

# Evaluation by GTS of market based balancing

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# Contents

1	Introduction .....	4
2	Market Response.....	6
2.1	What is going well? .....	6
2.1.1	The fundamentals of the balancing regime .....	6
2.1.2	The functioning of the balancing regime .....	7
-	The development and implementation are well executed.....	7
-	The POS is considered to be an effective signal for balancing.....	8
-	The ICT functions very well .....	8
2.2	Points for improvement.....	8
2.2.1	The fundamentals of the balancing regime .....	9
-	Remarks on assistance gas and reset .....	9
2.2.2	The functioning of the balancing regime.....	10
-	The quality of the steering signals.....	10
-	A wish for more information on actual balance and parameters.....	11
-	Availability of historical data .....	11
-	Single respondent reactions .....	12
	Wrap-up of observations.....	14

## Summary

This report records the results of GTS' stakeholder evaluation of the current market based balancing regime, as applied to the Dutch national gas transport system. This market based balancing regime has been established by GTS in consultation with the stakeholders, with a formal role for the Representative Organizations (RepOrgs). The evaluation focuses on establishing the users' view on the general functioning of the current regime. The process of development and implementation prior to its introduction, and objections to decisions about the balancing regime are beyond the scope of this evaluation.

For this evaluation, GTS invited market parties to participate in a two-round written survey. Respondents included parties such as the RepOrgs as well as individual users who had indicated to be willing to share their experiences. The response periods for these surveys were the months of November 2011 and February 2012. These periods were selected for timing reasons: half a year after the actual introduction of the current regime, and shortly after the winter.

This report describes the evaluation set-up and execution, and enumerates the received responses. The last section provides a wrap-up of the aspects mentioned most often.

The general impression from the surveys is that of a well functioning system. Respondents almost unanimously appreciate the market based character of the balancing regime with a primary role for market parties and the high degree of transparency on balancing status and price formation. Furthermore, the regime has proven its strength during its first winter period, with high loads in the cold week early February 2012. In addition to these positive reactions, also several points for further improvement on specific, mostly operational, aspects of the regime are identified. The most prominent one is an urge for continued improvement of the robustness of the steering signals.

# 1 Introduction

## **The balancing regime<sup>1</sup>**

In recent years, a new market model with accompanying rules for network balancing has been developed and implemented by Gas Transport Services (GTS) in her role as Transmission System Operator (TSO), in consultation with the stakeholders, with a formal role for the Representative Organizations (RepOrgs). The aim of balancing is to be able to maintain and guarantee the integrity of the system at all times. With this balancing regime, the Netherlands converted to a system in which the market players are responsible for keeping the national gas transmission network in balance, for example by buying or selling gas on the Dutch virtual gas trading platform.

The actual introduction of the balancing regime on 1 April 2011 marked the end of the development and implementation period, and the operational start of the current regime. Currently, the market based balancing regime has been functioning for almost a year without major hick-ups. GTS is continuously monitoring the performance, and induces improvement in for example the robustness of the steering signal on an ongoing basis.

## **The evaluation set-up**

Through this evaluation, GTS wants to establish and assess the view of market parties on the functioning and performance of the current regime. The development, implementation and possible future performance are outside its scope. Please note that the evaluation focuses on the stakeholders' experiences with the functioning of the balancing regime.

The evaluation has been executed in a two-round written survey, executed in November 2011 (half a year after the actual introduction of the regime) and February 2012 (after the first winter period) respectively. The first evaluation round can be regarded as the main round and it focused on the general functioning of the market based balancing regime. The surveys in the first round consisted of an open invitation to the respondents to indicate the most relevant aspects of the market based balancing regime for their members and/or organisation. Participants could freely indicate their view on aspects that are going well as well as on aspects that have potential for improvement. Besides a short indication of points, there was ample room for explanation or elaboration.

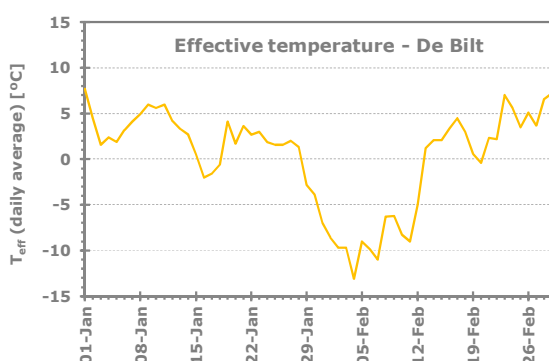
A similar open character round was executed in the second round. This survey consisted primarily of an invitation to express any modifications (adjustments, removals or additions) to the own organisations' response to the first survey. This way, respondents were given the opportunity not only to add advanced experiences (once teething troubles have been overcome), but also to explicitly include experiences during winter conditions. In advance, the winter period was regarded by some respondents as 'the real test' of the balancing regime, as they expected the system to be much tighter with higher gas flows.

The actual winter conditions during the evaluation period are illustrated in figure 1, representing the effective (corrected for wind chill) average daily temperature, in January and February 2012. Figure 2 shows the total daily transported gas volumes in the GTS

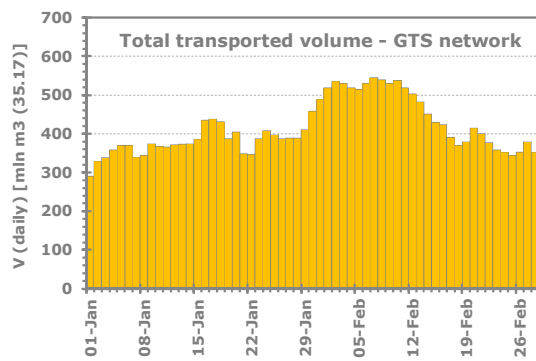
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<sup>1</sup> This evaluation refers to the regime description in the GTS brochure 'Services Included', v3 July 2011.

network in the same period. These figures show it has been 'cold' for at least a week in the beginning of February.



**Figure 1:**  
Effective daily average temperature measured in De Bilt



**Figure 2:**  
Total daily transported volumes through the GTS network

Furthermore, in the second round, participants had the opportunity to reflect on a few topics in which GTS indicated to have interest that had not been explicitly addressed previously in the evaluation. In order for participants to be able to reflect also on other parties' views and opinions, they were provided with an intermediate overview of evaluation results based on the first round responses.

**The evaluation execution**

A total of sixteen market parties participated in both rounds of the evaluation: the (seven) RepOrgs as well as nine individual users who have indicated to be willing to share their experiences. Some observations on the execution of the evaluation are:

- The majority of the second round responses did not significantly differ from the first survey. Some used the second round mainly to emphasize certain aspects or brought up one or more items that were not present in their original response;
- Seven respondents also reacted on the evaluation (process) itself and the results thereof: mentions of having interest in the evaluation, suggestions for additions to any future evaluation and an expression of interest in improvements in the regime's efficiency and costs, a.o. as a result of the evaluation;
- Some respondents used the survey to pose direct, individual, questions to GTS, which were bilaterally answered;
- In the first round, four respondents indicated some reserve to their response, as it was given prior to the first winter, but none of them changed their view because of winter problems.

The results of both rounds have been collected and all individual opinions have been taken into account. In the next section, we enumerate the responses, where we make a distinction between aspects that relate to the fundamentals and aspects that relate to the functioning of the balancing regime. The last section provides a wrap-up of the most mentioned aspects.

## 2 Market Response

### 2.1 What is going well?

#### 2.1.1 The fundamentals of the balancing regime

The majority of the respondents indicated, stated explicitly or even complimented GTS that the current balancing regime is an improvement compared to the old regime. One party indicated to prefer even further improvements. Motivations for these opinions were based on the following observations:

- **A market based approach with an increased role for market parties**

Nine respondents were positive on the chosen approach. Four of these appreciated the fact that market parties are allowed to balance the network (instead of the TSO), and three expressed to prefer the current market based approach above the previous penalty based approach and appreciate the fact that the costs of balancing are market based. In the second round, this positive attitude towards the market based approach was highlighted again. Two respondents explicitly stated that GTS should continue to advocate the principal elements of the market based regime towards European organisations like ACER and ENTSOG, that are involved in the development of a European network code.

Also the absence of a need for 'daily resets' is mentioned, and stressed again in the second round. Three respondents appreciated the fact that 'helpers' are rewarded. One of these emphasized its point in the second round, stating that the helper reset should be kept as long as possible referring to European developments and another stated explicitly not to support other participants' calls to remove helper rewards. One party valued the continuous character of the balancing system, which in his view allows electricity producers more flexibility.

- **Increased transparency of system and imbalance costs**

According to seven respondents, the current balancing regime provides a more transparent system and more transparent price formation, fully based on the Near Real Time (NRT) signals. It also provides faster insight in (financial) consequences of the imbalances.

- **Financial and material benefits for system users**

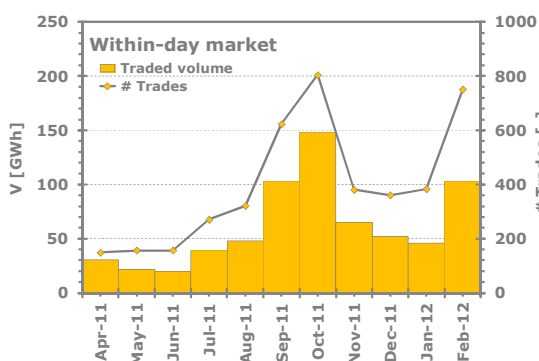
Some respondents mention financial advantages for their organisation. Three parties observe that the balancing regime reduced the costs for imbalance up till now, mainly caused by the cancellation of penalties. Three respondents indicated to appreciate that GTS provides its flexibility for free, one of these stated that this compensates the negative effects it described related to the infrequent calling of the Bid Price Ladder (BPL). One respondent indicated that some of their own measurement equipment could be withdrawn, which also lead to a cost reduction. Another respondent reflected in the second round that the aim of the regime is to balance the system, not to make money.

- **Positive effect on development of a within-day market (WDM)**  
Three parties value the fact that with the introduction of the balancing regime, the interest in within-day products has increased, which in their view helps the development of a within-day market (WDM). This development is observed by the increased number of trades and traded volumes on the WDM.
- **Reservation of quantities of gas on the Bid Price Ladder**  
One respondent mentions that reservation (pre-contracting) of gas seems to work. This respondent adds that in their view, this is an important aspect of the balancing regime.

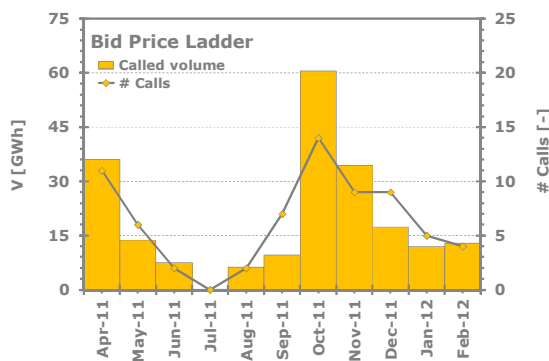
### 2.1.2 The functioning of the balancing regime

Positive aspects regarding the actual functioning of the balancing regime that were mentioned in the responses are discussed briefly below:

- **The development and implementation are well executed**  
Three respondents assessed the process of development and implementation of the balancing regime as positive and executed conscientiously. One party explicitly appreciated the consultation of market parties during development and the execution of the current evaluation. According to another response, the system is 'working as expected'.
- **Well chosen starting date**  
Three respondents were positive on the starting date (1 April 2011). This date was indicated to be a good moment in time, both GTS and the market parties were prepared sufficiently and had functioning ICT systems available, and market parties behaved well. One party agreed on the starting date, however also mentioned that the timing of the introduction resulted in a rather short testing period.
- **No problems arose during the cold spell in February 2012**  
Five participants responded positively on the fact that the system handled very well the high load conditions resulting from the low temperatures in the cold week early February 2012. In the second round, participants reported not to have observed any significant problems, the system globally stayed in the dark green zone, the number of BPL calls did not increase significantly, within-day imbalance prices never deviated substantially from the day ahead market price (this respondent had anticipated larger price volatility on cold days) and imbalance costs stayed relatively low. One respondent stated that 'the proof of the principle is behind us', and noticed confidence in the system has further increased. Another respondent indicated to find it interesting to see that during the high load, the BPL was activated because the system was long. One respondent provided data on the Dutch gas WDM development since April 2011, as given in figure 3. During the cold weeks in February, a sharp increase in trading activity was noted by this respondent. Figure 4 shows that in the same period, the number of BPL calls has not increased. Please note the different scales in these figures.



**Figure 3:**  
**Within-day market – Traded volume and number of transactions per month (Source: evaluation respondent)**



**Figure 4:**  
**Bid Price Ladder – Called volume and number of calls per month**

- **The POS is considered to be an effective signal for balancing**  
 Three parties responded positively on the steering signal POS. One party responded that it considers the POS as an effective signal for balancing by market parties. Increased transparency regarding the price formation and reduced imbalance costs are mentioned by another respondent. One other market party appreciated the 5 minute interval of the data, as this provides a better basis for the balancing process of the shipper compared to neighbouring TSO's that provide only hourly data.
- **The ICT functions very well**  
 Three respondents approve of the ICT supporting the execution of the balancing regime (notably Gasport and B2B and execution of the BPL). It is indicated that the ICT works smoothly with high availability. In general, GTS provides reliable near real time (NRT) data with small differences compared to offline allocation data (with exceptions on the 26<sup>th</sup> and 28<sup>th</sup> October). One respondent mentioned in the second round that incidents like these have not happened again. The quality of the steering signal is also appreciated. One respondent indicated that B2B and Gasport are well structured tools with understandable POS and SBS graphics. Another participant indicated that maintenance of the systems was well announced and managed by GTS.

**2.2 Points for improvement**

The previous section showed that in general the introduction and functioning of the gas balancing regime went well according to the respondents. However, they also observe some caveats and see some room for improvement. In the following sections the main comments in the surveys are discussed.



### 2.2.1 The fundamentals of the balancing regime

Aspects regarding the fundamentals of the balancing regime with room for improvement, in the view of the respondents, are discussed briefly below:

- **Bid Price Ladder vs. within-day market**

The BPL is a separate platform which is not linked with the APX-market. Three parties expressed preference for (an investigation into) market integration of BPL and WDM, which would make more flexibility available to the market and improve WDM development. One respondent added in the second round that the BPL is costly in terms of time and reservation of assets, while it is only called infrequently. According to one party, there is a need for renewed attention to the role of the BPL by abandoning the helper feature. This same respondent indicated the asymmetric treatment of helpers and causers as undesirable. According to another respondent, the reservation payment should be periodically reconsidered as it is regarded to interfere with correct market functioning. Two respondents emphasized in the second round their view on the merging of BPL and WDM to impulse within-day liquidity, and posed questions on (the progress on) this topic. One of them remarked that it should generally be acknowledged that measures applying to the BPL potentially affect (direct or indirect) the WDM.

- **Reservation of quantities of gas on the Bid Price Ladder**

Two respondents indicated that in their view, one could reason that reservation is not necessary, referring to the amounts of gas offered on the BPL and to the limited number of BPL calls the last 11 months. One of these also expressed concerns relating to the short lead time of reserved services, implying a restraint on the number of shippers that are able to participate. This respondent concluded that with reservation, the balancing regime is not fully market based and added that an integrated BPL-TTF system would be better, provided there is sufficient liquidity 24/7. Two respondents argued that the reserved quantity should not be larger than required for maintaining stability of the grid, to avoid unnecessary reservation of gas, potentially withholding it from being traded on the WDM. The market response on this item is not uniform, as another respondent stated that in its view, referring to grid integrity and prudent system operation, it is valuable to have reserve capacity offered on the BPL. Two other respondents suggested an investigation into the need for securing liquidity on the BPL by bringing down the reserved quantities.

- **Remarks on assistance gas and reset**

Five respondents commented on assistance gas and reset, but their responses with respect to this subject were not uniform (one RepOrg indicated even that its members have varying opinions). One respondent argued that in its view, the assistance gas system imposes a negative effect on the development of WDM liquidity, and suggested removal. Another respondent suggested that an alternative approach with pre-indicated reset of shippers should be considered. According to yet another party, there is hardly any incentive for the use of assistance gas because the balancing regime functions so well. This respondent expected that over time this incentive will increase. One respondent expressed concern on the lack of possibility for 'passive assistance' as the regime offers only possibilities to those parties who can afford to participate directly on the BPL. According to the fifth party, position resets due to cash-out should be

reconsidered, as shippers run the risk of sudden swaps in position if they already renominated to rectify their position.

- **Remarks on the use of the parameter beta during summer months**

One respondent questioned the justification of removing balancing space from one party to another by the use of beta, where another expressed to be in favour of flatter entry profiles in summer. Yet another respondent indicated to have studied the damping percentages internally, and concludes that the beta parameter should be used in winter instead of in summer. In this respondents' opinion, most of the damping should be allocated to shippers in winter because retail customers can have large temperature related consumption swings. One respondent indicated to be neutral to this aspect. One RepOrg, indicated that its members have varying opinions on this issue.

- **International harmonization**

Three parties regretted that the development of the marked based balancing regime in the Netherlands has not been dealt with directly in European context. In their view, the fact that the Dutch concept differs from adjacent market areas complicates shippers' operations and might hamper cross border trade. One of these respondents suggested intensifying coordination of market rule changes between market areas. Additionally, one participant suggested GTS to improve the Grid Connection Agreements (GCA's) with the NNO's in order to reduce unexpected imbalances caused by NNO actions.

## 2.2.2 The functioning of the balancing regime

Aspects with room for improvement regarding the actual functioning of the balancing regime in the view of the respondents are discussed briefly below:

- **The quality of the steering signals**

Despite the fact that one respondent indicated the quality of the steering signal to be high, almost all respondents considered the quality of the steering signals SBS and POS not to be sufficient (yet). Some referred to 'false' signals and 'unjust' calling of the BPL or other flexibility measures, others stated that for the future better safeguards should be introduced by GTS to prevent 'administrative errors' (with clear deviations between the SBS and physical information) from influencing system behaviour. Two respondents added in the second round that they would like to receive some explanation from GTS on the occurrence of large swings in the SBS, referring to the obligation of shippers to communicate latest forecasts for nominations. One RepOrg added in the second round that shippers indicated still to have doubts on the quality of the signals, often because deviations are not well understood. One respondent stated to feel obliged to monitor continuously the steering signals because of these doubts. One respondent suggested a quality assurance system not only at GTS but at all network operators, another suggested possibilities for GTS to overrule the SBS if it is not consistent with the physical state of the network. One respondent questioned the accuracy of regional customers meter readings (NEDU).

- **Communication**

Related to the topics above, four respondents mentioned possible improvements in the communication by GTS regarding handling emergency, being fobbed off in case of measurement errors, explanation of the damping system and of current developments in damping and line-pack and possible mismatches between steering signals and physical situation. One other respondent added in the second round that in its view, the GTS Dispatching Team still has to get used a little further to the new regime to be able to respond directly to questions on programs, POS or SBS.

- **A wish for more information on actual balance and parameters**

Five respondents indicated that they would welcome increased transparency with respect to the available flexibility in the network, the calculation of alpha and beta and the relation between the 'administrative' steering signal and the physical situation in the network. It was mentioned that "for a shipper it is difficult to estimate the size of the green zone". One respondent indicated the wish for graphical representation of both damping and line pack. It is mentioned that knowledge of, and insight in, the underlying dynamics may enhance the trust of users in the balancing regime. One respondent indicated it would be valuable to understand why the SBS can switch so quickly, for example during morning hours. Referring to short reaction windows, this respondent indicates it would appreciate a view on future POS and SBS (some hours ahead). Another respondent added in the second round that the Green Zone was remarkably broad at lower temperatures, and would welcome more insight in this phenomenon.

- **Reduction of lead times to adjust volumes and prices on the BPL**

Three respondents suggested a reduction of lead times to adjust volumes and prices on the BPL, to prevent shippers from losing options, and as a step in the way towards integration with the WDM. This opinion was emphasized again in the second round, referring a.o. to the low price volatility observed in the past months. One respondent stated that the different lead times for volume and price should be unified because in its view it is currently hampering the functioning of the WDM and actual prices currently reflect the BPL prices rather than real market prices. Another respondent suggested GTS to translate BPL lead times to extra renomination rights at physical locations (e.g. storages) with 90 minutes lead time. In the second round, one respondent stated not to support the call for short term offer adjustments by some respondents, for reasons of price formation stability.

- **Submission of programmes**

According to six respondents, the submission and matching of (entry) programs is complex and the necessity is difficult to understand. One respondent stated that in his view, nominations should be sufficient. Another suggested in both rounds that the damping calculations should be provided by the TSO.

- **Availability of historical data**

Five respondents indicated a wish for more and easier available historical data on B2B and Gasport. The backward horizon of 30 days is regarded as way too short. At least a yearly downloadable period is mentioned, but preferably the whole history since 1 April 2011. One respondent suggested also the possibility to log-in and download non-confidential data with a general account, so that the whole market and not only programme responsible parties have access to vital information.

- **ICT platforms performance**

One respondent mentioned slow download speed, performance problems and regular bugs related to data downloads in Gasport. Another respondent indicated that 100% availability of B2B and Gasport steering signals is essential, and suggested a provision of back-up procedures.

- **Zone boundary publication**

The publication of zone boundaries should be advanced from 04:00 h on day D to 23:00 or 24:00 h on D-1. Several respondents commented on this point in the second round. One respondent saw no need for any advancing when beta is removed. Three more participants indicated to support this advancing, though two of them added a provision for the data to be accurate.

- **BPL calling procedures**

The method of extrapolation of gas flows for determining the need to call the BPL should be evaluated with respect to the occurrence of block-shaped profiles of some gas flows. Attention is asked for the timing and systematics of the decision and execution procedures of BPL calling at 15 minutes past the hour (X:15). Several respondents commented on this point in the second round. One respondent indicated to agree with the current principles based on extrapolation, but added to be in favour of removal of the helper function. Two respondents indicated to approve of the solution, but one of them also remarked that these questions may become redundant with the removal of the assistance gas incentive that it expects in the future. Yet another indicated that in transition hours, development of the shape based on historical allocation may be a better indication than extrapolation. This respondent and one other stated to be indifferent on the settling times (X:00 and X:15). Two respondents expressed to have interest in knowing beforehand what the price at a BPL call will be, a.o. in order to evaluate the price of the imbalance right away.

- **Single respondent reactions**

The following points were each mentioned by only one respondent:

- For the time being, there are too many hurdles and risks for end consumers to perform their programme responsibility adequately themselves. It is suggested that parameters are changed to facilitate the market, for example the minimum volume requirement for BPL bids.
- The incentive component is interfering with the market prices, established on the market.
- The new regime requires high availability and reliability of producers' ICT systems, which has led to increased costs.
- A request for a switch in positive versus negative display of short and long positions in the graphical presentations.
- Availability of balancing factors earlier than 9 a.m. would be appreciated.
- A request to receive as much allocation data as possible (NRT allocation data per category in Gasport), to forecast the expected exit program and as input for better POS analysis and steering of the POS to help the SBS.
- According to a RepOrg, shippers have posed the question whether GTS has ever skipped bid steps in a BPL call, and if so, why.
- The damping concept is considered to be unnecessary complicated. Applying damping to the sum of entry and exit flow would be more convenient.
- GTS should stick to approved programmes.

- There is an urgent wish for a separate NRT signal for high calorific gas (H-gas).
- The accountable NRT signal is currently available at X:15. This leaves little room for analysis, decisions and renominations to GTS, leading to a request for advancing the timing of the NRT signal.
- The wish for increased capacity margins for renominations within the 2 hour lead time and to also apply these rules at border points.

## Wrap-up of observations

The general impression from the responses is that of a well functioning system, with well designed and implemented ICT and procedures. The GTS/Gasunie organisation and market parties have put great efforts into making the introduction a success. Network users have embraced the system and keep the balance of their portfolios and the gas system itself upright. GTS is complimented with:

1. The establishment of a market based balancing regime;
2. The high degree of transparency on balancing status and price formation;
3. The primary role for market parties to balance the system;
4. The fact that available flexibility in the network is made available to the market;
5. The provision of effective near real time steering signals;
6. The reduced costs for many network user groups;
7. The faster invoicing process.

Furthermore, the system has proven its strength during its first winter period, with high loads in the cold week early February 2012. According to the participants, no significant problems were observed, the system globally stayed in the dark green zone, the number of BPL calls did not increase significantly, within day imbalance prices never deviated substantially from the day ahead market price and imbalance costs stayed relatively low.

On the other hand, the following observations regarding the functioning of the balancing regime seem to emerge (some of which may be interrelated):

1. Respondents urge for continued improvement of the robustness of the steering signals, regarding the quality of measurements, the prevention of allocation errors and administrative errors and ensuring the relation between the signals and the physical situation in the network;
2. A need for clearer communication is indicated in case of errors, possible mismatches and regarding handling emergency;
3. There is a wish for more information for understanding and analyzing purposes and for reporting issues;
4. Some respondents prefer a transition in due time from the BPL to the within-day market for buying and selling of balancing gas;
5. Mixed reactions were given regarding the need for decrease of lead times for fixation of BPL prices and volumes;
6. The procedures and formats of programme submission and matching are considered to be complex, and for some respondents the necessity is difficult to understand;
7. The reservation of quantities of gas for the BPL is discussed with mixed opinions.