

## **GTS views on the framework guidelines for balancing**

### **1 Introduction**

In the workshop on balancing, held on 12 October 2010, ERGEG requested participants to supply lines of reasoning instead of positions to assist ERGEG in finalizing the draft Framework Guidelines on balancing.

In the debate between European stakeholders, daily balancing has been put forward as an important step towards a competitive European gas market. The European TSOs, represented by ENTSOG, generally agree that daily balancing would be a step forward for many of the current regimes. However, the European TSOs could not find agreement whether daily balancing, with end of day cash out, is the end model or an important but intermediate step on which significant improvements can be realised based on genuine system needs, improved information provision and market based balancing actions<sup>1</sup>.

In the Netherlands, daily balancing with end of day cash out or the alternative cumulative balancing has been the subject of intense discussions in 2009 with the clear outcome that cumulative balancing is the preferred outcome, a choice which combines the characteristics of the successful market based balancing in electricity with the more relaxed characteristics of gas, where no immediate action is required because gas can be stored to a limited extent in the transportation network.

In this short paper, Dutch TSO Gas Transport Services (GTS), presents its views on the draft Framework Guidelines and on the target model of daily balancing in particular. We put forward a line of reasoning at the conceptual level which has led to the choice for a cumulative balancing regime in the Netherlands. We are convinced that the concept, in which there is no fixed period for the moment of cash out and where network users are provided real-time imbalance information on their portfolios, creates a situation where the market itself will keep the system balanced. We believe that this concept, *not* the Dutch specific details, is of value to the debate on the shape of the future European gas markets.

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<sup>1</sup> From our discussions with representative organisations from Dutch industry as well as consumer organisations we have understood that their discussion with their European colleagues came to the same conclusion: Dutch organisations wanting to go beyond daily balancing but not yet being able to persuade their European colleagues. As one of those organisations put it, a major drawback of the proposed system is that there is no actual experience with it yet.

## 2 Setting the scene

The relevant (legal or regulatory) requirements for a balancing regime as proposed in the Framework Guidelines, must contribute to the overall goal of fostering a well functioning internal market for gas. The definition of a “target model” for balancing (or any other area of access conditions) is only necessary insofar differences in balancing regimes are currently hindering cross-border trade and thereby the creation of the internal market. In this respect also, the recent draft Framework Guidelines on “Capacity Allocation Management” and Comitology proposals on “Congestion Management Procedures” are relevant. The purpose of these proposals is to improve access to cross-border capacity and to resolve contractual congestion at cross-border points.

In the draft Framework Guidelines on balancing ERGEG proposes four goals for the balancing regime. These are presented below together with the conditions which enable these goals to be accomplished:

1. Market responsible for portfolio balancing
  - Access to short term liquid within day markets
  - TSO provides information within balancing period
2. TSO’s role is residual balancing
  - TSO procures gas on the wholesale market on an equal footing with market
3. Participants that contribute to system imbalance should bear reflective costs
  - TSO provide aggregate/system imbalance information
4. Within day cross border cooperation: zone merging, TSO balancing, portfolio balancing

In our view the combination of these four balancing goals with the CAM/CMP proposals to achieve unconstrained access (i.e. up to technical limits) to cross-border capacity already give the broad outline of a “target model” for Europe for within-day markets and market based system cooperation.

However, given the current state of the debate on balancing, and the apparent preference of many European stakeholders to pursue “daily balancing with end of day cash out”, this would currently appear to be a fifth goal in the Framework Guidelines on balancing.

Whereas we consider “daily balancing with end of day cash out” as a pragmatic intermediate step for certain European systems we are convinced that this system will ultimately prove to be a barrier to accomplishing full cross-border European competition in the short term markets. In the next paragraph we will explain our reasoning.

### **3. Daily balancing**

On the conceptual level, daily balancing with end of day cash out means that only the imbalance position at the end of the day has financial consequences for a user of the grid and the intermediate position during the day is of no consequence.

#### *Uniform flow environment*

Daily balancing is ideally suited for systems where the commercial balancing regime is mirrored by physical gas flows, in this case uniform flows during the day through the system. When an imbalance of a portfolio occurs network users have to be able to physically correct their imbalance, for example with an end of day product (i.e. a volume which is provided in equal portions over the remaining hours till the end of the day). Moreover, system imbalances may be corrected by the TSO with an end of day product. In a pragmatic world the physical flows and the commercial regime can deviate in so far that the cost of this deviation should be lower than the advantages associated with the commercial regime.

In systems where diurnal storage (i.e. storage to equalise differences between day and night consumption) is integrated with the distribution networks, the high pressure network will usually be characterised by relatively uniform flows. Disturbances of the uniform flow because of an outage of production or changes in off-take can be met by the TSO<sup>2</sup> (before the end of day) with adjustments of the diurnal storage. In practice however, only limited disruptions of the uniform flow can be accepted and the commercial freedom of end of day balancing requires a strict guarding of the uniformity of the physical flows at import and export points throughout the day.

In Europe there is a large diversity in the way in which diurnal flexibility is provided to the market. Larger distances between diurnal storage facilities and distribution networks lead to less uniform and more profiled flows over the day in the transmission system.

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<sup>2</sup> Under the assumption of close cooperation between DSO and TSO

On the conceptual level we will now consider the effects of non-uniform flows. We take two examples: a non-uniform flow caused by the small (household) consumer profile and a sudden change due to outage of production or an increase in off-take.

### *Non uniform flow environment.*

We assume that the small consumer profile is characterised by higher off-take than the daily average during the day and lower off-take during the night. For a network user under a daily balancing regime with end of day cash out it is sufficient to provide the daily volume, for instance at uniform flow through the day. The TSO is responsible for providing the profile but he is not able to buy the profile on the market under a regime with daily balancing because a shipper is only responsible for the end of day imbalance and not for the profile during the day.

The consequence is that the TSO will require control over the profile during the day. At best this will lead to a second market for profiled gas with a different balancing (commercial) regime but it is more likely that the TSO contracts diurnal storage for a longer period in combination with operational control of the diurnal storage or the diurnal storage becomes a regulated asset of the TSO. Both solutions will lead to a considerable reduction of liquidity for short term flexible gas.

This brings us to the second category of non uniform flow: the sudden change in flow. Under daily balancing with end of day cash out the major part of resolving this problem will be met by the TSO using the (contracted) diurnal storage and the remainder by the total of the shippers because in most cases the volume problem of the individual parties causing the problem will be resolved to a large extent at the time of cash out. This leads to the questions to what extent the cost of diurnal storage also have to be born by others than the small consumers and to what extent good performers are willing to accept free rider behaviour of competitors. Direct allocation of cost to the causers is **not** possible under the daily balancing regime.

Sudden changes in gas flows are expected to occur more often in the near future as a lack of wind or sun for renewable electricity production will lead to an increase in the number and the amount of changes in gas fired power. As described above, the cost of this flexibility in gas cannot be allocated under a daily balancing regime. Even if electricity producers wanted to resolve the problems they are causing themselves they are hindered by the removal from the market of short term flexibility for diurnal storage, as a

consequence of daily balancing. This is aggravated by flow constraints on entry of intraday gas from neighbouring systems discussed in the next topic.

### *Consequences for cross border balancing*

With the successful removal of contractual constraints in the allocation of cross border transportation it will become possible to arbitrage between systems within day. Under a daily balancing regime the TSO cannot afford to allow within day flow fluctuations because his diurnal storage capabilities will not be sufficient or will be exported without a fair reward. However a daily balancing regime will allow cross-border TSO cooperation but excludes the participation of other market parties.

### *Information provision in a daily balancing regime*

With perfect portfolio information available to shippers described as a necessary condition in paragraph 2 the flow restrictions will have to be maintained even more severely than currently to avoid gaming against the TSO. Practically it would be better to limit the amount of within day information to shippers to avoid the misuse of that information against the TSO. However in our view limiting information is contra productive because information on portfolio imbalance is by far the most cost effective balancing tool for shippers. Thereby keeping information from shippers makes no sense from the perspective of lowest cost to society.

## **4. Cumulative balancing**

In the cumulative balancing regime (or market balancing regime) there is no fixed period for the moment of cash out. As long as the system remains within her operational boundaries there is no genuine need to resolve a system imbalance and the TSO does not buy or sell gas. Network users are provided with real time imbalance information (cumulative) both of their own portfolio and of the system. With real time information network users can maintain imbalances on a level in accordance with the risk profile they wish to maintain. For reducing their imbalance network users can use their own means or market based products such as end of day or any other multi hour products.

### *Uniform flow environment*

In systems with more or less uniform flows this will mean that the amount of forced cash out transactions will be more limited than under a daily balancing regime. Network users can optimise their imbalance costs by buying and selling short term products whether they are domestic or from abroad.

## *Non uniform flow environment*

In systems with profiled flows the shipper has to bear the responsibility for the profile himself or he can choose to concentrate on a section of the market that has no profile. Access to short term products will be easier in most parts of the year since the TSO is not a competitor in that market. Under system design conditions (e.g. low temperatures) the amount of short term products will not be different from a system with daily balancing but access to short term products can be more difficult than in the case when the TSO has the monopoly on short term flexibility. (In the Netherlands the lack of a TSO monopoly has resulted in an increase in competition for short term flexibility resulting in additional cavern storage both domestic and from Germany.)

## *TSO balancing*

When the cumulative imbalance of the system crosses certain boundaries the TSO will have to buy or sell gas. The preferred solution is that the TSO uses the same market for short time products as the shipper e.g. an exchange. An intermediate solution is that the TSO makes use of a platform. When the TSO has to buy or sell gas the imbalance positions of shippers are cashed out.

When the system is short the TSO has to buy gas. The TSO will buy the required amount both from the exchange/platform and from shippers who are long for the marginal price on the exchange/platform. The amount bought by the TSO will be sold to shippers who are short at the same price as the TSO has bought the gas. (The same principle applies when the system is long.)

## *Market balancing*

Buying from shippers who are long when the system is short means that shippers can profit from assisting the TSO in maintaining the system balance. To profit a shipper has to create an imbalance in the opposite direction from the system imbalance.

For a shipper who is on average in balance the cost of imbalance even out because in half the time he receives the marginal imbalance price and in half the time he has to pay the marginal imbalance price. (If the price differential for short and long are not equal he has to adjust his average position accordingly.)

Shippers who are structurally short or long will pay structurally for their imbalance but in most cases less than their own contribution to the system

imbalance. (The amount of gas between the system boundaries is free for contributors to the system imbalance.)

## *Consequences for cross border balancing*

Due to the fact that a shipper has to pay the marginal imbalance price when the system crosses operational imbalance boundaries, TSOs no longer have to maintain strict flow control at cross borders because the "fair" market price is paid for imbalances whether they are domestic or imported from abroad. In essence this means that market based cross system balancing can and will occur. (Due to this phenomena the price of balancing gas can both increase or decrease in a given system and that was the European goal.)

## *Harmonised gas day*

When there is no system imbalance at the end of the day the imbalance of shippers is temporarily stored in the linepack of the transmission system. There is in principle no difference between storing in a physical storage or in a transmission system. In that respect cumulative balancing can incorporate any harmonised European definition of gasday.

## **5 Conclusion**

A choice for daily balancing with end of day cash out leads to mandatory control of diurnal storage by the TSO. This mandatory control will to a large extent exclude the market. This is not a necessary prerequisite because in large parts of Europe there are sufficient amounts of market controlled diurnal storage without TSO control. However in some European systems mandatory control of diurnal storage is inevitable due to locational constraints.

The commercial model of daily balancing with end of day cash out makes uniformity of commercial cross border flows imperative leaving intra day cooperation between systems in the domain of the TSOs under exclusion of the market.

The drawbacks of mandatory control by TSOs of diurnal storage and flow uniformity across borders can be overcome by the cumulative balancing model. The role of the market will increase, subsequently the role of TSOs will decrease and cost reflectivity of imbalances will improve.

A daily balancing regime will therefore lead to less market influence and more operational control by TSOs contravening the Framework Guidelines goals with respect to market responsibility for portfolio balancing, residual

balancing role for the TSO, reflective costs for imbalance and cross border cooperation.

In our view the Framework Guidelines would improve with the provision of an order of priority for the different goals/targets. Such a priority would also assist ENTSOG in the formulation of the balancing codes.

From our reaction it will be clear that we would give a higher priority to market responsibility for portfolio balancing, residual role of TSOs, cost reflectivity of imbalance and cross border cooperation than to daily balancing.