure gas as close as possible to their expected offtakes for this category of customers.

The NDM Derived Forecasts are important to all parties:

- Network user perspective: Given that part of the network user's cash-out exposure is influenced by the difference between the NDM Exit Allocation and the final NDM Derived Forecast the provision of accurate NDM Derived Forecasts will be a key enabler for the network users to be able to track demands and therefore take actions that will minimise their end-of-day imbalance exposures.
- TSO perspective: The TSO will also have an interest in ensuring that the NDM Derived Forecast is accurate, as it should mean that the TSOs role in balancing will be minimised. Indeed the framework guidelines provide for an incentive on the TSO to reduce balancing costs – therefore the accuracy of this forecast may be a key enabler for the TSO being rewarded under such an incentive.
- As both parties will have an interest in an accurate forecast, it may be useful to discuss possible avenues for assisting this, for example - prescribe that the accuracy of the provision of NDM Derived Forecasts is monitored and reported upon and that network users should be consulted regularly on the process for creating NDM Derived Forecasts. This would clearly require DSO involvement as NDM customers will typically lie on their system.

Regarding the NDM offtakes, It should be noted that the framework guidelines also state that “the TSO shall provide updates of this forecast at appropriate intervals during the balancing period, at least twice a day, unless network users are able to fulfil their balancing obligations with information provided day-ahead, e.g. they are cashed out against day-ahead off-take forecasts.

Therefore in the example above the NDM Exit Allocation equals the NDM Derived Forecast provided day ahead. Such imbalance cash-out using an offtake component based upon a day-ahead forecast is an exception against the general principle that total entry and exit flows from the transmission system are allocated to individual network users and in drafting the code, and as supported by the framework guideline, considers this as the only exception to apply to the principle. ENTOSOG's assumption is that this exception only relates to the NDM component of loads.

3. The definition of each parameter used within the imbalance charge methodology:

3.1 Traded products that can set the marginal price: *“the highest price of any gas balancing trading to which the TSO is a party in respect of the balancing period”*

ENTOSOG have identified different interpretations of this clause:

Option 1: Only within-day trades made by the TSO for balancing the system shall be used to define the imbalance price

Option 2: All pre-gas day and within-day trades made by the TSO for balancing the system in respect of the specific balancing period shall be used to define the imbalance price.

3.2 The location of relevant trades

While the framework guidelines explicitly exclude the possibility of locational and temporal products setting for the marginal price. However they do not make reference to whether they are included in the average price of gas on the day. It must be considered therefore whether temporal and locational trades should be included in the calculation of the average gas price. It may be that the TSOs trades carried out in initial stages of market development might include an amount of locational trades, possibly decreasing over time as the TSO becomes more confident in the response from the title market. Therefore there are options that can be considered:

Option 1: Weighted average price only based on the title trades made on the Virtual Trading Point

Option 2: Weighted average price based on the title trades made on the Virtual Trading Point and trades carried out at physical points (locational product), but excluding temporal trades. This approach may require some mechanism to ensure the average price is indeed representative of market prices, as some locational trades may be at significant premium/discount to VTP title products.

However a more high level definition might also be appropriate such as:

Weighted average price = the sum of all applicable trades divided by the sum of the applicable traded quantities in respect of that balancing period

The preferred option may subsequently need to be assessed in the context of other interactions elsewhere in the regime including e.g. overall incentives to balance, incentives to deliver on the TSO's balancing trades.

3.3 Source of trades

It is unlikely that all trade information will be available to determine the imbalance price given that relevant data on all transactions, timings and prices will be available to the settlement agent. The market will therefore use multiple arrangements for trading (e.g. Bi-lateral OTC, Broker and exchange based trading, balancing platform) and so it is essential to define which trades will be used to determine imbalance prices.

Some possible sources include:

- Electronic exchange (one, many or all serving a particular balancing zone)
- Published indices
- Other.

Stakeholder views on an appropriate approach are sought.

3.4 Use of Balancing Platform for imbalance methodology

The framework guidelines provide for a balancing platform to support the imbalance methodology in the same fashion as a wholesale market. As is the case for a wholesale market, having sufficient liquidity is important in the application of this methodology (albeit an imbalance platform is created in scenarios where insufficient liquidity exists).

4. Derivation of small adjustment to incentive users

The framework guidelines provide that the Imbalance charge may include a small adjustment to incentivise users to balance their portfolios.

A consistent formula, or methodology, for defining a small adjustment is an option but if it may not be viable given that the chosen methodology may not be suitable in all cases.

An alternative approach of defining criteria could be considered. The framework guidelines provide that the small adjustment shall be:

- Designed and applied in a non discriminatory manner so as it does not deter market entry or impede the development of competitive markets.

The framework guidelines do not specify a detrimental impact on cross border trade as a specific criteria and ENTSG would welcome views on whether this or any other criteria should be a consideration in the development of the code.

Term	Definition	Source
Entry	means gas entering the Balancing Zone, for example inputs can include gas delivered via interconnection points, LNG terminals, production facilities, storage facilities withdrawals, adjacent areas.	Launch Documentation
Exit	means gas exiting the Balancing Zone, for example offtakes can include gas taken via consumers directly connected, interconnection points, adjoining distribution systems, storage facilities injections, adjacent areas.	Launch Documentation
NDM Exit	means the Natural Gas exiting the balancing zone for the supply of non daily metered customers. These are typically located on the distribution network.	Commercial Framework KG
Confirmation Notice	means the message confirming to the Network User quantities of gas that will be scheduled to flow on Gas Day D.	(Interoperability KG)
Nomination	means the prior reporting by the Network User to the Transmission System Operator of the actual flow that the Network User wishes to inject into or withdraw from the system	(ref. Regulation 715).
Confirmed Quantity	means the quantity of gas confirmed by a Transmission System Operator to be scheduled to flow on Gas Day D. The Confirmed Quantities will take into account the Processed Quantities and Matching Process.	(Interoperability KG)
Processed Quantity	means the quantity of gas that the Transmission System Operator is scheduling for flow, which takes into account the Network Users nomination, contractual provisions and Technical Capacity available.	(ref. Regulation 715).
Matching Process	means the process of comparing and aligning nominations of Network Users per Network Users Pair at both sides of a specific Interconnection Point,	(Interoperability KG)

	which is resulting in the Confirmed Quantity.	
Renomination	means the subsequent reporting of a corrected nomination	(ref. Regulation 715).
Allocation.	the shares of the measured or deemed offtakes and inputs given to a single network users portfolio.	Commercial Framework KG
Reconciliation	Process of comparison between final Allocations and final customers actual offtakes	Commercial Framework KG
NDM Derived Forecast	forecast of Natural Gas consumption by NDM customers for the Balancing Period, provided by the TSO to each relevant network user	Commercial Framework KG
Initial Allocation	means the sum of the initial quantities of Natural Gas that is allocated to a network user on the Balancing Zone for a Balancing Period	Commercial Framework KG
Final Allocation	means the sum of the final quantities of Natural Gas that is allocated to a network user on the Balancing Zone for a Balancing Period	Commercial Framework KG
VTP Buy Notification	A notification from the Network User to the TSO seeking the title of a defined quantity of gas for a specific Balancing Period to be transferred from another network user to its Balancing Account.	Commercial Framework KG
VTP Sell Notification	A notification from the Network User to the TSO seeking the title of a defined quantity of gas for a specific Balancing Period to be transferred to another network user from its Balancing Account.	Commercial Framework KG
VTP Buy Confirmation	An amount of gas that a Network User purchases at the Virtual Trading Point.	Commercial Framework KG
VTP Sell Confirmation	An amount of gas that a Network User sells at the Virtual Trading Point.	Commercial Framework KG
Daily System Imbalance	The extent to which the differences between total physical inputs and offtakes of gas (either forecast before the end of the Gas Day or actuals after the end of the Gas Day) differ for the relevant Gas Day	Commercial Framework KG