

TRANSMISSION AND DISTRIBUTION SYSTEMS BALANCING ACTIVITIES INTEGRATION

SUMMARY:

- The gas Balancing NC already allows for locational products which can be used to resolve specific local operational issues regarding temporary insufficient network capacity.
- Without changing anything, the Balancing NC provides a solid basis to manage temporary insufficient capacity occurring at the distribution system level, by means of locational products activated at the transmission exit points towards distribution systems.
- The BAL NC does not inhibit the inclusion of standardised balancing products or flexibility services from sources further downstream these exit points (micro-locational products), where the relevant area (balancing zone) includes both the transmission system(s) and the distribution system(s). While the EU regulatory framework is compatible with this, advocacy at national level may be needed should there be local regulatory restrictions.
- Should local gas production grow substantially, possibly exceeding minimum off-take within a distribution network, the Balancing NC could be refined in order to manage/relieve temporary insufficient network capacity at distribution system level, by providing guidance on design, procurement and activation of such micro-locational products.
- To avoid the fragmentation of the balancing market into transmission and distribution markets and loss of liquidity, and in order to always ensure that the most efficient product or service is procured, the transmission system operator (or a third party) should have the role of overall market area manager, including the distribution area(s).
- New interactions between TSOs and DSOs combined with enhanced dynamic and smart management of gas flows should be developed and promoted.
- Network operators should be able to recover efficiently incurred balancing costs on both the transmission and the distribution system level on an equal footing.
- Where capacity does prove to be insufficient on a permanent basis integrated balancing markets will provide early investment signals into TSO-DSO physical reverse flow or network expansion as ultima ratio.

What the BAL NC does

The BAL NC assigns network users the responsibility to balance their balancing portfolios in order to minimise the need for transmission system operators to undertake balancing actions. They are asked to do so on the basis of up-to-date information on their own imbalance position and the overall system imbalance.

Remaining imbalances are managed by the transmission system operator which undertakes balancing actions to: (a) maintain the transmission network within its operational limits; (b) achieve an end of day linepack position in the transmission and distribution network different from the one anticipated on the basis of expected inputs and off-takes for that gas day, consistent with the economic and efficient operation of the networks.

The transmission system operator undertakes balancing actions through: (a) purchase and sale of short-term standardised products [title, locational, temporal or a combination thereof] on a trading platform; and/or (b) the use of long-term balancing services [following a cost-efficiency based merit order]. The BAL NC also foresees that in a balancing zone where more than one transmission system operator is active, all transmission system operators within that balancing zone are covered by the

same rules with the possibility of having a market area manager intervening in the market on behalf of all involved network operators.

For the purpose of procurement of short-term standardised products, the transmission system operator shall trade on the general day-ahead or within-day market. Only in situations of limited liquidity on the traded market balancing actions can be undertaken on a dedicated balancing platform where the transmission system operator is a counterparty to every deal concluded.

While the BAL NC does not extend fully to the management of distribution systems, it does contain provisions requiring distribution system operators to provide the transmission system operator with information on the intraday and daily metered inputs and off-takes on the distribution system. This information shall be provided to the transmission system operator within the time sufficient for the transmission system operator to provide the information to network users.

Furthermore, distribution system operators are responsible for providing the forecasting party with sufficient and updated information for the purpose of the methodology for the forecast of a network user's non-daily metered off-takes application. Also, this information shall be provided in a timely manner in accordance with the timelines defined by the forecasting party to be consistent with its needs.

What the BAL NC can do

With no changes

Without changing anything, the BAL NC could continue providing a solid basis to manage temporary insufficient capacity occurring at the distribution system level, by means of locational products activated (or having effects) at the transmission exit points toward distribution systems. By buying gas at a specific exit point towards distribution systems the transmission system operator would indeed be able to reduce the flow and relieve a temporary oversupply within a distribution system and/or specific distribution parts. The transmission system operator could do so relying on the data made available by the distribution system operator, possibly refined in their level of granularity, or on the DSOs request. Oversupply within a distribution system could also potentially be relieved by selling locational gas at a transmission system exit or buying locational gas at a transmission system entry to offset a reduction at the exit point to the distribution system where capacity at the exit points toward distribution systems is not allocated.

While nothing in the BAL NC as it exists today would prevent such scenario, it must be noted that this solution would only be possible in markets in which: (a) locational products could effectively change gas flow at the entry of a city gate to relieve congestion and (b) network users can actually offer balancing gas at relevant locations that relieve such congestion.

TSOs/DSOs should identify/anticipate the need for potential locational products based on the r- and d-gas production & injection projects at DSO level when setting up integrated network planning. Moreover in general, it would be important to envisage a closer form of cooperation between TSOs and DSOs. Such cooperation would become even more critical as the system moves towards increased localised gas production.

With possible marginal improvements to the Balancing NC

Should local gas production grow substantially, possibly exceeding minimum off-take within a distribution network, additional flexibility may be made available by granting the transmission system operator (or a third party) the role of market area manager and, in cooperation with DSOs, enabling

him to procure short-term standardised balancing gas products and/or flexibility products on behalf of a DSO.

On the basis of the information shared by both transmission system operator and the distribution system operator on forecasts of and actual inputs and off-takes, network users (both of distribution and transmission systems) and the transmission system operator could trade standardised products, with no need to create additional and/or alternative trading platforms. In this case, both local gas production and local gas consumption would be made available on the trading platform via standardised 'micro-locational' products, offering to ramp up supply or demand appropriately.

This would mean for instance that a network user supplying a power plant connected to a distribution network could offer on the national balancing platform to increase its offtake and allow more local production and/or more gas from the transmission network to be injected in the distribution network.

These 'micro-locational' products, coupled with dynamic flow management, should be incentivized by NRAs in order to develop smart, flexible and market-based solutions. In addition, micro-locational products may deal with odorization issues, when distribution systems are odorized and transport systems are not odorized.

Balancing costs management

The BAL NC already provides for the transmission system operator to publish annually the information with regard to the balancing products and services procured and the related costs incurred. The regulation also foresees the possibility for Regulatory Authorities to introduce incentives for the optimal management of these costs to be granted against reaching predetermined performance targets.

More importantly, the BAL NC establishes that the TSO shall not 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. This means that cost and revenues resulting from the balancing activities of the balancing activities of the TSO shall be passed through to network users via the application of a neutrality charge which is defined, in its methodology and applicability, by the national regulatory authority.

One would envisage that the same principles would apply in a situation where balancing actions were undertaken to resolve congestions at the distribution systems level, possibly with the addition of a cost sharing mechanism among the TSO and the DSOs to ensure cost reflectivity and to avoid cross-subsidy. Such mechanism would not need to be defined in detail in the BAL NC and could be further elaborated on in a separate document.

Further measures to increase available flexibility

Should there be the need for additional flexibility to be made available to manage regularly occurring distribution system imbalances i.e. to relieve permanent congestion, alternative/additional measures could be considered. Such additional measures could for instance include investment in upgrading the distribution system to allow physical bidirectional flows at the interconnection points between distribution and transmission systems or the increase of the linepack.

In this context, the inclusion of micro-locational products might play a role of a transitional solution in order to foster green gases production at distribution level "buffering" physical congestion while needed investments in distribution networks are performed/finalized. These products might also increase confidence of network users understanding network configuration and balancing cost. Finally,

the introduction of micro-locational balancing products and/or TSO balancing actions to relieve distribution system congestion into the national balancing market should provide sufficiently early investment signals. Where balancing costs exceed those necessary to relieve congestion through physically adapting the distribution network an investment decision should be taken subject to a sound cost-benefit analysis.

Such investment should be subject to integrated network development on at least regional level, including relevant distribution and transmission systems. This ensures that investment in additional r- and d-gas production is taking place in the most cost-efficient way, i.e. at a location where the network connection of a production facility and the complementary right to inject gas at a guaranteed firm capacity level is possible at minimum cost for both system users and r-/d-gas investors. It is interesting to note that in some EU countries, e.g. Denmark, it is already up to a joint decision of TSO and DSOs to define where biomethane producers would have to connect in order to deal with network congestions.

General principles for Transmission and Distribution Systems Balancing Activities Integration

Any future reform of the BAL NC should ensure that the following principles are respected:

1. Any market design should make sure that the injection of R-/D-Gas is increased at least cost
2. Any market design should make sure that the balancing of the system(s) is performed in the in the most cost-efficient way possible;
3. Any market design should ensure transparent and equal access to the information necessary to network users to effectively balance their portfolio and to participate on the balancing market;
4. Any market design should avoid the existence of conflicts of interest, where necessary by introducing stringent unbundling rules;
5. Any risk of liquidity fragmentation should be avoided.