



Draft Revised ERREG Guidelines of Good Practice for Electricity Balancing Markets Integration (GGP-EBMI)

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Responding to this Public Consultation

ERGEG invites all interested parties to comment on these draft revised GGP on Electricity Balancing Markets Integration (GGP-EBMI).

Following the end of the public consultation period, ERGEG will publish all comments and replies to questions received from stakeholders.

If a respondent would like ERGEG to treat their contribution with confidentiality then this must be explicitly mentioned in their reply. Unless marked as confidential, all responses will be published by placing them on the ERGEG website www.energy-regulators.eu.

Any comments should be received by Monday **16 March 2009** and should be sent by e-mail to electricitybalancing@erggeg.org.

Any questions relating to this document should in the first instance be directed to:

Mrs. Fay Geitona
CEER Secretary General
Email: fay.geitona@ceer.eu
Fax +32 2 788 73 50
Tel. +32 2 788 73 30

Executive Summary

Following ERGEG's presentation to the XII Florence Forum in September 2005 of its Position on Balancing Mechanisms Compatibility, ERGEG developed draft Guidelines of Good Practice for Electricity Balancing Markets Integration (GGP-EBMI). The GGP contained the ERGEG views on electricity balancing markets integration, in the sense of Articles 11.7, 14.6 and 26.2(b) of the Electricity Directive (2003/54/EC), and in line with Articles 1.8, 1.9 and 5.7 of the Congestion Management Guidelines adopted in accordance with Article 8 of Regulation (EC) 1228/2003. From 8 June to 3 August 2006, an ERGEG public consultation was held on the draft GGP-EBMI. During the public consultation, a number of respondents mentioned that since there was a strong inter-relationship between balancing markets, intraday markets and automatically-activated reserves markets, interactions between both the latter markets and balancing markets should also be addressed by the GGP-EBMI.

Furthermore, in January 2007, the European Commission published its energy sector inquiry¹, which stressed the fact that balancing energy and reserve markets are highly concentrated, pointing to the fact that the inadequate integration of balancing markets is a key impediment to the development of a single European electricity market.

With the above in mind and taking account of the results of the public consultation on GGP-EBMI in 2006, ERGEG initiated a consultant's study financed by the European Commission on the interaction and dependencies of balancing markets, intraday trade and automatically-activated reserves. Where appropriate, the results of this study have been taken into account by ERGEG in these draft revised GGP-EBMI. These draft revised GGP differ from the 2006 GGP in several aspects, aiming to be more precise and clear in setting guidelines for balancing market integration.

The draft revised GGP-EBMI are structured into two main parts:

- Part I with general considerations
- Part II with actual guidelines of good practice

¹ COM(2006)851, 10 January 2007, <http://ec.europa.eu/competition/sectors/energy/inquiry/index.html>

The general considerations in Part I address the following issues:

- Functioning of balancing markets;
- Benefits of and key principles for efficient electricity balancing markets integration, including among others: governance and institutional arrangements; operational security; market-based mechanisms; competition issues; impact on cross-border trade, incentives for balance responsible parties to be balanced; transparency and market monitoring.

The actual guidelines in Part II address the following issues:

- Access to interconnection capacity in terms of reservation and charges;
- Contracted reserves in terms of cross-border procurement of reserve capacity and amount of reserve capacity;
- Approaches to implementing cross-border balancing;
- Design of balancing markets in terms of gate closure and technical characteristics of balancing services, balancing services settlement and imbalance settlement;
- Transparency and monitoring.

These draft revised GGP-EBMI will be publicly consulted upon and the outcome of this consultation will be processed accordingly, as was done with the previous GGP.

Eventually, the GGP-EBMI will be endorsed by the European Energy Regulators and submitted to the future Regulators' Agency as the basis for the future Framework Guidelines according to the provisions in the proposed 3rd Energy Package².

² http://ec.europa.eu/energy/gas_electricity/third_legislative_package_en.htm

Part I: General Considerations

1 Introduction

This document comprises two parts, the first contains general considerations and the second part (from section 5 onwards) is a revision of ERGEG's Guidelines of Good Practice for Electricity Balancing Markets Integration (GGP-EBMI), which were published in 2006 following a public consultation.

These draft revised GGP-EBMI present ERGEG's view on aspects of electricity balancing markets integration, in the sense of Articles 11.7, 14.6 and 26.2(b) of the Electricity Directive³, and in line with Articles 1.8, 1.9 and 5.7 of the Congestion Management Guidelines⁴ adopted in accordance with Article 8 of the Regulation on cross-border exchanges in electricity⁵. Moreover, these views have been enhanced in terms of the relationships of manually-activated reserves to the intraday market and automatically-activated reserves.

These draft GGP do not explicitly deal with interconnections where the interconnector operator is a separate entity to the TSO, but that do not fulfill criteria under Article 7 of Regulation (EC) n°1228/2003 and thus may not be exempted from provisions of the Regulation (EC) n°1228/2003 and the annexed Congestion Management Guidelines.

Whether those interconnections may be exempted or not from these GGP, especially Guideline 5.2 on charge on access to interconnection capacity, remains unanswered. It is expected that responses received during the public consultation will provide further inputs to tackle this issue.

³ Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in electricity and repealing Directive 96/92/EC

⁴ The Congestion Management Guidelines, published in the Official Journal on 11 November 2006 (OJ L 312, 11.11.2006, p. 59-65), set the congestion management framework in the EU. They entered into force on 1 January 2007. Article 1.9 of the Congestion Management Guidelines (developed in accordance with Article 8 of the above Regulation and to the Commission Decision 2006/770/EC of 9 November 2006 amending the Annex to Regulation) requires mechanisms for intraday congestion management (i.e. intraday market capabilities) of interconnector capacity to be established not later than 1st January 2008 in a co-ordinated way and under secure operational conditions in order to maximise opportunities for trade and to provide cross-border balancing.

⁵ Regulation (EC) 1228/2003 of the European Parliament and of the Council, of 26 June 2003 on conditions for access to the network for cross-border exchanges in electricity.

1.1 Background

ERGEG is committed to the development of an effective, competitive single market for electricity across the whole of the EU, while at the same time taking into account security of supply and system reliability. Moreover, ERGEG has devoted much of its attention over the last years to considering how such a market might be achieved and what issues should be prioritised in reaching it.

ERGEG has presented its view of the evolution of electricity balancing mechanisms and of the balancing markets integration to the XII, XIII and XIV Florence Forum in September 2005, 2006 and 2007, respectively.

In January 2007, the European Commission published its energy sector inquiry⁶. This inquiry stressed the fact that balancing energy and reserve markets are highly concentrated, concluding among other things that: *“Concentration in balancing markets could be reduced if the geographical size of control areas was enlarged. Harmonisation of balancing markets regime would be an important step to increase the size of control areas, improve market integration and simplify trade”*.

A lack of integration of balancing markets is therefore a key impediment to the development of a single European electricity market. Such integration is a process of evolution of connecting balancing markets in order to achieve their functioning as a common balancing market.

Bearing in mind the identification of balancing market integration as a key issue for an internal electricity market, ERGEG further developed its view in the form of Guidelines of Good Practice on the need to, and method for, integrating balancing markets. The GGP are aimed in particular at stakeholders, grid operators and market players and are intended to support the European Commission and national competent authorities in developing and implementing appropriate policies towards the integration of balancing markets in the EU, within the broader scope of the evolution of the Internal Electricity Market.

⁶ Inquiry pursuant to article 17 of regulation (EC)n°1/2003 into the European gas and electricity sectors, COM(2006) 851 final

1.2 Open and transparent public consultation

ERGEG has developed the draft revised GGP-EBMI following extensive and transparent consultation with market players:

- *Following ERGEG's presentation to the XII Florence Forum in September 2005 of its Position on Balancing Mechanisms Compatibility, ERGEG developed draft Guidelines of Good Practice for Electricity Balancing Markets Integration (GGP-EBMI).*
- *From 8 June to 3 August 2006, there was an ERGEG public consultation procedure on the draft GGP-EBMI.*
- *During the public consultation, 15 responses were received. All responses were published on the ERGEG website⁷.*
- *ERGEG's evaluation of responses to this public consultation is published as a separate document (E05-ESO-06-08a) on the ERGEG website. A number of respondents mentioned that, since there was a strong inter-relationship between balancing markets, intraday markets and automatically-activated reserves markets, both of the latter markets should also be addressed by the GGP-EBMI. ERGEG agreed in principle with this view and initiated a consultant's study financed by the European Commission on interaction and dependencies of balancing markets, intraday trade and automatically-activated reserves. The results of this study have been taken into account by ERGEG in these revised GGP-EBMI.*

2 Functioning of Balancing Markets

The secure real time operation of a power system requires that TSOs ensure a continuous balance between supply and demand. In competitive electricity markets, a balancing market therefore generally exists such that TSOs can undertake balancing actions – that is, they identify the need for, and procure, adjustments in generation or demand – in order to maintain balance in their control area. Imbalance settlement can be used to encourage market players to maximise their efforts to be in balance. Balancing markets therefore form an integral part of the overall

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http://www.ergreg.org/portal/page/portal/ERGEG_HOME/ERGEG_PC/ARCHIVE1/GGP%20for%20Electricity%20Balancing.

wholesale electricity trading arrangements and time schedules.

The overall trading timetable extends from months or years before a trade is to be executed, to 'gate closure', further to the moment the trade is to take place ('real time'), and then beyond this in terms of settlement of the trade. By gate closure (day ahead, or one hour before real time, or possibly even shorter time), generation and load parties must notify the TSO of their expected physical positions at real time. Additionally, within the balancing market they submit bids⁸ and offers of the extent to which they are willing to be paid (offer) or pay (bid) to deviate from the notified positions. In some balancing markets, generators are legally bound to propose to the TSO all of their available capacity. Depending on control areas, bids and offers can be activated to tackle control area imbalances only or to tackle both control area imbalances and transmission constraints.

Following the gate closure of balancing markets, the TSO will make calls on the bids and offers of generation and load in order to balance the system at the least cost.

The costs of dealing with imbalances can be dealt with by distributing them in a cost-reflective way across all users, by allocating the costs to the market players that are in imbalance or by a combination of both. In any case, parties in imbalance will be subject to some form of 'imbalance charge' through the imbalance settlement scheme.

A general overview of the interaction of balancing and other markets, in relation to the interconnection capacity allocation in time, is shown in Figure 1.

Continuous balance between supply and demand requires different types of balancing resources whose main characteristics are:

- whether they are activated automatically or manually (which in practice has an impact on activation time, i.e. how quickly balancing energy is procured); and
- whether their availability is ensured by contract or not.

Markets for automatically-activated reserves are generally "energy and capacity" markets⁹ whereas manually-activated reserves markets can be either "energy only" markets or "energy and

⁸ The times of notification and bidding can differ.

⁹ Both energy and capacity are remunerated in an "energy and capacity" market.

capacity” markets¹⁰.

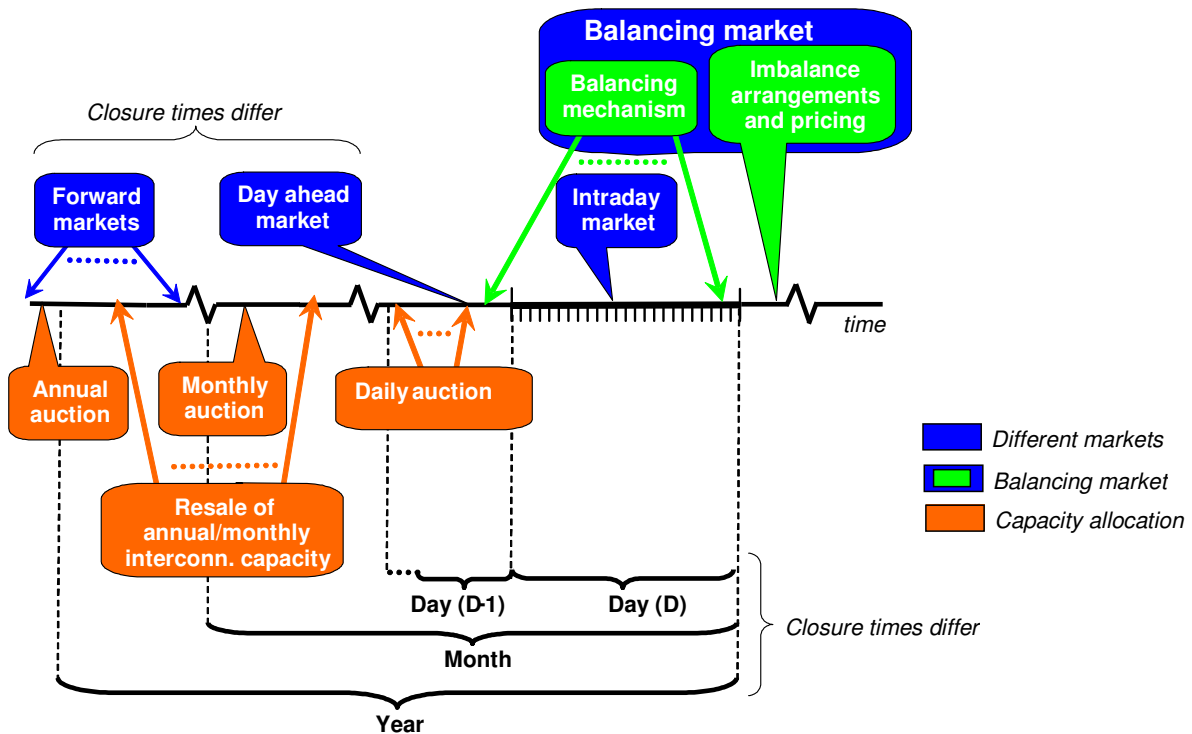


Figure 1 – Interaction between balancing and other markets and relation to capacity allocation

The total balancing energy injected or withdrawn to balance the system is the sum of automatically-activated energy and manually-activated energy. Automatically-activated reserves act first. In a longer time span, these automatically-activated reserves can be substituted by manually-activated reserves whose activation prices are lower (as illustrated in Figure 2).

According to ERGEG’s definition, balancing market refers to the procurement and activation by TSOs of manually-activated reserves, whether those reserves are contracted or not. Automatically-activated reserves are not within the scope of balancing markets (neither contracting nor activating). However, their interactions with balancing markets must be taken into account.

¹⁰ Only energy is remunerated in an “energy-only” market.

3 Benefits of Efficient Electricity Balancing Markets and their integration

Balancing market integration has been highlighted as a necessary step to reach the ERGEG and EU aim of the development of an effective, competitive single market for electricity across the whole of the EU. Balancing market integration will allow TSOs to more efficiently procure balancing services and avoid inefficient concomitant up- and down regulation in adjacent areas.

This integration will promote efficient and competitive price formation and market liquidity. A high degree of transparency concerning market rules, price formation, and market participation will also facilitate the functioning of the market by allowing market parties to make informed decisions and minimise risk concerning investment and operation. Altogether, the benefits of such features will encourage market entry and competitive pressures to develop, and overall system costs to be minimised.

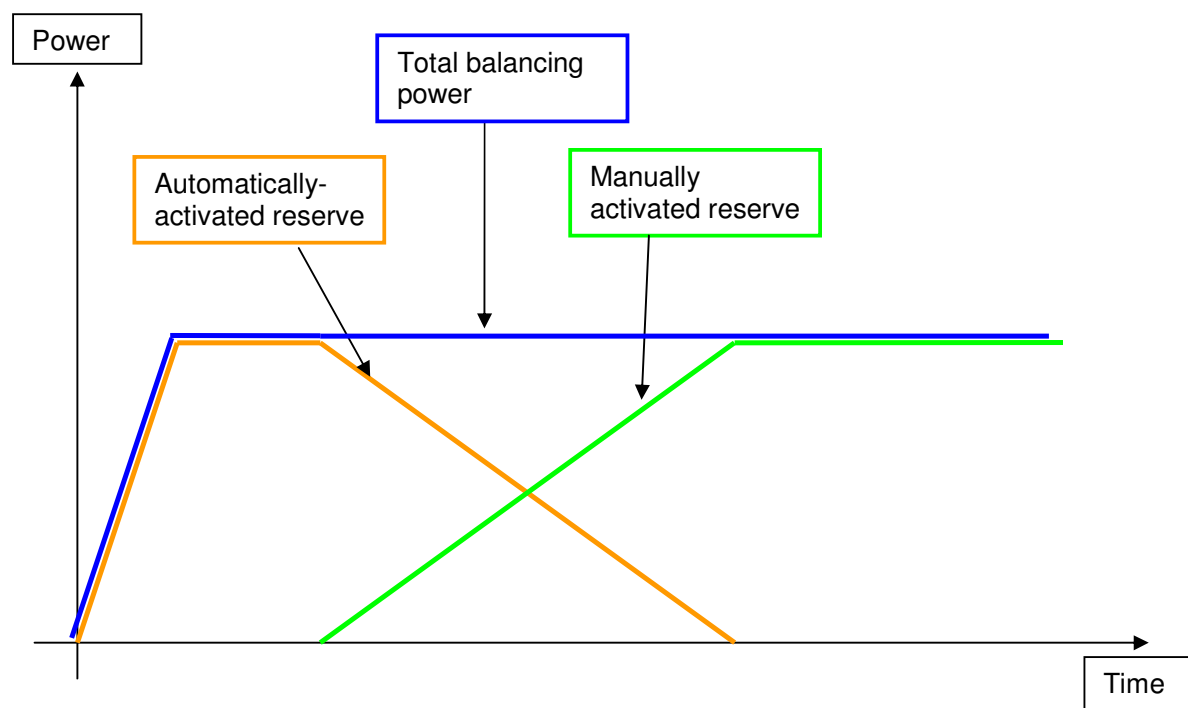


Figure 2 – Interaction between automatically-activated reserves and manually-activated reserves

Given that there are gains to be reaped from trade, benefits can be enhanced if adjacent connected balancing markets are made compatible so that TSOs and market parties have access to both markets. ERGEG suggests that balancing market integration may provide the following further benefits:

- Provide TSOs with access both to a more diversified generation technology mix and further opportunities to offset deficit and surplus net generation positions, thereby helping them to lowering the total amount of necessary reserves, minimise balancing costs and increase efficiency (assuming that transmission capacity is available);
- Increase competitive pressures so that possibilities for the exercise of market power are reduced;
- Contribute to the sharing of reserves and the reduction of the risk of supply interruption as each TSO will be able to call upon balancing power from neighbouring TSOs in a market-based way.

Integration will also be an opportunity to further consider reinforcing the extent to which balancing markets provide a sufficient degree of transparency to market players and regulators.

4 Key principles for Efficient Electricity Balancing Markets and their integration

4.1 Governance and institutional arrangements

It is important to bear in mind that balancing market integration will raise new issues.

Of particular importance will be the issue of the legislative and regulatory basis for the integrated market. In a national market, the legislative basis, regulatory oversight, and set of balancing market rules all coincide under one jurisdictional territory. Where market parties have issues to resolve, they may be pursued via the governance process which can result in the adaptation of existing laws for the balancing market in that territory, or via the regulator there. Equally, the regulator will have the appropriate powers within that territory to monitor and enforce rules.

Given that the economic, legal and regulatory environment is dynamic and affects all market parties, it is desirable that governance processes exist so that the rules can be modified in light of changing circumstances. Governance processes should enable market players to propose modifications and for such proposals to be assessed and accepted or rejected using transparent criteria.

Directive 2003/54/EC assigns the regulator powers over the functioning of the balancing market within a Member State. According to Article 23, Paragraph 2, *“The regulatory authorities shall be responsible for fixing or approving, prior to their entry into force, at least the methodologies used to calculate or establish the terms and conditions for the provision of balancing services.”*

According to the Annex to Regulation (EC) n°1228/2003, Article 1.9, *“mechanisms for the intraday congestion management of interconnector capacity shall be established in a coordinated way and under secure operational conditions, in order to maximise opportunities for trade and to provide for cross-border balancing”*. To integrate balancing markets, it is not only necessary to establish mechanisms for the intraday congestion management, but also mechanisms that allow cross-border exchanges of balancing services.

As a consequence, in addition to adapting multilateral rules on congestion management to provide for cross-border balancing, national *“methodologies used to calculate or establish the terms and conditions for the provision of balancing services”* shall also be adapted. In this perspective, Regulation n°1228/2003 should be completed by guidelines on the conditions for the provision of cross-border balancing services, which are not limited to cross-border congestion management.

With regard to cross-border issues, there is a need for regulators to coordinate. It must be clear for example which regulator has competence to oversee or enforce any breach of rules, to whom an aggrieved market party should turn when a difficulty arises, or which regulator or regulators may approve or veto modifications to balancing market rules. This cross-border ‘regulatory gap’, as well as the terms and conditions for the provision of cross-border balancing services themselves, will need to be addressed in any future balancing market rules.

4.2 Operational security

The security roles and responsibilities need to be defined explicitly and clearly.

In order to keep full control over system operational security, TSOs have to comply with short-term operational reserve margin requirements. Thus, TSOs need to ensure availability of adequate reserves and ability to provide quick response to system imbalances. To do so, it is legitimate that TSOs are able to oblige reserve activation or make contracts with reserve providers with remuneration.

4.3 Market based mechanisms

The purpose of balancing markets is to serve short-term operational security of supply (security of system operation) in a market-oriented way. Hence, balancing markets shall operate in an economically-efficient manner. Procurement of balancing services by TSOs shall be made using market-based methods promoting the best economical efficiency for bids' selection.

Procurement of balancing services means here either the procurement of the optional right to adjust generation or load whose availability is guaranteed by contract (reserve capacity) or the procurement of the generation / load adjustment (balancing energy).

For reasons of overall efficiency, the selection of bids shall be based on the merit order of the balancing offers or, in case of congestion, also on network efficiency. Any deviation from the merit order shall only be accepted when it is necessary to maintain system security and deviations shall be transparently communicated to market players.

4.4 Effective competition

Competition issues are crucial to the proper functioning of the Internal Electricity Market. The energy sector inquiry published by the European Commission in January 2007 stresses the fact that “*balancing markets are generally national in scope (or smaller)*” and “*are highly concentrated, which gives generators scope for exercising market power*”.

Entry barriers for new entrants in balancing markets shall be removed as much as possible. Balancing market rules, particularly on bids' placing and selection, shall not introduce any discrimination between market players, neither within a national control area nor from distinct control areas. Thus it will enhance competition, prevent any exercise of market power and facilitate reduction of balancing costs.

A well-functioning balancing market shall be robust to any exercise of market power. This means that the market design needs to take this requirement into account. The market design also needs to mitigate concentration tendencies in balancing markets. Balancing markets may be at risk of the exercise of market power by some generators even where the overall level of market concentration is rather low. Indeed, even small balancing services providers can, due to their specific geographical position and/or technical characteristics, have a large market impact in situations when the supply/demand margin is small, and other resources of the demand and generation side are unable to respond to price signals within very short timescales.

4.5 Impact on cross-border trade

The maximum capacity of the interconnections and/or the transmission networks affecting cross-border flows shall be made available to market players, complying with safety standards of secure network operation. Due to interconnection capacity scarcity, usage of interconnection capacity shall be optimised. Cross-border balancing shall not lead to undue withdrawal of interconnection capacity from market players and neither shall it limit opportunities for cross-border trade.

4.6 Incentives for balance responsible parties to be balanced

It is generally compulsory for all market players either to be a direct balance responsible party or to contract through some form of aggregator who is a direct balance responsible party. Market players are then either directly or indirectly bound in a mandatory fashion by the prevailing balancing market rules.

Balancing markets, in particular imbalance settlement pricing, shall be designed in such a way that balance responsible parties have the correct incentives to manage their imbalance exposure. Imbalance settlement pricing must be cost reflective in terms of TSOs' costs to procure the 'missing' energy due to users' imbalance position.

This scheme must be completed by a well-developed, competitive market, with well-functioning day ahead and intraday trade opportunities and an efficient market design, so that market players are themselves able to trade into balance on the market.

It shall be easy for balance responsible entities to assess economic risk. Therefore imbalance settlement shall be simple, transparent, easily understandable and justified. Imbalance settlement needs to enhance efficient operation of the balancing market and wholesale market.

4.7 Transparency

All market players, as balancing services providers, balance responsible parties and TSOs shall have the easiest access to necessary information in order to, respectively, analyse the best market opportunities, have the best possible imbalance management and have the best opportunities to maintain their generation/load equilibrium.

Balancing services providers shall operate transparently in the market to enable other market players and regulators to expose and therefore discourage any anti-competitive behaviour.

Finally, balancing markets shall have clear and transparent processes governing modifications of the balancing market rules.

4.8 Market monitoring

Adequate powers and responsibilities for respective supervisory and regulatory activities in the integrated balancing market shall be assigned to competent authorities (dealing with market power). If duties are shared between regulators and competition authorities, it must be ensured that there is no grey area in market monitoring.

Competent authorities must have full access to all relevant information for the purpose of monitoring activities and implementing any ex-post investigations and necessary measures to mitigate market power and / or prevent potential abuse of it. This information access process shall also give complete confidence to all market players regarding its efficiency and non-discriminatory characteristics.

Competent authorities shall exchange necessary information and data in order to have a satisfactory oversight of the market as a whole, to consider and remedy any breaches of balancing market rules in the home territory that have effects in the wider integrated balancing area.

4.9 Pragmatic approach

Given all the advantages described above, ERGEG's ultimate aim is to integrate European electricity balancing markets. As there are several obstacles, the integration of balancing markets will be a long-term goal. To enable a process of evolution of balancing markets integration, these draft revised GGP also refer to a shorter term goal of making balancing markets compatible with and pragmatically implementing appropriate cross-border balancing mechanisms (e.g. in the electricity Regional Initiatives process):

- **Compatibility of balancing mechanisms**, in the context of these GGP, refers to a process of adaptation of the most important features of connected balancing mechanisms (i.e. balancing mechanisms established in adjacent control areas). The aim is to allow cross-border balancing exchange. Compatibility means that discrepancies in product types, timescale definitions, etc., will not impede exchange possibilities among different markets.
- **Integration of balancing markets** is an evolutionary process of connecting separate

balancing markets in order to achieve their functioning as a common balancing market. The process consists of harmonisation and standardisation of the involved markets features.

Part II: ERGEG's Draft Revision of the Guidelines of Good Practice for Electricity Balancing Markets Integration

5 Access to interconnection capacity

5.1 Reservation of interconnection capacity

Guidelines:

No interconnection capacity shall be reserved for cross-border balancing except to cope with unexpected flows resulting from primary control or for interconnections with no congestions.

Explanatory remarks:

Interconnection capacity means here transmission capacity of interconnections between control areas.

Reservation means here that TSOs withdraw a part of available interconnection capacity from allocation mechanisms in order to ensure its availability for cross-border balancing.

Cross-border balancing means here to trade balancing energy and/or reserve capacity with other control areas.

Primary control is a tool to stabilise the system frequency within a synchronous area at a stationary value after a disturbance or incident, but without restoring the reference values of system frequency and power exchanges across a border. It relies on joint action of generating units and loads evenly spread across the synchronous area.

Reservation of interconnection capacity could enhance competition in balancing markets. However, ERGEG considers it is not pertinent except, on the one hand, to cope with unexpected flows resulting from primary control and sharing of primary control reserves across synchronous areas or, on the other hand, for interconnections with no congestions¹¹.

¹¹ Regulation (EC) n°1228/2003: 'congestion' means a situation in which an interconnection linking national transmission networks cannot accommodate all physical flows resulting from international trade requested by market participants, because of a lack of capacity of the interconnectors and/or the national transmission systems concerned

If interconnection capacity were reserved for cross-border balancing, it would limit competition on wholesale markets and might result in increased price differences between wholesale markets. Furthermore, it would prevent the full utilisation of scarce interconnection capacity as balancing energy needs are highly unpredictable and unused capacity would be lost given that balancing is the closest trade to real time. ERGEG considers that the reservation of interconnection capacity for balancing purposes is not compatible with the principles laid down in the Regulation (EC) 1228/2003, in particular with the provisions of Articles 6.3¹² and 4¹³.

5.2 Charge on access to interconnection capacity

Guidelines:

When setting up cross-border exchanges of balancing energy after gate closure of day ahead and intraday markets, any charge on access to interconnection capacity for balancing energy shall be prohibited. Only new interconnections exempted under Article 7 of Regulation (EC) 1228/2003 may, upon request, be exempted from this provision.

Explanatory remarks:

When setting up cross-border exchanges of balancing energy after gate closure of day ahead and intraday markets, access to interconnection capacity shall be free of charge in order to maximise opportunities for cross-border balancing. This is justified also because no scarce capacities which are subject to allocation shall be reserved for balancing market purposes, as otherwise these capacities could not be used for electricity trading anymore.

This is justified because it will maximise opportunities for cross-border balancing. Charging for access to interconnection capacity would uplift the price of exchanged balancing bids and therefore impede development of competition and reduction of imbalance costs.

Furthermore, no scarce capacities which are subject to allocation shall be reserved for balancing

¹² "...the maximum capacity of the interconnections and/or the transmission networks affecting cross-border flows shall be made available to market participants, complying with safety standards of secure network operation."

¹³ "...any allocated capacity that will not be used shall be reattributed to the market, in an open, transparent and non-discriminatory manner."

market purposes. Given that capacity remains unused after interconnection gate closure and balancing is the last trade before and during real time, interconnection capacity would be lost if no cross-border trade of balancing energy occurs.

Only new interconnectors exempted under Article 7 of the Regulation (EC) 1228/2003 may, upon request, be allowed to charge for access to interconnection capacity for balancing energy.

6 Contracted reserves

6.1 Cross-border procurement of reserve capacity

Guidelines:

Cross-border procurement of reserve capacity shall be possible only for primary control reserves or for interconnections with no congestions.

Redistribution of primary control reserves through cross-border procurement shall not exceed a relatively small percentage of control area requirements and shall be subject to affected TSOs' approval.

Explanatory remarks:

System security depends on the availability of sufficient capacity reserves with adequate ramp-ups.

As procurement of reserve capacity¹⁴ occurs at the latest at day ahead, availability of cross-border capacity reserves is subject to grid availability that cannot be ensured without reservation of interconnection capacity. Control areas which choose to reserve capacity abroad, should be sure to have local means available in case of unavailability of interconnection capacity. In practice it would lead TSOs to contract reserve capacity twice (within the control area and across the border) and unduly withdraw resources from the wholesale market.

Thus cross-border procurement of reserve capacity shall be possible only for interconnections with no congestions.

¹⁴ Activation of any kind of reserves is either automatic or manual.

Primary control reserves associated with primary control are currently spread among control areas in respect of predefined criteria. It can be expected that cross-border procurement of primary reserves should have limited effects on the power flows in comparison with other issues affecting power flows in synchronous areas and transmission reliability margins kept by TSOs (loop flows, variability of generation dispatch due to cross-border trade and intermittent generation). However, it must be considered that:

- in cases of the tripping of a generator participating in primary control reserves, the amount of immediate loss of primary control reserves would increase if a limited number of generation units participate in primary control;
- ramping capability would be altered if a limited number of generation units participate in primary control; and
- geographical share of primary reserves must be such that, in case of a split of synchronous interconnection, all islands must be able to maintain a certain degree of frequency control ability.

Thus, redistribution of primary control reserves through cross-border procurement shall not exceed a relatively small percentage of control area requirements. Since the redistribution of primary control reserve would affect all TSOs within a synchronous area, a general procedure for the approval of such changes shall be implemented.

6.2 Cross-border procurement of balancing energy

Guidelines:

TSOs shall implement mechanisms allowing cross-border trade of manually-activated balancing energy as long as system security is not endangered. Those mechanisms shall not discriminate between balancing energy bids and offers from local and neighbouring markets. Adequate procedures for the agreement of exchange schedules shall be set up to allow cross-border exchange of balancing energy.

Explanatory remarks:

In the absence of interconnection capacity neither reserve capacity nor balancing energy related to automatically-activated reserves can be provided from abroad. Indeed:

- The ability to activate cross-border automatically-activated reserves can not be ensured at all times in the absence of interconnection capacity reservation;
- Due to the operational characteristics of automatically-activated reserves, their activation can not be envisaged on a case by case basis depending on whether some interconnection capacity is available or not.

As a consequence, in the absence of interconnection capacity reservation, balancing energy that can be provided through interconnections consists only of manually-activated balancing services. Cross-border procurement of manually-activated balancing energy shall be subject to availability of transmission capacity. Furthermore, ERGEG considers that TSOs shall not compete with market players to use interconnection capacity prior to intraday market gate closure. Thus, when the TSO-TSO approach¹⁵ is implemented for cross-border exchange of manually-activated balancing services, interconnection capacity shall be made available from the spare capacities not nominated after interconnection gate closure¹⁶, in the day ahead or the intraday market, from previously not allocated capacities, or from additional capacities resulting from actual network security calculations occurring during daily operation.

TSOs shall implement mechanisms allowing cross-border trade of manually-activated balancing energy as soon as transmission capacity is available and system security is not endangered. Those mechanisms shall not discriminate between balancing energy bids and offers from local and neighbouring markets.

Beyond primary control, each TSO is responsible for maintaining generation-load equilibrium within its control area. TSOs must coordinate to change exchange schedules prior to cross-border exchange of balancing energy. Adequate procedures for the agreement of exchange schedules shall be set up to allow cross-border exchange of balancing energy.

¹⁵ See section 8 – approaches to implementing cross-border balancing.

¹⁶ The interconnection gate closure refers to the time up to which market players can notify the amount of interconnection capacity they will use.

6.3 Amount of reserve capacity

Guidelines:

The amount of reserve capacity shall be set according to defined security criteria and approved by regulators.

Explanatory remarks:

Contracted reserves¹⁷ create distortion in the market between generators that receive capacity remuneration and generators that do not (or generators that receive different capacity remunerations).

Furthermore, *“while the existence and availability of these reserve capacities are crucial for the functioning of the respective systems, keeping unreasonably large – i.e. going beyond security of supply needs – reserve capacities reduces the size of commercially available generation park and unnecessarily increases balancing costs”*¹⁸.

TSOs or another relevant party shall establish a clear, transparent and non-discriminatory common methodology within the integrated balancing markets to determine the amounts of reserve capacity (both automatically and manually-activated reserves) that are necessary to comply with security criteria. TSOs' common methodology shall be approved by regulators as well as the amount of reserve capacity. The non-compliance with the common methodology shall be clearly justified and approved by regulators in accordance with pre-defined security criteria(s).

7 Models for cross-border balancing

Guidelines:

Towards integrating balancing markets, the TSO-TSO approach shall be seen as the preferred solution whereas the TSO-Provider approach may be implemented in case of incompatible gate closure and technical characteristics of balancing services.

¹⁷ It relates to security insurance reserves (delivering very small amount of real time energy) or to reserves that deliver significant amount of real time energy

¹⁸ COM(2006) 851 final: Energy sector inquiry

Explanatory remarks:

In the process of the balancing markets' integration, the following implementation options, assuming varying degrees of balancing market harmonisation and providing gradual degree of integration, are described below:

- A “direct participation or TSO-BSP¹⁹ system” where two or more TSOs allow the balancing services provider to decide into which balancing markets they want to bid (local or neighbouring market) and to enter into a contract directly with the TSO of the neighbouring control area. The advantage of this is that the offers submitted by the operators do not have to be filtered by the TSO they are attached to. However, the notification of changes in generation and/or consumption schedules (and possibly interconnection capacity acquisition) will have to be ensured by the balancing services providers. This makes cross-border balancing supplies difficult in practice: the amount of time needed to nominate production programmes and exchange programmes on the borders is incompatible with the needs of the balancing process, which has to be rapid and flexible. In practice, in this model, trades can only take place in one direction, from the country where there are fewest constraints on production scheduling to the country where the constraints are greatest. Secondly, balancing services providers may have to comply with different balancing markets' rules and IT systems to trade balancing energy across borders. Thirdly, the TSO-BSP system is sub-optimal because of a lack of system overview of each individual balancing services provider that would have to identify by itself the most optimal allocation of its services. As a consequence, this option should be implemented only when other options can not be implemented²⁰.
- A “TSO to TSO” model in which the balancing services provider is related to its “own” TSO. TSOs themselves therefore exchange balancing energy in an efficient manner. Each balancing services provider can only submit bids to the TSO it is directly connected to. The TSOs are responsible for the management of the interconnection capacity, as well as for the changes in generation and/or consumption schedules. Unlike the TSO-BSP solution, balancing services providers can not choose themselves into which balancing

¹⁹ Balancing services provider

²⁰ This model has been introduced to allow participation of BSP from some neighbouring countries (mainly Switzerland and Germany) in the French balancing market.

market they bid. However, this model allows reciprocal trades to be carried out without the need for total harmonisation of the existing national balancing mechanisms. Depending on the degree of harmonisation and centralisation, we can distinguish:

- TSO-TSO model without common merit order. TSOs exchange part of the resources available in their control area (e.g. ensuring enough reserves remain available in their control area). Absence of common merit order requires less harmonisation and centralisation. Nevertheless, TSOs need to be confident in the balancing resources available in their control area before exchanging bids and offers with other TSOs, and TSO need to receive balancing bids from neighbouring control areas in due time for those bids to compete with local ones²¹.
- TSO-TSO model with common merit order so TSOs benefit from activation of the cheapest available resources. Furthermore, imbalances of control areas are cancelled out as far as possible and remaining overall net imbalance is compensated for. TSOs do not have an exclusive right to use their local balancing bids and offers. The TSOs will be allowed to deviate from the merit order curve if congestion impedes cross-border balancing exchange, or to ensure that the minimum reserve capacity required for security reasons in each area is reached. In both cases, it must be precisely justified in accordance with common pre-defined criteria²².
- An integrated balancing market. This approach involves having several existing control areas merged into one global control area.

Even if the last approach achieves more market integration than the other approaches, the TSO-TSO model needs a lower degree of harmonisation and ensures consequently a faster implementation of cross-border balancing trade. Thus, it shall be seen as the preferred solution towards integrating balancing markets, should the creation of a fully integrated balancing market require more time.

As TSOs act as intermediaries in the TSO-TSO model, it shall be ensured that balancing bids and

²¹ In the France-UK-Ireland (FUI) region, this model is under development for IFA interconnection between France and United Kingdom.

²² This model has been introduced in Nordic countries. Information and reports available at Nordel website: www.nordel.org and NordREG website: www.nordicenergyregulators.org

offers exchanged by TSOs reflect balancing bids and offers submitted by balancing services providers within each control area in order to avoid distortions and to promote competition.

8 Design of balancing markets

Guidelines:

Full harmonisation of balancing markets is not a prerequisite for cross-border balancing. Thus, cross-border balancing implementation should precede definition and implementation of a standard market design.

In a step-wise process, harmonisation of gate closures and technical characteristics of balancing services is not a prerequisite. But increased compatibility would be highly valuable and allow enhanced cross-border balancing exchanges.

The coexistence of different balancing services settlement schemes may be a barrier to cross-border balancing exchanges. Whereas there is a lack of consensus on a preferred scheme, it is clear that in the integrated balancing market settlement must be resolved in a common way.

Explanatory remarks:

Gate closure and technical characteristics of balancing services

Some flexibility may be given to a TSO to manage its control area imbalances as only a intraday market with perfect information and no transaction costs would enable balance responsible parties to be perfectly balanced. However, respective responsibilities of TSOs and balance responsible parties (e.g. minimum period required for market parties to notify changes in programmes, or balancing bids and offers) have impacts on how a TSO manages system imbalances and on the characteristics of the balancing products.

Full harmonisation is not a prerequisite (at least under TSO-BSP and TSO-TSO without common merit order) but differences complicate and hinder cross-border balancing. Gate closures and characteristics of balancing services (e.g. minimum time for which the called product must be “on-line”, notice to deliver, ramp-up and down, and minimum offer size) have to be compatible to enable participation of loads and generators from other control areas and to increase exchangeability.

Furthermore, different gate closures lead to asymmetric market opportunities and different market

exposures at both sides of the border.

Balancing services settlement

Two options exist with regard to balancing services settlement:

- marginal pricing which means that all balancing services providers will receive the same remuneration (equivalent to the price of the highest activated balancing energy bid or offer); and
- pay-as-bid which means that all balancing services providers will receive a remuneration equivalent to the price they offered or bid.

At this stage, some lack of clarity remains on the importance of harmonising balancing services settlement schemes. However, coexistence of different balancing services settlement schemes may hinder cross-border exchange of balancing services.

Although pay-as-bid may be the most used balancing services settlement scheme within the national balancing markets, marginal pricing, according to economic theory, leads to a more efficient allocation of resources. However, even if there is no consensus on this issue, marginal pricing is considered to bring more volatile prices and potentially be more sensitive to market power than pay-as-bid.

Imbalance settlement

Imbalance settlement rules refer to the imbalance settlement period, definition of imbalance, imbalance calculation and imbalance pricing.

Imbalances can be calculated in one step as the difference between injections and off-takes within the perimeter of a balance responsible party or in two steps when generation and loads are settled separately as the difference between measured and nominated generation (load).

Imbalance pricing can rely on single or dual prices, where prices of positive and negative imbalances differ.

Harmonisation of imbalance settlement rules is not a prerequisite for enhancing cross-border balancing. E.g. the Nordic area has had a common balancing market for years where Norway has used a single imbalance pricing and a one-step imbalance calculation method while Denmark and Sweden have used a dual imbalance pricing and a two-step imbalance calculation method, and Finland has used a dual imbalance pricing and a one-step imbalance calculation. However, different imbalance settlement principles may have negative impacts on market players'

behaviour (wholesale trade).

Thus, even if it is not considered technically a prerequisite for cross-border balancing, harmonisation of imbalance settlement rules may be beneficial, e.g. Nordic area will apply harmonised imbalance settlement in 2009.

The imbalance settlement should be harmonised as far as possible in order to avoid market distortion between national markets and prevent undue behaviour from markets players such as free riding.

Balance responsible parties must have the right incentives to manage their own balance already on a day-ahead timescale, as the essential part of security studies relies on day ahead scheduling programmes. Imbalance settlement rules shall ensure system security and enhance economic efficiency.

ERGEG considers that even if procurement of balancing services and services for internal congestion management are organised as one market to avoid market segmentation and to tackle market power issues, the allocation of costs may be different depending on whether the selected bid has been used for balancing or congestion purposes.

9 Transparency and monitoring

9.1 Transparency

Guidelines:

All information required for the effective functioning of the integrated balancing market shall be structured, aggregated appropriately and made available to the public in a format which takes into account the needs of all market players.

Explanatory remarks:

ERGEG considers that the establishment of a clear pan-European framework for information transparency is of particular importance – within that context, reaching a high level of transparency concerning balancing is of great importance.

9.2 Public data

Guidelines:

The data published in each control area shall include balancing market rules (including mechanisms to allow cross-border balancing) and lists of data defined below. Information shall be published in the local language and in English.

All of the information published must be kept available at least for two years after the publication of the final update.

Explanatory remarks:

Requirements on the way in which information has to be published shall be set down. In the longer-term, a common platform (e.g. a common website), where all the information relevant for the integrated balancing market is available, will be needed.

The availability of balancing information both across and within control areas at all levels of the electric power supply value chain is of vital importance to ensure the efficiency of national markets and of the overall European market. TSOs (or other parties responsible for clearing and settlement) are consequently requested to publish the data presented in the following table²³.

Information	Publication	Timeframe	Key benefits of information	Provider	Source
Volumes of bids and offers used per usage (network constraints or production/consumption imbalance)	Just after real time	Per balancing mechanism time unit	<ul style="list-style-type: none"> To help market players to formulate their balancing offers To increase the level of transparency in the management of TSOs 	TSO or other party responsible for clearing & settlement	TSO or other party responsible for clearing & settlement
Average and marginal prices of bids/offers used	Just after real time	Per balancing mechanism time unit	<ul style="list-style-type: none"> To help market players to formulate their balancing offers To increase the level of transparency in the management of TSOs 	TSO or other party responsible for clearing & settlement	TSO or other party responsible for clearing & settlement

²³ The majority of items in the table are an extract from the ERGEG Guidelines of Good Practice on Information Management and Transparency, August 2006. The last item, *in italics*, is additional.

(http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_ERGEG_PAPERS/Electricity/2006/ERGEG_GGPIMT_2006-08-02.pdf).

Information	Publication	Timeframe	Key benefits of information	Provider	Source
Imbalance prices	Just after real time	Per balancing mechanism time unit	<ul style="list-style-type: none"> To help balance responsible parties to optimise their imbalance's level 	TSO or other party responsible for clearing & settlement	TSO or other party responsible for clearing & settlement
Control area imbalance volumes and volume (actual use) of manually-activated reserve (balancing power) used and of automatic reserves used	Just after real time	Per balancing mechanism time unit	<ul style="list-style-type: none"> To help balance responsible parties to optimise their imbalance's level To enable monitoring 	TSO	TSO
Information on the financial balance of the whole market (expenses on the balancing market / payment of imbalances)	Month M+1 for month M, to be updated until final reconciliation	Per month	<ul style="list-style-type: none"> To increase the level of transparency in the management of TSOs 	TSO	TSO or other party responsible for clearing & settlement
Market information on the type (generation technology, load, import/export, notice to deliver) of balancing bids/offers used	Month M+1 for month M	Per day	<ul style="list-style-type: none"> To help market players to formulate their balancing offers To increase the level of transparency in the management of TSOs 	TSO	TSO
<i>Volume of balancing power contracted by TSO for each type of reserve</i>	<i>Depending on procurement procedure</i>	<i>Depending on procurement procedure</i>	<ul style="list-style-type: none"> <i>To increase the level of transparency in the management of TSOs</i> <i>To enable monitoring</i> 	<i>TSO</i>	<i>TSO</i>

Table 1: Published information for balancing

Furthermore, information related to balancing should be released on a non-discriminatory basis across and between control areas.

9.3 Monitoring by regulators

Guidelines:

Regulators shall include in their evaluation of congestion management methods, mentioned in Article 1.10 of the amended Congestion Management Guidelines annexed to Regulation (EC) 1228/2003, a chapter on cross-border balancing. This chapter shall evaluate implemented mechanisms and on-going projects. It shall also highlight impediments to implementation and enhancement of cross-border balancing.

Explanatory remarks:

TSOs (or other parties responsible for clearing and settlement) must allow regulators to monitor precisely and jointly the integrated balancing markets. To guarantee non-discriminatory access to national balancing markets, the TSOs shall be able to prove the existence of cross-border exchanges of balancing services when sufficient interconnection capacity is available and balancing services from neighbouring control areas are competitive. Information required for monitoring by the regulators includes:

- Detailed bids and offers made by balancing services providers (at least offered power, price, notice to deliver, minimum and maximum time of use), and
- Those bids that were selected by TSOs.

10 Glossary

Balancing energy refers to the real time energy procured and sold by the TSO that acts as the central counterpart for close to real time (and real time) trades. It refers to manually-activated balancing resources.

Balancing market is that part of the overall electricity market that provides for meeting the needs of balancing services. A balancing market consists generally of two important parts:

- (i) Balancing services procurement defines features of procurement processes, e.g. the way of bidding, constraints/requirements on the balancing market participants, way of payment to the bidders, constraints on the TSOs, who/how makes the merit order, etc.
- (ii) Imbalance settlement scheme allows charging costs borne by a TSO to be passed on to balance responsible entities.

Balancing services provider (BSP) is any entity providing balancing services to TSOs. It can be a producer or a consumer.

Balance responsible parties are representatives for market players' responsibility to balance their injections and withdrawals (including possible purchases and sales) of energy. Imbalance settlement gives a financial incentive for them to do so.

Balancing services refers to manually-activated reserves and energy bids and offers submitted to a TSO by a BSP.

Control area is a coherent part of an interconnected power system, operating at the common synchronous frequency, usually coincident with the territory of a company, a country or a geographical area, operated and supervised by a single TSO (control area manager) responsible for load-frequency control, with physical loads and controllable generation units.

Interconnection capacity means transmission capacity of interconnections between control areas.

Gate closure is the time up to which a market player can modify its physical and commercial position and make offers in the balancing market.

Notice to deliver is the minimum notice needed by a balancing market participant to deliver the power of its balancing offer.

Primary control: at the moment, following generation-load disequilibrium, the balance between generation and load is restored by automatic collective reaction of all control areas in the synchronous area. Joint action of generating units and loads evenly spread across the synchronous area restricts and halts frequency deviation.