



12 February 2009
Ref 09GTE+047

REPORT on A benchmark among GTE members to assess difficulties in the application of the current GGP on Gas Balancing

Rue Ducale 83 Tel +32 2 209 05 00 gie@gie.eu.com
B – 1000 Brussels Fax +32 2 209 05 01 www.gie.eu.com

Executive summary

On 15 December 2006 ERGEG published the GGP on Gas Balancing (GGPGB) which aims to provide detailed guidance to both TSOs and regulators on the design of gas balancing mechanisms. The GGPGB were presented during the Madrid Forum of February 2007. The Madrid Forum called on regulators and GTE to build, in close cooperation with network users, on the GGPGB in streamlining the balancing regimes.

A Balancing Task Force was set up by GTE to proceed on this work. The objective of the TF is to suggest improvements on the GGPGB by identifying difficulties in the application while focussing on those points which have an impact on gas flows between Member States -and that are feasible for TSOs to implement.

This report outlines the result of a benchmark among GTE members to assess difficulties in the application of the current GGPGB. From this assessment a number of areas for further analysis and related main issues in terms of relevant questions are given. This further analysis is recommended as a next step towards an alternative set of guidelines for balancing based on the GTE view on balancing, as expressed by GTE in its comments on the draft GGPGB. The areas and main issues are:

Balancing period

- Where a balancing period is used, daily is preferred
- System/physical balancing is a continuous process
- How can this gap be bridged?
 - What flex is needed?
 - What flex is available?
 - Who owns this flex?
 - Who will be responsible for bridging the gap?
 - What are costs and benefits of bridging the gap?
- Taking into account
 - Interaction with other balancing period and gas days
 - Interaction with balancing period in e.g. electricity
- Possibly leading to need for intra-day constraints

Balancing charges and penalties

- TSOs are cost-neutral with respect to balancing charges and penalties
- Charges to recover costs vs cost of alternative
- Fixed costs vs marginal costs
- Recovery of costs:
 - Socialized, through transmission fees
 - Targeted, through balancing charges
- Charges give economic incentive to network users

Flexibility tools, pooling of imbalances

- GTE is in favor of an evaluation towards balancing markets
- Market can be used by both shippers and System Operators on voluntary basis
- No additional flex services offered by TSO, esp. if TSO has to buy flex

Information provision

- Who is responsible for what information?
- What is the level of information available to the TSO?
- Is there additional info that is both useful and can be provided by TSOs?

Table of contents

1. Introduction	1
Structure of the document	2
2. Approach	3
3. characteristics of balancing regimes in Europe.....	6
Roles and responsibilities	6
Tools available and used by TSOs	6
Balancing period	6
Imbalance charges and penalty charges	7
Trading and pooling of imbalance positions	7
Tolerance levels and tolerance services	7
4. Balancing topics	8
General characteristics of a balancing regime.....	8
Balancing period	9
Balancing charges and penalties	10
Flexibility tools and pooling of imbalances	11
Information on balancing	12
Costs and incentives for the TSO	15
Conclusions	16
5. Recommended Areas For Further Analyses.....	17

Annexes: Detailed analyses

- Annex A: Tools available to TSOs
- Annex B: Required characteristics of a balancing regime
- Annex C: Balancing Periods
- Annex D: Balancing Charges and Penalties Imposed on Network User
- Annex E: Transparency / Information Provision Section
- Annex F: Balancing Costs and Incentives for the TSO

1. INTRODUCTION

Introduction

On 15 December 2006 ERGEG published the GGP on Gas Balancing (**GGPGB**) which aims to provide detailed guidance to both TSOs and regulators on the design of gas balancing mechanisms. The GGPGB were presented during the Madrid Forum of February 2007. The Madrid Forum called on regulators and GTE to build, in close cooperation with network users, on the GGPGB in streamlining the balancing regimes.

A Balancing Task Force was set up by GTE to proceed on this work. The objective of the TF is to suggest improvements on the GGPGB by identifying difficulties in the application while focussing on those points which have an impact on gas flows between Member States -and that are feasible for TSOs to implement.

The GTE Balancing TF focuses on three main areas:

- (i) Creation of a Balancing Glossary;
- (ii) Development of a benchmark among GTE members to assess difficulties in the application of the current GGPGB;
- (iii) Development of an alternative set of guidelines for balancing based on the GTE view on balancing, as expressed by GTE in its comments on the draft GGPGB and the assessment of the outcome of the benchmark.

Process steps

As a first step in the development of a benchmark among GTE members to assess difficulties in the application of the current GGPGB the TF created the Balancing Glossary, giving explanations/definitions of terms and expressions that are related to gas balancing.

A second step was the development of a questionnaire. Through the Glossary a more uniform interpretation of the questionnaire was made possible.

This report outlines the result of the evaluation of the benchmark and will be the basis for a GTE workshop streamlining of balancing regimes. This evaluation is not aiming for standardization, furthermore aiming to identify issues for cross-border flows. So, if a characteristic of a balancing regime is not hindering relevant European cross-border flows, it has to be borne in mind that causing adoption costs for the TSOs may be not justifiable for end-customer prices.

This report is intended as a starting point for assessing the possible bottlenecks in cross-border trade and flows resulting from diverging balancing rules. This discussion will lead to development of an alternative set of guidelines for balancing based on the GTE view on balancing, as expressed by GTE in its comments on the draft GGPGB and the assessment. To motivate this alternative set it will be checked against some basic models of balancing regimes on the basis of the information of the benchmark. The models will be an outcome of the current regimes and could serve as a way towards a more effective solution which would help minimize the role of residual balancing. Stakeholders, e.g. EFET, will be consulted to check the alternative guidelines for their impact on cross border trade.

Structure of the document

Chapter 2 describes the approach taken in developing the benchmark on the application of the GGPGB.

In chapter 3 an overview is given on some general characteristics of balancing regimes as used in Europe. Aspects that are considered are tools used by TSOs, balancing period, costs and incentives for TSOs and roles and responsibilities.

Chapter 4 is dedicated to identifying possible bottlenecks leading to chapter 5 which identifies issues for further analysis.

A detailed analysis of the response to the questionnaire can be found in the Annexes.

2. APPROACH

To develop a benchmark among GTE members to assess difficulties in the application of the current GGPGB a questionnaire was drafted and send to all GTE-members.

The questionnaire consists of two parts:

1. Questions on the characteristics of the national balancing regime
2. Questions on the application of the GGPGB in the design of the balancing regime.

All GTE-members were asked to complete the questionnaire. The response to this request was high: 28 TSOs responded and completed the questionnaire.

For the analysis of the questionnaire it was divided in several sub-topics, as used in the GGPGB:

- General characteristics of a balancing regime
- Balancing period
- Imbalance charges and penalty charges
- Trading and pooling of imbalance positions
- Tolerance levels and tolerance services
- Market information and transparency
- Balancing costs and incentives for the TSO

For each topic the analysis consists of three parts: (1) introduction (describing the topic), (2) data analysis (identifying the convergence with the GGPGB and assessment of the impact on cross-border trade and flows) and (3) conclusions (identifying possible issues and areas for improvement by comparing the level of convergence against the impact on cross-border trade and flows).

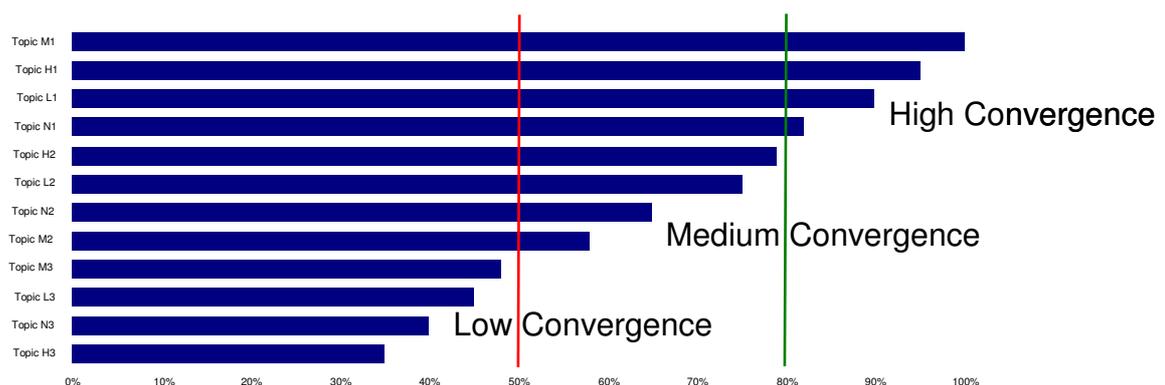
For defining the degree of convergence with the GGPGB, three main groups were classified:

High degree of convergence: more than 80% of the TSO answers were positive

Medium degree of convergence: between 50% and 80% of the TSOs answers were positive

Low degree of convergence: less than 50% of the TSOs answers were positive.

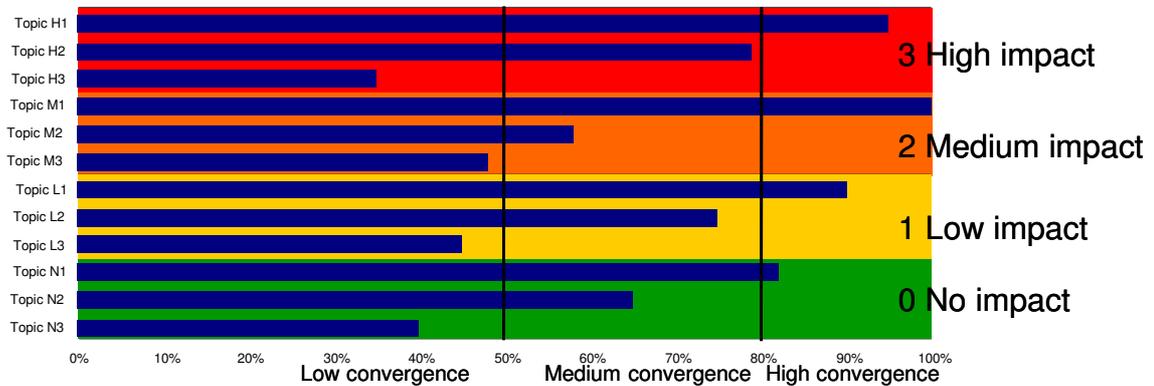
A general, visual distribution of the answer obtained is provided by the following diagram:



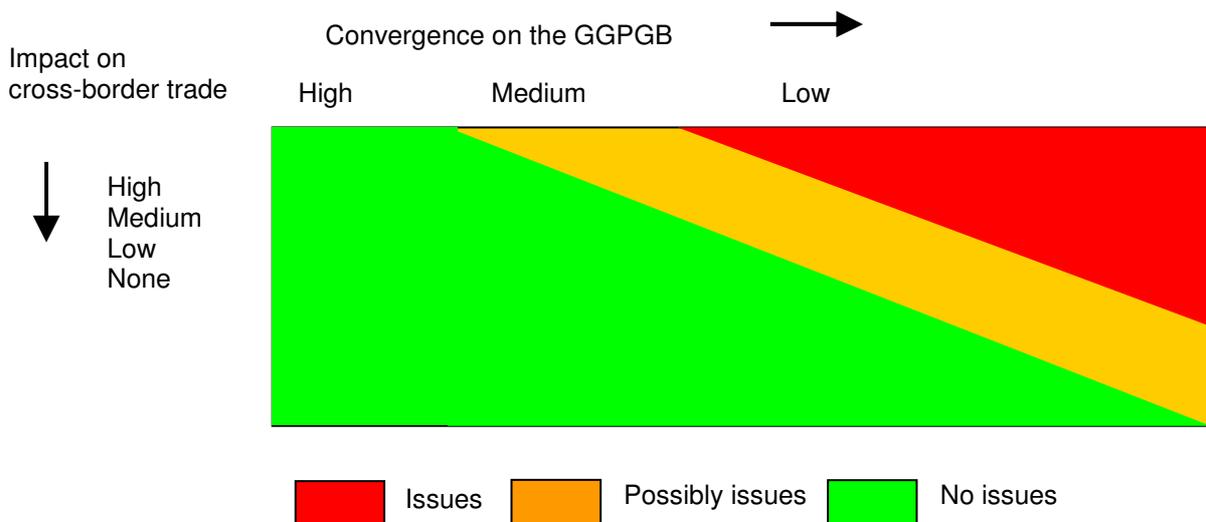
Focussing on **cross-border relevance**, the GGPGB requests can be split into four groups using the following rating:

- **DEGREE OF RELEVANCE 3 (HIGH impact)**: the lack of convergence with the GGPGB could hamper the cross-border flows (physically or imposing very high costs to users)
- **DEGREE OF RELEVANCE 2 (MEDIUM impact)**: the lack of convergence with the GGPGB could limit the cross-border flows planning or gas trading but users are able to overcome the obstacle deploying a considerable amount of resources.
- **DEGREE OF RELEVANCE 1 (LOW impact)**: the lack of convergence with the GGPGB could bring minor problems to cross-border flows planning or gas trading since users are in condition to easily overcome the barrier deploying a limited amount of resources.
- **DEGREE OF RELEVANCE 0 (NO impact)**: the GGPGB has no importance with reference to cross-border flows and gas trading (if any, only internal relevance).

By comparing the level of convergence to the relevance for cross-border trade and flows for each topic in the GGPGB it can be concluded whether additional work is in order.



Issues can be identified where (i) convergence is medium to low and (ii) relevance is medium to high. The figure below illustrates this.



A few examples can illustrate this approach.

Example 1 As a general characteristic of a balancing regime it is important that the rules are applied to all parties equally. This aspect is considered to have a high impact on cross-border trade. The results from the questionnaire show that all TSOs *do* apply the rules to all parties equally. So this topic is not an issue for further analysis, it falls within the green area.

Example 2 In creating a single European gas market it is important that balancing rules are published both in national language and in English; this provision of the GGPGB is considered as having a high impact on cross-border trade and flows. However convergence on this topic is just under 70%, implying medium convergence. This combination, of high impact and medium convergence makes this a topic for further analysis.

3. CHARACTERISTICS OF BALANCING REGIMES IN EUROPE

Balancing regimes are characterized by a number of aspects:

- roles and responsibilities;
- tools available and used by TSOs;
- balancing period;
- imbalance charges and penalty charges;
- trading and pooling of imbalance positions;
- tolerance levels and tolerance services;

A quarter of the TSOs have two different sets of balancing rules: usually one set for domestic users and a second set for transit customers.

Roles and responsibilities

Most of the TSOs – 86% of the respondents – have the responsibility to design the gas balancing regime. Of these TSOs 79% assure to carry out this task in accordance with the Gas Regulation. A lower number, 36%, have also designed the balancing rules in accordance with the GGPGB.

Tools available and used by TSOs

Each TSO retains the overall responsibility for the economic and efficient operation of its system and therefore should retain a residual role to maintain physical balance to ensure the safe, efficient and reliable operation of its system. Here physical balancing is a role complementary to the system balancing role of the TSO. In this context system balancing refers to “*The set of balancing actions undertaken by the TSOs in order to keep the system as a whole balanced over the relevant balancing period*” and residual balancing to “*The set of the balancing actions undertaken by the TSO primarily as a result of market participants not (completely) balancing their own positions over the relevant balancing period.*” (cf. Glossary on Balancing).

TSOs have a number of tools at their disposal in taking balancing actions. Line pack is by far the tool most used both for system balancing and for residual balancing. Other tools are much less used; their usage rate is between 10% and 50%. Balancing contracts with a market player are used by half of the TSOs for residual balancing. Interruption of exit flow of capacity and storage through contracts with storage operators are used in a lesser extent.

Balancing period

The GGPGB state a preference for a daily balancing period. Four different balancing periods are used throughout Europe: monthly with daily constraint (11%); daily (54%); daily with hourly constraint (27%) and hourly (8%).

Closely related to the balancing period is the fact that some balancing regimes make a distinction between different types of transmission, usually regime for domestic end-users and a second regime for transit flows. Often the balancing period is the most distinctive difference between both regimes. A quarter of the TSOs indicate they do apply a different regime for non-domestic transmission.

Also related to balancing period and different regimes for non-domestic flows is the question whether the system is divided into balancing zones; 18% of the TSOs do divide into zones.

Imbalance charges and penalty charges

Within the GGPGB three different types of balancing charges are recognized: Imbalance Charges, Penalty Charges and Scheduling Charges. Based on the GGPGB these different types of charges were described in the Glossary:

- Imbalance charges: *The charges imposed on network users recovering the actual balancing costs incurred.*
- Penalty charges: *Additional charges imposed on network users exceeding the actual balancing costs incurred*
- Scheduling charges: *The charges imposed on network users when there is a difference between the final nomination and the allocation at a specific entry or exit point of the system.*

Imbalance charges are used by 86% of the respondents, 61% use penalty charges and 29% use scheduling charges. Most TSOs apply a combination of these charges.

Different types of imbalances can be charged: hourly imbalances, daily imbalances, cumulative and monthly imbalances. Most TSOs -57%- charge for daily imbalances, 21% charge cumulative imbalances and 8% charge for hourly imbalances. Monthly imbalances are charged by 11% of the TSOs and 3% say imbalances charges are not applicable. TSOs can charge for different types of imbalances.

Trading and pooling of imbalance positions

In the absence of a well functioning/liquid within day market, allowing market participants to manage their imbalance positions efficiently, the TSO could have systems in place to facilitate the pooling and trading of imbalance positions. The development of within-day balancing markets is low, one only exists 32% of the transmission systems, 50% of the TSO offer pooling and trading of imbalance positions.

Tolerance levels and tolerance services

Where provided, tolerance levels and services should be designed in a way that reflects the actual technical capabilities of the transmission system. Almost two third of the TSOs apply tolerance limits as part of their basic balancing rules.

4. BALANCING TOPICS

This chapter identifies possible bottlenecks and issues for further analysis. The topics are those identified in the GGPGB:

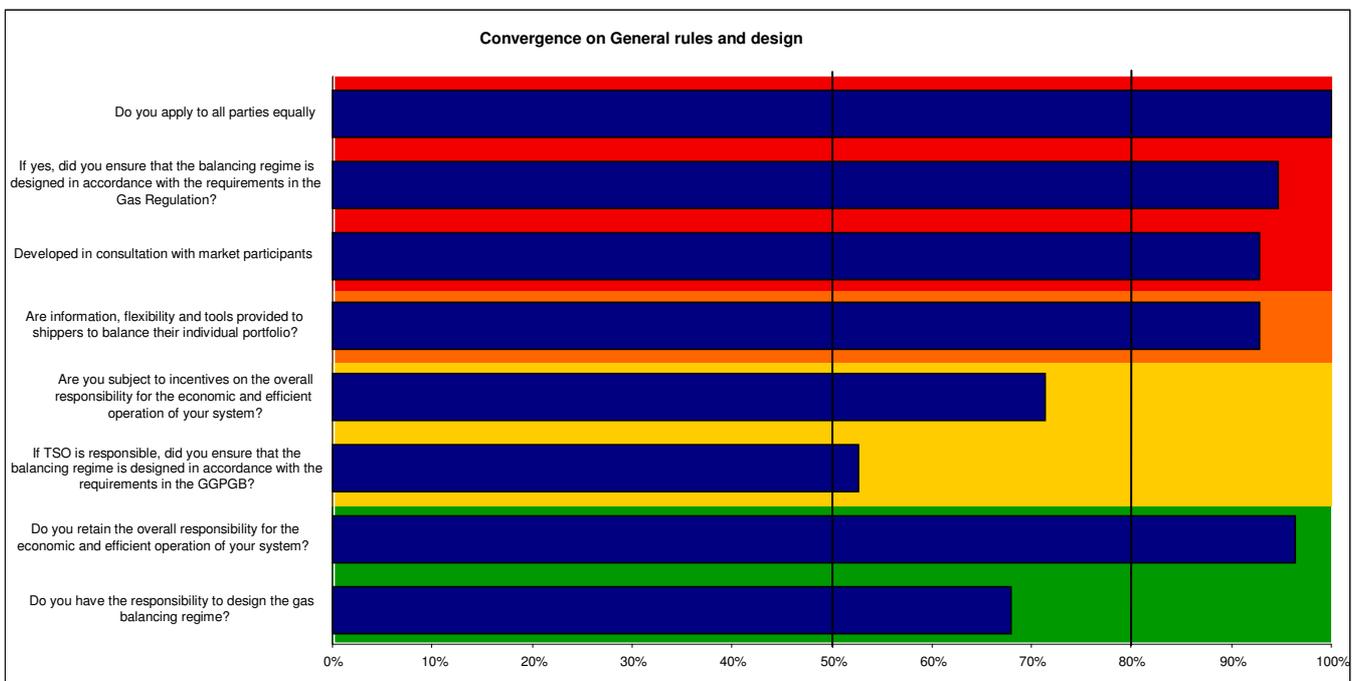
- General characteristics of a balancing regime
- Balancing period
- Imbalance charges and penalty charges
- Trading and pooling of imbalance positions
- Tolerance levels and tolerance services
- Market information and transparency
- Balancing costs and incentives for the TSO

A detailed analysis of the response to the questionnaire is found in the Annex.

Care must be taken in interpreting the responses given to these particular questions. In addition to the subjective nature to some of the responses given, comments made by TSOs that some regimes, particularly those of the newer Member States, were still undergoing reform. Other balancing regimes had been designed before the GGPGB were published. Therefore current convergence with GGPGB may be higher at the time of publication of this report than was the case at the time the TSOs responded to the questionnaire.

General characteristics of a balancing regime

The GGPGB pose some conditions on the design and general characteristics of a balancing regime and addresses issues like whether the rules are designed according to the European Regulation and in consultation with market participant, are the rules applied to all parties equally and who is responsible for designing and operating the system.



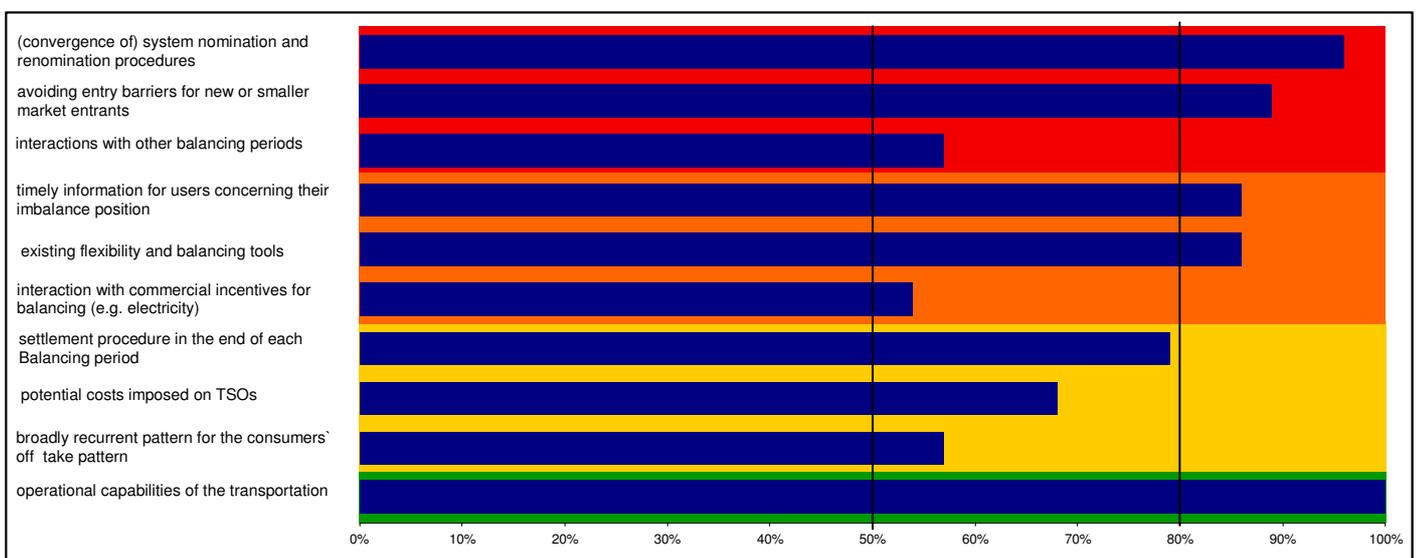
Conclusion

The graph shows that for those areas that have a high impact on cross-border trade and flows the convergence is also high. These topics will therefore not have a high priority when harmonizing balancing regimes with the aim of improving cross-border trade and flows.

Balancing period

The GGPGB state *“The balancing system should generally be based on balancing periods characterised by a settlement procedure at the end of the balancing period. The choice of an appropriate balancing period needs to be based on an objective assessment against a number of criteria and decisions should be published with supporting information.”*

These criteria are mentioned in the graph below, together with the impact of each criterion on cross-border trade and flows and the level of convergence.



For balancing periods, the GGPGB state only a preference for a daily balancing regime. With the preference it is regarded that European transmission systems can differ for technical and/or national reasons, e.g. legal or regulatory framework.

Even if there is already a high degree of convergence achieved by some points, if there is high degree of relevance for cross-border trade and flows the aim should be to achieve 100% of convergence, as the balancing period is considered one of the aspects that potentially has the highest impact on cross border trade and flows.

The interaction with other balancing regimes was not taken into account by 43% of the TSOs. This does not imply that interaction with other balancing regimes is poor; it reflects the emergence of new interactions with external markets such as electricity. These interactions were not taken into account in the original design of the balancing regimes, which might have been before the publication of the GGPGB in December 2006.

Conclusion

In general, there is a good convergence with the GGPGB, as there is no low degree of convergence for any point.

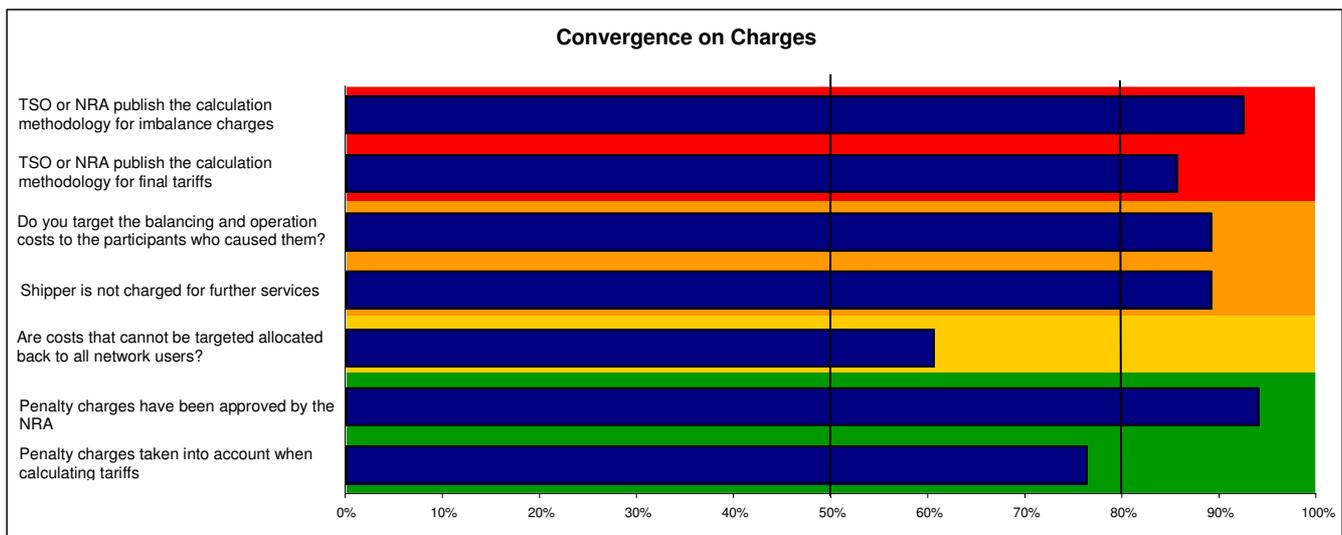
Three significant points for further coordination of balancing period are pointed out:

- Avoiding entry barriers for new market participants;
- Ensuring interactions with other balancing periods so no flow barriers to cross border trade or connected gas transportation systems may occur;
- (Convergence of) system nomination and re-nomination procedures.

On technical and operational aspects that can shape the balancing regime it is difficult to advice on further coordination.

Balancing charges and penalties

For a network user it is important that costs are reasonable, predictable and/or can be influenced by the network user. As balancing charges can be a significant part of the overall charges for transmission services it is important that these charges have these characteristics.



Generally, high degree of convergence with GGPGB provisions regarding charges applied on network users is observed. For two items a medium level of convergence is observed. A convergence of 61% is seen for not targeting back to all users those costs that cannot be targeted to a specific user (question 1.13.ii). (this outcome needs to be investigated further). Only 76% of the TSOs that apply penalty charges do take these charges into account when calculating tariffs (question 1.17.ii). Results from the question whether shippers are charged for further services lies on the border between medium and high convergence with GGPGB (i.e. 79%, question 1.10).

It should be noted that the questions that result in a medium degree of convergence with the GGPGB also have a low score for their degree of relevance, with a value of 1 for question 1.13.ii and 0 for question 1.17.ii.

The question regarding charging a shipper for further services has quite a high score for its degree of relevance, with a value of 2. Reading the comments that TSOs made

accompanying their answer to this particular question, it is clear that most of the TSOs which charge shippers for further services do it for providing additional flexibility. Some TSOs have charges for imbalances outside the specified tolerance levels or when they offer a new service to the market. These explanations provide understandable and reliable reasons for charging shipper for further services.

It can be concluded that there is a problem with understanding of imbalance charges and penalty charges and the difference between them. It can be observed that it is not clear what the difference between them is. Reading additional remarks given by TSOs to questions regarding charges, it is obvious that TSOs have their own interpretations of penalty and imbalance charges. It seems as if some of TSOs apply definitions of charges introduced in the GTE Balancing Glossary, while the others gave answers to the questions on charges depending on their context or general knowledge. Moreover, even the definition of penalty charges in the GTE Balancing Glossary differs from the definition contained in the GGPGB, resulting in lack of joint understanding of balancing terminology.

Furthermore, even if two TSOs use the same imbalance charges they may apply it in a completely different way. There may be completely different rules and methodology of calculating them. Further analysis should be considered to assess the costs imposed on network users when trading gas through different Member States. Benchmarking analysis could give an answer to the question how big the differences in costs for shippers trading gas between Member States are. We should also be aware that balancing penalties and charges are very connected to balancing period and settlement calculation. If they are different amongst European TSOs, then charges applied are also different.

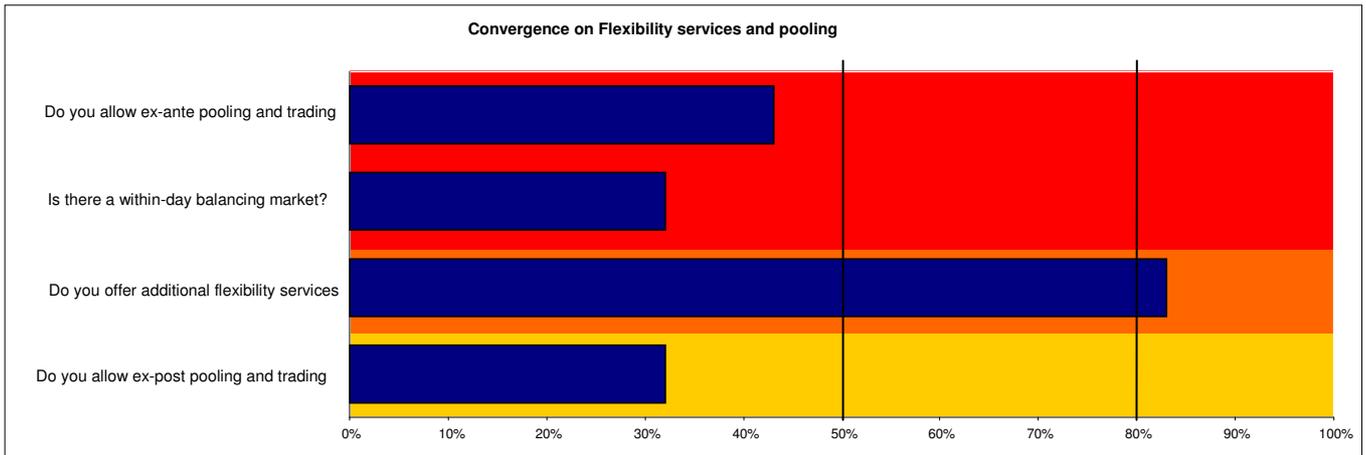
Nevertheless, when shippers are well informed on final tariffs and methodology for balancing charges then it makes the cross-border trade and flows much easier.

Conclusion

Further analysis is required on the topic of balancing charges and penalties. This is mainly because the impact these charges can have on both costs for network users and the fact that definitions on balancing and penalty charges are not interpreted in a uniform way. An additional risk of non-compatible balancing charges is distortion not only of the local market but also of neighbouring market and balancing systems.

Flexibility tools and pooling of imbalances

Network users should be able to trade and/or pool their imbalance positions. In addition, when a balancing regime is characterized by tight tolerance margins or short balancing periods the TSO should offer cost-reflective flexibility services in a way which reflects the actual technical capabilities of the transmission system. This is especially important where the balancing regime is not strongly market-based.



Here, the low number of intra-day balancing markets together with little possibilities for trading and pooling of imbalances suggest that it is difficult for network users to net positions between them. The large number of TSOs that offer additional flexibility services could further decrease liquidity on the balancing market. This makes this a high priority topic for further work on improving cross-border trade and flows. One with possibly a high impact on the way TSOs perform their system and residual balancing tasks.

Ex post trading is by market participants considered as having a negative impact on spot gas markets; specific types of network users will tend to postpone their balancing action until after the gas day, removing liquidity from the spot market; traders, however in general will want to close their positions by the end of the day. This motivates not to work on establishing more ex-post pooling and trading of imbalance positions.

Conclusion

Although convergence on offering additional flexibility services is high this could still be considered as hampering cross-border trade and flows. Further analysis, based on the balancing models, is needed to determine what impact this could have on cross-border trade and flows.

Also the low number of intra-day markets and possible low liquidity on some of the existing markets should be analysed in more detail to assess impact and identify possible solutions.

Information on balancing

Transparency is important for any market. Balancing rules are an important factor in the gas market and information on balancing is paramount to the well-functioning of any gas market. This is recognized by the Regulation and worked out in more detail in the GGPGB.

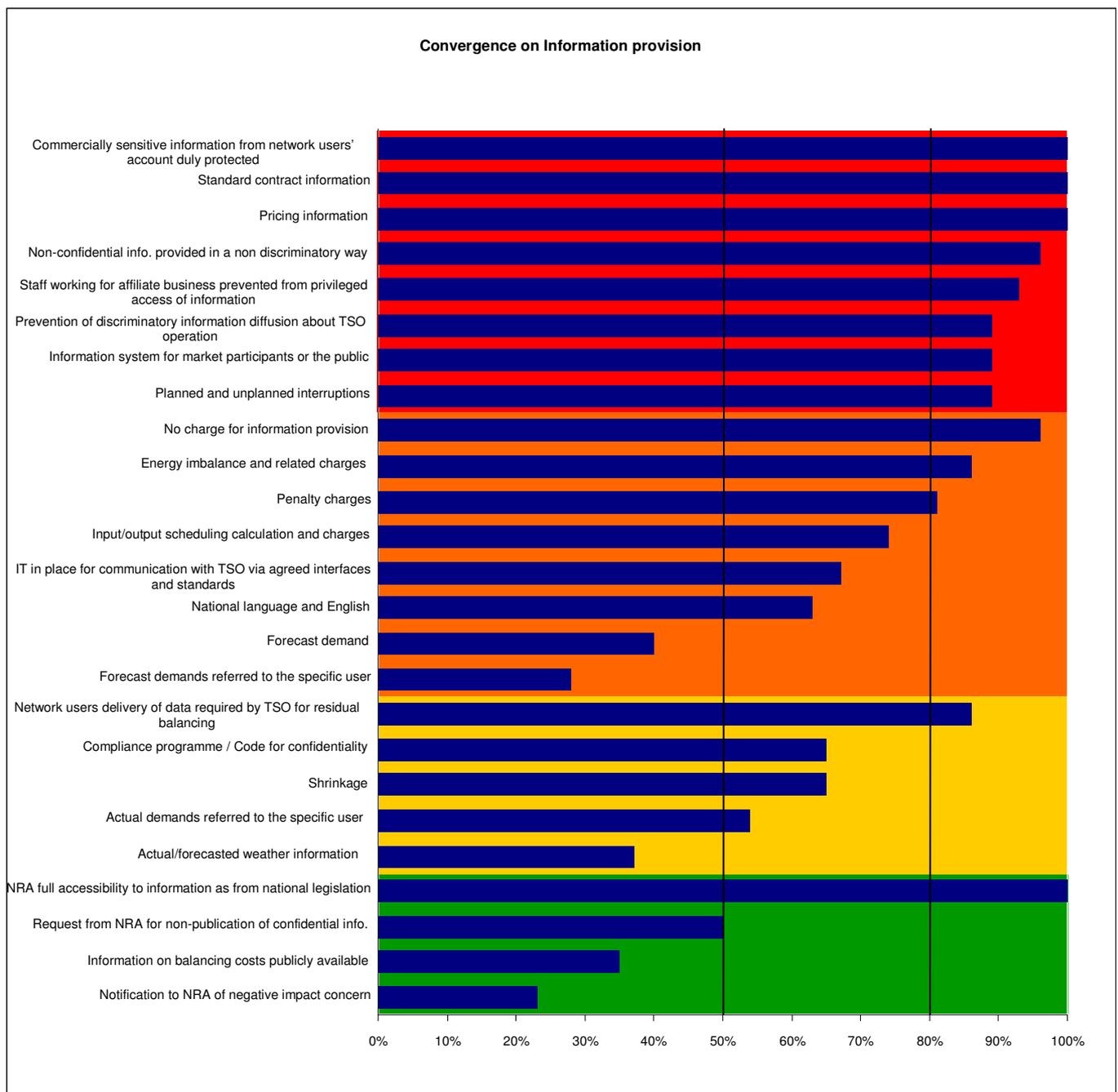
In the graph the provisions on information on balancing from the GGPGB are listed, together with the level of convergence and the importance for cross-border trade and flows.

It is worthwhile to notice that nearly all the GGPGBs ranking **HIGH/MEDIUM cross-border relevance** have also a high degree of convergence (i.e. they are already provided by most of TSOs).

The high convergence areas:

- mainly reflect the level of information available to the TSOs and which TSO can be responsible for;
- already cover the majority of the requests detected by ERGEG in the domain of transparency/information provision necessary for freely accessing the system and for evaluating the related costs;
- represents services already provided free of charge to users

→ the GGPGGB here define tasks which clearly fall under TSO's competences with the exception of local/national peculiarities (to be explored addressing the issue to the individual TSOs)



The medium convergence areas:

- useful to explore these items by clusters of TSOs in order to detect if there are some common reasons behind the lack of adherence (regulatory constraints, physical configuration of the grid, need of stakeholders' involvement other than TSOs etc);
- where not major constraints detected, these areas could be studied as possible "quick-win"

→ the GGPGB here defines tasks which generally fall under TSO's competences unless some underlying rationales, probably shared by groups of TSOs, make them unfeasible.

Topics for further analysis are

- Input/output scheduling charges
- Communication with TSO via agreed interfaces and standards
- Publication in national language and English

The low convergence areas:

- Necessary further analyses aim at exploring what impact the disclosure of the information comprised in this area could have on the market;
- Some of these tasks are out of TSOs scope

→ It could be useful to reconsider the inclusion itself of these requirements in the GGPGB (desirable a dialogue with ERGEG for possible amendments/reviews of GGPGB)

Topics for further analysis are

- Forecast demand
- Forecast demand referred to specific user

Conclusion

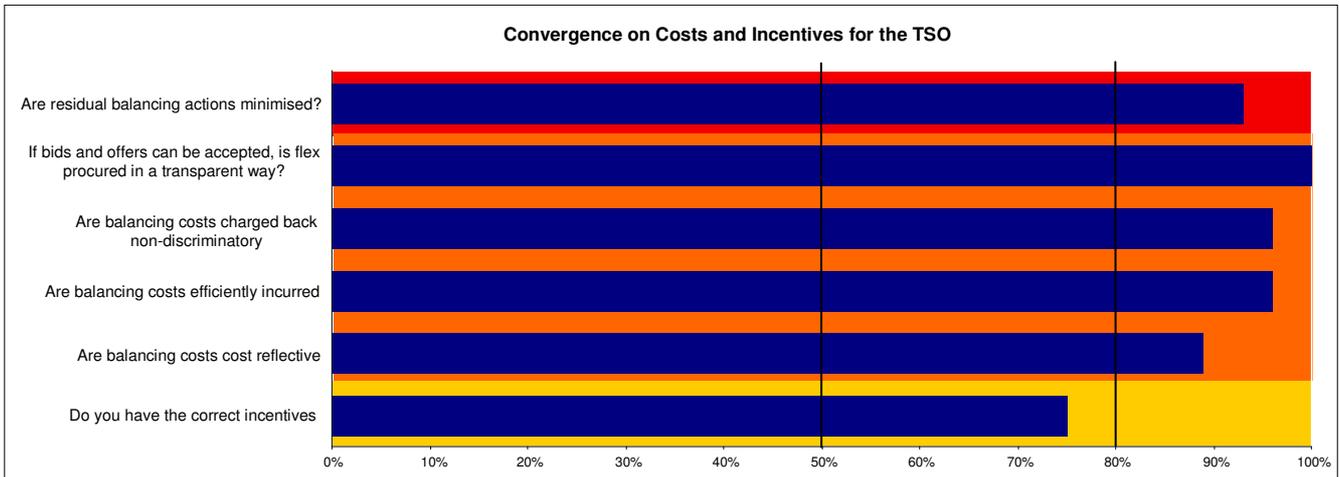
The information areas with a high impact on cross-border trade and flows all have a high level of convergence; no further analysis is required for these areas.

The information areas with a medium impact on cross-border trade and flows show some medium to low level of convergence. Here additional analysis is required. Specifically these areas are: Scheduling charges, information exchange over agreed interfaces, publication in national language and English. Two other areas with medium impact and low convergence are considered as areas that fall outside the scope of the TSO: market demand forecast and demand forecast for specific users.

Depending on the balancing regime and legal framework another area could be further analysed: actual demands for specific users.

Costs and incentives for the TSO

Responses from TSOs to the questions on costs and incentives show a very high degree of convergence with GGPGB. However, it must be recognised that any answers to these questions will be subjective. In order to develop their responses, each TSO had to interpret terms such as “cost reflective”, “efficient” and residual actions being “minimised”.



Conclusion

In general TSOs minimize their residual balancing actions and balancing costs are efficiently incurred. Where balancing costs that are charged back to network users this is done in a non-discriminatory way and these costs reflect the actual costs incurred by the TSO. There are no high priority topics in this area.

Conclusions

In this chapter 58 different topics of the GGPGB were considered. For each topic both the level of convergence of the balancing regimes and the impact of the topic on cross-border flows and trade are described. The table below gives a short summary of the results. It can be concluded, that convergence towards the GGPGB is medium to high: on 33 topics the convergence is high, on 16 topics convergence is medium.

		Convergence		
		H	M	L
Impact	High	16	1	2
	Medium	12	3	2
	Low	1	10	2
	None	4	2	3
Grand Total		33	16	9

Of the 9 topics with low level of convergence 2 topics have a high impact on cross-border trade and flows and 2 topics have a medium impact. For medium convergence topics, one has a high impact on cross-border flows, 4 a medium impact and 12 a low or no impact.

Topics with a high impact and a medium or low level of convergence are:

- interaction with other balancing periods
- no ex-ante pooling and trading of imbalances
- no within-day balancing market

Topics with a medium impact and a medium or low level of convergence are:

- Balancing period determined taking into account interaction with commercial incentives to balance (eg. Electricity)
- IT in place for communication via agreed interfaces and standards
- National language and English
- Forecast demand
- Forecast demand referred to the specific user

From these bottlenecks a number of areas for further analysis can be determined. These areas are described in the next chapter.

5. RECOMMENDED AREAS FOR FURTHER ANALYSES

In the previous chapter a number of bottlenecks in the implementation of the current GGPGB are identified. The level of convergence of existing balancing regimes towards the GGPGB was linked to the impact a specific provision of the GGPGB had on cross-border trade. By comparing diverging balancing rules with a high impact on cross border trade and flows a number of areas can be identified where further harmonization between balancing regimes can improve the possibilities for cross border trade and flows. A further analysis of these areas will suggest improvements on the GGPGB.

Balancing period

- Where a balancing period is used, daily is preferred
- System/physical balancing is a continuous process
- How can this gap be bridged?
 - What flex is needed?
 - What flex is available?
 - Who owns this flex?
 - Who will be responsible for bridging the gap?
 - What are costs and benefits of bridging the gap?
- Taking into account
 - Interaction with other balancing period and gas days
 - Interaction with balancing period in e.g. electricity
- Possibly leading to need for intra-day constraints

Balancing charges and penalties

Further analysis is required on the topic of balancing charges and penalties. This is mainly because the impact these charges can have on both costs for network users and the fact that definitions on balancing and penalty charges are not interpreted in a uniform way. An additional risk of non-compatible balancing charges is distortion not only of the local market but also of neighbouring market and balancing systems.

The main issues are

- TSOs are cost-neutral with respect to balancing charges and penalties
- Charges to recover costs vs cost of alternative
- Fixed costs vs marginal costs
- Recovery of costs:
 - Socialized, through transmission fees
 - Targeted, through balancing charges
- Charges give economic incentive to network users

Flexibility tools and pooling of imbalances

Here, the low number of intra-day balancing markets together with little possibilities for trading and pooling of imbalances suggest that it is difficult for network users to net positions between them. The large number of TSOs that offer additional flexibility services could further decrease liquidity on the balancing market. This makes this a high priority topic for further work on improving cross-border trade and flows. One with possibly a high impact on the way TSOs perform their system and residual balancing tasks.

In general GTE is in favor of an evaluation towards balancing markets. On these markets flexibility can be exchanged between market participants. TSO should not offer additional flexibility services to the market if TSO can not offer these from its own means.

Information provision

The information areas with a high impact on cross-border trade and flows all have a high level of convergence; no further analysis is required for these areas.

The information areas with a medium impact on cross-border trade and flows show some medium to low level of convergence. Here additional analysis is required. Specifically these areas are: Scheduling charges, information exchange over agreed interfaces, publication in national language and English. Two other areas with medium impact and low convergence are considered as areas that fall outside the scope of the TSO: market demand forecast and demand forecast for specific users.

Depending on the balancing regime and legal framework another area could be further analysed: actual demands for specific users.

Main issues here are:

- Who is responsible for what information?
- What is the level of information available to the TSO?

One other topic that will have to be looked at is the publication of line pack information. This is a controversial topic that is discussed in different groups where the opinions are divided on the risks and benefits of publishing this information. It is recommended to assess these risks and benefits as part of the work on balancing within GTE/GTE+.

Annexes: Detailed analyses

- Annex A: Tools available to TSOs
- Annex B: Required characteristics of a balancing regime
- Annex C: Balancing Periods
- Annex D: Balancing Charges and Penalties Imposed on Network User
- Annex E: Transparency / Information Provision Section
- Annex F: Balancing Costs and Incentives for the TSO

A -Tools available to TSOs

1 - Introduction

In the following section of the report six questions of the GTE Balancing TF questionnaire are analyzed.

The two first questions give an overview of the various tools used by the 28 respondent TSOs as means to offer flexibility for balancing or to carry out residual balancing.

The next four questions analyzed are related to GGPGB provisions, in particular regarding the balancing costs and incentives for the TSOs and the role and responsibility of TSOs.

2 - Data evaluation

2.1 - Tools available to TSOs

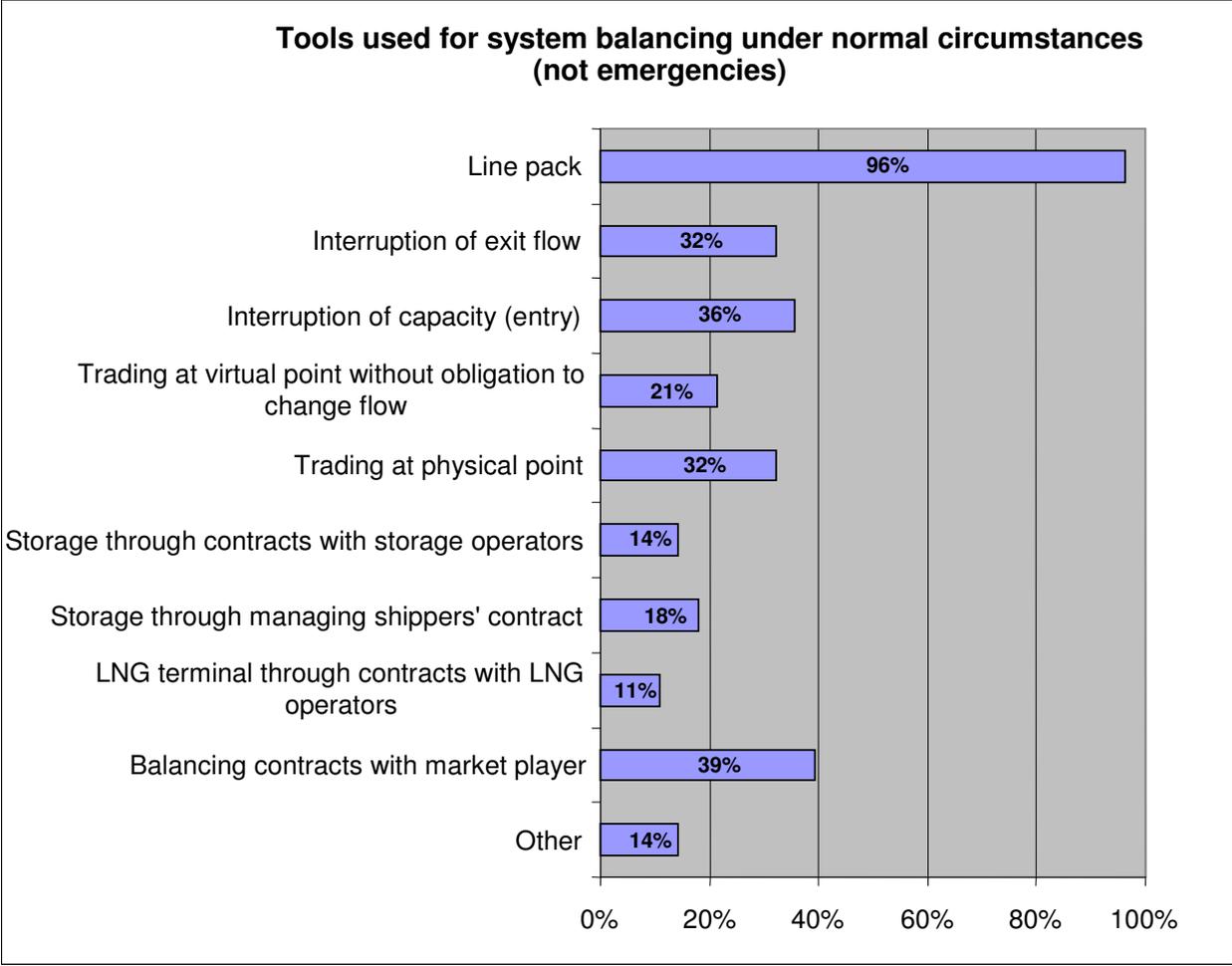
Below there are definitions of system balancing and residual balancing. These definitions are taken from GTE Glossary on Balancing.

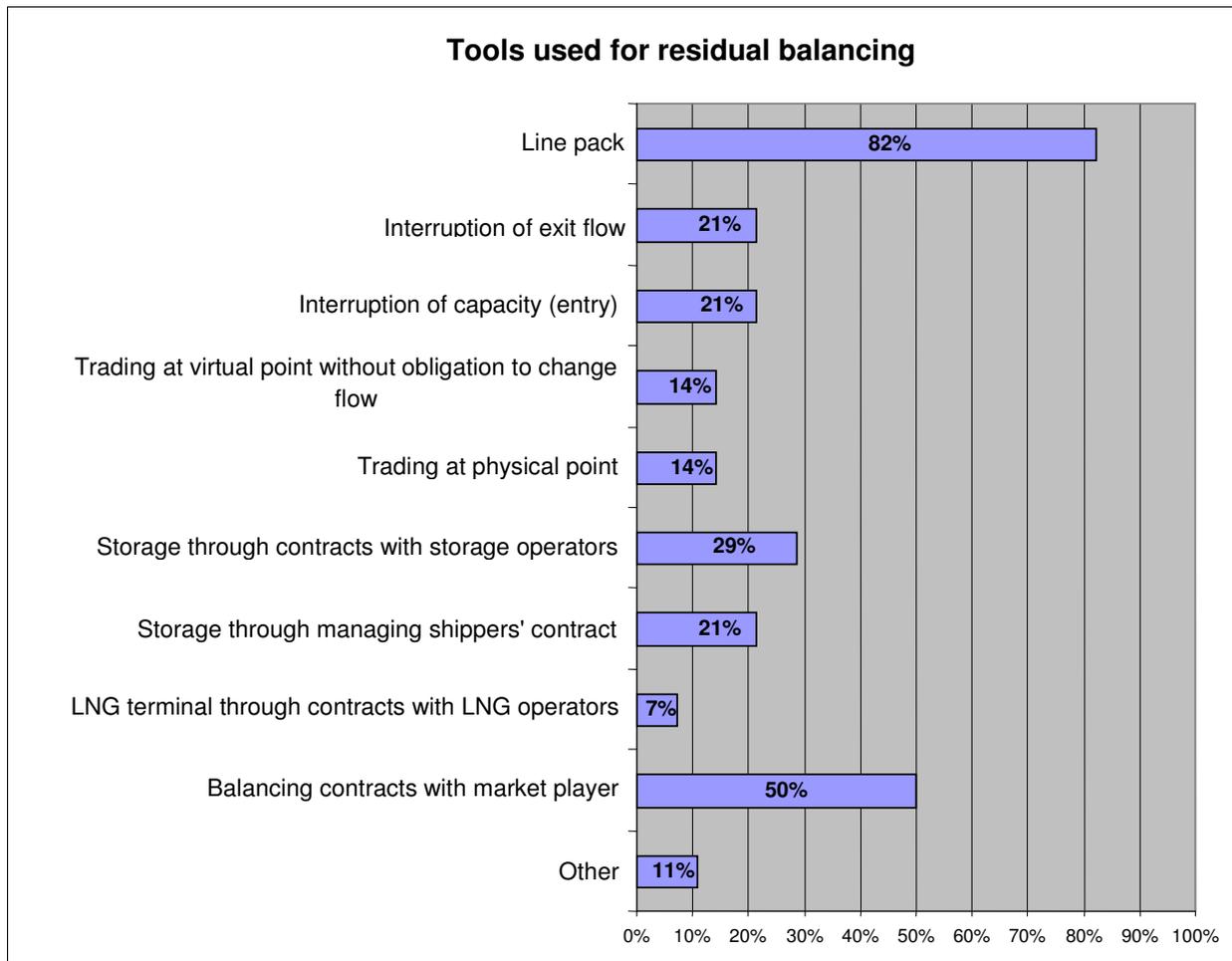
CONCEPT	DEFINITION
System Balancing	The set of balancing actions undertaken by the TSOs in order to keep the system as a whole balanced over the relevant balancing period.
Residual Balancing	The set of the balancing actions undertaken by the TSO primarily as a result of market participants not (completely) balancing their own positions over the relevant balancing period.

In the GTE Balancing TF questionnaire this part is tackled by two questions:

- Which tools do you use for system balancing under normal circumstances (not emergencies)?
- Which tools do you use for residual balancing?

The graphics hereunder give the results of the 28 respondents.





These graphics show that line pack is by far the tool most used both for system balancing and for residual balancing. Other tools are much less used; their use rate is between 10% and 50%. Balancing contracts with a market player are used by half of the TSOs for residual balancing. Interruption of exit flow of capacity and storage through contracts with storage operators are used in a less extent.

2.2 – Role and responsibility of TSOs

The next two questions are related to the provisions 3.1 and 3.2 of the GGPGB:

“3.1 Where the TSO has the responsibility to design the gas balancing regime it should ensure that it does in accordance with the requirements in these GGPGB and the Gas Regulation.

3.2 Each TSO retains the overall responsibility for the economic and efficient operation of its system and therefore should retain a residual role to maintain physical balance to ensure the safe, secure, efficient and reliable operation of its system, subject to the incentives, information and flexibility and tools provided to shippers to balance their individual portfolio.”

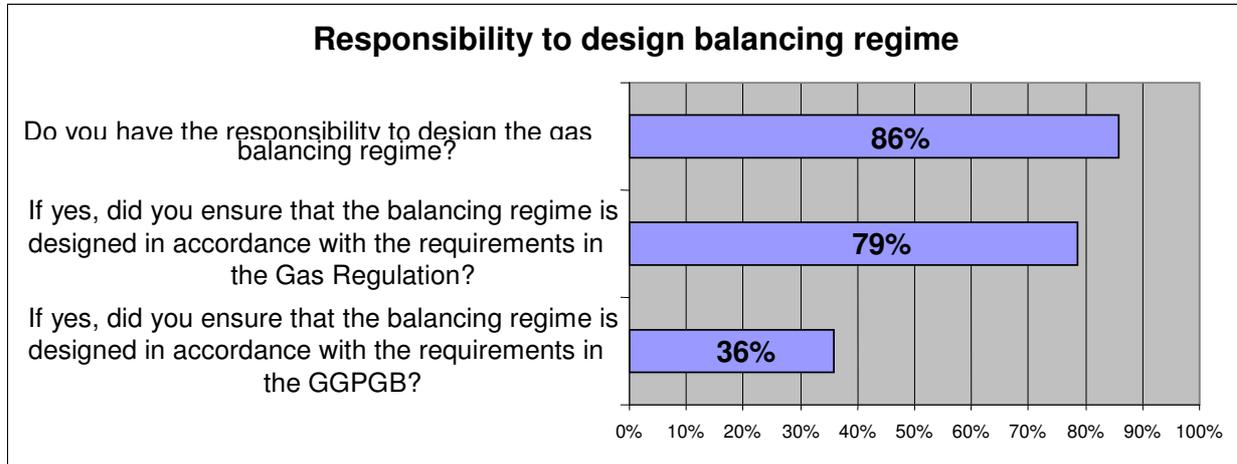
In the questionnaire these provisions are tackled by the following questions:

3.1 Do you have the responsibility to design the gas balancing regime?

If yes, did you ensure that the balancing regime is designed in accordance with the requirements in the Gas Regulation?

If yes, did you ensure that the balancing regime is designed in accordance with the requirements in the GGPGB?

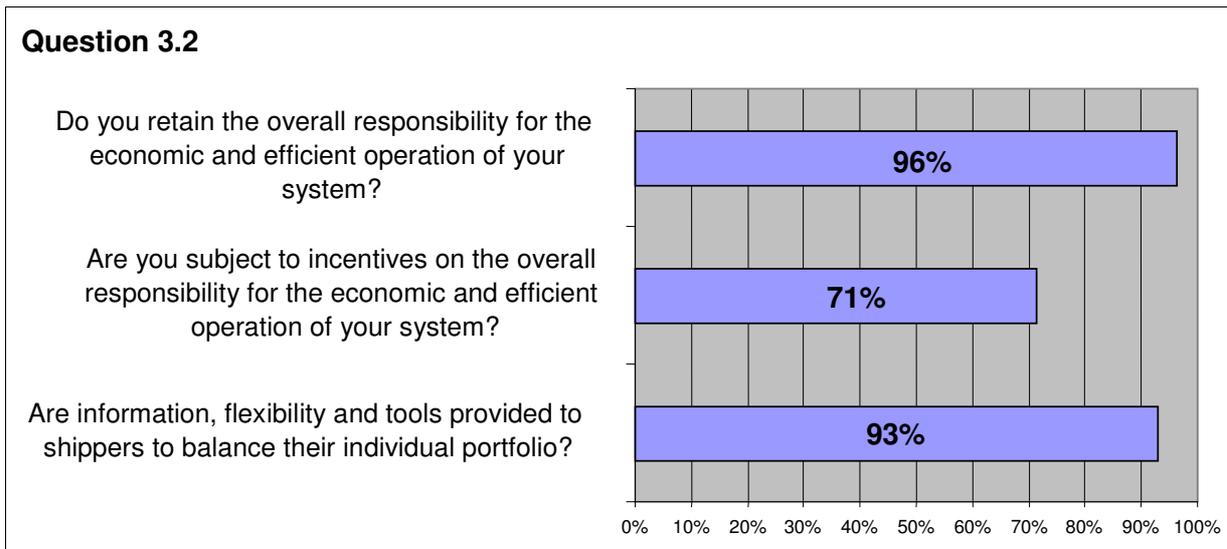
3.2 Do you retain the overall responsibility for the economic and efficient operation of its system and therefore should retain a residual role to maintain physical balance to ensure the safe, secure, efficient and reliable operation of its system?
 Are you subject to incentives on the overall responsibility for the economic and efficient operation of your system?
 Are information, flexibility and tools provided to shippers to balance their individual portfolio?



The graphic shows a high degree of convergence with provision 3.1 of the GGPGB: 79% of the TSOs which have the responsibility to design the gas balancing regime assure to carry it out in accordance to the Gas Regulation. A low degree of convergence (36%) towards the requirements of the GGPGB is observed. However, four TSOs assert that they will design the balancing regime as far as possible.

Focusing on cross-border trade and flows, the table below shows the impact of lack of convergence with the GGPGB.

	Rate of convergence	Degree of relevance
Balancing regime designed in accordance with the Gas Regulation	79%	4
Balancing regime designed in accordance with the GGPGB	36%	2



Regarding the overall responsibility for the economic and efficient operation of their system, the result of 96% positive answers is a high degree of convergence. 71% of the respondent TSOs are subject to incentives and nearly all of them (93%) provide information, flexibility and tools to shippers. Regarding this issue, a high degree of convergence is also observed with the GGPGB.

Focusing on cross-border trade and flows, the table below shows the impact of lack of convergence with the GGPGB.

	Rate of convergence	Degree of relevance
Responsibility for the economic and efficient operation of the system	96%	1
Subject to incentives	71%	2
Information, flexibility and tools provided to shippers	93%	3

2.3 – Balancing cost and incentives for the TSOs

This part refers to the provisions 1.27 and 1.28 of the GGPGB:

“1.27 Where a TSO’s balancing regime permits the acceptance of bids and offers for the purposes of residual balancing gas as a means to balance the system it should procure flexibility (including gas) in a transparent and non-discriminatory manner using market based mechanisms (where possible).

1.28 Where a TSO is not permitted to accept bids and offers for balancing gas as a means to balance the system the TSO should procure the gas in other ways according to transparent non-discriminatory procedures including for example accessing gas from storage or through contracts with network users.”

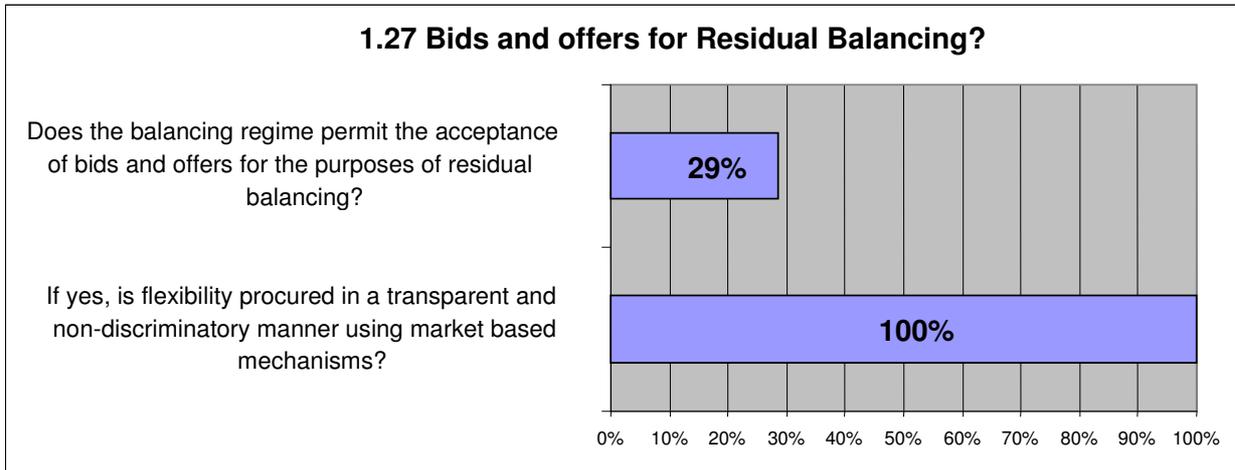
In the GTE Balancing TF questionnaire those provisions are tackled by those questions:

1.27 Does the balancing regime permit the acceptance of bids and offers for the purposes of residual balancing gas as a means to balance the system?

If yes, is flexibility (including gas) procured in a transparent and non-discriminatory manner using market based mechanisms (where possible)?

1.28 Are you permitted to accept bids and offers for balancing gas as a means to balance the system?

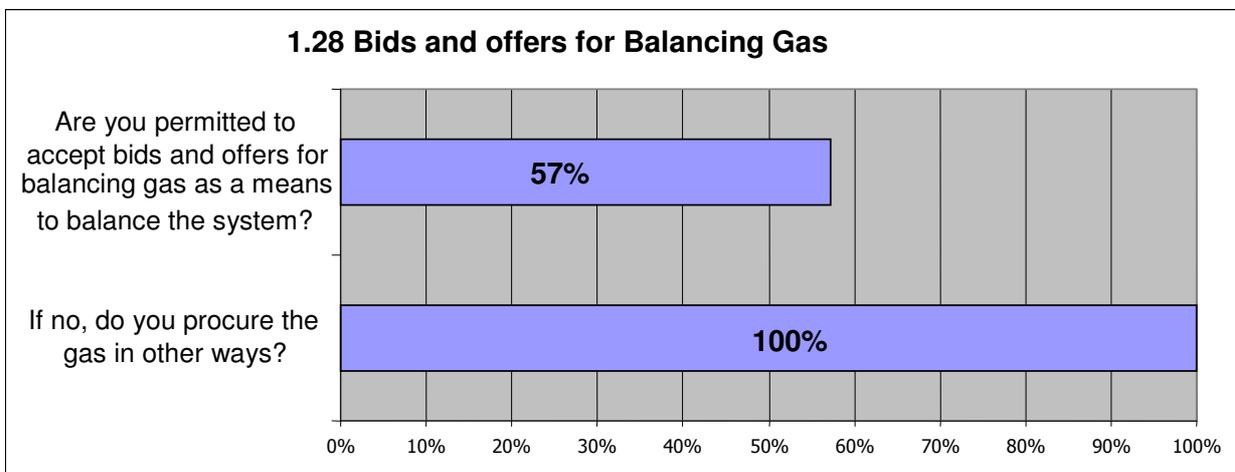
If no, do you procure the gas in other ways according to transparent non-discriminatory procedures including for example accessing gas from storage or through contracts with network users?



All TSOs (100%) which permit the acceptance of bids and offers for the purposes of residual balancing procure flexibility in a transparent and non-discriminatory manner using market based mechanisms. This shows a high degree of convergence with the GGPGB.

Focusing on cross-border trade and flows, the table below shows the impact of lack of convergence with the GGPGB.

	Rate of convergence	Degree of relevance
Flexibility procured in a transparent and non-discriminatory manner using market based mechanism	100%	3



The answers to question 1.28 show a high degree of convergence with the provision 1.28 of the GGPGB: 100% of the TSOs which do not permit the acceptance of bids and offers for balancing gas as a means to balance the system procure gas in other way.

	Rate of convergence	Degree of relevance
Gas procured in other ways	100%	2

3 - Conclusion

Concerning the specific provisions for balancing costs and incentives, GTE observes a good convergence with the GGPGB, as there is no low degree of convergence for any point.

Regarding the specific provisions for role and responsibility, the study shows a good degree of convergence with most of the requirements in the GGPGB even if some of the balancing regimes are not in accordance with the GGPGB.

B - Required characteristics of a balancing regime

1 - Introduction

A well functioning/liquid within day market should enable shippers to manage its imbalance positions efficiently. Where such a market does not (yet) exist, the TSO should have or allow systems to be put in place to facilitate the pooling and trading of imbalance positions. In addition, when technically and/or economically necessary for providing efficient access to the system, in particular when the balancing regime is characterised by tight tolerance margins, the TSO should offer cost reflective flexibility services.

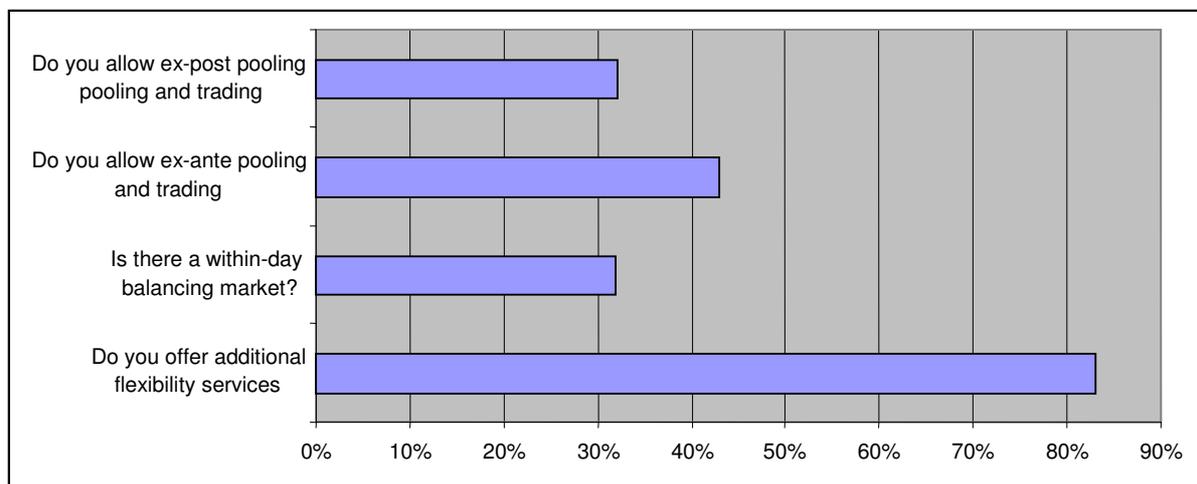
These possibilities and the subsequent responsibility for the TSO are covered in the questionnaire by three questions:

- (i) Do you offer additional flexibility services?
- (ii) Is there a within-day balancing market?
- (iii) Do you allow trading and/or pooling of imbalance positions?
 - a Do you allow ex-ante pooling and trading of imbalances?
 - b Do you allow ex-post pooling and trading of imbalances?

2 - Data Evaluation

Convergence on additional flexibility services is high. Of all the TSOs that have an hourly balancing period or a daily one with hourly constraints, which is the case for 12 out of 28 TSOs, 83% offer additional flexibility services.

The development of within-day balancing markets is low, only in 32% of the transmission systems a within-market exists. The level of convergence on trading and pooling of imbalance position is medium, with 57% of the TSOs allowing for this service. Of these TSOs most (appr. half) allow for both ex-post and ex-ante trade; five TSOs allow for only ex-ante trade and two TSOs support only ex-post trading.



3 - Bottlenecks hampering cross-border trade and flows

Although convergence on offering additional flexibility services is high this could still be considered as hampering cross-border trade and flows. Further analysis, based on the balancing models, is needed to determine what impact this could have on cross-border trade and flows.

Also the low number of intra-day markets and possible low liquidity on some of the existing markets should be analysed in more detail to assess impact and identify possible solutions.

C - Balancing Periods

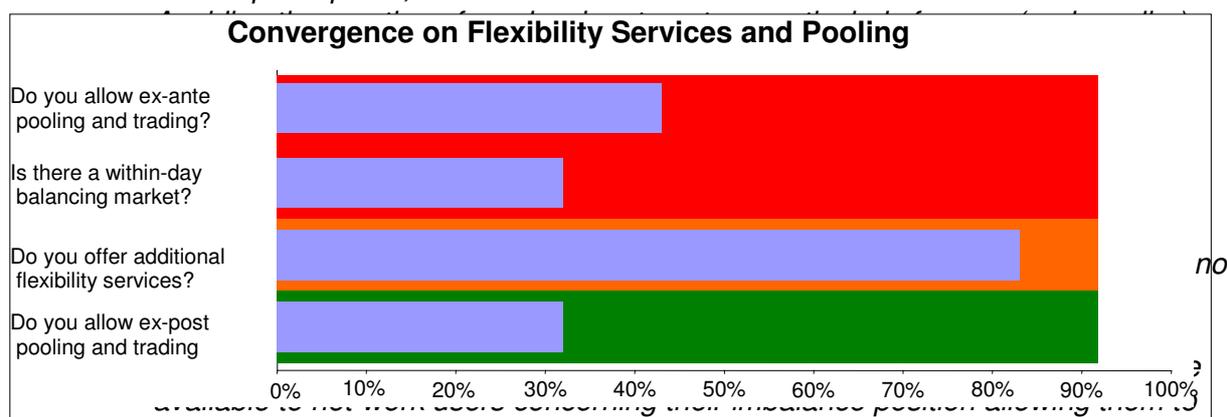
1 - Introduction

The following evaluation refers to several parts of the GGPGB: for the evaluation of part A refer to 1.6 of the GGPGB:

“The balancing system should generally be based on balancing periods characterised by a settlement procedure at the end of the balancing period. The choice of an appropriate balancing period needs to be based on an objective assessment against a number of criteria and decisions should be published with supporting information.

These criteria should include:

- *The operational capabilities of the transportation system to balance the system;*
- *The flexibility and balancing tools that are elaborated by the TSO and offered to market participants;*



- *take timely corrective balancing actions;*
- *The costs imposed on TSOs and network users by particular balancing regimes, for example the IT costs of providing more regular information flows over shorter balancing periods and the transaction costs incurred by network users from potentially taking more frequent balancing actions; and*
- *Nomination and re-nomination procedures complementary to the balancing period.”*

For the evaluation of part B of this analysis, refer to 1.7 and 1.8 in the GGPGB:

“Where a balancing period is used, daily is preferred (unless a different period is specified in national law) and unless there are technical/operational reasons that mean that a different balancing period is necessary to ensure that the system can be balanced and/or for safety and security reasons.”

“As an alternative, it is also possible to use a system where there is no pre-defined balancing period. As long as the cumulated imbalance of a network user is kept within specified tolerance levels there is no need for a settlement procedure and therefore balancing period.”

2 - Data Evaluation

The following evaluation combines several questions, which were asked in order to either characterize the balancing regime in use or to classify convergence with the GGPGB.

For balancing periods, the GGPGB give only a preference for a daily balancing regime. With the preference it is regarded that European transmission systems can differ for technical and/or national reasons, e.g. legal or regulatory framework. This evaluation is not aiming for standardisation, furthermore aiming to identify issues for cross-border flows. So, if a characteristic of a balancing regime is not hindering relevant European cross-border flows, it has to be kept in mind that causing adoption costs for the TSOs may be not justifiable for end-customer prices.

2.1 - Part A

In the questionnaire this part was tackled by two questions:

1. Do you have a settlement procedure in the end of each balancing period?
2. Were the above mentioned criteria [the GGPGB] when determining your balancing period?

Regarding the evaluation of the first question “Do you have a settlement procedure in the end of each balancing period?” the result of 79% positive TSOs answers is a border case with 79%. Anyway, this is next to a high degree of convergence with this requirement of the GGPGB.

Regarding the evaluation of the second question regarding the nine determination criteria for the balancing periods, none of them ranged under 50% of convergence with the GGPGB – what shows a medium to high convergence with European level balancing regime.

Of these determination criteria for settlement procedures five ranked over 80%:

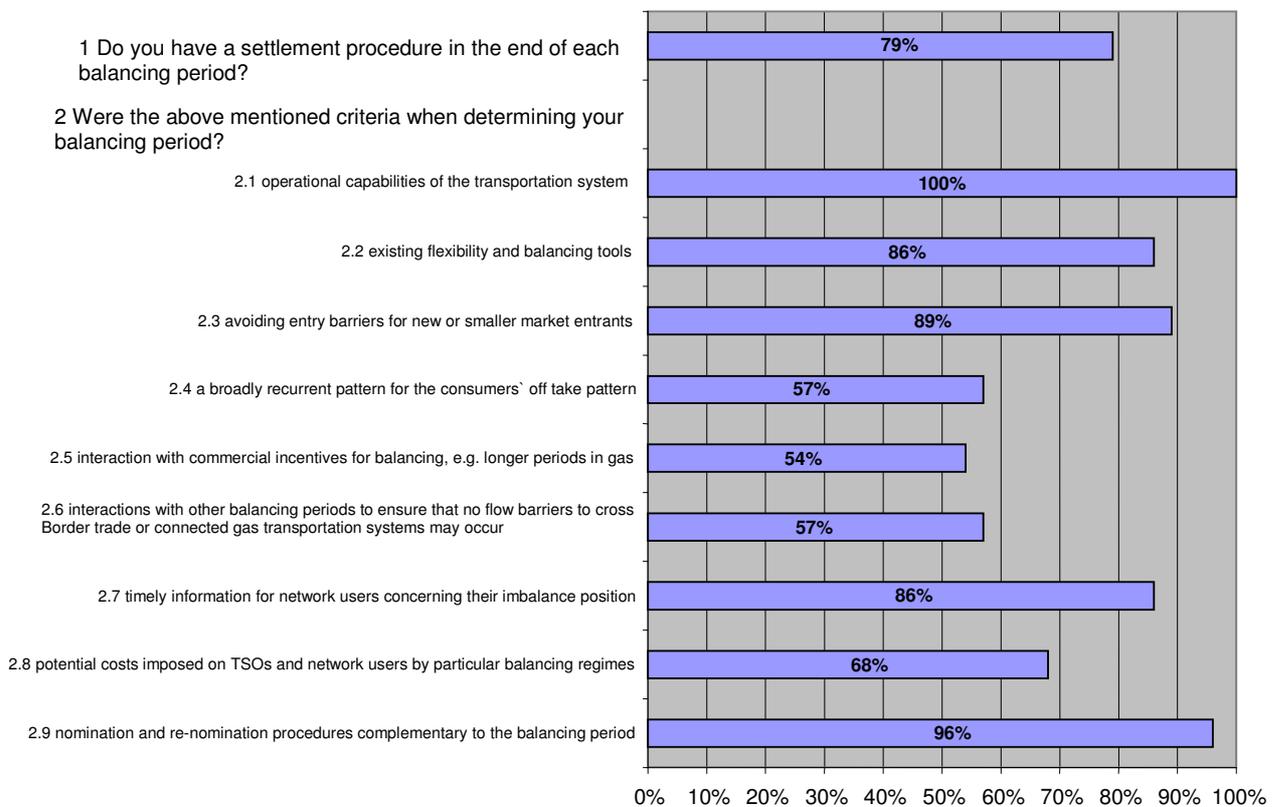
- operational capabilities of the transportation system;
- existing flexibility and balancing tools;
- avoiding entry barriers for new or smaller market entrants;
- timely information for network users concerning their imbalance position; and
- nomination and re-nomination procedures complementary to the balancing period.

The criteria stated below showed a medium application of TSO and degree of convergence with the GGPGB:

- broadly recurrent pattern for the consumers` off take pattern;
- interaction with commercial incentives for balancing, e.g. longer periods in gas;
- interactions with other balancing periods to ensure that no flow barriers to cross; border trade or connected gas transportation systems may occur;
- potential costs imposed on TSOs and network users by particular balancing regimes.

See the following overview of positive TSO answers to the several asked questions:

Settlement Procedure and Determination Criteria



For further analysis and for focussing on cross-border relevance, we can split the GGPGB requests into groups using the convergence thresholds defined in the Introduction of the Report:

operational capabilities of the transportation	100%
broadly recurrent pattern for the consumers` off take pattern	57%
potential costs imposed on TSOs	68%
Settlement procedure in the end of each balancing period	79%
existing flexibility and balancing tools	86%
interaction with commercial incentives for balancing	54%
timely information for users concerning their imbalance position	86%
(Convergence of) system nomination and re-nomination procedures	96%
interactions with other balancing periods	57%
avoiding entry barriers for new or smaller market entrants	89%

Even if there is already a high degree of convergence achieved at some points, if there is high degree of relevance for cross-border trade the aim should be to achieve 100% of convergence.

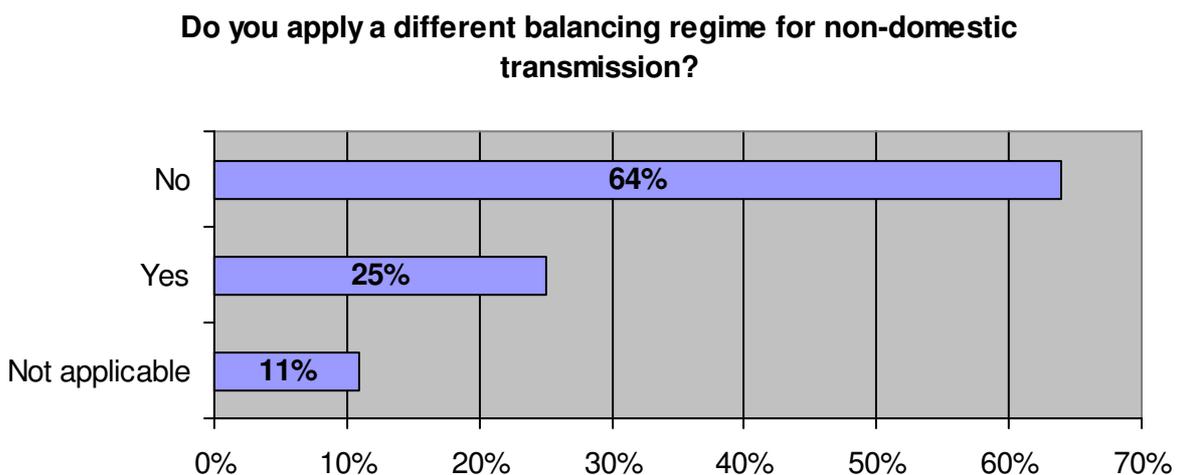
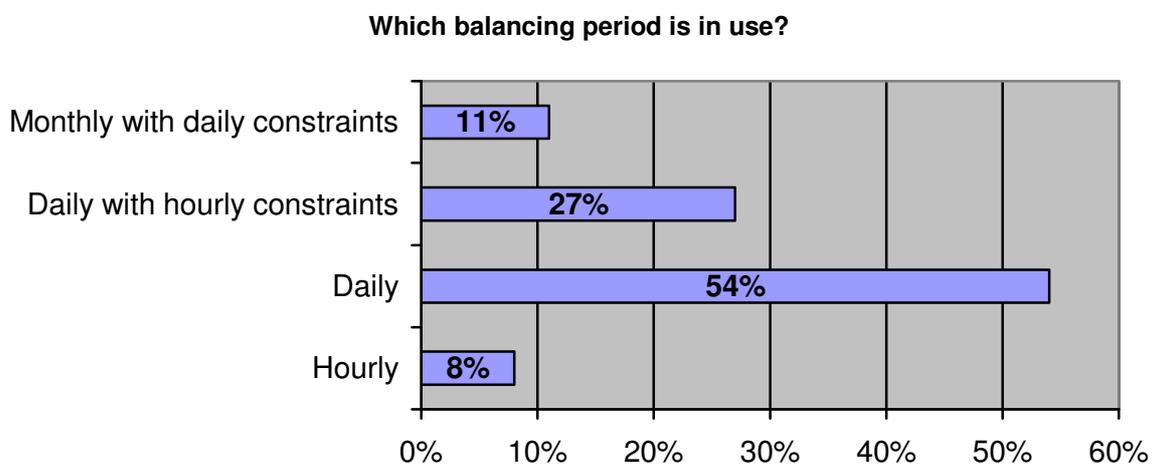
This would be the case especially for the balancing period criterion of ensuring interactions with other balancing periods so no flow barriers to cross border trade or connected gas transportation systems may occur, or avoiding entry barriers for new market participants.

2.2 - Part B

In the Questionnaire this part was tackled by the following questions:

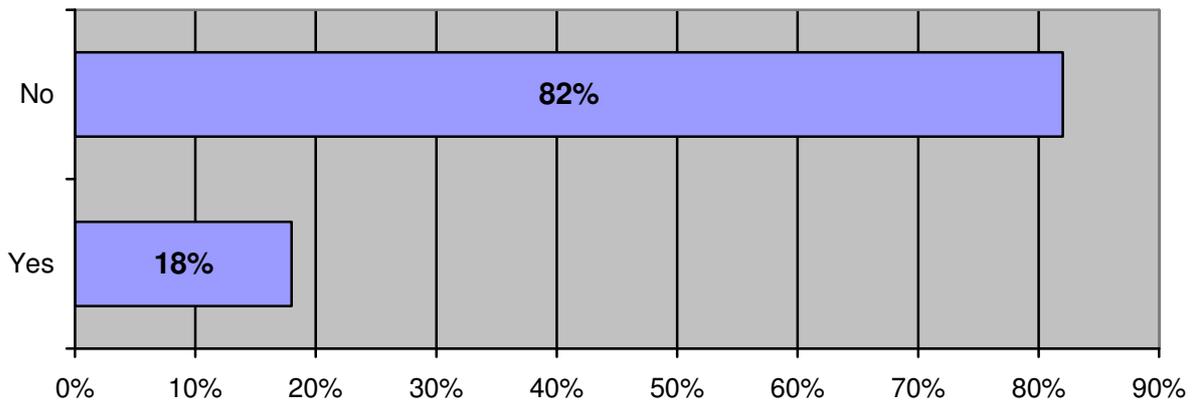
4. What balancing period is in use?
5. Do you apply a different balancing regime for non-domestic transmission?
6. Do you divide your system into balancing zones?
7. What kind of shipper imbalance do you continuously monitor?
8. Settlement mechanism: Based on which imbalance do you calculate the settlement?

The evaluation of question “4.What balancing period is in use” shows that 81% (see following diagram) follow the preference of the GGPGGB and apply a daily balancing period.



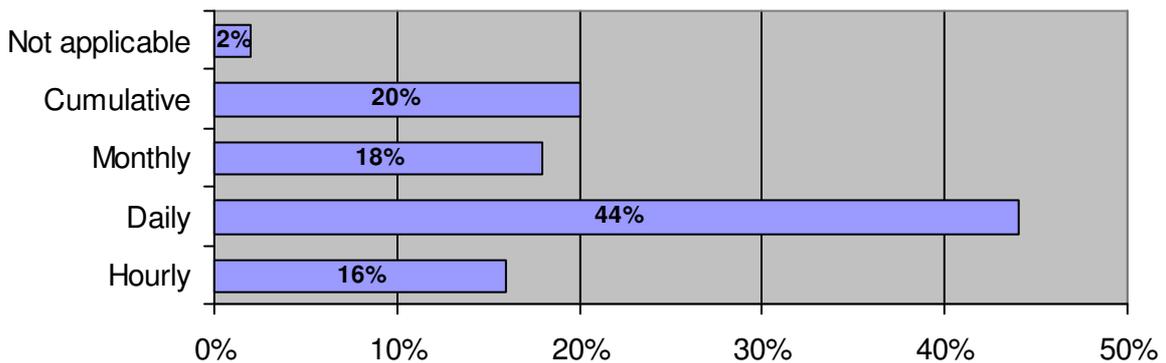
Note: as many TSOs apply the Entry- / Exit-system, they do not differentiate between the domestic and non-domestic market.

Do you divide your system into balancing zones?

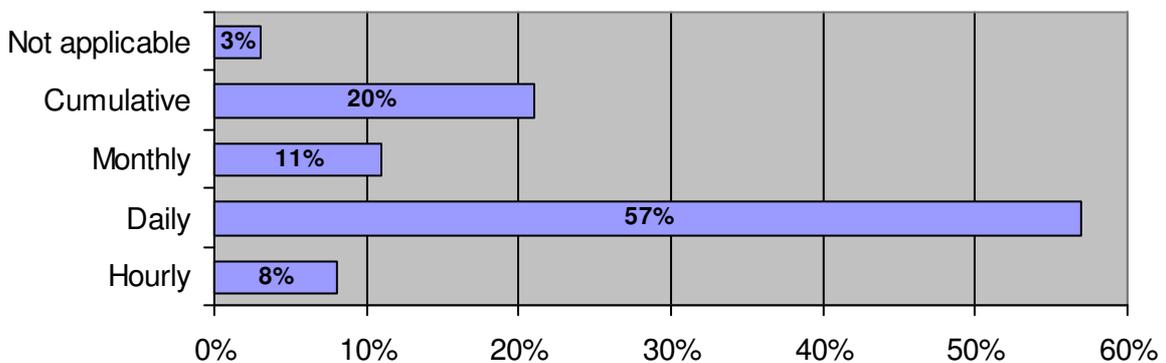


The following two diagrams about the questions “What kind of shipper imbalance do you continuously monitor?” and “Based on which imbalance do you calculate the settlement?” show that there is again a preference for a daily routine, which shows coherence with most TSOs stating to have a daily balancing routine.

**What kind of shipper imbalance do you continuously monitor?
(Several possible answers)**



**Based on which imbalance do you calculate the settlement?
(Several possible answers)**



3 - Conclusion

In general, there is a good convergence with the GGPGB, as there is no low degree of convergence for any point.

For Part A, three significant points for further coordination of balancing period were pointed out:

- Avoiding entry barriers for new market participants;
- Ensuring interactions with other balancing periods so no flow barriers to cross border trade or connected gas transportation systems may occur;
- (Convergence of) system nomination and re-nomination procedures.

For Part B, where the characteristics of the balancing were in focus and therefore technical and operational reasons can shape the balancing regime more, it is less simple to advice on further coordination.

D - Balancing Charges and Penalties Imposed on Network User

1 - Introduction

This section is devoted to topic Penalties and Charges Imposed on Network Users. The first part of this analysis refers to general questions regarding charges applied by the TSOs and gives an overview of the incentive methods for shippers to balance their portfolio. The second part of this analysis contains questions related to the GGPGB provisions, in particular regarding the correlation between tariffs and imbalance charges, application of penalty charges and the role of NRAs in approving them. In this part it is also shown who is responsible for publishing the calculation methodology for imbalance charges as well as the final tariffs.

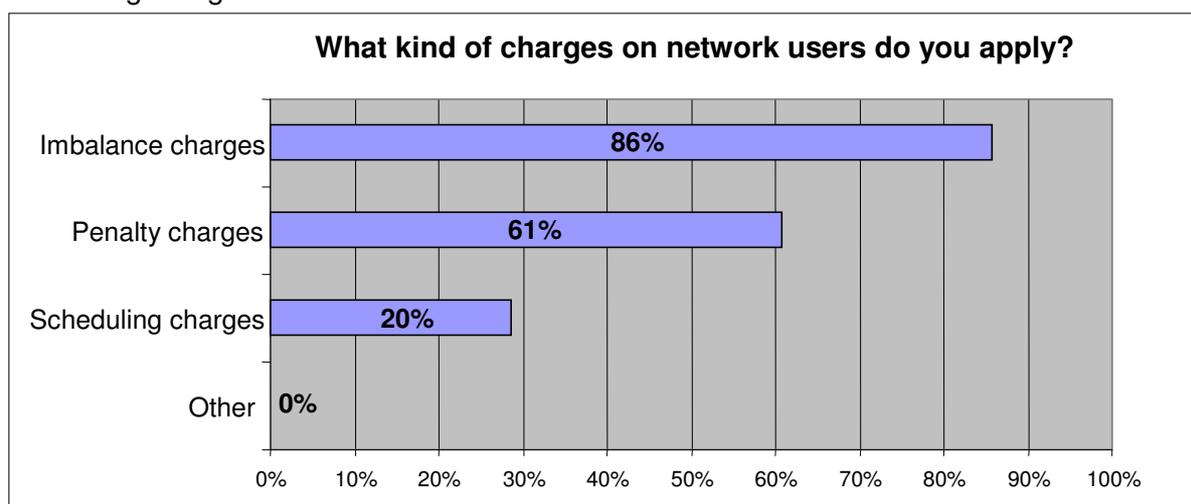
2 - Data Evaluation

2.1 - General overview

Below there are definitions of imbalance charges, penalty charges and scheduling ones. These definitions are taken from GTE Glossary on Balancing.

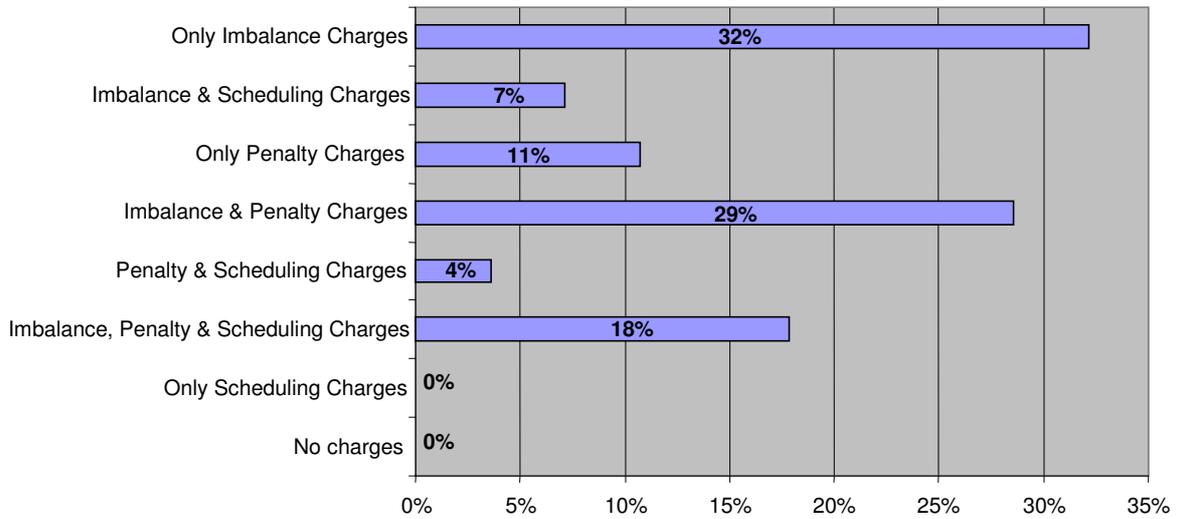
CONCEPT	DEFINITION
Imbalance Charges	<i>The charges imposed on network users recovering the actual balancing costs incurred.</i>
Penalty Charges	<i>Additional charges imposed on network users exceeding the actual balancing costs incurred.</i>
Scheduling Charges	<i>The charges imposed on network users when there is a difference between the final nomination and the allocation at a specific entry or exit point of the system.</i>

Most TSOs apply imbalance charges (86%), 61% applies penalty charges. Only 20% applies scheduling charges.



The graph below provides a detailed picture of combination of charges applied by the TSOs. TSOs often apply more than one of these charges; 43% of the TSOs applies only one charge. 40% applies two charges. All three charges are used by 18% of all respondents. There is no TSO who does not apply any charges at all.

Combination of Applied Charges (cross check)



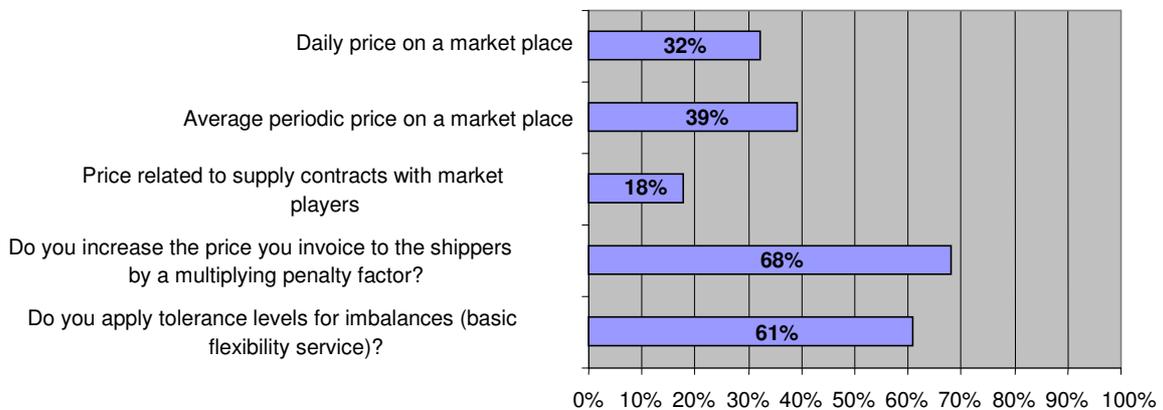
The outcome from question 1.11 is shown in the graph below. 79% uses a cash-out price. Most of these TSOs apply an average periodic price on a market place (39%), the next popular is daily price on the market with nine TSOs applying it. The price related to supply contract with market players takes the last place (18%).

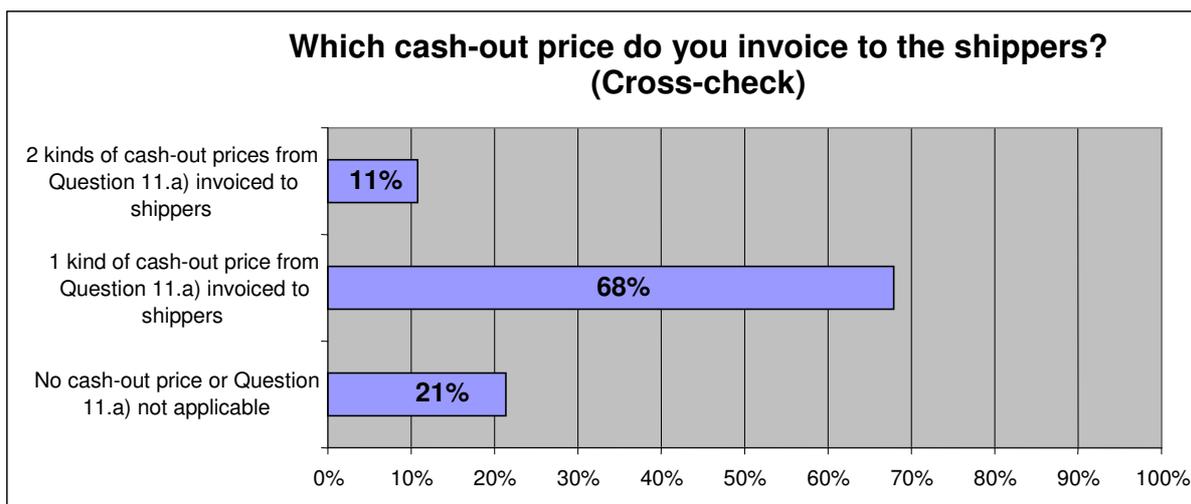
11% of all TSOs which have cash-out price applies two kinds of them.

Of all the TSOs that use cash-out price, 68% increases the price they invoice to the shippers by a multiplying penalty factor.

The last general question regarding this section was devoted to tolerance limits. More than half of all TSOs apply tolerance levels for imbalances as a part of basic flexibility service (61%).

Which cash-out price do you invoice to the shippers?



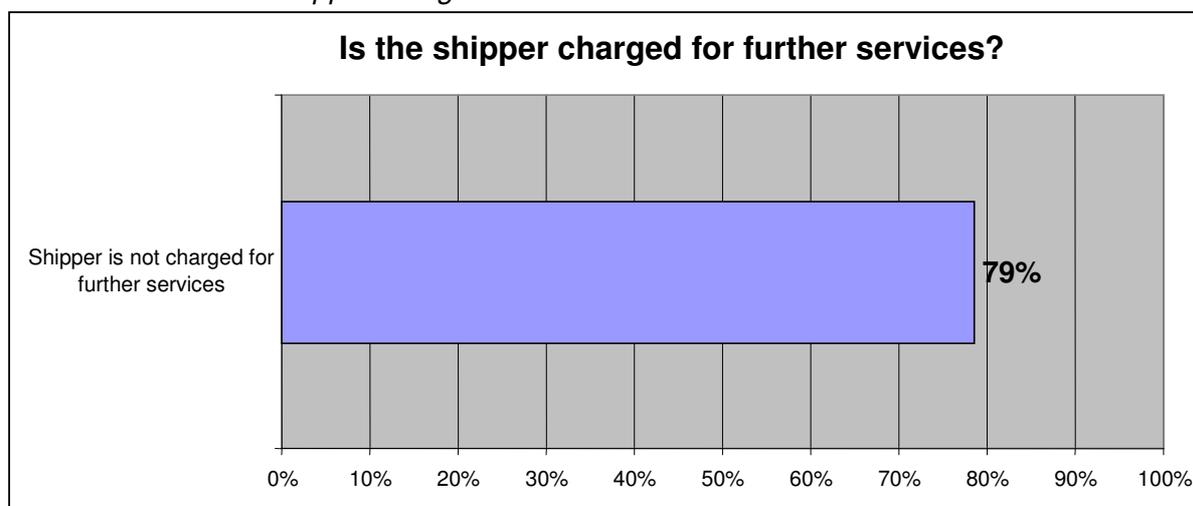


2.2 - Question related to the provisions of the GGPGB

2.2.1 -Provision no. 1.10 of the GGPGB is tackled in the Questionnaire by the question of the same number.

“1.10 The tariffs for tolerance services or imbalance charges include all charges due by the network user in the cases where his imbalance remains within the specified tolerance levels. Imbalance charges shall be cost reflective to the extent possible, whilst providing appropriate incentives on network users to balance their input and off take of gas.

o Is the shipper charged for further services?”



The graph above shows a high convergence with the GGPGB. Almost 80% of TSOs answer that they do not charge shippers for further services. Most TSOs who charge explain they do it for providing additional flexibility. Some of them have charges for imbalances outside the specified tolerance levels or when they propose a new service to the market.

2.2.2 -Provision no. 1.12 of the GGPGB states as follows:

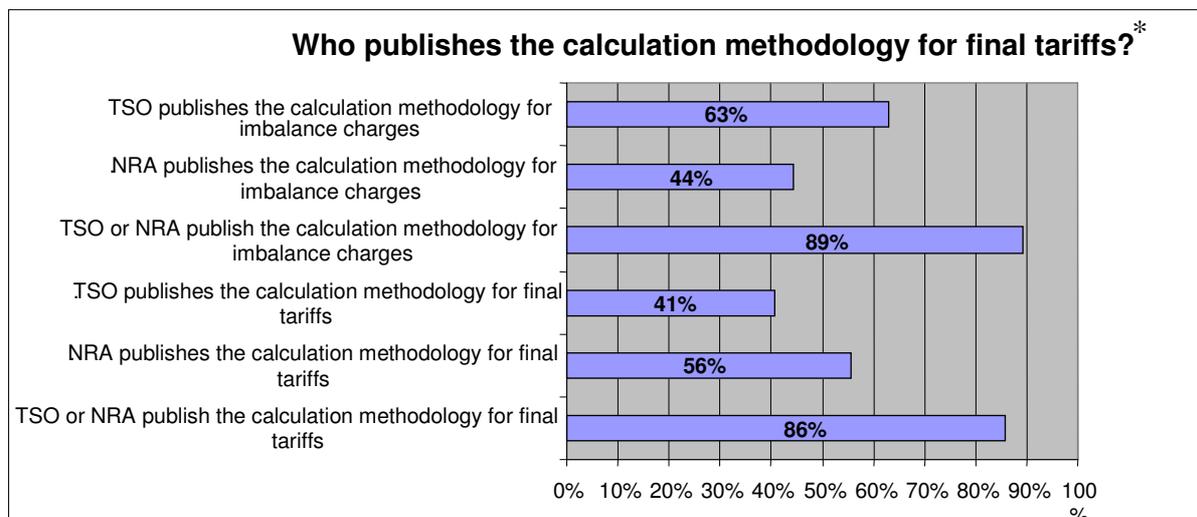
“1.12 Any calculation methodology for imbalance charges as well as final tariffs shall be made public by either the relevant authority or the TSO as appropriate.”

This provision is tackled in the questionnaire by Question no. 1.12.

- i. Who publishes the calculation methodology for imbalance charges?
 - a) TSO
 - b) NRA

Balancing Charges and Penalties imposed on Network Users

- ii. Who publishes the calculation methodology for final tariffs?
 a) TSO
 b) NRA



*In the analysis the party publishing the calculation methodology other than TSO or NRA is omitted

Almost two thirds of the TSOs make public the calculation methodology for imbalance charges. In case a TSO does not do so, the NRA takes responsibility of publishing it. Together it gives a result of nearly 9 out of 10 methodologies for imbalance charges published, knowing that in some Member States both TSO and NRA publish these methodologies.

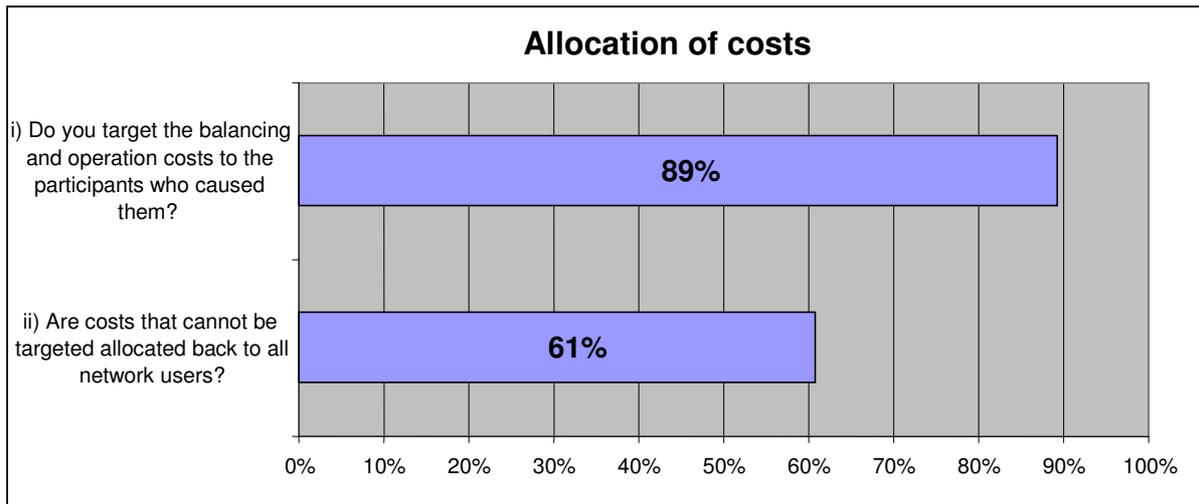
For publishing methodology for final tariffs the situation looks similar but here the NRA plays the leading role by making more than half of TSOs' final tariffs public (56%). Here also high convergence with the GGPGB is observed, because 86 per cent of all respondents make their final tariffs public either themselves or by NRA. This result comes from the fact that in some Member States not only TSO alone publishes final tariffs. NRA can publish them, too.

2.2.3 -In the GGPGB point 1.13. refers to the targeting of appropriate balancing and operation costs:

"1.13 There should also be accurate targeting of appropriate balancing and operation costs to those participants that caused them to be incurred. Any costs that cannot be targeted should be allocated back to all network users in a non-discriminatory manner."

In the Questionnaire the text above is followed by question 1.13.

- i. Do you target the balancing and operation costs to the participants who caused them?
 ii. Are costs that cannot be targeted allocated back to all network users?



Although most TSOs target the balancing and operation costs to the participants who caused them (89%) achieving high application of this GGPGB rule, only 61% of all respondents admit that they allocate to all network users the costs that cannot be targeted.

2.2.4 Provisions no. 1.16 and no. 1.17 from the GGPGB relate to topic penalty charges. Below they are quoted and followed by the relevant questions:

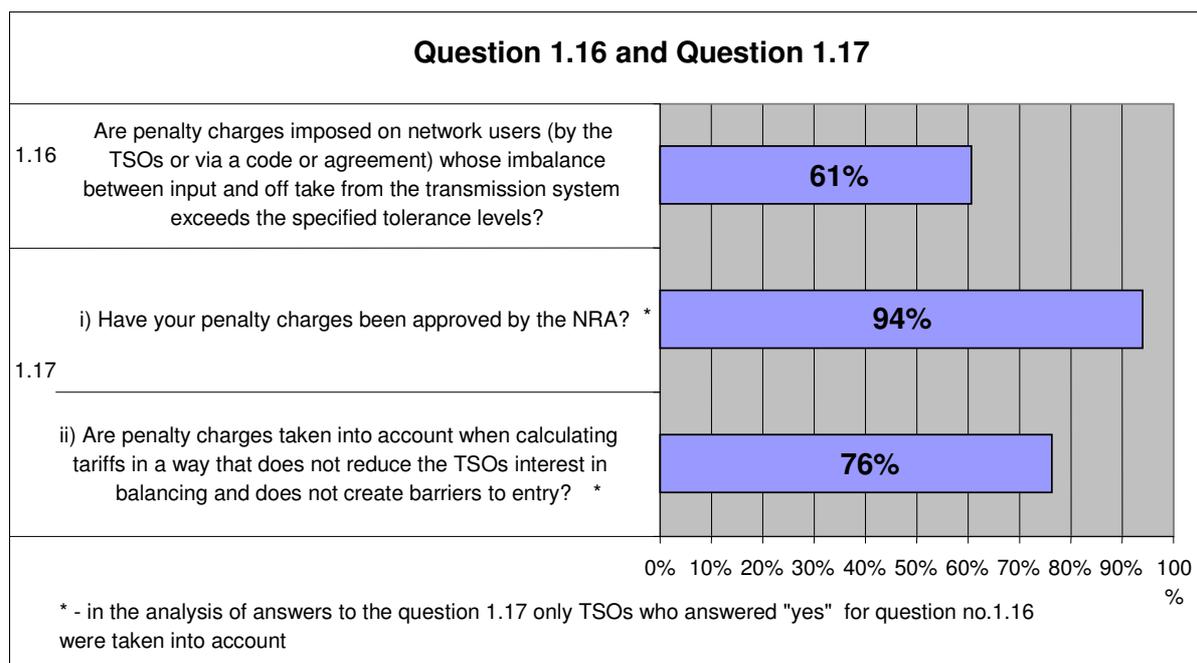
“1.16 Penalty charges may be imposed on network users (by the TSOs or via a code or agreement) whose imbalance between input and off take from the transmission system exceeds the specified tolerance levels, subject to these charges being in accordance with the terms of 1.1.

- Are penalty charges imposed on network users (by the TSOs or via a code or agreement) whose imbalance between input and off take from the transmission system exceeds the specified tolerance levels?

1.17 Penalty charges which exceed the actual balancing costs incurred, insofar as such costs correspond to those of an efficient and structurally comparable network operator and are transparent, shall be taken into account when calculating tariffs in a way that does not reduce the TSOs interest in balancing and does not create barriers to entry. Penalty charges shall be approved by the relevant national regulatory authority.

- i. Have your penalty charges been approved by the NRA?
- ii. Are penalty charges taken into account when calculating tariffs in a way that does not reduce the TSOs interest in balancing and does not create barriers to entry?”

Balancing Charges and Penalties imposed on Network Users



Question 1.16 is not a question of convergence with GGPGB, as provision 1.16 is a statement simply saying that penalty charges may be imposed on network users under special conditions. This question is simply asking TSOs whether they apply penalty charges. Responses from TSOs to the question 1.16 give result of 61% of positive answers. The result corresponds with the same amount of TSOs giving answer "penalty charges" in question 10 from the first part of this section ("What kind of charges on network users do you apply?"). Graph 1.17 shows also that almost all of the TSOs who in question 1.16 answered "yes" have their penalty charges approved by NRA (i.e. 94%). The result of 76 per cent positive answers regarding taking penalty charges into account when calculating tariffs shows a medium degree of convergence with the GGPGB.

- Impact on cross-border trade and flows

Provision of GGPGB	DEGREE OF RELEVANCE	DEGREE OF CONVERGENCE WITH GGPGB
1.10. Not charging shipper for further services	2	79 %
1.12.i) Publishing the calculation methodology for imbalance charges by TSO or NRA	3	89 %
1.12.ii) Publishing the calculation methodology for final tariffs by TSO or NRA	3	86 %
1.13.i) Targeting the balancing and operation costs to the participants who caused them	2	89 %
1.13.ii) Cost that cannot be targeted allocated back to all network users	1	61 %
1.17.i) Penalty charges <i>which exceed the actual balancing costs incurred, insofar as such costs correspond to those of an efficient and structurally</i>	0	94 %

Provision of GGPGB	DEGREE OF RELEVANCE	DEGREE OF CONVERGENCE WITH GGPGB
<i>comparable network operator and are transparent approved by the NRA</i>		
1.17.ii) Penalty charges taken into account when calculating tariffs in a way that does not reduce the TSOs interest in balancing and does not create barriers to entry	0	76 %

3 - Conclusions

Generally, a high degree of convergence with the GGPGB provisions regarding charges applied on network users is observed. Only for question 1.13.ii and question 1.17.ii firm medium convergence is observed, respectively 61% and 76%. Results for question 1.10 lie on the border line between medium and high convergence with the GGPGB (i.e. 79%).

It should be noted that those questions that have medium degree of convergence with the GGPGB also have a low score for their degree of relevance, with a value of 1 for question 1.13.ii and value of 0 for question 1.17.ii.

Question 1.10 regarding charging shippers for further services has quite a high score for its degree of relevance, with a value of 2. Reading the comments that TSOs made accompanying their answer to this particular question, it is clear that most TSOs which charge shippers for further services do so for providing additional flexibility. Some TSOs have charges for imbalances outside the specified tolerance levels or when they propose a new service to the market. These explanations provide understandable and reliable reasons for charging a shipper for further services.

Furthermore, it can be concluded that there is a problem with understanding of imbalance charges and penalty charges and the difference between them. It can be observed that the difference between them is quite liquid. Reading the additional remarks given by TSOs to questions regarding charges; it is obvious that TSOs have their own interpretations of penalty charges and imbalance charges. It seems as if some TSOs apply definitions of charges introduced in the GTE Balancing Glossary, while others gave answers to the questions on charges depending on their context or general knowledge. Moreover, even the definition of penalty charges in the GTE Balancing Glossary differs from definition contained in ERGEG's GGPGB, resulting in lack of mutual understanding of balancing terminology.

However, even if two TSOs use the same imbalance charges they may apply it in a completely different way and there may be completely different rules and methodology of calculating them. Further analysis should be considered to assess the costs imposed on network users when trading gas through different Member States. Benchmarking analysis could give an answer to the question how big the differences in costs are for shippers trading gas between Member States. It should be noted that balancing penalties and charges are very connected to balancing periods and settlement calculation. If they are different amongst European TSOs, then the applicable charges are also different.

Nevertheless, when shippers are well informed on the final tariffs and methodology for balancing charges it makes the cross-border trade and flows much easier.

E - Transparency / Information Provision Section

1 - Introduction

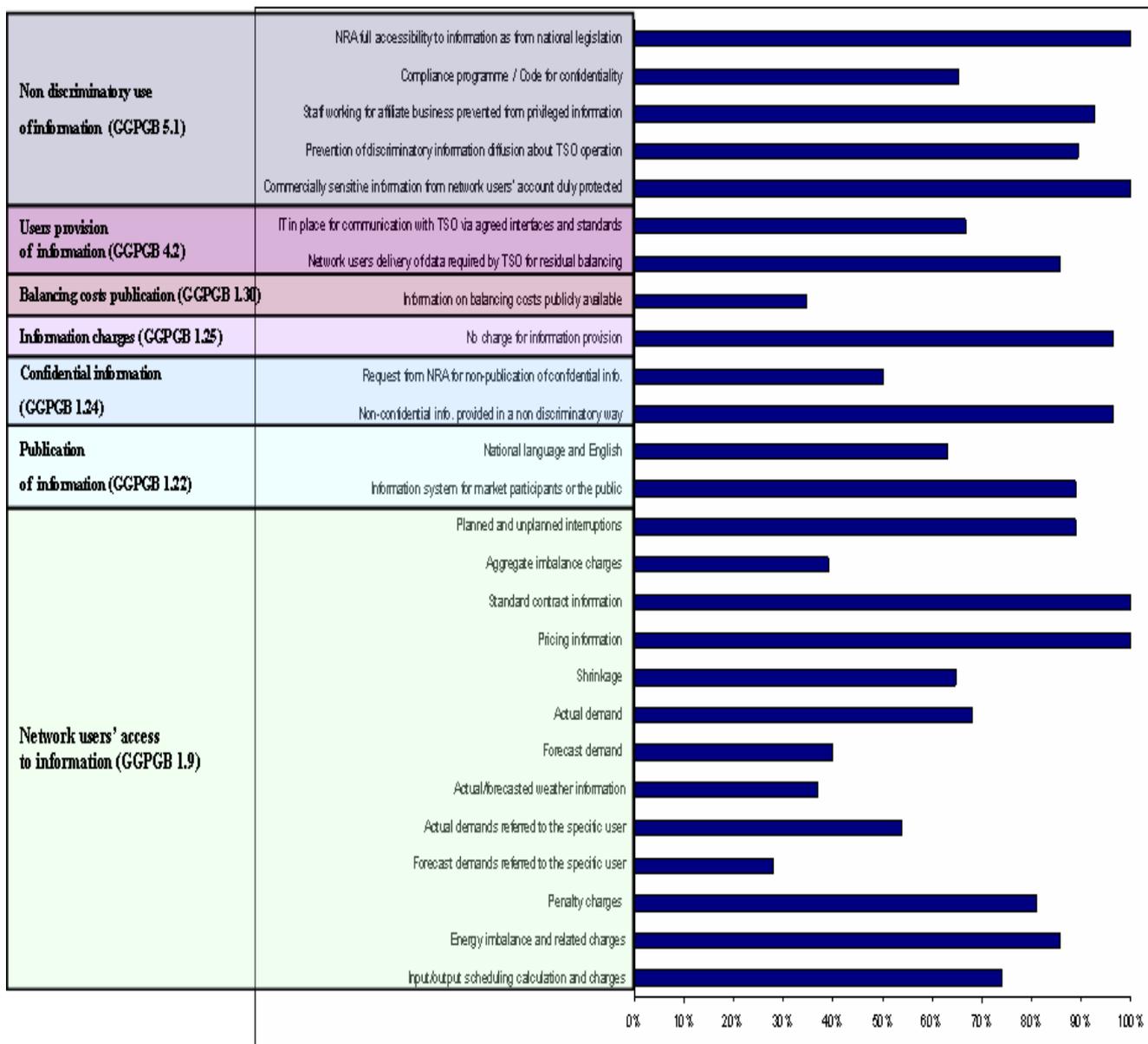
The Transparency/Information Provision Section analyses a set of questions generally referring to the TSOs data publication and/or provision together with the conditions by which the TSOs carry them out.

All the questions of this section relate to the GGPGB requests. In particular:

- **GGPGB/Question 1.9:** defines the set of appropriate information deemed necessary for avoiding undue risks, inefficient costs and barrier to entry for network users. The items composing this set of information are specified by the GGPGB Annex 2.
- **GGPGB/Question 1.22:** sets two basic features the publication of information should respect: user-friendliness (via adequate information system) and bilingual provision (national + English).
- **GGPGB/Question 1.24:** deals with the confidentiality issue, generally stating a TSOs publication duty, which could be repealed only through NRAs exemptions.
- **GGPGB/Question 1.25:** refers to possible charges for information provision and their approval by NRA.
- **GGPGB/Question 1.30:** states the principle that balancing costs incurred by TSOs should be published, unless this has a negative impact on market participants (here the choice is remitted to NRA).
- **GGPGB/Question 4.2:** refers to network users' responsibility of providing information to TSOs for residual balancing (taking into account the necessary IT interfaces and standards to be put in place by users to this purpose).
- **GGPGB/Question 5.1:** relates to the arrangements the TSOs should take to ensure appropriate protection of the confidentiality of information.

2 - Section analysis

Here the results obtained by the questionnaire are provided, subdivided following the single GGPGB/question:

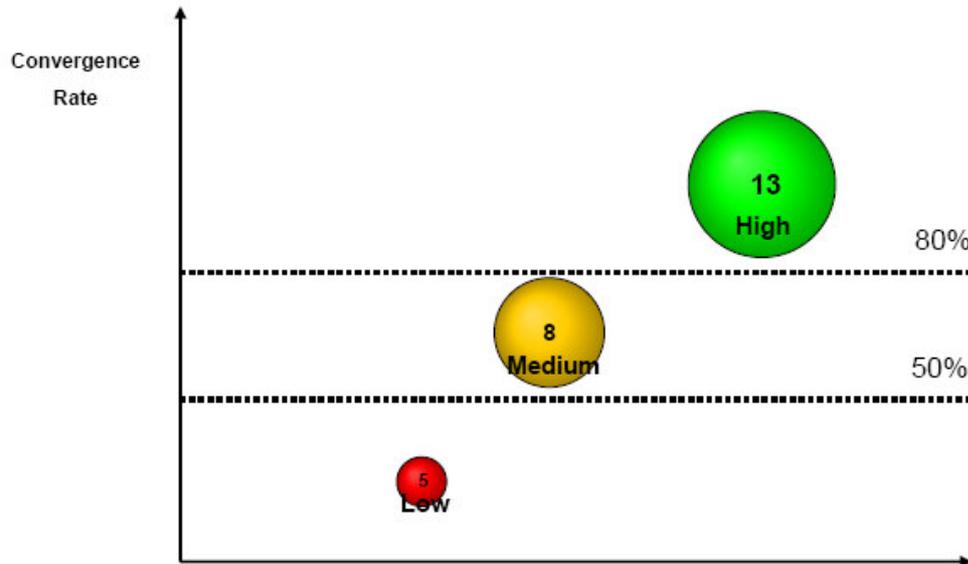


In the following pages an analysis is provided of the questionnaire following the two pivotal interpretative criteria: degree of convergence and cross-border relevance.

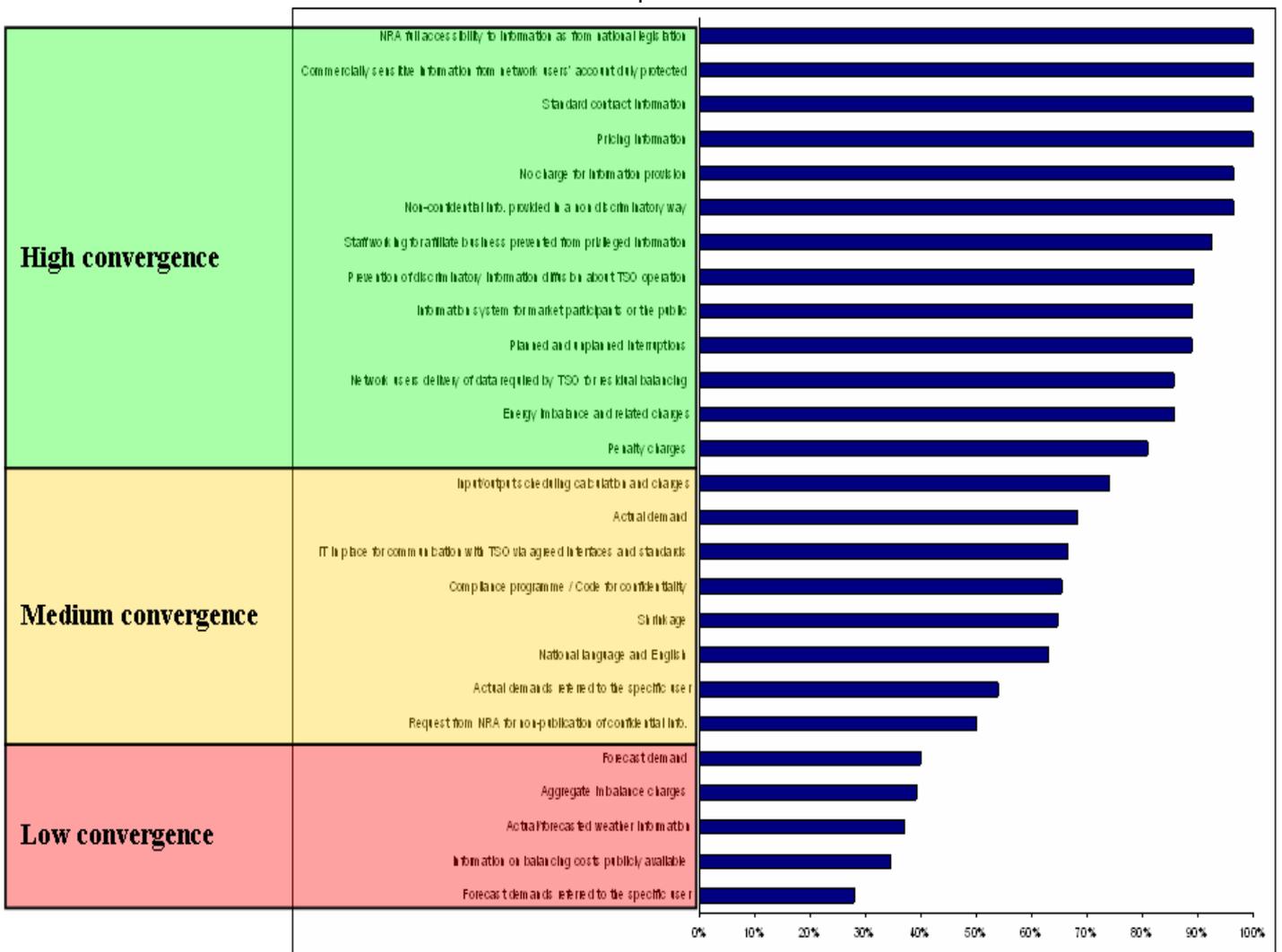
According to the degree of convergence with the GGPGB, we can identify 3 main groups:

- High degree of convergence: 13 out of 26 items (50%)
- Medium range of convergence: 8 out of 26 items (31%)
- Low rate of convergence: 5 out of 26 items (19%)

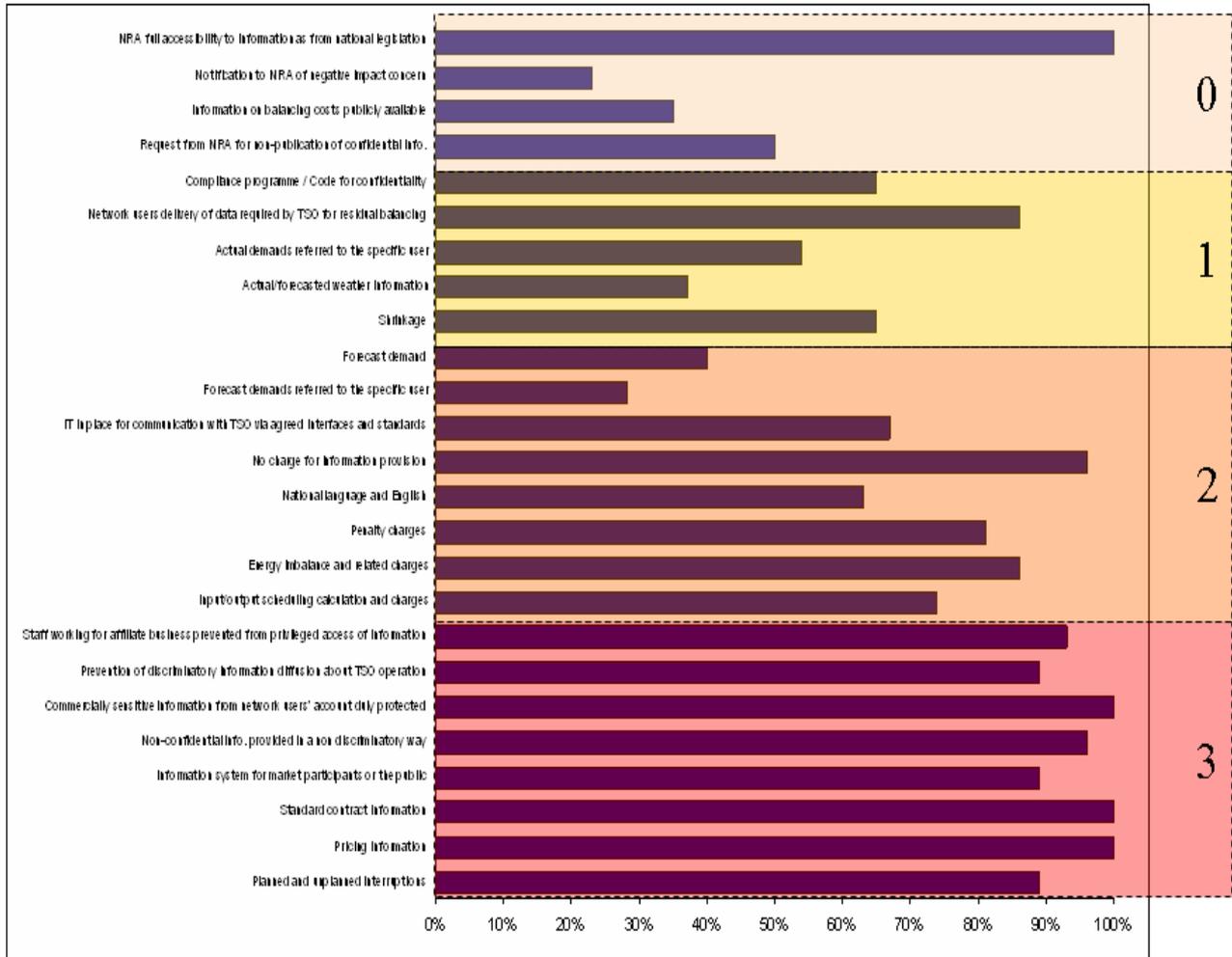
A general, visual distribution of the answer obtained is provided by the following diagram:



Below are the results obtained by the questionnaires subdivided following the convergence thresholds defined in the introduction of the Report:



Below are the results obtained by the questionnaires subdivided following the thresholds of cross-border relevance defined in the Report introduction:



It has to be underlined that near all the GGPGB ranking HIGH/MEDIUM cross-border relevance have also a high degree of convergence (i.e. they are already provided by most of TSOs).

Moreover, some valuable information on terms of cross-border relevance such as the forecast demand and the forecasts demands referred to the specific user don't show an high degree of convergence with the GGPGB but this could be likely due to the fact that they are out of TSOs scope.

3 - Conclusions

The analysis carried above using the criteria of convergence with the GGPGBs and of relevance for cross-border flows and trading suggests the following findings:

The high convergence areas:

- mainly reflect the level of information available to the TSOs and which TSO can be responsible for;
- already cover the majority of the requests detected by ERGEG in the domain of transparency/information provision necessary for freely accessing the system and for evaluating the related costs;
- represents services already provided free of charge to users

→ the GGPGB here define tasks which clearly fall under TSO's competences with the exception of local/national peculiarities (to be explored when addressing the issue with the individual TSOs).

The medium convergence areas:

- useful to explore these items by clusters of TSOs in order to detect if there are some common reasons behind the lack of adherence (regulatory constraints, physical configuration of the grid, need of stakeholders' involvement other than TSOs etc);
- where not major constraints detected, these areas could be studied as possible "quick-win"

→ the GGPGB here defines tasks which generally fall under TSO's competences unless some underlying rationales, probably shared by groups of TSOs, make them unfeasible

The low convergence areas:

- Necessary further analyses aim at exploring if the disclosure the information comprised in this area could have a negative impact on market participants;
- Some of these tasks are out of TSOs scope

→ It could be useful to reconsider the inclusion itself of these requirements in the GGPGB (desirable a dialogue with ERGEG for possible amendments/reviews of the GGPGB)

Finally, it's worthwhile to notice that near all the GGPGBs ranking **HIGH/MEDIUM cross-border relevance** have also a high degree of convergence (i.e. they are already provided by most of TSOs).

F - Balancing Costs and Incentives for the TSO

1 - Introduction

This part deals with provisions 1.26 and 1.29 of the GGPGB in the section concerned with Balancing Costs and Incentives for the TSO.

“1.26: In relation to balancing costs TSOs should be cost reflective and have the correct incentives to en-sure that the costs of taking residual balancing actions are efficiently incurred. The residual balancing actions of the TSO should be minimised subject to the safe, secure and economic operation of the network.”

In the questionnaire those provisions were addressed by the following questions:

- 1.26 - Are balancing costs cost reflective?
- Do you consider having the correct incentives to ensure that the costs of taking residual balancing actions are efficiently incurred?
- Are your residual balancing actions minimised subject to the safe, secure and economic operation of the network?

“1.29: TSOs’ balancing costs shall be efficiently incurred and should be charged back to network users on a non-discriminatory basis.”

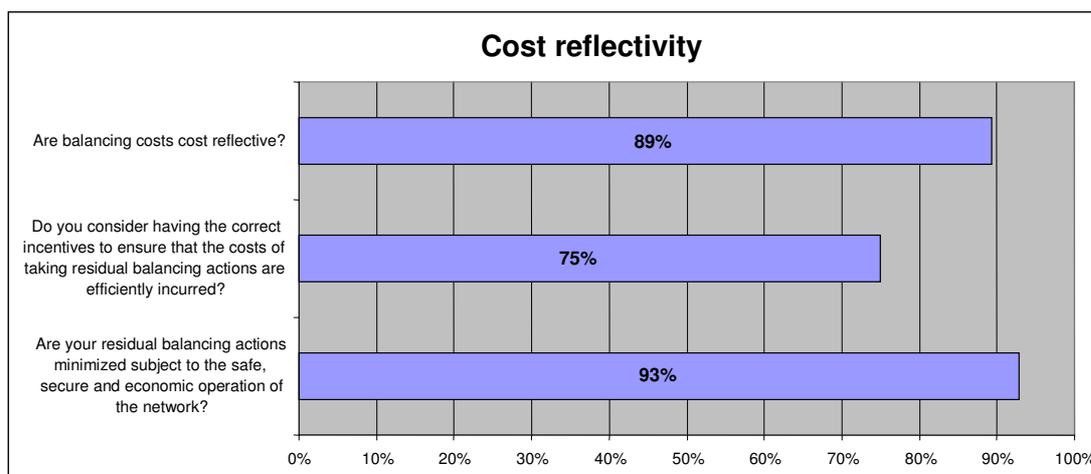
The questionnaire addressed this by the following questions:

- 1.29 - Are your balancing costs efficiently incurred
- Are balancing costs charged back to network users on a non-discriminatory basis?

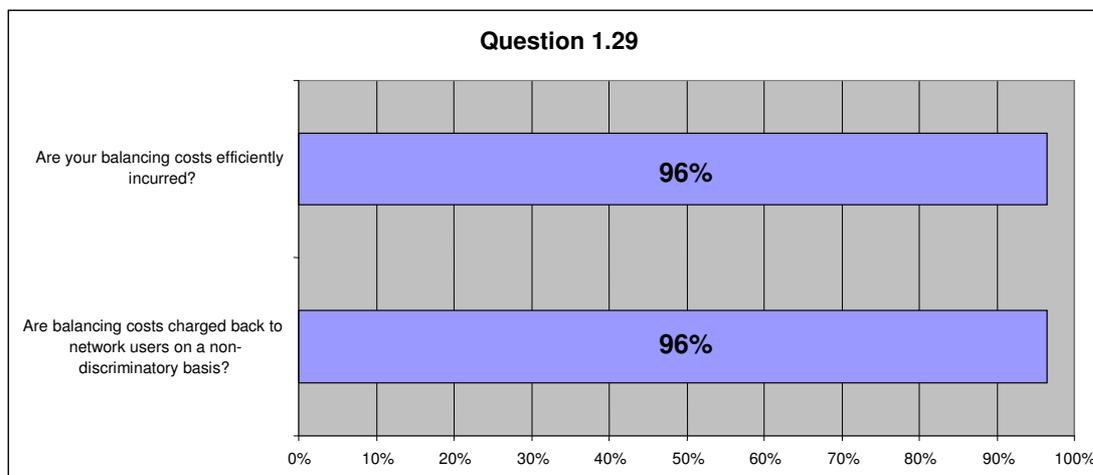
2 - Data Evaluation

There was a high degree of convergence reported by TSOs in their responses to question 1.26 - in particular, to their belief in the cost reflectivity of balancing costs and the minimization of residual balancing actions.

Convergence is summarized below.



A very high degree of convergence was observed in the answers given by TSOs to question 1.29. This may be due to an element in the question open to a subjective interpretation in the response.



3 - Conclusions

Responses from TSOs to the questions show a very high degree of convergence with GGPGB. However, it must be recognised that any answers to these questions will be subjective. In order to develop their responses, each TSO had to interpret terms such as “cost reflective”, “efficient” and residual actions being “minimised”.

There was only one response in Questions 1.26 and 1.29 where the convergence of answers given was not categorised as high (i.e. above 80%). This was in response to the “correct” incentives being in place, which had a rate of convergence with the GGPGB of 75%. It is interesting to note that this also has a low score for its degree of relevance, with a value of 1 in the range 0 to 3.

The other questions all had a very high convergence with the GGPGB and also had high scores for degree of relevance (a finding consistent with the responses to other questions in this questionnaire).

Care must be taken in interpreting the responses given to these particular questions. In addition to the subjective nature to some of the responses given, it was clear from comments that TSOs made accompanying their answers that some regimes, particularly those of the newer Member States, were still undergoing reform. Therefore current convergence with GGPGB may be higher at the time of publication of this report than was the case at the time the TSOs responded to the questionnaire.

Question		Rate of Convergence	Degree of relevance
1.26	Are balancing costs cost reflective?	89%	2
1.26	Do you consider having the correct incentives to ensure that the costs of taking residual balancing actions are efficiently incurred?	75%	1
1.26	Are your residual balancing actions minimised subject to the safe, secure and economic operation of the network?	93%	3
1.29	Are your balancing costs efficiently incurred?	96%	2
1.29	Are balancing costs charged back to network users on a non-discriminatory basis?	96%	2