

ENTSO-E Network Code on Electricity Balancing

Version 3.0

06 August 2014

Notice

This document called “Network Code on Electricity Balancing” (“Network Code”) has been formally submitted to ACER for ACER’s reasoned opinion pursuant to Article 6(7) of Regulation (EC) No 714/2009, on 23 December 2013. Based on ACER’s opinion, received on 21 March 2014, ENTSO-E has included a limited number of specific amendments to this Network Code and resubmitted it to ACER pursuant to Article 6(8) of Regulation (EC) No 714/2009, on 16 September 2014, with the aim of a recommendation to the EC that it be adopted within a reasonable time period.

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC,

Having regard to Regulation (EC) No 713/2009 of the European Parliament and of the Council of 13 July 2009 establishing an Agency for the Cooperation of Energy Regulators (ACER),

Having regard to Regulation (EC) No 714/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity and repealing Regulation (EC) No 1228/2003 and especially Article 6,

Having regard to the priority list issued by the European Commission on 19 July 2012,

Having regard to the Framework Guideline on Electricity Balancing issued by the Agency for the Coordination of Energy Regulators on 18 September 2012,

Having regard to the Commission Regulation (EU) No 543/2013 of 14 June 2013 on submission and publication of data in electricity markets and amending Annex I to Regulation (EC) No 714/2009 of the European Parliament and of the Council,

Whereas:

- (1) Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC and Regulation (EC) No 714/2009 of the European Parliament and of the Council of 13 July 2009 underline the need for an increased cooperation and coordination among Transmission System Operators, hereinafter TSOs, within a European Network of Transmission System Operators for Electricity, hereinafter ENTSO-E, to create Network Codes for providing and managing effective and transparent access to the transmission networks across borders, and to ensure coordinated and sufficiently forward-looking planning and sound technical evolution of the transmission system in the European Union, including the creation of interconnection capacities, with due regard to the environment.
- (2) TSOs are according to Article 2 and 12 of Directive 2009/72/EC responsible for operating, ensuring the maintenance of and, if necessary, developing the extra high-voltage and high-voltage interconnected system, its interconnections with other systems, and for ensuring the long-term ability of the system to meet reasonable demands for the transmission of electricity and with a view to its delivery of electricity to final customers or to distributors.
- (3) As stated in Directive 2009/72/EC a well-functioning internal market in electricity should provide producers with the appropriate incentives for investing in new power generation, including electricity from Renewable Energy Sources, paying special attention to the most isolated countries and regions in the European Union's energy market. A well-functioning market should also provide consumers with adequate measures to promote the more efficient use of energy for which a secure supply of energy is a precondition.
- (4) The security of energy supply is an essential element of public security and is therefore inherently connected to the efficient functioning of the internal market in electricity and the integration of the isolated electricity markets of Member States. Electricity can reach the citizens of the Union only through the network. Functioning electricity markets and, in particular, the

networks and other assets associated with electricity supply are essential for public security, for the competitiveness of the economy and for the well-being of the citizens of the Union.

- (5) ENTSO-E has drafted this Network Code on Electricity Balancing aiming to set out clear and objective requirements for TSOs, National Regulatory Authorities and Market Participants in order to contribute to non-discrimination, effective competition and the efficient functioning of the internal electricity market, and incentivising market participants to contribute solving the system scarcities for which they are responsible, and to ensure operational security in particular for the rules for trading related to technical and operational provision of system Balancing and the Balancing rules including network-related power reserve rules.
- (6) This Network Code has been drafted in accordance with the Article 8(7) of Regulation (EC) N°714/2009 according to which the Network Codes shall be developed for cross-border issues and market integration issues and shall be without prejudice to the right of Member States to establish national network codes which do not affect cross-border trade.
- (7) This Network Code has the objective of providing benefits for customers, participation of Demand Side Response, supporting the achievement of the EU's targets for penetration of renewable generation, as well as ensuring the optimal management and coordinated operation of the European electricity transmission network.
- (8) TSOs shall be responsible for organising European Balancing Markets and shall strive for their integration, keeping the system in balance in the most efficient manner. To do so, they shall work in close cooperation and shall coordinate their activities as much as necessary.
- (9) Establishing a cooperation within Coordinated Balancing Areas and developing a framework for the development of the terms and conditions related to Balancing all TSOs shall take into account the regional specificities of different electricity market designs and in particular shall take into account the parallel existence of Central Dispatch systems and Self Dispatch systems of European electricity markets.
- (10) The requirements of the Network Code on Load-Frequency Control and Reserves, especially regarding the functions and responsibilities established, or to be established as a consequence of the cooperation within a Coordinated Balancing Area, shall apply to all concerned TSOs. As maintaining the Operational Security of the transmission systems remains the main responsibility of TSOs, the provisions of this Network Code should be implemented without prejudice to the provisions of the Networks Codes on system operation, currently known as the Network Code on Operational Planning and Scheduling, the Network Code on Operational Security and the Network Code on Load-Frequency Control and Reserves, and of the decisions implementing those Network Codes. In case of conflict of norms, the provisions of this network code should be interpreted in light of the overarching objective of maintaining the Operational Security of the transmission systems.
- (11) In fulfilling the requirements of this Network Code, TSOs and NRAs shall use reasonable endeavours to exploit synergies and draw on experience gained through existing Balancing cooperation projects which have commenced, have concluded or are on-going at the date of the entry into force of this Network Code.
- (12) TSOs shall use best endeavours to facilitate the Exchange of Balancing Energy within a Coordinated Balancing Area. Each Balancing Service Provider intending to provide Balancing Capacity or Balancing Energy needs to successfully pass the concerned Prequalification defined by the Connecting TSOs terms and conditions related to Balancing.

- (13) The pricing method used in the procurement of Balancing Capacity shall strive for an economically efficient use of Demand Side Response and other Balancing resources subject to Operational Security limits.
- (14) The pricing methods for each Standard Product for Balancing Energy shall strive for an economically efficient use of Demand Side Response and other Balancing resources subject to Operational Security limits.

HAS ADOPTED THIS NETWORK CODE:

CONTENTS

CHAPTER 1	GENERAL PROVISIONS	8
Article 1	SUBJECT MATTER AND SCOPE.....	8
Article 2	DEFINITIONS	8
Article 3	RECOVERY OF COSTS	12
Article 4	CONFIDENTIALITY OBLIGATIONS.....	13
Article 5	CONSULTATION	13
Article 6	REGULATORY APPROVALS.....	14
Article 7	REVIEW OF TERMS AND CONDITIONS, METHODOLOGIES AND OTHER IMPLEMENTING MEASURES	16
Article 8	PUBLICATION OF INFORMATION.....	17
Article 9	DELEGATION OF FUNCTIONS.....	17
CHAPTER 2	THE ELECTRICITY BALANCING SYSTEM	19
Article 10	GENERAL OBJECTIVES OF THE BALANCING MARKET	19
Article 11	CREATION OF COORDINATED BALANCING AREAS	19
Article 12	EXTENSION AND MERGING OF COORDINATED BALANCING AREAS	20
Article 13	REGIONAL INTEGRATION MODEL FOR REPLACEMENT RESERVES	21
Article 14	EUROPEAN INTEGRATION MODEL FOR REPLACEMENT RESERVES.....	21
Article 15	REGIONAL INTEGRATION MODEL FOR FREQUENCY RESTORATION RESERVES WITH MANUAL ACTIVATION	22
Article 16	EUROPEAN INTEGRATION MODEL FOR FREQUENCY RESTORATION RESERVES WITH MANUAL ACTIVATION	23
Article 17	REGIONAL INTEGRATION MODEL FOR FREQUENCY RESTORATION RESERVES WITH AUTOMATIC ACTIVATION.....	23
Article 18	EUROPEAN INTEGRATION MODEL FOR FREQUENCY RESTORATION RESERVES WITH AUTOMATIC ACTIVATION.....	24
Article 19	REGIONAL INTEGRATION MODEL FOR IMBALANCE NETTING PROCESS.....	25
Article 20	EUROPEAN INTEGRATION MODEL FOR IMBALANCE NETTING PROCESS	25
Article 21	TARGETS FOR IMBALANCE SETTLEMENT	26
Article 22	ROLE OF THE TSOs.....	26
Article 23	COOPERATION WITH DSOs.....	27
Article 24	ROLE OF BALANCING SERVICE PROVIDERS	27
Article 25	ROLE OF BALANCE RESPONSIBLE PARTIES	28
Article 26	FUNCTIONS IN COORDINATED BALANCING AREAS.....	29

Article 27	TERMS AND CONDITIONS RELATED TO BALANCING	29
Article 28	SCHEDULING AND DISPATCH ARRANGEMENTS	32
CHAPTER 3	PROCUREMENT OF BALANCING SERVICES	33
Article 29	REQUIREMENTS FOR STANDARD AND SPECIFIC PRODUCTS.....	33
Article 30	USE OF SPECIFIC PRODUCTS.....	34
Article 31	CONVERSION OF BIDS IN CENTRAL DISPATCH SYSTEMS.....	35
Article 32	BALANCING ENERGY GATE CLOSURE TIME	35
Article 33	FALL-BACK PROCEDURES.....	36
Article 34	GENERAL PROVISIONS	37
Article 35	TRANSFER OF BALANCING CAPACITY WITHIN A RESPONSIBILITY AREA OR SCHEDULING AREA	37
Article 36	GENERAL PROVISIONS	38
Article 37	TRANSFER OF BALANCING CAPACITY WITHIN A COORDINATED BALANCING AREA	40
Article 38	TSO-BSP MODEL	40
Article 39	GENERAL PROVISIONS.....	41
Article 40	GENERAL PROVISIONS	42
Article 41	METHODOLOGY FOR UNSHARED BIDS.....	43
Article 42	ACTIVATION MECHANISM FOR BALANCING ENERGY	44
CHAPTER 4	CROSS ZONAL CAPACITY FOR BALANCING SERVICES	46
Article 43	RESERVATION OF CROSS ZONAL CAPACITY FOR TSOs	46
Article 44	CALCULATION OF MARKET VALUE OF CROSS ZONAL CAPACITY.....	47
Article 45	CO-OPTIMISED CAPACITY ALLOCATION	47
Article 46	MARKET-BASED RESERVATION.....	48
Article 47	RESERVATION BASED ON AN ECONOMIC EFFICIENCY ANALYSIS.....	48
Article 48	RESERVATION OF CROSS ZONAL CAPACITY FOR BALANCING SERVICE PROVIDER	49
Article 49	USE OF CROSS ZONAL CAPACITY FOR THE EXCHANGE OF BALANCING ENERGY OR IMBALANCE NETTING PROCESS.....	50
Article 50	CALCULATION OF CROSS ZONAL CAPACITY FOR THE EXCHANGE OF BALANCING ENERGY OR IMBALANCE NETTING PROCESS.....	50
Article 51	PRICING OF CROSS ZONAL CAPACITY FOR THE EXCHANGE OF BALANCING ENERGY OR IMBALANCE NETTING PROCESS.....	51
CHAPTER 5	SETTLEMENT	52
Article 52	GENERAL SETTLEMENT PRINCIPLES	52
Article 53	GENERAL PRINCIPLES FOR BALANCING ENERGY	53
Article 54	BALANCING ENERGY FOR FREQUENCY CONTAINMENT PROCESS	53

Article 55	BALANCING ENERGY FOR THE FREQUENCY RESTORATION PROCESS WITH MANUAL OR AUTOMATIC ACTIVATION.....	53
Article 56	BALANCING ENERGY FOR THE RESERVE REPLACEMENT PROCESS	54
Article 57	IMBALANCE ADJUSTMENT TO THE BALANCE RESPONSIBLE PARTY	54
Article 58	INTENDED EXCHANGES OF ENERGY	54
Article 59	UNINTENDED EXCHANGES OF ENERGY	55
Article 60	IMBALANCE CALCULATION.....	56
Article 61	IMBALANCE PRICE	56
Article 62	IMBALANCE SETTLEMENT	57
Article 63	PROCUREMENT OF BALANCING CAPACITY WITHIN A RESPONSIBILITY AREA	57
Article 64	PROCUREMENT OF A BALANCING CAPACITY WITHIN A COORDINATED BALANCING AREA	57
Article 65	GENERAL PRINCIPLES	58
CHAPTER 6	ALGORITHM.....	59
Article 66	ALGORITHM DEVELOPMENT	59
Article 67	ALGORITHM AMENDMENT	60
CHAPTER 7	REPORTING.....	61
Article 68	REPORTING	61
CHAPTER 8	COST-BENEFIT ANALYSIS; TRANSITIONAL ARRANGEMENTS AND DEROGATIONS.....	63
Article 69	COST-BENEFIT ANALYSIS	63
Article 70	TRANSITION PERIOD.....	63
Article 71	DEROGATIONS.....	64
CHAPTER 9	FINAL PROVISIONS.....	66
Article 72	ENTRY INTO FORCE.....	66

CHAPTER 1

GENERAL PROVISIONS

Article 1

SUBJECT MATTER AND SCOPE

1. This Network Code establishes common rules for Electricity Balancing including the establishment of common principles for procurement and settlement of Frequency Containment Reserves, Frequency Restoration Reserves and Replacement Reserves and common methodology for the activation of Frequency Restoration Reserves and Replacement Reserves.
2. The requirements set forth by this Network Code shall apply in particular to TSOs, NRAs, the Agency, DSOs, third parties to whom responsibilities have been delegated, where applicable, and Market Participants.
3. This Regulation shall apply to all transmission systems and interconnections in the Union except the transmission systems on islands which are not connected with other transmission systems via interconnections.
4. In Member States where more than one TSO exists, this Network Code shall apply to all TSOs within that Member State. Where a TSO does not have a function relevant to one or some obligations under this Network Code, Member States may under the national regulatory regime provide that the responsibility to comply with one or some obligations under this Network Code is assigned to one or more different TSOs. In case of such assignment, the Network Code shall apply accordingly to the TSOs to which responsibilities have been assigned.
5. This Network Code shall apply to the Normal State and the Alert State, as defined in *[Article 8 System States]* of the Network Code on Operational Security.

Article 2

DEFINITIONS

For the purpose of this Network Code, the definitions contained in Article 2 of Regulation (EC) No 714/2009, Commission Regulations establishing Network Codes that have been adopted according to Article 6(11) of Regulation (EC) No 714/2009, the definitions contained in Article 2 of Regulation (EU) No 543/2013 as well as those of Article 2 of directive 2009/72/EC shall apply. In addition, the following definitions shall apply:

Activation Optimisation Function means the role to operate the algorithm applied for the optimisation of the activation of Balancing Energy bids within a Coordinated Balancing Area.

Allocated Volume means an energy volume physically injected or withdrawn from the system and attributed to a Balance Responsible Party, for the calculation of the Imbalance of that Balance Responsible Party.

Balance Responsible Party means a market-related entity or its chosen representative responsible for its Imbalances.

Balancing means all actions and processes, on all timelines, through which TSOs ensure, in a continuous way, to maintain the system frequency within a predefined stability range as set forth in *[Article 19 Frequency Quality Target Parameters]* of the Network Code on Load-Frequency Control and Reserves, and to comply with the amount of reserves needed per Frequency Containment Process, Frequency Restoration Process and Reserve Replacement Process with respect to the required quality, as set forth in *[Chapter 6 Frequency Containment Reserves, Chapter 7 Frequency Restorations Reserves and Chapter 8 Replacement Reserves]* of the Network Code on Load-Frequency Control and Reserves.

Balancing Capacity means the contracted Reserve Capacity.

Balancing Energy means energy used by TSOs to perform Balancing.

Balancing Energy Gate Closure Time means the point in time when submission or update of a Balancing Energy bid for a Standard Product on a Common Merit Order List in a Coordinated Balancing Area is no longer permitted.

Balancing Market means the entirety of institutional, commercial and operational arrangements that establish market-based management of the function of Balancing within the framework of the European Network Codes.

Balancing Services means either or both Balancing Capacity and Balancing Energy.

Balancing Service Provider means a Market Participant providing Balancing Services to its Connecting TSO, or in case of the TSO-BSP Model, to its Contracting TSO.

Capacity Procurement Optimisation Function means the role to operate the algorithm applied for the optimisation of the procurement of Balancing Capacity within a Coordinated Balancing Area in which Balancing Capacity is exchanged.

Central Dispatch means a scheduling and dispatch arrangement in a Responsibility Area where the TSO performs the Integrated Scheduling Process; and where the TSO issues dispatch instructions directly to the dispatchable Power Generating Facilities and Demand Facilities.

Common Merit Order List means a list of Balancing Energy bids sorted in order of their bid prices, used for the activation of Balancing Energy bids within a Coordinated Balancing Area.

Connecting TSO means the TSO which operates the Responsibility Area in which Balancing Service Providers and Balance Responsible Parties shall be compliant with the terms and conditions related to Balancing.

Contracting TSO means in case of the TSO-BSP Model the TSO which has contractual arrangements with a Balancing Service Provider in another Responsibility Area or Scheduling Area when appropriate.

Coordinated Balancing Area means a cooperation with respect to the Exchange of Balancing Services, Sharing of Reserves or operating the Imbalance Netting Process between two or more TSOs.

Deactivation Period means the time period for ramping, from full delivery or withdrawal back to a set point.

Delivery Period means a time period of delivery during which the Balancing Service Provider delivers the full requested change of power in-feed or withdrawals to the system.

Divisibility means the possibility for the TSO to use only part of the Balancing Energy bids or Balancing Capacity bids offered by the Balancing Service Provider, either in terms of power activation or time duration.

Exchange of Balancing Capacity means the process of procuring Balancing Capacity by a TSO in a different Responsibility Area or Scheduling Area when appropriate than the one in which the procured Balancing Service Provider is connected.

Exchange of Balancing Energy means the process of instructing the activation of Balancing Energy bids for the delivery of Balancing Energy by a TSO in a different Responsibility Area or Scheduling Area when appropriate, than the one in which the activated Balancing Service Provider is connected.

Exchange of Balancing Services means either or both Exchange of Balancing Capacity and Exchange of Balancing Energy.

Full Activation Time means the time period between the activation request by TSO and the corresponding full activation of the concerned product.

Imbalance means an energy volume calculated for a Balance Responsible Party and representing the difference between the Allocated Volume attributed to that Balance Responsible Party, and the final Position of that Balance Responsible Party and any Imbalance Adjustment applied to that Balance Responsible Party, within a given Imbalance Settlement Period.

Imbalance Adjustment means an energy volume representing the Balancing Energy from a Balancing Service Provider and applied by the Connecting TSO for an Imbalance Settlement Period to the concerned Balance Responsible Parties, for the calculation of the Imbalance of these Balance Responsible Parties.

Imbalance Area means the Imbalance Price Area or a part of an Imbalance Price Area, for the calculation of an Imbalance.

Imbalance Netting Process Function means the role to operate the algorithm applied for operating the Imbalance Netting Process.

Imbalance Price means the price, positive, 0 or negative, in each Imbalance Settlement Period for an Imbalance in each direction.

Imbalance Price Area means either a Bidding Zone, part of a Bidding Zone or a combination of several Bidding Zones, to be defined by each TSO, for the purpose of calculation of Imbalance Prices.

Imbalance Settlement means a financial settlement mechanism aiming at charging or paying Balance Responsible Parties for their Imbalances.

Imbalance Settlement Period means time units for which Balance Responsible Parties' Imbalance is calculated.

Integrated Scheduling Process means an iterative process that uses at least Integrated Scheduling Process bids which contain commercial data, complex technical data of each Power Generating Facilities or Demand Facilities which explicitly includes the start-up characteristics, the latest Responsibility Area Adequacy analysis, and the Operational Security Limits as an input to the process; which then simultaneously optimises reserve procurement, congestion management and Balancing Energy procurement over a set time horizon in order to produce an indicative Active Power output schedule for the dispatchable resources in order to ensure Operational Security.

Integrated Scheduling Process Gate Closure Time means the point in time when the submission or update of Integrated Scheduling Process bids is no longer permitted for the given iterations of the Integrated Scheduling Process.

Mode of Activation means the implementation of activation of Balancing Energy bids, manual or automatic, depending on whether Balancing Energy is triggered manually by an operator or automatically by means of a closed-loop regulator.

Position means an energy volume representing the sum of scheduled commercial transactions of a Balance Responsible Party, on organised electricity markets or between Balance Responsible Parties, for the calculation of the Imbalance, or, where appropriate, means an energy volume representing scheduled injections, scheduled withdrawals or the sum of scheduled injections and withdrawals of a Balance Responsible Party, for the calculation of the Imbalance of that Balance Responsible Party.

Preparation Period means the time duration between the request by the TSO and start of the energy delivery.

Requesting TSO means the TSO that requests Balancing Energy.

Self Dispatch means a scheduling and dispatch arrangement in a Responsibility Area where the schedule of all generation units and Demand Side Response is determined by the unit's owners.

Specific Product means a product different from a Standard Product.

Standard Product means a harmonised Balancing product defined by all TSOs for the Exchange of Balancing Services.

Transfer of Balancing Capacity means a transfer of Balancing Capacity from the initially contracted Balancing Service Provider to another transfer receiving Balancing Service Provider.

Transfer of Balancing Capacity Function means the role to operate the algorithm applied for the optimisation of the Transfer of Balancing Capacity.

TSO Energy Bid Submission Gate Closure Time means the latest point in time when a Connecting TSO can forward the Balancing Energy bids received from a Balancing Service Provider to the Activation Optimisation Function. The TSO Energy Bid Submission Gate Closure Time is after Balancing Energy Gate Closure Time.

TSO-BSP Model means a model for the Exchange of Balancing Capacity or the Exchange of Balancing Energy where the Contracting TSO has an agreement with a Balancing Service Provider in another Responsibility Area or Scheduling Area when appropriate.

TSO-TSO Model means a model for the Exchange of Balancing Services exclusively by TSOs. The TSO-TSO Model is the standard model for the Exchange of Balancing Services.

TSO-TSO Model for FRR and RR means a model for the Exchange of Balancing Capacity and the Exchange of Balancing Energy from Frequency Restoration Reserves and Replacement Reserves exclusively by TSOs.

TSO-TSO Settlement Function means the role to perform the settlement of cooperation processes between the TSOs of a Coordinated Balancing Area.

Validity Period means the time period when the Balancing Energy bid offered by the Balancing Service Provider can be activated, whereas all the characteristics of the product are respected. The Validity Period is defined by a beginning time and an ending time.

Article 3 RECOVERY OF COSTS

1. The costs related to the obligations referred to in this Network Code which have to be borne by regulated Network Operators shall be assessed by NRAs.
2. Costs assessed as efficient, reasonable and proportionate shall be recovered as determined by NRAs.

3. If requested to do so by NRAs, regulated Network Operators shall, within three months of such a request, use best endeavours to provide such additional information as reasonably requested by NRAs to facilitate the assessment of the costs incurred.

Article 4

CONFIDENTIALITY OBLIGATIONS

1. All addressees of this Network Code as well as third parties acting on behalf of addressees shall preserve the confidentiality of the commercially sensitive information and data submitted to them in the fulfilment of the obligations arising from this Network Code.
2. Without prejudice to the obligation to preserve the confidentiality of commercially sensitive information obtained in the course of carrying out its activities, each TSO shall provide the other TSO(s) of the Coordinated Balancing Area sufficient information to ensure secure and efficient operation.
3. Nothing in this Network Code shall cause prejudice to the national laws and regulations of the Member States regarding public access to documents or the protection of classified information.

Article 5

CONSULTATION

1. The TSOs responsible for submitting proposals for implementing measures pursuant to this Network Code shall consult on a draft proposal for a period of not less than four weeks.
2. The draft proposals pursuant to paragraphs 3(b), 3(e), 3(f), and 3(h) shall be consulted for a period of not less than eight weeks.
3. At least the following proposals shall be subject to consultation at European level:
 - (a) the criteria and methodology for Cost-Benefit Analysis pursuant to Article 14(3), Article 16(4), Article 18(4) and Article 20(3);
 - (b) the modifications of the European integration models pursuant to Article 14(3), Article 16(4), Article 18(4) and Article 20(3);
 - (c) the main features for Imbalance calculation and Imbalance pricing to be harmonised pursuant to Article 21(1);
 - (d) the criteria and methodology for Cost-Benefit Analysis pursuant to Article 21(2) and Article 21(5);
 - (e) the modifications of the Imbalance Settlement Period pursuant to Article 21(2);
 - (f) the Standard Products pursuant to Article 29;
 - (g) the criteria and methodology for Cost-Benefit Analysis pursuant to Article 38;
 - (h) the common pricing method for Standard Products for Balancing Energy pursuant to Article 39;
 - (i) the methodology for a co-optimised Capacity Allocation pursuant to Article 45(1);
 - (j) the methodology for a market-based reservation of Cross Zonal Capacity pursuant to Article 46(1); and
 - (k) the principles for the algorithms to be applied pursuant to Article 66.
4. At least the exemptions from the procurement rules of Balancing Capacity pursuant to Article 36(10) shall be subject to consultation in the Responsibility Area that forms part of the concerned Coordinated Balancing Area.

5. At least the transitional procurement of Balancing Capacity for Frequency Restoration Reserves and Replacement Reserves in the form of a TSO-BSP Model pursuant to Article 38 shall be subject to consultation in the Responsibility Area involved in the concerned proposal.
6. At least the following proposals shall be subject to consultation in each concerned Member State:
 - (a) an Imbalance Settlement Period deviating from the decision pursuant to Article 21(5);
 - (b) to allow TSOs to offer Balancing Services themselves pursuant to Article 22;
 - (c) the terms and conditions related to Balancing pursuant to Article 27;
 - (d) the definition and use of Specific Products pursuant to Article 29(8) and Article 29(9);
 - (e) exemptions from the procurement rules of Balancing Capacity pursuant to Article 34(6);
 - (f) the methodology for the calculation of unshared bids pursuant to Article 41; and
 - (g) the charges for losses, pursuant to Article 51.
7. The views of stakeholders emerging from the consultations undertaken pursuant to paragraph 3 to 6 shall be duly considered by the TSOs to which the obligation to consult is addressed prior to the submission of the documents for regulatory approval, if required, or prior to publication in all other cases. In all cases, a clear and robust justification of the reasons for including or not including the views emerging from the consultation in the submission shall be developed and published in a timely manner.

Article 6 REGULATORY APPROVALS

1. The items specified in paragraphs 2 to 6 shall be treated in a manner consistent with Article 37 of Directive 2009/72/EC.
2. The following proposals shall be subject to approval by all NRAs:
 - (a) the amendments to the implementation frameworks pursuant to Article 7;
 - (b) the implementation frameworks for the regional integration models and for the European integration models pursuant to Article 13(4), Article 14(4), Article 15(4), Article 16(5), Article 17(4), Article 18(5) Article 19(4), and Article 20(4);
 - (c) the criteria and methodology for Cost-Benefit Analysis pursuant to Article 14(3), Article 16(4), Article 18(4) and Article 20(3);
 - (d) the modifications of the European integration models pursuant to Article 14(3), Article 16(4), Article 18(4) and Article 20(3);
 - (e) the main features for Imbalance calculation and Imbalance pricing to be harmonised pursuant to Article 21(1);
 - (f) the criteria and methodology for Cost-Benefit Analysis pursuant to Article 21(1) and Article 21(2);
 - (g) the harmonisation of the Imbalance Settlement Period pursuant to Article 21(1);
 - (h) the Standard Products for Balancing Capacity and Balancing Energy pursuant to Article 29(2) and Article 29(4);
 - (i) the criteria and methodology for Cost-Benefit Analysis pursuant to Article 38;
 - (j) the common pricing method of Standard Products for Balancing Energy pursuant to Article 39(2) and Article 39(3);
 - (k) the list regarding the activation purposes Balancing Energy bids from Common Merit Order List, pursuant to Article 40(3);
 - (l) the methodology for a co-optimised Capacity Allocation pursuant to Article 45(1);
 - (m) the methodology for a market-based reservation process pursuant to Article 46(1);

- (n) the TSO-TSO settlement rules for the intended exchange of energy pursuant to Article 58(1); and
 - (o) the TSO-TSO settlement rules for the unintended exchange of energy pursuant to Article 59(1).
3. The following proposal shall be subject to approval by all NRAs having jurisdiction over a concerned Synchronous Area:
- a) the methodology for the probabilistic approach pursuant to Article 36(5); and
 - b) the TSO-TSO settlement rules for the intended exchange of energy pursuant to Article 58(3).
4. The following proposals shall be subject to approval by all NRAs having jurisdiction over a Responsibility Area that forms part of the concerned Coordinated Balancing Area:
- a) the common proposal for a Coordinated Balancing Area pursuant to Article 11(5);
 - b) the Balancing Energy Gate Closure Time for automatically activated Balancing Energy bids before the Intraday Cross Zonal Gate Closure Time pursuant to Article 32(5);
 - c) exemptions from the procurement rules of Balancing Capacity pursuant to Article 36(10);
 - d) the methodologies for reservation based on an economic efficiency analysis pursuant to Article 47;
 - e) the methodology for calculations of Cross Zonal Capacity for the Exchange of Balancing Energy or operating the Imbalance Netting Process other than using the available Cross Zonal Capacity after Intraday Cross Zonal Gate Closure Time pursuant to Article 50(3); and
 - f) the pricing method for Cross Zonal Capacity for the Exchange of Balancing Energy or operating the Imbalance Netting Process pursuant to Article 51(2).
5. The following proposals shall be subject to approval by all NRAs having jurisdiction over the Responsibility Area involved in the concerned proposal:
- a) the methodology for allocating costs resulting from actions taken by DSOs, pursuant to Article 23(4);
 - b) the request for exemption in the form of a TSO-BSP Model pursuant to Article 38;
 - c) the TSO-TSO settlement rules for the intended exchange of energy pursuant to Article 58(4); and
 - d) the TSO-TSO settlement rules for the unintended exchange of energy pursuant to Article 59(2).
6. The following proposals shall be subject to approval by each NRA of each concerned Member State on a case-by-case basis:
- a) the implementation of the Frequency Restoration Process with manual activation pursuant to Article 16(2);
 - b) the implementation of the Frequency Restoration Process with automatic activation pursuant to Article 18(2);
 - c) an Imbalance Settlement Period deviating from the decision pursuant to Article 21(5);
 - d) to allow TSOs to offer Balancing Services themselves pursuant to Article 22;
 - e) the terms and conditions related to Balancing pursuant to Article 27(1) and Article 27(9);
 - f) the definition and use of Specific Products pursuant to Article 29(8), and Article 29(9);
 - g) principles for the conversion of Integrated Scheduling Process bids in Central Dispatch systems pursuant to Article 31;
 - h) exemptions from the procurement rules of Balancing Capacity pursuant to Article 34(6);

- i) the methodology for the calculation of unshared bids pursuant to Article 41;
 - j) the charges for losses, pursuant to Article 51;
 - k) if applicable, the financial outcome as a result of the settlement pursuant to Article 52(3); and
 - l) the derogation in respect of one or more provisions of this Network Code pursuant to Article 71.
7. For each of the approvals pursuant to paragraphs 2 to 6, TSOs, or in case of Article 6(5)(a) TSOs and DSOs, shall, prior to the expiry of the deadline submit those proposals to the concerned NRAs for approval. All submissions shall include a proposed timeline for implementation.
 8. Each of the approvals pursuant to paragraph 2 to 6 shall be published respecting Article 4.
 9. TSOs shall use reasonable endeavours to facilitate the consideration of issues at the same point in time.
 10. NRAs shall, after having received a proposal pursuant to paragraphs 1 to 6, provide TSOs, or in case of Article 6(5)(a) TSOs and DSOs, with an approval or request to amend the proposal within:
 - a) three months after having received a proposal if the approval process concerns only one NRA; and
 - b) six months after having received a proposal if the approval process concerns more than one NRA.
 11. NRAs shall inform the Agency of the opening and outcome of any approval procedures under this Network Code.
 12. In the event that the concerned NRAs request an amendment to a proposal pursuant to paragraphs 1 to 6, TSOs, or in case of Article 6(5)(a) TSOs and DSOs shall resubmit an amended proposal for approval within three months. Where the concerned NRAs have not been able to reach a decision in accordance with paragraph 10, the NRAs shall inform the Agency. The Agency shall decide upon those regulatory issues that fall within the competence of NRAs as specified under Article 8 of Regulation (EC) No 713/2009.
 13. TSOs shall implement the decision of NRAs no later than at the date specified in the decision.

Article 7
REVIEW OF TERMS AND CONDITIONS, METHODOLOGIES
AND OTHER IMPLEMENTING MEASURES

1. The party responsible under the Network Code for developing a proposal for terms and conditions, methodologies and other implementing measures approved pursuant to Article 6 may launch a review of these terms and conditions, methodologies and other implementing measures.
2. Where a review of the terms and conditions, methodologies and other implementing measures is launched by all relevant parties, they shall develop a proposal to amend or maintain terms and conditions, methodologies and other implementing measures.
3. The amendments to the terms and conditions, methodologies and other implementing measures shall be consulted following the procedure foreseen in Article 5 and be approved by NRAs following the procedure foreseen in Article 6.

Article 8
PUBLICATION OF INFORMATION

1. The items consulted upon according to Article 5(1) shall be made publically available after their approval, if regulatory approval is required, or after finalisation in all other cases by the TSO to whom the obligation is addressed.
2. All entities referred to in Article 1(2) shall ensure that information is published at a time and in a format which does not create an actual or potential competitive advantage or disadvantage to any individual or category of individuals.
3. Each TSO shall publish the following information:
 - a) the terms and conditions related to Balancing pursuant to Article 27 at least one week before the application;
 - a) the volume of unshared bids pursuant to Article 41 no later than one hour after the ending time of the Validity Period;
 - b) the details of reserved Cross Zonal Capacity to enable the Exchange of Balancing Capacity or Sharing of Reserves pursuant to Article 43; this information shall include the volumes reserved, the time period of the reservation and the market value calculated in accordance with Article 44 at the latest 24 hours after the reservation;
 - c) the approved methodologies pursuant to Article 45 to Article 47 at least one month before the application;
 - d) the description of the requirements of any algorithm developed and amendments to it, pursuant to Article 66 at least one month before the application;
 - e) the common annual report pursuant to Article 68; and
 - f) the volumes and prices of all Balancing Energy bids for Standard Products, anonymised and aggregated if required to protect confidentiality no later than one hour after the procurement process ends.
4. Each TSO shall publish the following information on Specific Products and Balancing Services offered by TSO themselves:
 - a) the procured volumes of Specific Products no later than one hour after the procurement process ends;
 - b) the activated volumes of Specific Products no later than one hour after the ending time of the Validity Period; and
 - c) the activated volumes of Balancing Services offered by TSO themselves no later than one hour after the operating period.
5. The obligations specified in paragraphs 1 to 4 are without prejudice to the obligations of ENTSO-E to publish the information on the central information transparency platform, established pursuant to Article 3, of Commission Regulation (EU) No 543/2013 of 14 June 2013 on submission and publication of data in electricity markets and amending Annex I to Regulation (EC) No 714/2009 of the European Parliament and of the Council, or on a public website.

Article 9
DELEGATION OF FUNCTIONS

1. Each TSO may delegate all or part of any function assigned to them under this Network Code to one or more third parties. The delegating TSO shall remain responsible for ensuring

compliance with the obligations under this Network Code, including ensuring access to information necessary for monitoring by the NRA.

2. In all cases a third party shall have clearly demonstrated its ability to fulfil each of the obligations of this Network Code to the satisfaction of the delegating TSO, prior to delegation.
3. In the event that all or part of any function specified in this Network Code is delegated to a third party, the delegating TSO shall ensure that suitable confidentiality agreements have been put in place prior to delegation.
4. Member States or NRAs, if allowed to do so by the national legislation, may, at the request of the relevant TSO, assign the task of Imbalance Settlement to another party than the TSO pursuant to Article 60 and Article 62. In such a case the party to whom the task is assigned shall meet all the requirements that are applicable to the TSO according to this Network Code and shall work in close cooperation with a TSO when defining appropriate procedures.
5. Notwithstanding paragraph 4, if the rules of national law at the date of the entry into force of this Network Code assign to a different party and according to a different legal framework non-essential tasks which, according to this Network Code, are assigned to the TSO, then the national legislation prevails.

CHAPTER 2

THE ELECTRICITY BALANCING SYSTEM

SECTION 1

PRINCIPLES OF THE BALANCING MARKET

Article 10

GENERAL OBJECTIVES OF THE BALANCING MARKET

1. This Network Code shall facilitate the achievement of the following objectives:
 - (a) enhancing pan-European Social Welfare;
 - (b) ensuring Operational Security;
 - (c) contributing to the efficient long-term operation and development of the European electricity Transmission System and electricity sector;
 - (d) fostering effective competition, non-discrimination and transparency in Balancing Markets;
 - (e) facilitating the efficient functioning and preventing undue distortion of other electricity markets in timeframes different from the Balancing Markets;
 - (f) ensuring that the procurement of Balancing Services is fair, objective, transparent and market-based, avoids undue barriers to entry for new entrants, fosters the liquidity of Balancing Markets while preventing undue distortions from within the internal market in electricity;
 - (g) promoting the Exchange of Balancing Services;
 - (h) facilitating the participation of Demand Side Response including aggregation facilities and energy storage; and
 - (i) facilitating the participation of Renewable Energy Sources and support the achievement of the European Union target for the penetration of renewable generation.

Article 11

CREATION OF COORDINATED BALANCING AREAS

1. Each TSO shall form at least one Coordinated Balancing Area with two or more TSOs operating in different Member States pursuant to CHAPTER 2 SECTION 2 to SECTION 5.
2. All TSOs of a Coordinated Balancing Area shall use the Exchange of Balancing Energy from at least one Standard Product or operate the Imbalance Netting Process.
3. All TSOs of a Coordinated Balancing Area shall regularly assess to exchange all Standard Products used individually for either the:
 - (a) Frequency Restoration Process with automatic activation; or
 - (b) Frequency Restoration Process with manual activation; or
 - (c) Reserve Replacement Processwithin the Coordinated Balancing Area.
4. TSOs shall cooperate when establishing Coordinated Balancing Areas and shall not prevent any other TSO from fulfilling its obligations under this Network Code.
5. All TSOs of a Coordinated Balancing Area shall develop a common proposal for a Coordinated Balancing Area, detailing:
 - (a) the framework for the establishment of the terms and conditions related to Balancing pursuant to Article 27;

- (b) the principle of allowing the volume and price of Balancing Energy bids to be updated after the Balancing Energy Gate Closure Time within the terms and conditions pursuant to Article 27;
 - (c) the Balancing Energy Gate Closure Time for each Standard Product for Balancing Energy pursuant Article 32;
 - (d) the TSO Energy Bid Submission Gate Closure Time pursuant to Article 40(10);
 - (e) the minimum available volumes of Balancing Energy bids of concerned products required to be compliant with [Article 43 FCR Dimensioning, Article 46 FRR Dimensioning and Article 48 RR Dimensioning] of the Network Code on Load-Frequency Control and Reserves;
 - (f) the Common Merit Order Lists to be organised by the common Activation Optimisation Function pursuant to Article 42;
 - (g) the principles for the algorithms to be applied pursuant to Article 66;
 - (h) if applicable, the framework for the Exchange of Balancing Services with other Coordinated Balancing Areas;
 - (i) if applicable, the proposal for the common pricing method for Balancing Capacity pursuant to Article 36;
 - (j) if applicable, all requirements and rules including the approval process for the Transfer of Balancing Capacity pursuant to Article 37;
 - (k) if applicable, the alternative proposal of the common pricing method of Standard Products for Balancing Energy pursuant to Article 39;
 - (l) if applicable, the activation of Balancing Energy bids for purposes other than Balancing pursuant to Article 40;
 - (m) if applicable, the methodology to ensure availability of Cross Zonal Capacity pursuant to Article 45 and Article 46; and
 - (n) if applicable, local rules to convert each Specific Product into a Standard Product.
6. The framework to be developed pursuant to paragraph 5(a) shall define harmonised principles for the terms and conditions related to Balancing and shall ensure a sufficient level of a coordination between all TSOs of the Coordinated Balancing Area in order to facilitate the achievement of the objectives of the Balancing Market as defined in Article 10 as well as reaching the integration models defined in CHAPTER 2.
7. For a Standard Product the Coordinated Balancing Area established for the Exchange of Balancing Energy shall be consistent with the Coordinated Balancing Area established for the Exchange of Balancing Capacity.
8. All TSOs of two or more interconnected Coordinated Balancing Areas shall have the right to make use of the Exchange of Balancing Services and the Sharing of Reserves between these Coordinated Balancing Areas, which are already exchanged within these Coordinated Balancing Areas.

Article 12

EXTENSION AND MERGING OF COORDINATED BALANCING AREAS

1. All TSOs shall cooperate in promoting the extension and merging of Coordinated Balancing Areas in order to develop and implement the regional integration models and European integration models.
2. Each TSO shall report to the Agency as soon as incompatibilities between the actual developments within a Coordinated Balancing Areas and the developments foreseen in the

regional integration model or the European integration model in accordance with CHAPTER 2 SECTION 2 to SECTION 5 are identified.

3. The extension of a Coordinated Balancing Area regarding the participating TSOs or the Standard Products exchanged or shared shall follow the process described in Article 11(5).
4. The merging of Coordinated Balancing Areas shall follow the process described in Article 11(5). Where two or more Coordinated Balancing Areas for a Standard Product or operating the Imbalance Netting Process merge, the result shall have the form of a single Coordinated Balancing Area replacing the previous ones.

SECTION 2

MODELS FOR THE EXCHANGE OF BALANCING ENERGY FOR REPLACEMENT RESERVES

Article 13

REGIONAL INTEGRATION MODEL FOR REPLACEMENT RESERVES

1. No later than two years and six months after the entry into force of this Network Code, all TSOs using Replacement Reserves shall implement the regional integration model for the Replacement Reserves pursuant to paragraph 4.
2. The regional integration model for the Replacement Reserves shall consist of one or more Coordinated Balancing Areas. All TSOs involved in such Coordinated Balancing Areas shall apply a multilateral TSO-TSO model with Common Merit Order List to share and exchange all Balancing Energy bids for Replacement Reserves, except unshared bids pursuant to Article 41.
3. The regional integration model for the Replacement Reserves shall be implemented within the Coordinated Balancing Areas as defined in the implementation framework pursuant to paragraph 4, where a TSO shall be a member of at least one such Coordinated Balancing Area.
4. No later than six months after the entry into force of this Network Code, all TSOs shall jointly develop a proposal for the implementation framework to implement the regional integration model for the Replacement Reserves. This proposal shall include at least:
 - (a) a list of TSOs to which the implementation of the regional integration model applies;
 - (b) a configuration of the Coordinated Balancing Areas and the list of TSOs involved in each Coordinated Balancing Area;
 - (c) implementation timeline of the regional integration model; and
 - (d) high-level principles for algorithms and methodologies used.

Article 14

EUROPEAN INTEGRATION MODEL FOR REPLACEMENT RESERVES

1. All TSOs using Replacement Reserves shall implement the European integration model for the Replacement Reserves by the time pursuant to paragraph 4(b).
2. The European integration model for the Replacement Reserves shall consist of a single Coordinated Balancing Area. In this Coordinated Balancing Area all TSOs using Replacement Reserves shall apply a multilateral TSO-TSO model with Common Merit Order List to share and exchange all Balancing Energy bids for Replacement Reserves.
3. No later than four years after the entry into force of this Network Code, all TSOs defined in the implementation framework pursuant to Article 13(4)(a) shall have the right to jointly develop

a proposal for modification of the European integration model for the Replacement Reserves. Proposed modification shall be supported by a Cost-Benefit Analysis performed by all TSOs pursuant to Article 13(4)(a).

4. No later than five years after the entry into force of this Network Code, all TSOs pursuant to paragraph 3 shall jointly develop a proposal for the implementation framework to implement the European integration model for the Replacement Reserves. This proposal shall include at least:
 - (a) a list of TSOs to which the implementation of the European integration model applies;
 - (b) implementation timeline of the European integration model;
 - (c) high-level principles for algorithms and methodologies used; and
 - (d) details of any modifications approved pursuant to paragraph 3.

SECTION 3

MODELS FOR THE EXCHANGE OF BALANCING ENERGY FOR FREQUENCY RESTORATION RESERVES WITH MANUAL ACTIVATION

Article 15

REGIONAL INTEGRATION MODEL FOR FREQUENCY RESTORATION RESERVES WITH MANUAL ACTIVATION

1. No later than four years after the entry into force of this Network Code, all TSOs using Frequency Restoration Reserves with manual activation shall implement the regional integration model for the Frequency Restoration Reserves with manual activation pursuant to paragraph 4.
2. The regional integration model for Frequency Restoration Reserves with manual activation shall consist of one or more Coordinated Balancing Areas. All TSOs involved in such Coordinated Balancing Areas shall apply a multilateral TSO-TSO model with Common Merit Order List to share and exchange all Balancing Energy bids for Frequency Restoration Reserves with manual activation, except unshared bids pursuant to Article 41.
3. The regional integration model for Frequency Restoration Reserves with manual activation shall be implemented within the Coordinated Balancing Areas as defined in the implementation framework pursuant to paragraph 4, where a TSO shall be member of at least one such Coordinated Balancing Area.
4. No later than two years after the entry into force of this Network Code, all TSOs shall jointly develop a proposal for the implementation framework to implement the regional integration model for the Frequency Restoration Reserves with manual activation. This proposal shall include at least:
 - (a) a list of TSOs to which the implementation of the regional integration model applies;
 - (b) a configuration of the Coordinated Balancing Areas and the list of TSOs involved in each Coordinated Balancing Area;
 - (c) implementation timeline of the regional integration model; and
 - (d) high-level principles for algorithms and methodologies used.

Article 16
**EUROPEAN INTEGRATION MODEL FOR FREQUENCY RESTORATION RESERVES WITH
MANUAL ACTIVATION**

1. All TSOs shall implement the European integration model for the Frequency Restoration Reserves with manual activation pursuant to paragraph 2 by the time pursuant to paragraph 5(b).
2. In the event that a TSO does not use the Frequency Restoration Reserves with manual activation at the entry into force of this Network Code, that TSO shall perform a Cost-Benefit Analysis together with at least all the neighbouring TSOs to justify the non-implementation of the Frequency Restoration Process with manual activation. The Cost-Benefit Analysis shall be performed no later than three years after the entry into force of this Network Code.
3. The European integration model for the Frequency Restoration Reserves with manual activation shall consist of a single Coordinated Balancing Area. In this Coordinated Balancing Area all TSOs shall apply a multilateral TSO-TSO model with Common Merit Order List to share and exchange all Balancing Energy bids for Frequency Restoration Reserves with manual activation.
4. No later than four years after the entry into force of this Network Code, all TSOs shall have the right to jointly develop a proposal for modification of the European integration model for the Frequency Restoration Reserves with manual activation. Proposed modification shall be supported by a Cost-Benefit Analysis performed by all TSOs.
5. No later than five years after the entry into force of this Network Code, all TSOs shall jointly develop a proposal for the implementation framework to implement the European integration model for the Frequency Restoration Reserves with manual activation. The proposal shall include at least:
 - (a) a list of TSOs to which the implementation of the European integration model applies;
 - (b) implementation timeline of the European integration model;
 - (c) high-level principles for algorithms and methodologies used; and
 - (d) details of any modifications approved pursuant to paragraph 4.

SECTION 4
**MODELS FOR THE EXCHANGE OF BALANCING ENERGY FOR FREQUENCY RESTORATION
RESERVES WITH AUTOMATIC ACTIVATION**

Article 17
**REGIONAL INTEGRATION MODEL FOR FREQUENCY RESTORATION RESERVES WITH
AUTOMATIC ACTIVATION**

1. No later than four years after the entry into force of this Network Code, all TSOs using Frequency Restoration Reserves with automatic activation shall implement the regional integration model for the Frequency Restoration Reserves with automatic activation pursuant to paragraph 4.
2. The regional integration model for the Frequency Restoration Reserves with automatic activation shall consist of one or more Coordinated Balancing Areas. All TSOs involved in such Coordinated Balancing Areas shall apply a TSO-TSO Model to exchange and optimise the

activation of all Balancing Energy bids for Frequency Restoration Reserves with automatic activation, except for unshared bids pursuant to Article 41.

3. The regional integration model for the Frequency Restoration Reserves with automatic activation shall be implemented within the Coordinated Balancing Areas as defined in the implementation framework pursuant to paragraph 4, where a TSO shall be member of at least one such Coordinated Balancing Area.
4. No later than three years after the entry into force of this Network Code, all TSOs shall jointly develop a proposal for the implementation framework to implement the regional integration model for the Frequency Restoration Reserves with automatic activation. This proposal shall include at least:
 - (a) a list of TSOs to which the implementation of the regional integration model applies;
 - (b) a configuration of the Coordinated Balancing Areas and the list of TSOs involved in each Coordinated Balancing Area;
 - (c) implementation timeline of the regional integration model; and
 - (d) high-level principles for algorithms and methodologies used.

Article 18

EUROPEAN INTEGRATION MODEL FOR FREQUENCY RESTORATION RESERVES WITH AUTOMATIC ACTIVATION

1. All TSOs shall implement the European integration model for the Frequency Restoration Reserves with automatic activation pursuant to paragraph 2 by the time pursuant to paragraph 5(b).
2. In the event that a TSO does not use the Frequency Restoration Reserves with automatic activation at the entry into force of this Network Code, that TSO shall perform a Cost-Benefit Analysis together with at least all the neighbouring TSOs to justify the non-implementation of the Frequency Restoration Process with automatic activation. The Cost-Benefit Analysis shall be performed no later than three years after the entry into force of this Network Code.
3. The European integration model for the Frequency Restoration Reserves with automatic activation shall consist of a single Coordinated Balancing Area. In this Coordinated Balancing Area all TSOs shall apply a multilateral TSO-TSO model to share and exchange all Balancing Energy bids for Frequency Restoration Reserves with automatic activation respecting the principles of Common Merit Order List.
4. No later than four years after the entry into force of this Network Code, all TSOs shall have the right to jointly develop a proposal for modification of the European integration model for the Frequency Restoration Reserves with automatic activation. Proposed modification shall be supported by a Cost-Benefit Analysis performed by all TSOs.
5. No later than five years after the entry into force of this Network Code, all TSOs shall jointly develop a proposal for the implementation framework to implement the European integration model for the Frequency Restoration Reserves with automatic activation. This proposal shall include at least:
 - (a) a list of TSOs to which the implementation of the European integration model applies;
 - (b) implementation timeline of the European integration model;
 - (c) high-level principles for algorithms and methodologies used; and
 - (d) details of any modifications approved pursuant to paragraph 4.

SECTION 5
MODELS FOR IMBALANCE NETTING PROCESS

Article 19
REGIONAL INTEGRATION MODEL FOR IMBALANCE NETTING PROCESS

1. No later than two years after the entry into force of this Network Code, all TSOs in the Synchronous Area Continental Europe shall implement the regional integration model for Imbalance Netting Process pursuant to paragraph 4.
2. The regional integration model for the Imbalance Netting Process shall consist of one or more Coordinated Balancing Areas within the Synchronous Area Continental Europe. All TSOs involved in such Coordinated Balancing Areas shall apply a TSO-TSO Model to perform the Imbalance Netting Process.
3. The regional integration model for Imbalance Netting Process shall be implemented within the Coordinated Balancing Areas as defined in the implementation framework pursuant to paragraph 4, where a TSO shall be a member of at least one such Coordinated Balancing Area.
4. No later than six months after the entry into force of this Network Code, all TSOs shall jointly develop a proposal for the implementation framework to implement the regional integration model for Imbalance Netting Process. This proposal shall include at least:
 - (a) a list of TSOs to which the implementation of the regional integration model applies;
 - (b) a configuration of the Coordinated Balancing Areas and the list of TSOs involved in each Coordinated Balancing Area;
 - (c) implementation timeline of the regional integration model; and
 - (d) high-level principles for algorithms and methodologies used.

Article 20
EUROPEAN INTEGRATION MODEL FOR IMBALANCE NETTING PROCESS

1. All TSOs shall implement the European integration model for the Imbalance Netting Process by the time pursuant to paragraph 4(a).
2. The European integration model for the Imbalance Netting Process shall consist of a single Coordinated Balancing Area. In this Coordinated Balancing Area all TSOs shall apply a multilateral TSO-TSO model to operate the Imbalance Netting Process when economically efficient.
3. No later than three years after the entry into force of this Network Code, all TSOs shall have the right to jointly develop a proposal for modification of the European integration model for the Imbalance Netting Process. Proposed modification shall be supported by a Cost-Benefit Analysis performed by all TSOs.
4. No later than four years after the entry into force of this Network Code, all TSOs shall jointly develop a proposal for the implementation framework to implement the European integration model for the Imbalance Netting Process. This proposal shall include at least:
 - (a) implementation timeline of the European integration model;
 - (b) high-level principles for algorithms and methodologies used; and
 - (c) details of any modifications approved pursuant to paragraph 3.

SECTION 6
TARGETS FOR IMBALANCE SETTLEMENT

Article 21
TARGETS FOR IMBALANCE SETTLEMENT

1. No later than three years after the entry into force of this Network Code, all TSOs shall harmonise:
 - (a) the main features for Imbalance calculation pursuant to Article 60; and
 - (b) the main features to calculate the Imbalance Price pursuant to Article 61.
2. No later than two years after the entry into force of the Network Code, all TSOs shall submit for approval a proposal to all NRAs based on a Cost-Benefit Analysis on the harmonisation of the Imbalance Settlement Period within and between Synchronous Areas, taking at least into account:
 - (a) the requirement that the Imbalance Settlement Period shall not exceed 30 minutes; and
 - (b) the effects on Frequency Quality Target Parameters pursuant to *[Article 19 Frequency Quality Target Parameters]* of the Network Code on Load-Frequency Control and Reserves; and
 - (c) all boundaries of Market Time Periods shall coincide with boundaries of Imbalance Settlement Periods.
3. The result of the Cost-Benefit Analysis on the harmonisation of the Imbalance Settlement Period within and between Synchronous Areas shall be reported to the Agency.
4. Notwithstanding the decision on harmonisation according to paragraph 2 no TSO shall be obliged to increase the Imbalance Settlement Period in its Responsibility Area.
5. Each TSO shall have the right to develop a proposal that deviates from the decision pursuant to paragraph 2. In that event, the concerned TSO shall perform a specific Cost-Benefit Analysis pursuant to Article 69.

SECTION 7
FUNCTIONS AND RESPONSIBILITIES

Article 22
ROLE OF THE TSOs

1. Each TSO shall operate either a Self Dispatch system or a Central Dispatch system.
2. Each TSO shall be responsible for procuring Balancing Services from Balancing Service Providers to ensure Operational Security.
3. All TSOs shall be responsible for contributing to the integration of Balancing Markets pursuant to Article 11.
4. TSOs shall not offer Balancing Energy themselves except, when the relevant NRAs have approved a request by the TSOs to allow them to offer bids for Balancing Energy themselves. This request shall include:

- a) proposal and justification of the volume of Balancing Energy to be offered by a TSO and the time period in which the TSO would need to offer Balancing Energy;
- b) demonstration that Balancing Service Providers are not able to provide sufficient Balancing Energy bids to ensure sufficient Reserve Capacity with respect to dimensioning requirements pursuant to [Article 46 FRR Dimensioning] and [Article 48 RR Dimensioning] of the Network Code on Load-Frequency Control and Reserves;
- c) demonstration that other market-based alternatives, including the cross-border exchanges of Balancing Energy, have been explored;
- d) proposal for long term solution that avoids the need for a TSOs to offer Balancing Energy;
- e) proposal for rules for defining the prices of Balancing Energy bids offered by TSOs; and
- f) proposal for activation rules of Balancing Energy offered by TSOs that shall avoid undue distortion within Balancing Markets.

Article 23

COOPERATION WITH DSOs

1. Each DSO shall respect the terms and conditions related to Balancing pursuant to Article 27.
2. DSOs, TSOs, Balancing Service Providers and Balance Responsible Parties shall cooperate to ensure efficient and effective Balancing.
3. Upon request of the TSO, each DSO shall provide, in due time, all necessary information to perform the Imbalance Settlement to the Connecting TSO in accordance with the terms and conditions related to Balancing pursuant to Article 27.
4. No later than twelve months after the entry into force of this Network Code, each TSO and Reserve Connecting DSOs within the TSO's Responsibility Area shall jointly elaborate a methodology for allocating costs resulting from actions taken by DSOs pursuant to [Article 68 Reserve Providing Units connected to the DSO Grid] of the Network Code on Load-Frequency Control and Reserves for submission to the NRA if no such methodology or national legislation is already covering these matters. The methodology shall provide for a fair allocation of costs taking into account the responsibilities of the parties involved and shall allocate costs to the real originator of the costs.
5. Any limits defined by DSOs pursuant to [Article 68 Reserve Providing Units connected to the DSO Grid] of the Network Code on Load-Frequency Control and Reserves that could affect the provision of this Network Code shall be reported without delay by the DSO to the Connecting TSO.

Article 24

ROLE OF BALANCING SERVICE PROVIDERS

1. Each Balancing Service Provider shall respect the terms and conditions related to Balancing pursuant to Article 27.
2. A Balancing Service Provider shall be qualified to provide a product which fulfils the requirements specified in Article 29 and solely with regard to the products which are exchanged by the Connecting TSO. The qualification shall be based on the successful completion of the corresponding Prequalification as defined in [Article 47 FRR Technical Minimum Requirements and Article 49 RR Technical Minimum Requirements] of the Network Code on Load-Frequency Control and Reserves.

3. Each Balancing Service Provider shall submit its Balancing Capacity bids if any, as defined by the Connecting TSO, to the Connecting TSO in which the Balancing Service Provider affects one or more Balance Responsible Parties.
4. All Balancing Service Providers which participate in the procurement process for Balancing Capacity shall submit and shall have the right to update their Balancing Capacity bids before the gate closure time of the procurement process.
5. Balancing Service Providers with a contract for Reserve Capacity shall submit to its Connecting TSO only, for the procured volume Balancing Energy bids for Standard Products or Specific Products or Integrated Scheduling Process bids in accordance with the terms and conditions related to Balancing pursuant to Article 27, for the corresponding products and time period, and before the Balancing Energy Gate Closure Time or Integrated Scheduling Process Gate Closure Time pursuant to Article 32.
6. Balancing Service Providers without a contract for Reserve Capacity shall have the right to submit only to its Connecting TSO its Balancing Energy bids for applicable Standard Products or Specific Products for at least Replacement Reserves, if applicable, and Frequency Restoration Reserves provided that they have passed the Prequalification.
7. For each product for Balancing Capacity or Balancing Energy, the Reserve Providing Unit, Reserve Providing Group, Demand Units or Aggregators and the associated Balance Responsible Parties pursuant to Article 27(4)(c), shall belong to the same Responsibility Area or Scheduling Area when appropriate.

Article 25

ROLE OF BALANCE RESPONSIBLE PARTIES

1. Each Balance Responsible Party shall respect the terms and conditions related to Balancing pursuant to Article 27.
2. Each Balance Responsible Party shall be financially responsible for the Imbalance to be settled with the Connecting TSO.
3. Each Balance Responsible Party shall be balanced or help the power system to be balanced in accordance with terms and conditions related to Balancing pursuant to Article 27.
4. Each Balance Responsible Party shall provide a balanced Position in the day ahead timeframe on the request of its Connecting TSO.
5. Each Balance Responsible Party shall have the right to change its Position prior to and after the Intraday Cross Zonal Gate Closure Time. The terms and conditions related to Balancing pursuant to Article 27 shall define the rules and conditions for changing the Position.
6. The Balance Responsible Party shall submit any change of the Position to the Connecting TSO pursuant to the terms and conditions related to Balancing pursuant to Article 27.

Article 26
FUNCTIONS IN COORDINATED BALANCING AREAS

1. The cooperation processes in Coordinated Balancing Areas shall involve the following functions:
 - (a) Imbalance Netting Process Function, where the Imbalance Netting Process is operated;
 - (b) Capacity Procurement Optimisation Function, where the Exchange of Balancing Capacity or Sharing of Reserves is implemented;
 - (c) Transfer of Balancing Capacity Function, in case a Transfer of Balancing Capacity is possible;
 - (d) Activation Optimisation Function, in cases where the Exchange of Balancing Energy is implemented; and
 - (e) TSO-TSO Settlement Function.
2. Each TSO entrusted with a function pursuant to paragraph 1(a) to 1(d) shall operate the corresponding algorithm developed pursuant to CHAPTER 6.
3. Each TSO shall be responsible for these functions in its Responsibility Area.

Article 27
TERMS AND CONDITIONS RELATED TO BALANCING

1. Each TSO shall develop for its Responsibility Area or Scheduling Area when appropriate a proposal for
 - (a) the terms and conditions for Balancing Service Providers; and
 - (b) the terms and conditions for Balance Responsible Parties.
2. When developing proposals for terms and conditions for Balancing Service Providers and Balance Responsible Parties, each Connecting TSO shall coordinate with other concerned TSOs and concerned DSOs.
3. The terms and conditions for Balancing Service Providers and Balance Responsible Parties shall respect the frameworks for the establishment of the terms and conditions pursuant to Article 11(5)(a), when one or more such frameworks have been established in Coordinated Balancing Areas to which the TSO belongs. TSOs which are part of more than one Coordinated Balancing Area for different Standard Products or operating the Imbalance Netting Process shall ensure that:
 - (a) the different frameworks for the establishment of the terms and conditions related to Balancing pursuant Article 11(5)(a) are consistent; and
 - (b) the terms and conditions related to Balancing are compatible with all the frameworks corresponding to all the Coordinated Balancing Areas to which the TSO belongs.
4. The terms and conditions for Balancing Service Providers shall:
 - (a) allow the aggregation of Demand Side Response, the aggregation of generation units, or the aggregation of Demand Side Response and generation units within a Responsibility Area or Scheduling Area when appropriate to offer Balancing Services; subject to conditions defined pursuant to Article 27(5)(c);
 - (b) allow Demand Facility, Aggregators and generation units from conventional and Renewable Energy Sources as well as storage elements to become Balancing Service Providers; and

- (c) require that each Balancing Energy bid from a Balancing Service Provider is assigned to one or more Balance Responsible Parties to enable the calculation of an Imbalance Adjustment pursuant to Article 57.
5. The terms and conditions for Balancing Service Providers shall contain at least:
- (a) the Prequalification for becoming a Balancing Service Provider; in particular, as defined in *[Article 47 FRR Technical Minimum Requirements and Article 49 RR Technical Minimum Requirements]* of the Network Code on Load-Frequency Control and Reserves;
 - (b) rules for the procurement of Balancing Capacity pursuant to Article 34 to Article 36;
 - (c) the conditions for the aggregation of Demand Side Response, the aggregation of generation units, or the aggregation of Demand Side Response and generation units within a Responsibility Area or Scheduling Area when appropriate to become a Balancing Service Provider where applicable;
 - (d) data and information required by the Connecting TSO and where relevant the Reserve Connecting DSO during Prequalification and operation;
 - (e) the modalities to identify the Balance Responsible Parties impacting the Imbalance Adjustment per Balancing Service product, pursuant to paragraph 4(c);
 - (f) the data and information required by the Connecting TSO and where relevant the Reserve Connecting DSO to evaluate the provision of Balancing Services and to calculate Imbalance pursuant to *[Article 44(1) and Article 44(8) FCR Technical Minimum Requirements]* for Frequency Containment Reserves, *[Article 47(1)(e) and Article 47(8) FRR Technical Minimum Requirements]* for Frequency Restoration Reserves and *[Article 49(1)(f) and Article 49(8) RR Technical Minimum Requirements]* for Replacement Reserves of Network Code on Load-Frequency Control and Reserves
 - (g) the requirements and rules applicable to a transfer of Balancing Capacity mechanism pursuant to Article 35 and Article 37;
 - (h) the rules for the determination of the volume of Balancing Energy to be settled with the Balancing Service Provider pursuant to CHAPTER 5 SECTION 1;
 - (i) if applicable, the process of converting Integrated Scheduling Process bids pursuant to Article 31;
 - (j) if applicable, the Integrated Scheduling Process Gate Closure Times pursuant to Article 32;
 - (k) if required by national legislation, for each Balancing Service the requirements for Balancing Service Providers to act independently of Balance Responsible Parties and in such a case the modalities of the financial settlement between the involved parties;
 - (l) if applicable, pursuant to Article 11(5)(b) rules for updating the volume and price of Balancing Energy bids after the Balancing Energy Gate Closure Time;
 - (m) rules for the settlement defined pursuant to CHAPTER 5 SECTION 2, and SECTION 5;
 - i. a maximum period for the finalisation of settlement of Balancing Energy with Balancing Service Provider, pursuant to Article 53 for any given Imbalance Settlement Period; and
 - (n) the consequences in case of non-compliance with the terms and conditions for Balancing Service Providers.
6. The rules for Balance Responsible Parties shall contain at least:
- (a) the requirements for becoming a Balance Responsible Party;
 - (b) the requirement that Balance Responsible Parties without exemption shall be financially responsible for the Imbalance to be settled with the Connecting TSO;
 - (c) the data and information required by the Connecting TSO to calculate the Imbalance;

- (d) the rules for changing the Position prior to and after the Intraday Energy Gate Closure Time and until which point in time the position can be changed according to Article 25;
 - (e) rules for the settlement defined pursuant to CHAPTER 5 SECTION 4;
 - i. the delineation of Imbalance Area and Imbalance Price Area;
 - ii. a maximum period for the finalisation of settlement of Imbalance with Balance Responsible Parties, pursuant to Article 60 for any given Imbalance Settlement Period;
 - (f) the consequences in case of non-compliance with the terms and conditions for Balance Responsible Parties; and
 - (g) the settlement procedures pursuant to Article 60(2) and Article 61(1).
7. Each Connecting TSO shall have the right to include the following within the terms and conditions for Balancing Service Providers or terms and conditions for Balance Responsible Parties:
- (a) a requirement for Balancing Service Providers to provide information on unused generation capacity and other Balancing resources from Balancing Service Providers after Day Ahead Market Gate Closure Time and Intraday Cross Zonal Gate Closure Time;
 - (b) a requirement for Balancing Service Providers to offer their unused generation capacity or other Balancing resources through Balancing Energy bids or Integrated Scheduling Process bids in the Balancing Markets after Day Ahead Market Gate Closure Time;
 - (c) a requirement for Balancing Service Providers to offer their unused generation capacity or other Balancing resources through Balancing Energy bids or Integrated Scheduling Process bids in the Balancing Markets after Intraday Cross Zonal Gate Closure Time; and
 - (d) an obligation for Balance Responsible Parties to submit any modification of the Position to the Connecting TSO; and
 - (e) if applicable pursuant to Article 11(3), rules for updating the volume and price of Balancing Energy bids after the Balancing Energy Gate Closure Time.

For the case defined in paragraph 7(b) and 7(c) the proposal for the terms and conditions related to Balancing shall be complemented with a justification for these additional requirements.

8. TSOs operating Central Dispatch systems shall have the right to include the following within the terms and conditions related to Balancing:
- a) Integrated Scheduling Process Gate Closure Time in day ahead timeframe;
 - b) rules for updating the Integrated Scheduling Process bids pursuant to Article 32; and
 - c) rules to activate or reserve Integrated Scheduling Process bids prior to the Balancing Energy Gate Closure Time on the basis of the results of Integrated Scheduling Process.
9. Each TSO shall have the right to reassess the terms and conditions related to Balancing at any time and propose amendments.
10. Each TSO shall monitor the fulfilment of the requirements set in the terms and conditions related to Balancing by all parties.

Article 28
SCHEDULING AND DISPATCH ARRANGEMENTS

1. Each TSO shall have the right to apply to the concerned NRAs to be acknowledged as a TSO operating a Central Dispatch system or to stop being acknowledged as a TSO operating a Central Dispatch system. The NRA shall inform its decision to the Agency.
2. Each application pursuant to paragraph 1 shall at least include:
 - (a) the local market arrangement;
 - (b) the scheduling arrangement; and
 - (c) the dispatch arrangement.
3. The application process shall be performed in accordance with Article 6(6). The concerned NRAs shall verify whether the tasks and responsibilities of a TSO are consistent with the definition of a Central Dispatch system and Integrated Scheduling Process in this Network Code.

CHAPTER 3

PROCUREMENT OF BALANCING SERVICES

SECTION 1

GENERAL PROVISIONS FOR PROCUREMENT

Article 29

REQUIREMENTS FOR STANDARD AND SPECIFIC PRODUCTS

1. Each TSO shall use Standard Products and Specific Products when available in order to:
 - (a) maintain system balance in the respect of *[Article 19 Frequency Quality Target Parameters]*, *[Article 46 FRR Dimensioning]* and *[Article 48 RR Dimensioning]* of the Network Code on Load-Frequency Control and Reserves; and
 - (b) ensure Operational Security.
2. No later than one year after entry into force of this Network Code, all TSOs shall develop a proposal for a list of Standard Products for Balancing Capacity and Standard Products for Balancing Energy for Frequency Restoration Reserves and Replacement Reserves.
3. All TSOs shall review at least every two years the list of Standard Products for Balancing Capacity and Standard Products for Balancing Energy. The review of Standard Products shall be done by:
 - (a) following the objectives as defined in Article 29(7);
 - (b) assessing a possible reduction of the number of Standard Products and the number of Common Merit Order Lists pursuant to Article 42(2); and
 - (c) considering the performance indicators as defined in Article 68(7).
4. All TSOs shall submit the proposals to define, review or update Standard Products for Balancing Capacity and Standard Products for Balancing Energy to all NRAs for approval. The proposal shall at the same time be submitted to the Agency for information.
5. The list of Standard Products for Balancing Capacity and Standard Products for Balancing Energy shall define at least the following standard characteristics of a bid by a fixed value or an appropriate range:
 - (a) Preparation Period;
 - (b) Ramping Period;
 - (c) Full Activation Time;
 - (d) minimum and maximum quantity;
 - (e) Deactivation Period;
 - (f) minimum and maximum duration of Delivery Period;
 - (g) Validity Period; and
 - (h) Mode of Activation.
6. The list of Standard Products for Balancing Capacity and Standard Products for Balancing Energy shall also define additional characteristics. The values of these additional characteristics are provided by Balancing Service Providers when submitting Balancing Capacity bids or Balancing Energy bids or for Prequalification or when requested by the TSO according to terms and conditions related to Balancing pursuant to Article 27. The additional characteristics shall at least include:
 - (a) price, positive, 0 or negative, of the bid;
 - (b) divisibility
 - (c) location; and

- (d) minimum duration between the end of Deactivation Period and the following activation.
7. Standard Products for Balancing Capacity and Standard Products for Balancing Energy for Frequency Restoration Reserves and Replacement Reserves shall:
- (a) satisfy the needs of TSOs in order to ensure Operational Security and efficiently fulfil Frequency Quality Target Parameters and volumes of reserves procured pursuant to *[Article 19 Frequency Quality Target Parameters]*, *[Article 46 FRR Dimensioning]* and *[Article 48 RR Dimensioning]* of the Network Code on Load-Frequency Control and Reserves;
 - (b) facilitate the participation of load entities, energy storage facilities and generation, including Renewable Energy Sources and aggregation facilities as a Balancing Service Provider; and
 - (c) foster cross-border competition, liquidity and avoid undue market fragmentation.
8. After the proposal for Standard Products pursuant to paragraph 2 has been submitted for regulatory approval, each TSO shall have the right to develop a proposal for defining and using Specific Products for Balancing Capacity and Specific Products for Balancing Energy. This proposal shall include:
- (a) definition of Specific Products and time period in which they will be used;
 - (b) demonstration that Standard Products are not sufficient to operate Balancing and respect Operational Security or demonstration that some balancing resources cannot participate in Balancing Market through Standard Products;
 - (c) if applicable, a description to minimise the use of Specific Products; and
 - (d) demonstration that Specific Products do not create significant inefficiencies and distortions in national markets or in the Coordinated Balancing Area.
9. Each TSO shall have the right to reassess and develop an updated proposal for Specific Products for Balancing Capacity and Specific Products for Balancing Energy.

Article 30

USE OF SPECIFIC PRODUCTS

1. All TSOs shall submit Balancing Energy bids for Specific Products to the Activation Optimisation Function.
2. Balancing Energy bids for Specific Products could be marked as unavailable by Connecting TSO for activation by other TSOs of the Coordinated Balancing Area in Alert State or Emergency State or to avoid entering into Alert State or Emergency State.
3. Balancing Energy bids sourced from Specific Products for Balancing Capacity can be marked as unavailable on the Common Merit Order List subject to:
 - (a) approval of the relevant NRA; and
 - (b) informing the relevant NRAs of the Coordinated Balancing Area;in order to avoid that the activation of these Specific Products on the Common Merit Order List which might otherwise endanger the ability of the respective TSO to respect, for the duration of the contracting period of that Balancing Capacity, the criteria for the amount of Reserve Capacity as set forth in the Network Code on Load Frequency Control and Reserves, in particular *[Article 19 Frequency Quality Target Parameters]*, *[Article 46 FRR Dimensioning]* and *[Article 48 RR Dimensioning]*.

4. In case Specific Products for Balancing Energy do not fulfil the need of other TSOs of the Coordinated Balancing Area, the TSOs using Specific Products for Balancing Energy shall have the right to convert these products into Standard Products for Balancing Energy that are used in the concerned Coordinated Balancing Area pursuant to Article 11(5)(n).

Article 31

CONVERSION OF BIDS IN CENTRAL DISPATCH SYSTEMS

1. Each TSO operating a Central Dispatch system shall have the right to use Integrated Scheduling Process bids for the purpose of the Exchange of Balancing Services or Sharing of Reserves.
2. Each TSO operating a Central Dispatch system shall use all the latest Integrated Scheduling Process bids available for the real time management of the system while respecting Operational Security Constraints to provide Balancing Services to other TSOs.
3. Each TSO operating Central Dispatch systems shall have the right to convert Integrated Scheduling Process bids referred to in paragraph 2 taking into account Operational Security. Integrated Scheduling Process bids as converted shall be compatible with Standard Products exchanged in the Coordinated Balancing Area.

Article 32

BALANCING ENERGY GATE CLOSURE TIME

1. All TSOs of a Coordinated Balancing Area shall jointly define and agree on Balancing Energy Gate Closure Times.
2. A harmonised Balancing Energy Gate Closure Time shall be defined at least for each of the following processes:
 - (a) Frequency Restoration Reserves with automatic activation;
 - (b) Frequency Restoration Reserves with manual activation; and
 - (c) Replacement Reservesper Coordinated Balancing Area.
3. After the Balancing Energy Gate Closure Time the update of a Balancing Energy bid for a Standard Product in a Coordinated Balancing Area is no longer permitted unless Article 11(5)(b) and Article 27(5)(l) apply.
4. A Balancing Energy Gate Closure Time shall:
 - (a) be after the Intraday Cross Zonal Gate Closure Time for manually activated Balancing Energy bids and avoid cross zonal Intraday Market and Balancing Market taking place at the same time;
 - (b) ensure sufficient time for common processing of Balancing Energy bids; and
 - (c) ensure sufficient time for all TSOs of a Coordinated Balancing Area to perform all processes linked to the activation of Balancing Energy bids.
5. All TSOs of a Coordinated Balancing Area shall have the right to submit a proposal to their respective NRAs to define Balancing Energy Gate Closure Time for automatically activated Balancing Energy bids before the Intraday Cross Zonal Gate Closure Time. The proposed Balancing Energy Gate Closure Time for automatically activated Balancing Energy bids shall be as short as possible and not longer than 12 hours before real time. The proposal shall include:

- (a) a justification and analysis demonstrating that requirements of paragraph 4(a) would lead to significant violations of Operational Security;
 - (b) a proposal and justification of the Balancing Energy Gate Closure Time for automatically activated Balancing Energy bids;
 - (c) demonstration that other alternatives have been explored and do not resolve the situation; and
 - (d) a proposal for a long-term solution that eliminates the need to define Balancing Energy Gate Closure Time for automatically activated Balancing Energy bids before the Intraday Cross Zonal Gate Closure Time.
6. Unexpected unavailable volumes of Balancing Energy bids of a Balancing Service Provider after the Balancing Energy Gate Closure Time shall be reported without undue delay by the Balancing Service Provider to the Connecting TSO. Connecting TSOs shall qualify such Balancing Energy bids as invalid within the concerned Common Merit Order List.
7. No later than two years after entry into force of this Network Code each Central Dispatch TSO shall define at least one Integrated Scheduling Process Gate Closure Time which shall:
 - (a) enable Balancing Service Providers to update Integrated Scheduling bids as close as possible to real time;
 - (b) not be longer than eight hours before real-time; and
 - (c) be before TSO Energy Bid Submission Gate Closure Time, unless paragraph 5 applies.
8. Each Central Dispatch TSO shall have the right to develop a proposal on rules for updating the Integrated Scheduling Process bids, which shall allow Balancing Service Providers to update Integrated Scheduling Process bids to the maximum possible extent, while ensuring:
 - (a) economic efficiency of Integrated Scheduling Process;
 - (b) Operational Security;
 - (c) consistency of all iterations of the Integrated Scheduling Process; and
 - (d) fair and equal treatment of all Balancing Service Providers within Responsibility Area.
9. After the final Integrated Scheduling Process Gate Closure Time the Integrated Scheduling Process bids can only be changed according to the rules defined by Connecting TSO in the terms and conditions for Balancing Service Providers.

Article 33 **FALL-BACK PROCEDURES**

1. Each TSO shall ensure that fall-back solutions are in place in case the normal procedures fail.
2. In case the procurement of Balancing Services fails, all TSOs of a Coordinated Balancing Area shall use their best endeavours to perform a repetition of the procurement process consistent with the objectives of this Network Code. TSOs shall inform Market Participants that fall-back procedures will be used as soon as reasonably practicable.
3. In case the coordinated activation of Balancing Energy fails, each TSO shall have the right to deviate from the Common Merit Order List activation and shall inform Market Participants as soon as reasonably practicable.

SECTION 2
PROCUREMENT OF BALANCING CAPACITY WITHIN A RESPONSIBILITY AREA

Article 34
GENERAL PROVISIONS

1. This Article shall apply to all TSOs procuring Balancing Capacity to fulfil dimensioning rules pursuant to *[Article 43 FCR Dimensioning, Article 46 FRR Dimensioning and Article 48 RR Dimensioning]* of the Network Code on Load-Frequency Control and Reserves.
2. All TSOs shall use within their Responsibility Area a market-based method for the procurement of Balancing Capacity for at least Frequency Restoration Reserves and Replacement Reserves.
3. All TSOs shall determine the volume of Balancing Capacity to be procured according to this Section based on fulfilling the dimensioning rules pursuant to *[Article 43 FCR Dimensioning, Article 46 FRR Dimensioning and Article 48 RR Dimensioning]* of the Network Code on Load-Frequency Control and Reserves, taking into account the volume of Sharing of Reserves, and taking into account the volume of non-contracted Balancing Energy bids which are expected to be available both within their Responsibility Area and within their Coordinated Balancing Area taking into account the available Cross Zonal Capacity.
4. All TSOs shall have the right to procure Balancing Capacity within their Responsibility Area respecting the following conditions:
 - (a) procurement close to real time shall to the extent possible be prioritised;
 - (b) the contracting period shall have a maximum period of one year;
 - (c) contracting should be done for a maximum of one year in advance of the provision of the Balancing Capacity; and
 - (d) TSOs shall have the right to split the contracted volume between several contracting periods.
5. The procurement of upward and downward Balancing Capacity for Frequency Restoration Reserves and Replacement Reserves shall be carried out separately.
6. A TSO shall have the right to submit a proposal to its NRA requesting the exemption to the procurement rules according to paragraph 4 and 5. The proposal for exemption shall include:
 - (a) specification of the duration while the exemption would apply;
 - (b) specification of the volume of Balancing Capacity for which such an exemption would apply;
 - (c) analysis on the impact of such an exemption on the participation of Renewable Energy Sources; and
 - (d) justification for the exemption demonstrating that such an exemption would lead to higher economic efficiency.

Article 35
TRANSFER OF BALANCING CAPACITY WITHIN A RESPONSIBILITY AREA OR SCHEDULING AREA

1. This Article shall apply to all TSOs procuring Balancing Capacity to fulfil dimensioning rules pursuant to *[Article 43 FCR Dimensioning, Article 46 FRR Dimensioning and Article 48 RR Dimensioning]* of the Network Code on Load-Frequency Control and Reserves.

2. TSOs of a Responsibility Area or Scheduling Area when appropriate shall allow a Balancing Service Provider to perform a Transfer of Balancing Capacity to another Balancing Service Provider within the same Responsibility Area or Scheduling Area when appropriate.
3. The Transfer of Balancing Capacity shall only be possible when:
 - (a) the transfer receiving Balancing Service Provider has passed the Prequalification for the Balancing Capacity for which the transfer is performed; and
 - (b) approved by a TSO of the Responsibility Area or Scheduling Area when appropriate, subject to Operational Security.
4. In the event that the Transfer of Balancing Capacity is not approved, the TSO shall explain the reason for the rejection to the Balancing Service Providers involved.

SECTION 3
PROCUREMENT OF A BALANCING CAPACITY WITHIN A COORDINATED BALANCING AREA

Article 36
GENERAL PROVISIONS

1. This Article shall apply to all TSOs participating in a Coordinated Balancing Area declared for the Exchange of Balancing Capacity in order to perform the Exchange of Reserves pursuant to [*Chapter 9 Section 1 Exchange and Sharing of Reserves within a Synchronous Area and Chapter 9 Section 2 Exchange and Sharing of Reserves between Synchronous Areas*] of the Network Code on Load-Frequency Control and Reserves with another TSO.
2. Each TSO shall have the right to procure Balancing Capacity jointly with another TSO up to limits for the Exchange of Reserves pursuant to [*Chapter 9 Section 1 Exchange and Sharing of Reserves within a Synchronous Area and Chapter 9 Section 2 Exchange and Sharing of Reserves between Synchronous Areas*] of the Network Code on Load-Frequency Control and Reserves.
3. All TSOs of a Coordinated Balancing Area performing the Exchange of Balancing Capacity shall determine the availability of Cross Zonal Capacity whilst ensuring that the Operational Security requirements pursuant to the Network Code on Operational Planning and Scheduling, the Network Code on Operational Security and the Network Code on Load-Frequency Control and Reserves are met either by:
 - (a) using the probabilistic approach, which is a methodology where the probability for the availability of Cross Zonal Capacity is calculated; or
 - (b) the reservation of Cross Zonal Capacity according to CHAPTER 4 SECTION 1.
4. All TSOs of a Coordinated Balancing Area using the probabilistic approach shall inform all TSOs of the concerned LFC Blocks how the risk of unavailability of Reserve Capacity in the Responsibility Area or Scheduling Area when appropriate of the TSO affects the fulfilment of the requirements pursuant to [*Article 46(2)(b) FRR Dimensioning*] of the Network Code on Load-Frequency Control and Reserves.
5. No later than two years after the entry into force of this Network Code all TSOs of a Synchronous Area shall jointly develop a proposal for the methodology for the probabilistic approach. The methodology shall at least describe:
 - (a) notification rules to use the probabilistic approach;
 - (b) description of the process to make the assessment for the relevant period of Exchange of Balancing Capacity or Sharing of Reserves;

- (c) assessment on the risk of unavailability of Cross Zonal Capacity due to planned and unplanned outages and due to congestions;
 - (d) requirements for a domestic fall-back solution in case unavailability of Cross Zonal Capacity occurs; and
 - (e) rules in order to ensure the settlement pursuant to CHAPTER 5.
6. TSOs shall not increase the Reliability Margin due to the Exchange of Balancing Services or Sharing of Reserves, beyond the Reliability Margin defined pursuant to *[Article 21 Reliability Margin]* of the Network Code on Capacity Allocation and Congestion Management.
 7. All TSOs of a Coordinated Balancing Area shall use a market-based method for the procurement of Balancing Capacity to be exchanged.
 8. All TSOs of a Coordinated Balancing Area shall have the right to procure Balancing Capacity respecting the following conditions:
 - (a) procurement close to real time shall to the extent possible be prioritised;
 - (b) the contracting period shall have a maximum period of one month; and
 - (c) contracting should be done for a maximum of one month in advance of the provision of the Balancing Capacity.
 9. The procurement of upward and downward Balancing Capacity for Frequency Restoration Reserves and Replacement Reserves shall be done separately.
 10. All TSOs shall have the right to submit a proposal to their NRAs requesting the exemption to procurement rules according to paragraph 8, 9, 11 and 13. The proposal for exemption shall include:
 - (a) specification of the duration during which the exemption would apply;
 - (b) specification of the volume of Balancing Capacity for which such exemption would apply;
 - (c) analysis on the impact of such exemption on the participation of Renewable Energy Sources; and
 - (d) justification for the exemption demonstrating that such exemption would lead to higher economic efficiency.
 11. TSOs of a Coordinated Balancing Area pursuant to paragraph 1 shall harmonise procurement processes for the given Balancing Capacity exchanged within a Coordinated Balancing Area.
 12. TSOs of a Coordinated Balancing Area shall define a pricing method used in the procurement of Balancing Capacity. The pricing method shall:
 - (a) give correct price signals and right incentives to Market Participants; and
 - (b) ensure that there are no significant distortions between adjacent Coordinated Balancing Areas.
 13. All TSOs of a Coordinated Balancing Area for the Exchange of Balancing Capacity shall submit all Balancing Capacity bids for Standard Products to the Capacity Procurement Optimisation Function. TSOs shall not modify or withhold any Balancing Capacity bids and shall include them in the procurement, except as permitted by Article 30 and Article 31.
 14. Each TSO shall at least every two years assess the opportunities to perform Sharing of Reserves pursuant to *[Chapter 9 Section 1 Exchange and Sharing of Reserves within a Synchronous Area and Chapter 9 Section 2 Exchange and Sharing of Reserves between Synchronous Areas]* of the Network Code on Load-Frequency Control and Reserves and include this information in the annual report pursuant to Article 68.

Article 37

TRANSFER OF BALANCING CAPACITY WITHIN A COORDINATED BALANCING AREA

1. TSOs of a Coordinated Balancing Area declared for the Exchange of Balancing Capacity shall allow a Balancing Service Provider to perform a Transfer of Balancing Capacity to another Balancing Service Provider within the same Coordinated Balancing Area.
2. Transfer of Balancing Capacity shall only be possible if the transfer receiving Balancing Service Provider has passed a Prequalification for the Balancing Capacity for which the transfer is performed.
3. Transfer of Balancing Capacity shall be valid only if approved by the concerned TSOs of the Coordinated Balancing Area subject to Operational Security.
4. In the event that the Transfer of Balancing Capacity is not approved, the concerned TSOs of the Coordinated Balancing Area shall explain the reason for the rejection to the Balancing Service Providers involved.
5. When approving the Transfer of Balancing Capacity, TSOs of a Coordinated Balancing Area shall jointly verify security constraints, in particular, limits pursuant to the *[Chapter 9 Section 1 Exchange and Sharing of Reserves within a Synchronous Area and Chapter 9 Section 2 Exchange and Sharing of Reserves between Synchronous Areas]* Network Code on Load-Frequency Control and Reserves and pursuant to Article 36(3).
6. The Transfer of Balancing Capacity shall only be possible if Cross Zonal Capacity is available pursuant to Article 36(3).

Article 38

TSO-BSP MODEL

1. On the request of:
 - (a) the Contracting TSO and the Connecting TSO; or
 - (b) the NRA of the Contracting TSO and the NRA of the Connecting TSO;both the Contracting TSO and the Connecting TSO shall jointly perform a Cost-Benefit Analysis pursuant to Article 69 indicating implications of the application of a TSO-BSP Model for the Exchange of Balancing Capacity or the Exchange of Balancing Energy for at least the Responsibility Area or Scheduling Area when appropriate for the Contracting TSO and the Connecting TSO.
2. Each Connecting TSO and Contracting TSO for the Exchange of Balancing Capacity or the Exchange of Balancing Energy from Frequency Restoration Reserves or Replacement Reserves may jointly ask for the implementation of a TSO-BSP Model. In case of the implementation of the TSO-BSP Model the respective TSO and Balancing Service Providers may be exempted from the application of the provisions from Article 24(3), Article 24(5), Article 24(6), Article 40(8), and Article 52(8) for the relevant processes.
3. Every request for an application pursuant to paragraph 1 shall contain:
 - (a) the requested implementation period;
 - (b) the detailed reasons for the application, including the financial information justifying the need for the implementation; and
 - (c) the Cost-Benefit Analysis undertaken pursuant to Article 69.

4. The application can be granted under the following conditions:
 - (a) a methodology for ensuring available sufficient Cross Zonal Capacity in accordance with Article 36(3) shall be developed;
 - (b) a compensation mechanism for the use of Cross Zonal Capacity for the Exchange of Balancing Capacity under this Article shall be developed; and
 - (c) a detailed Cost-Benefit Analysis justifies the need for the implementation pursuant to Article 69.
5. The application of TSO-BSP Model pursuant to paragraph 1 shall be subject to approval by both NRAs of the Responsibility Areas of the Contracting TSO and the Connecting TSO, taking into account the Cost-Benefit Analysis pursuant to paragraph 4. The application of TSO-BSP Model shall be granted only prior to the implementation of the European integration model pursuant to CHAPTER 2 SECTION 2 to SECTION 5 unless paragraph 8 applies.
6. In case the application of TSO-BSP Model is granted:
 - (a) settlement between TSOs pursuant to CHAPTER 5 SECTION 3 shall be applicable;
 - (b) an agreement between the Contracting TSO and the Connecting TSO about technical and contractual requirements, the activation of Balancing Energy bids and the settlement of Balancing Services shall be established; and
 - (c) the Contracting TSO and the Balancing Service Provider shall establish contractual arrangements in the form of a TSO-BSP Model.
7. At the time of implementation of the European integration model pursuant to CHAPTER 2 SECTION 2 to SECTION 5 the Exchange of Balancing Capacity and the Exchange of Balancing Energy from Frequency Restoration Reserves and Replacement Reserves shall be in the form of the TSO-TSO Model for FRR and RR for TSOs that have implemented the Frequency Restoration Process and the Reserve Replacement Process.
8. Application of the TSO-BSP Model for Exchange of Balancing Capacity or the Exchange of Balancing Energy can be granted under the conditions pursuant to paragraph 2 to paragraph 7 also after the implementation of the regional integration model and the European integration model pursuant to CHAPTER 2 SECTION 2 to SECTION 5 in case a TSO-TSO Model cannot be implemented due to Connecting TSOs which are not operating the Reserve Replacement Process as part of the Load-Frequency-Control Structure as defined in the Synchronous Area Operational Agreement pursuant the Network Code on Load-Frequency Control and Reserves.

SECTION 4 PROCUREMENT OF BALANCING ENERGY

Article 39 GENERAL PROVISIONS

1. All TSOs shall harmonise the pricing methods for at least each Standard Product for Balancing Energy. The pricing method shall:
 - (a) give correct price signals and incentives to Market Participants; and
 - (b) take previous electricity market timeframes into account.
2. No later than one year after the entry into force of this Network Code, all TSOs shall develop a proposal for the pricing methods of each Standard Product for Balancing Energy. The pricing methods shall be based on marginal pricing (pay-as-cleared), unless TSOs complement the proposal with a detailed analysis demonstrating that a different pricing method is more

efficient for European-wide implementation pursuing the general objectives defined in Article 10.

3. TSOs shall have the right to review the pricing methods of each Standard Product for Balancing Energy and submit an updated proposal.
4. All TSOs of a Coordinated Balancing Area shall apply the pricing methods developed under paragraph 2 for all Standard Products and Specific Products for Balancing Energy exchanged in the Common Merit Order Lists within the Coordinated Balancing Area. Each TSO shall have the right to define within the proposal for Specific Products the pricing method for Specific Products that cannot be activated by other TSOs.
5. TSOs shall have the right to apply a different pricing method other than the pricing method proposed pursuant to paragraph 2 prior to the implementation of the regional integration model pursuant to CHAPTER 2 SECTION 2 to SECTION 5.
6. Before the implementation of the European integration model pursuant to CHAPTER 2 SECTION 2 to SECTION 5, the TSOs of a Coordinated Balancing Area shall have the right to propose in their common proposal for a Coordinated Balancing Area pursuant to Article 11(5) a pricing method different to the pricing method proposed pursuant to paragraph 2. In this case, the proposal shall include detailed analysis demonstrating that this different pricing method is more efficient within this Coordinated Balancing Area in pursuing the general objectives defined in Article 10.
7. Before the implementation of the European integration model pursuant to CHAPTER 2 SECTION 2 to SECTION 5, each TSO shall have the right to apply a different pricing method for any Standard Product for Balancing Energy until the TSO participates in a Coordinated Balancing Area for this Standard Product for Balancing Energy.

SECTION 5

ACTIVATION OF BALANCING ENERGY BIDS

Article 40

GENERAL PROVISIONS

1. Each TSO shall have the right to activate Balancing Energy bids within its Responsibility Area for ensuring Operational Security. In case Balancing Energy bids are activated for purposes other than Balancing, the price of these activated Balancing Energy bids, shall not determine the Imbalance Price.
2. TSOs within its Responsibility Area shall have the right to request the delivery of Balancing Energy prior to Balancing Energy Gate Closure Time in Alert State or Emergency State or to avoid entering into Alert State or Emergency State.
3. No later than twelve months after the entry into force of this Network Code, all TSOs shall jointly develop and agree on a list regarding the activation purposes of Balancing Energy bids from the Common Merit Order Lists in line with the general objectives of the Balancing Market pursuant to Article 10. This list shall include a description of each activation purpose.
4. The activation purpose for every activated Balancing Energy bid shall be submitted to the Activation Optimisation Function and shall be visible for all participating TSOs.

5. Balancing Energy bids for Frequency Restoration Reserves with automatic activation shall be exclusively available for the purpose of maintaining the active power balance.
6. In the event that the activation of Balancing Energy bids for Balancing purposes deviates from the merit order activation mechanism, the TSO shall publish information on the occurrence of such activation in a timely manner.
7. The activation request of a Balancing Energy bid from the Activation Optimisation Function of a Coordinated Balancing Area shall oblige the Requesting TSO to accept the firmness of the activated Balancing Energy bid. Each Connecting TSO of a Coordinated Balancing Area shall ensure the activation of the firm Balancing Energy bid selected by the Activation Optimisation Function. The Balancing Energy shall be settled between the Requesting TSO and the Connecting TSO pursuant to Article 58 and between the Connecting TSO and the Balancing Service Provider pursuant to CHAPTER 5 SECTION 2.
8. The activation of Balancing Energy bids shall be based on a TSO-TSO Model.
9. Each TSO of a Coordinated Balancing Area shall submit all necessary data for the operation of the algorithm pursuant Article 66(3) to the Activation Optimisation Function in accordance with the rules developed pursuant to Article 42(1).
10. Each Connecting TSO shall submit prior to the TSO Energy Bid Submission Gate Closure Time all Balancing Energy bids received from Balancing Service Providers to the Activation Optimisation Function, taking into account the provisions of Article 30 and Article 31, with the exception of unshared bids. The Connecting TSOs shall not modify or withhold Balancing Energy bids, except as permitted by Article 30 and Article 31.
11. Each Requesting TSO shall have the right to request the activation of Balancing Energy bids from the Common Merit Order Lists of the respective Coordinated Balancing Area up to the total volume. The total volume of Balancing Energy that can be activated by the requesting TSO from Balancing Energy bids from the Common Merit Order Lists of the respective Coordinated Balancing Area is a sum of volumes of:
 - (a) Balancing Energy bids submitted by the Requesting TSO not resulting from Sharing of Reserves or Exchange of Balancing Capacity;
 - (b) Balancing Energy bids submitted by the other TSOs as a result of Balancing Capacity procured on behalf of Requesting TSO; and
 - (c) Balancing Energy bids from Sharing of Reserves under the condition that the other TSOs participating in the Sharing of Reserves have not already requested the activation of these shared volumes.
12. The limitation as defined in paragraph 11 shall not be applicable in cases all TSOs of the concerned Coordinated Balancing Area agreed on. In any case, each TSO requesting Balancing Energy beyond limitation pursuant to paragraph 11, all other TSOs of the concerned Coordinated Balancing Area shall be informed in a timely manner.

Article 41
METHODOLOGY FOR UNSHARED BIDS

Each TSO shall have the right to submit a proposal for a methodology for the calculation of unshared bids, while respecting the following principles:

- (a) the volume of unshared bids defined for Replacement Reserves shall not be higher than the volume of Reserve Capacity for Replacement Reserves;

- (b) the volume of unshared bids defined for Frequency Restoration Reserves with manual activation shall not be higher than the volume of Reserve Capacity for Frequency Restoration Reserves with manual activation;
- (c) the volume of unshared bids defined for Frequency Restoration Reserves with automatic activation shall not be higher than the volume of Reserve Capacity for Frequency Restoration Reserves with automatic activation;
- (d) unshared bids shall be the most expensive available Balancing Energy bids for Standard Products and the available Balancing Energy bids for Specific Products;
- (e) the methodology for the calculation of unshared bids shall be updated at least on a yearly basis;
- (f) the methodology for the calculation of unshared bids shall take into account the aggregated volume of Balancing Energy bids in the Common Merit Order List, that were historically available for activation by the TSO; and
- (g) unshared bids shall be shared on Common Merit Order Lists but marked as unavailable for activation by other TSOs.

Article 42

ACTIVATION MECHANISM FOR BALANCING ENERGY

1. No later than specified in CHAPTER 2 SECTION 2 to SECTION 5 for all targets, all TSOs of a Coordinated Balancing Area shall establish an Activation Optimisation Function and define rules for its operation.
2. Common Merit Order Lists shall consist of Balancing Energy bids for Standard Products for Balancing Energy. All TSOs of a Coordinated Balancing Area shall define the necessary Common Merit Order Lists based on the Standard Products. Upward and downward Balancing Energy bids shall be separated in different Common Merit Order Lists.
3. Each Activation Optimisation Function shall establish at least one Common Merit Order List for upward Balancing Energy bids and one Common Merit Order List for downward Balancing Energy bids.
4. Depending on the requirement for Standard Products for Balancing Energy, TSOs shall have the right to create more Common Merit Order Lists.
5. Each TSO shall submit their activation requests for Balancing Energy bids to the Activation Optimisation Function.
6. The Activation Optimisation Function shall select Balancing Energy bids and request the activation of selected Balancing Energy bids from the Connecting TSOs of the respective Coordinated Balancing Area where the Balancing Service Provider, associated with the selected Balancing Energy bid, is connected.
7. The Activation Optimisation Function shall submit confirmation of the activated Balancing Energy bids to the TSO, requesting the activation of Balancing Energy bids. The activated Balancing Service Providers shall be responsible for delivering the requested volume until the end of the Delivery Period.
8. All TSOs of a Coordinated Balancing Area shall have the right to establish an Activation Optimisation Function in accordance with Article 40 and Article 42 for the optimisation of the activation of Balancing Energy bids from different Common Merit Order Lists. This function shall at least take into account:

- (a) activation processes and technical constraints from different Balancing products;
 - (b) Operational Security;
 - (c) all Balancing Energy bids included in the compatible Common Merit Order Lists;
 - (d) submitted activation requests of all TSOs of a Coordinated Balancing Area; and
 - (e) available Cross Zonal Capacity.
9. All TSOs that operate the Frequency Restoration Process and the Reserve Replacement Processes to balance their Responsibility Area shall strive for using all Balancing Energy bids from relevant Common Merit Order Lists to balance the system in the most efficient way taking into account Operational Security.
10. TSOs that do not use the Reserve Replacement Process to balance their Responsibility Area shall strive for using all Balancing Energy bids from relevant Common Merit Order Lists for Frequency Restoration Reserves to balance the system in the most efficient way taking into account Operational Security.
11. In case of the Alert State:
- (a) TSOs shall have the right to use internal bids and not to use the Activation Optimisation Function pursuant Article 42(5); and
 - (b) for each relevant Alert State followed by the non-use of the Activation Optimisation Function, a justification shall be published without undue delay.

CHAPTER 4 CROSS ZONAL CAPACITY FOR BALANCING SERVICES

SECTION 1 CROSS ZONAL CAPACITY FOR THE EXCHANGE OF BALANCING CAPACITY AND SHARING OF RESERVES

Article 43 RESERVATION OF CROSS ZONAL CAPACITY FOR TSOs

1. Each TSO shall have the right to reserve Cross Zonal Capacity for the Exchange of Balancing Capacity or Sharing of Reserves when socio-economic efficiency is proved in accordance with this Section using one of the following approaches:
 - (a) co-optimisation process pursuant to Article 45;
 - (b) market-based reservation process pursuant to Article 46; and
 - (c) reservation based on economic efficiency analysis, pursuant to Article 47.
2. Each TSO shall be able to reserve Cross Zonal Capacity only when Cross Zonal Capacity is calculated in line with the Capacity Calculation Methodologies developed pursuant to *[Article 14 Capacity Calculation Methodology]* of the Network Code on Forward Capacity Allocation and pursuant to *[Article 22 Capacity Calculation Methodology]* of the Network Code on Capacity Allocation and Congestion Management.
3. Cross Zonal Capacity reserved for the Exchange of Balancing Capacity or Sharing of Reserves shall be included as previously allocated Cross Zonal Capacity in calculations of Cross Zonal Capacity.
4. In case Cross Zonal Capacity for the Exchange of Balancing Capacity is reserved by Physical Transmission Right holders it shall be considered as nominated solely for the purpose of excluding it from the application of the Use-it-or-sell-it (UIOSI) principle pursuant to *[Article 36(2) Physical Transmission Rights]* of the Network Code on Forward Capacity Allocation or Use-it-or-lose-it (UIOLI) principle pursuant to *[Article 2.5 Congestion-management Methods]* of the Congestion Management Guidelines which form an Annex I to the Regulation (EC) No 714/2009.
5. Cross Zonal Capacity reserved for the Exchange of Balancing Capacity or Sharing of Reserves shall be used exclusively for Replacement Reserves or Frequency Restoration Reserves with manual activation or Frequency Restoration Reserves with automatic activation and operating the Imbalance Netting Process or Frequency Containment Reserves it was reserved for. Cross Zonal Capacity reserved for Frequency Restoration Reserves with automatic activation can also be used for operating the Imbalance Netting Process.
6. Each TSO shall regularly assess whether the Cross Zonal Capacity reserved for the Exchange of Balancing Capacity or Sharing of Reserves is still needed for that purpose. When Cross Zonal Capacity reserved for the Exchange of Balancing Capacity or Sharing of Reserves is no longer needed for that purpose, it shall be released and returned for allocation of Cross Zonal Capacity in the following Capacity Allocation timeframes. Such Cross Zonal Capacity shall not longer be included as previously allocated Cross Zonal Capacity in the Capacity Calculation Methodology.
7. When Cross Zonal Capacity reserved for the Exchange of Balancing Capacity or Sharing of Reserves has not been used for the associated Exchange of Balancing Energy it shall be

released for the Exchange of Balancing Energy with shorter activation times or for operating the Imbalance Netting Process.

Article 44

CALCULATION OF MARKET VALUE OF CROSS ZONAL CAPACITY

1. The market value of Cross Zonal Capacity for the Exchange of Balancing Capacity or Sharing of Reserves and for the exchange of energy used in a co-optimisation process or in a market-based reservation process shall be based on actual or forecasted market values of Cross Zonal Capacity.
2. The actual market value of Cross Zonal Capacity for the exchange of energy shall be calculated based on the bids by Market Participants in the auctions for Cross Zonal Capacity for the exchange of energy.
3. The actual market value of Cross Zonal Capacity for the Exchange of Balancing Capacity used in the co-optimisation process or the market-based reservation process shall be calculated based on Balancing Capacity bids, submitted to the Capacity Procurement Optimisation Function pursuant to Article 36(13).
4. The actual market value of Cross Zonal Capacity for Sharing of Reserves used in the co-optimisation process or the market-based reservation process shall be calculated based on the avoided costs of procuring Reserve Capacity.
5. The methodology to forecast the market value of Cross Zonal Capacity shall be based on one of the following principles:
 - (a) the use of transparent market indicators that disclose the market value of Cross Zonal Capacity; or
 - (b) the use of forecasting methodology that enable reliable assessment of the market value of Cross Zonal Capacity.

Article 45

CO-OPTIMISED CAPACITY ALLOCATION

1. No later than two years after entry into force of this Network Code all TSOs shall jointly develop a methodology for a co-optimised Capacity Allocation. This methodology shall describe:
 - (a) the notification process for the use of the co-optimised Capacity Allocation;
 - (b) how Cross Zonal Capacity shall be allocated to bids for exchanging energy and bids for exchanging Balancing Capacity or Sharing of Reserves in a single optimisation process performed either in an implicit or an explicit auction;
 - (c) the detailed description of the pricing method; the firmness regime; and the sharing of congestion income for the Cross Zonal Capacity that has been allocated to bids for exchanging Balancing Capacity or Sharing of Reserves via the co-optimised Capacity Allocation; and
 - (d) the process to define the maximum volume of reserved Cross Zonal Capacity.
2. The pricing method, the firmness regime and the sharing of congestion income for the Cross Zonal Capacity that has been allocated to bids for exchanging Balancing Capacity or Sharing of Reserves via the co-optimised Capacity Allocation shall ensure equal treatment with the Cross Zonal Capacity allocated to bids for exchanging energy.

3. TSOs of a Coordinated Balancing Area shall bid the actual market value of Cross Zonal Capacity for the Exchange of Balancing Capacity or Sharing of Reserves in a coordinated manner, as described in Article 44, to the co-optimised Capacity Allocation.
4. Cross Zonal Capacity allocated to bids for exchanging Balancing Capacity or Sharing of Reserves via the co-optimised Capacity Allocation shall be used only for the Exchange of Balancing Capacity or Sharing of Reserves.

Article 46
MARKET-BASED RESERVATION

1. No later than two years after entry into force of this Network Code all TSOs shall jointly develop a methodology for a market-based reservation of Cross Zonal Capacity for the Exchange of Balancing Capacity or Sharing of Reserves. This methodology shall describe:
 - (a) the notification process for the use of the methodology for a market-based reservation;
 - (b) the detailed description how to determine the actual market value of Cross Zonal Capacity for the Exchange of Balancing Capacity or Sharing of Reserves, and the forecasted market value of Cross Zonal Capacity for exchanges of energy;
 - (c) the detailed description of the pricing method; the firmness regime; and the sharing of congestion income for the Cross Zonal Capacity that has been allocated to bids for exchanging Balancing Capacity or Sharing of Reserves via the market-based reservation; and
 - (d) the process to define the maximum volume of reserved Cross Zonal Capacity.
2. The Cross Zonal Capacity reservation methodology for the Exchange of Balancing Capacity or Sharing of Reserves shall be based on a comparison of the actual market value of Cross Zonal Capacity for the Exchange of Balancing Capacity or Sharing of Reserves, and the forecasted market value of Cross Zonal Capacity for the exchange of energy, calculated as described in Article 44.
3. The pricing method, the firmness regime and the sharing of congestion income for the Cross Zonal Capacity that has been reserved via market-based reservation shall ensure equal treatment with the Cross Zonal Capacity allocated for exchange of energy.

Article 47
RESERVATION BASED ON AN ECONOMIC EFFICIENCY ANALYSIS

1. TSOs of a Capacity Calculation Region shall have the right to develop a proposal for a methodology for reservation of Cross Zonal Capacity based on an economic efficiency analysis. This methodology shall describe:
 - (a) the rules and principles for performing the economic efficiency analysis to be used as a basis for a decision to reserve Cross Zonal Capacity for the Exchange of Balancing Capacity or Sharing of Reserves based on an economic efficiency analysis;
 - (b) the detailed description how to determine forecasted market value of Cross Zonal Capacity for the Exchange of Balancing Capacity or Sharing of Reserves, and the forecasted market value of Cross Zonal Capacity for exchanges of energy; and
 - (c) the detailed description of pricing method, firmness regime and the sharing of congestion income for the Cross Zonal Capacity that has been reserved based on an economic efficiency analysis.

2. The proposal pursuant to paragraph 1 may be developed by:
 - (a) all TSOs of a Capacity Calculation Region to which the Bidding Zone Border where the reservation shall take place is attributed to; or
 - (b) the TSOs on each side of the Bidding Zone Border in case the Bidding Zone Border includes only DC interconnectors.
3. The methodology for reservation based on an economic efficiency analysis shall be based on a comparison of the forecasted market value of Cross Zonal Capacity for the Exchange of Balancing Capacity or Sharing of Reserves, and the forecasted market value of Cross Zonal Capacity for exchanges of energy, pursuant to Article 44.
4. The pricing method, the firmness regime and the sharing of congestion income for the Cross Zonal Capacity that has been reserved based on an economic efficiency analysis shall ensure equal treatment with the Cross Zonal Capacity allocated for exchange of energy.
5. TSOs of a Capacity Calculation Region shall jointly agree on the maximum volume of reserved Cross Zonal Capacity.
6. Each reservation of Cross Zonal Capacity based on economic efficiency analysis shall be agreed by TSOs that have developed the methodology for reservation based on an economic efficiency analysis.
7. For each reservation of Cross Zonal Capacity based on economic efficiency analysis TSOs inform the involved NRAs. The information from TSOs to reserve Cross Zonal Capacity based on economic efficiency analysis shall include:
 - (a) the volume of reserved Cross Zonal Capacity;
 - (b) the time period during which the Cross Zonal Capacity would be reserved; and
 - (c) the economic efficiency analysis justifying the efficiency of such reservation.
8. TSOs shall reassess the value of the reserved Cross Zonal Capacity within the process of procurement of Reserve Capacity and release the reserved Cross Zonal Capacity which is no longer beneficial to use for the Exchange of Balancing Capacity.
9. After the European target model is implemented, pursuant to CHAPTER 2 SECTION 2 to SECTION 5, Article 47 shall not apply.

Article 48

RESERVATION OF CROSS ZONAL CAPACITY FOR BALANCING SERVICE PROVIDER

1. Each Balancing Service Provider shall have the right to use Cross Zonal Capacity for the Exchange of Balancing Capacity prior to the day ahead timeframe:
 - (a) in the form of a Physical Transmission Right reserved by a the Physical Transmission Right holder ;
 - (b) made available, by a the Physical Transmission Right holder to a Balancing Service Provider;
 - (c) when a TSO-BSP Model, pursuant to Article 38, is applied; and
 - (d) the Balancing Service Provider has passed the Prequalification for the relevant Standard Products or Specific Products.
2. Each Balancing Service Provider shall have the right to use Cross Zonal Capacity for the Exchange of Balancing Capacity beginning with day ahead timeframe:

- (a) if Cross Zonal Capacity is allocated to or available for allocation after Day Ahead Market Gate Closure Time or Intraday Cross Zonal Gate Closure Time to a Balance Responsible Party;
 - (b) made available, by a Balance Responsible Party to a Balancing Service Provider;
 - (c) when a TSO-BSP Model, pursuant to Article 38, is applied; and
 - (d) the Balancing Service Provider has passed the Prequalification for the relevant Standard Products or Specific Products.
3. Cross Zonal Capacity reserved for the Exchange of Balancing Capacity shall be included as previously allocated Cross Zonal Capacity in calculations of Cross Zonal Capacity.
 4. In case Cross Zonal Capacity for the Exchange of Balancing Capacity is reserved by Physical Transmission Right holders it shall be considered as nominated solely for the purpose of excluding it from the application of the Use-it-or-sell-it (UIOSI) principle pursuant to *[Article 36(2) Physical Transmission Rights]* of the Network Code on Forward Capacity Allocation or Use-it-or-lose-it (UIOLI) principle pursuant to *[Article 2.5 Congestion-management Methods]* of the Congestion Management Guidelines which form an Annex I to the Regulation (EC) No 714/2009.
 5. Each Balancing Service Provider shall regularly assess whether the Cross Zonal Capacity reserved for the Exchange of Balancing Capacity is still needed for that purpose. When Cross Zonal Capacity reserved for the Exchange of Balancing Capacity is no longer needed for that purpose, it shall be released and returned for allocation of Cross Zonal Capacity in the following Capacity Allocation timeframes. Such Cross Zonal Capacity shall no longer be included as previously allocated Cross Zonal Capacity in the Capacity Calculation Methodology.

SECTION 2

CROSS ZONAL CAPACITY FOR THE EXCHANGE OF BALANCING ENERGY

Article 49

USE OF CROSS ZONAL CAPACITY FOR THE EXCHANGE OF BALANCING ENERGY OR IMBALANCE NETTING PROCESS

Each TSO shall have the right to use Cross Zonal Capacity for the Exchange of Balancing Energy or operating the Imbalance Netting Process where Cross Zonal Capacity is:

- (a) available after the Intraday Cross Zonal Gate Closure Time; or
- (b) reserved for Balancing Capacity, in accordance with CHAPTER 4 SECTION 1; or
- (c) released, pursuant to Article 43 and Article 48.

Article 50

CALCULATION OF CROSS ZONAL CAPACITY FOR THE EXCHANGE OF BALANCING ENERGY OR IMBALANCE NETTING PROCESS

1. All TSOs shall use the available Cross Zonal Capacity after gate closure of intraday timeframe, pursuant to *[Article 56 Operation of single intraday coupling]* of the Network Code Capacity Allocation and Congestion Management, as the initial available Cross Zonal Capacity, if no other methodology is developed.
2. All TSOs of a Coordinated Balancing Area shall ensure that the available Cross Zonal Capacity is adjusted in sufficient time when Cross Zonal Capacity changes due to activation of Balancing Energy bids.

3. All TSOs shall have the right to develop a proposal for another methodology for calculations of Cross Zonal Capacity for the Exchange of Balancing Energy or operating the Imbalance Netting Process. Such methodology shall be consistent with the Capacity Calculation Methodology used in the intraday timeframe and shall avoid market distortions.
4. The availability of Cross Zonal Capacity shall be updated by the TSOs.

Article 51

PRICING OF CROSS ZONAL CAPACITY FOR THE EXCHANGE OF BALANCING ENERGY OR IMBALANCE NETTING PROCESS

1. Cross Zonal Capacity used for the Exchange of Balancing Energy or operating the Imbalance Netting Process shall be priced consistent with pricing methods for the exchange of energy in the intraday timeframe and shall provide an adequate compensation for Cross Zonal Capacity.
2. All TSOs shall have the right to develop a proposal for another pricing method for Cross Zonal Capacity for the Exchange of Balancing Energy or operating the Imbalance Netting Process. The Cross Zonal Capacity shall be priced in a manner which:
 - (a) reflects Market Congestion; and
 - (b) is based on actual Balancing Energy bids.
3. TSOs are not allowed to charge any additional charges for the Exchange of Balancing Energy or operating the Imbalance Netting Process except charges for losses, if the charge is consistent with other timeframes and regulatory approval is granted.
4. No later than one year before its implementation, TSOs shall develop the applicable pricing methods consistent with the arrangements established under *[Article 53 Pricing of Intraday Capacity]* of the Network Code on Capacity Allocation and Congestion Management.

CHAPTER 5 SETTLEMENT

SECTION 1 SETTLEMENT PRINCIPLES (GENERALITIES)

Article 52 GENERAL SETTLEMENT PRINCIPLES

1. The settlement principles shall:
 - (a) establish adequate economic signals which reflect the Imbalance situation;
 - (b) establish adequate economic signals to stimulate appropriate investments;
 - (c) ensure that Balance Responsible Parties support the system balance;
 - (d) encourage Balance Responsible Parties to be balanced as close to the physical reality as possible or help the system to restore its balance;
 - (e) facilitate harmonisation of Imbalance Settlement mechanisms;
 - (f) incentivise TSOs to fulfil their obligations pursuant to *[Article 19 Frequency Quality Target Parameters, Article 43 FCR Dimensioning, Article 46 FRR Dimensioning and Article 48 RR Dimensioning]* the Network Code on Load-Frequency Control and Reserves;
 - (g) avoid distortions of incentives or counterproductive incentives to Balance Responsible Parties, Balancing Service Providers and TSOs;
 - (h) support competition among Market Participants;
 - (i) provide a fair distribution of the benefits and costs associated to the Balancing Markets; and
 - (j) incentivise Balancing Service Providers to offer and deliver Balancing Services to the Connecting TSO.
2. Each NRA shall ensure the financial neutrality of all TSOs under its competence with regard to the financial outcome as a result of the settlement pursuant to SECTION 2, SECTION 3 and SECTION 4 of this Chapter, over the regulatory period as defined by the relevant NRA.
3. Subject to regulatory approval, the financial outcome as a result of the settlement pursuant to SECTION 2, SECTION 3, and SECTION 4 of this Chapter may include administrative costs, procurement costs of Balancing Capacity pursuant to SECTION 5, procurement costs of Reserve Capacity and other costs related to Balancing and allowed return related to Balancing.
4. TSOs shall not be allowed to use the financial outcome as a result of the settlement pursuant to SECTION 2, SECTION 3 and SECTION 4 of this Chapter to cover the cost of any congestion.
5. All Balancing Energy procured by the Connecting TSO in its Responsibility Area shall be subject to settlement pursuant to SECTION 2 of this Chapter.
6. All exchanged energy between TSOs shall be subject to settlement pursuant to SECTION 3 of this Chapter.
7. The injections and withdrawals within a Bidding Zone that are not subject to settlement pursuant to SECTION 3 shall be subject to settlement pursuant to SECTION 4 of this Chapter without exemption.
8. The procurement of Balancing Capacity pursuant to Article 34 and Article 36 shall be subject to settlement pursuant to SECTION 5 of this Chapter.

SECTION 2
SETTLEMENT OF BALANCING ENERGY WITH BALANCING SERVICE PROVIDERS

Article 53
GENERAL PRINCIPLES FOR BALANCING ENERGY

1. Each TSO shall establish for the settlement of Balancing Energy with Balancing Service Providers, for at least the Frequency Restoration Process and Reserve Replacement Process, a procedure for:
 - (a) calculation of activated volume of Balancing Energy based on requested or metered activation; and
 - (b) claiming recalculation of activated volume of Balancing Energy.
2. Each TSOs shall calculate the activated volume of Balancing Energy according to the procedure pursuant to paragraph 1(a) at least:
 - (a) for each Imbalance Settlement Period;
 - (b) for each Imbalance Area; and
 - (c) for each direction, with a negative sign indicating relative withdrawal by the Balancing Service Provider, and a positive sign indicating relative injection by the Balancing Service Provider.
3. Each TSO shall settle the activated volume of Balancing Energy, calculated pursuant paragraph 2, with the Balancing Service Provider.

Article 54
BALANCING ENERGY FOR FREQUENCY CONTAINMENT PROCESS

1. Each Connecting TSO shall have the right to calculate and to settle the activated volume of Balancing Energy for the Frequency Containment Process with Balancing Service Providers pursuant to Article 53(2).
2. The price, positive, 0 or negative, of the activated volume of Balancing Energy for the Frequency Containment Process shall be defined for each direction, and is to be received by the Balancing Service Provider from the TSO, in case of Balancing Energy with a positive sign, and is to be paid by the Balancing Service Provider to the TSO, in case of Balancing Energy with a negative sign.

Article 55
BALANCING ENERGY FOR THE FREQUENCY RESTORATION PROCESS WITH MANUAL OR AUTOMATIC ACTIVATION

1. Each Connecting TSO shall calculate and settle the activated volume of Balancing Energy for the Frequency Restoration Process with Balancing Service Providers pursuant to Article 53(1) and Article 53(2).
2. The price, positive, 0 or negative, of the activated volume of Balancing Energy for the Frequency Restoration Process shall be defined for each direction pursuant to Article 39 and is to be received by the Balancing Service Provider from the TSO, in case of Balancing Energy with a positive sign, and is to be paid by the Balancing Service Provider to the TSO, in case of Balancing Energy with a negative sign.

Article 56
BALANCING ENERGY FOR THE RESERVE REPLACEMENT PROCESS

1. Each Connecting TSO shall calculate and settle the activated volume of Balancing Energy for the Reserve Replacement Process with Balancing Service Providers pursuant to Article 53(1) and Article 53(2).
2. The price, positive, 0 or negative, of the activated volume of Balancing Energy for Reserve Replacement Process shall be defined for each direction pursuant to Article 39 and is to be received by the Balancing Service Provider from the TSO, in case of Balancing Energy with a positive sign, and is to be paid by the Balancing Service Provider to the TSO, in case of Balancing Energy with a negative sign.

Article 57
IMBALANCE ADJUSTMENT TO THE BALANCE RESPONSIBLE PARTY

1. Each TSO shall calculate an Imbalance Adjustment to be applied to the concerned Balance Responsible Parties for each activated Balancing Energy bid.
2. For Imbalance Areas where several finalised Positions for a single Balance Responsible Party are calculated pursuant to Article 60(2) an Imbalance Adjustment may be calculated per notified Position.
3. Each TSO shall determine each Imbalance Adjustment as the activated volume of Balancing Energy calculated pursuant Article 53(2) and activation for other purposes than Balancing where appropriate.

SECTION 3
SETTLEMENT OF THE EXCHANGES OF ENERGY BETWEEN TSOs

Article 58
INTENDED EXCHANGES OF ENERGY

1. No later than two years after the entry into force of this Network Code all TSOs shall develop a proposal following the principles pursuant to Article 52(1), for common settlement rules of all intended exchanges of energy as a result of one or more of either the:
 - (a) Reserve Replacement Process;
 - (b) Frequency Restoration Process with manual activation;
 - (c) Frequency Restoration Process with automatic activation; or
 - (d) operating the Imbalance Netting Process.
2. Each TSO-TSO Settlement Function shall perform the settlement.
3. No later than two years after the entry into force of this Network Code, all TSOs intentionally exchanging energy within a Synchronous Area as a result of one or both of either:
 - (a) the Frequency Containment Process; or
 - (b) the Ramping Period;shall develop a proposal for common settlement rules of intended exchanges of energy.

4. No later than two years after the entry into force of this Network Code, all asynchronously connected TSOs intentionally exchanging energy between Synchronous Areas as a result of one or both of either:
 - (a) the Frequency Containment Process for active power output on Synchronous Area level; or
 - (b) the ramping restrictions for active power output on Synchronous Area level;shall develop a proposal for common settlement rules of above mentioned intended exchanges of energy.
5. The common settlement rules according to paragraph 1 shall at least contain the provisions that the intended exchange of energy for each the Replacement Reserves or Frequency Restoration Reserves with manual activation or Frequency Restoration Reserves with automatic activation or operating the Imbalance Netting Process, as agreed pursuant to *[Article 36 Imbalance Netting Process, Article 37 Cross-Border FRR Activation Process, Article 38 Cross-Border RR Activation Process, and Article 39 General Requirements for Cross-Border Control Process]* of the Network Code on Load-Frequency Control and Reserves is calculated:
 - (a) over time periods agreed between relevant TSOs;
 - (b) per direction; and
 - (c) as the integral of the calculated power interchange over the time periods pursuant to subparagraph (a).
6. The proposals for common settlement rules of intended exchanges of energy between TSOs shall ensure fair and equal distribution of costs and benefits between TSOs.

Article 59

UNINTENDED EXCHANGES OF ENERGY

1. No later than two years after the entry into force of this Network Code, all TSOs shall develop a proposal for common settlement rules of all unintended exchanges of energy within a Synchronous Area that includes:
 - (a) the price for unintended exchanges of energy withdrawn from the Synchronous Area shall reflect the prices for activated upward Balancing Energy for Frequency Restoration Process or Reserve Replacement Process for this Synchronous Area; and
 - (b) the price for unintended exchanges of energy injected into the Synchronous Area shall reflect the prices for activated downward Balancing Energy for Frequency Restoration Process or Reserve Replacement Process for this Synchronous Area.
2. No later than two years after the entry into force of this Network Code, all asynchronously connected TSOs shall develop a proposal for common settlement rules of all unintended exchanges of energy between asynchronously connected TSOs.
3. The proposals of common settlement rules of unintended exchanges of energy between TSOs shall ensure fair and equal distribution of costs and benefits between TSOs.

SECTION 4
IMBALANCE SETTLEMENT

Article 60
IMBALANCE CALCULATION

1. Each TSO shall calculate the Imbalance for each Balance Responsible Party from the final Position, the Allocated Volume and the Imbalance Adjustment.
2. Each TSO shall define procedures for:
 - (a) the calculation of the final Position from the External Commercial Trade Schedules and Internal Commercial Trade Schedules per Bidding Zone, or where appropriate one or more final Positions from the final Generation Schedules and final load schedules for each Imbalance Area;
 - (b) the determination of the Allocated Volume of all injections and withdrawals;
 - (c) the determination of the Imbalance Adjustment pursuant to Article 57 and in case of any curtailment or any activation for other purposes than Balancing;
 - (d) the calculation of the Imbalance; and
 - (e) claim for recalculation of the Imbalance by a Balance Responsible Party.
3. Allocated Volume shall not be calculated for a Balance Responsible Party which does not cover injections or withdrawals.
4. Each TSO shall calculate the final Position, the Allocated Volume, the Imbalance Adjustment and the Imbalance:
 - (a) for each Imbalance Settlement Period; and
 - (b) for each Imbalance Area.
5. An Imbalance shall have a size and a direction, indicating the direction of the settlement transaction between Balance Responsible Party and TSO, with negative indicating Balance Responsible Party's shortage, and positive indicating Balance Responsible Party surplus.

Article 61
IMBALANCE PRICE

1. Each TSO shall define rules to calculate the Imbalance Price, positive, 0 or negative, to be paid by the Balance Responsible Party to the TSO, in case of an Imbalance with a negative sign, or received by the Balance Responsible Party from the TSO, in case of an Imbalance with a positive sign. The rules shall include a definition of the value of avoided activation of Balancing Energy from Frequency Restoration Reserves or Replacement Reserves.
2. Each TSO shall determine the Imbalance Price:
 - (a) for each Imbalance Settlement Period;
 - (b) for each Imbalance Price Area; and
 - (c) for each Imbalance direction.
3. The Imbalance Price for shortage shall not be less than:
 - (a) the weighted average price for activated positive Balancing Energy for Frequency Restoration Reserves and Replacement Reserves; or
 - (b) in the event that no activation of Balancing Energy in either direction has occurred during the Imbalance Settlement Period, the value of the avoided activation of Balancing Energy for Frequency Restoration Reserves or Replacement Reserves.

4. The Imbalance Price for surplus shall not be greater than:
 - (a) the weighted average price for activated negative Balancing Energy for Frequency Restoration Reserves and Replacement Reserves; or
 - (b) in the event that no activation of Balancing Energy in either direction has occurred during the Imbalance Settlement Period, the value of the avoided activation of Balancing Energy for Frequency Restoration Reserves or Replacement Reserves.
5. Imbalance Settlement Price, in the event that both positive and negative Balancing Energy for Frequency Restoration Reserves or Replacement Reserves have been activated during the same Imbalance Settlement Period, shall be determined for shortage and surplus based on at least one of the principles pursuant to paragraphs 3 and 4.

Article 62
IMBALANCE SETTLEMENT

Each TSO shall settle with each Balance Responsible Party all calculated Imbalances pursuant to Article 60 for each Imbalance Settlement Period pursuant to Article 21 against the appropriate Imbalance Price pursuant to Article 61.

SECTION 5
SETTLEMENT OF BALANCING CAPACITY

Article 63
PROCUREMENT OF BALANCING CAPACITY WITHIN A RESPONSIBILITY AREA

1. Each TSO of a Responsibility Area using Balancing Capacity bids shall define rules for the settlement of at least Frequency Restoration Reserves and Replacement Reserves pursuant to Article 34.
2. Each TSO of a Responsibility Area using Balancing Capacity bids shall settle at least all procured Frequency Restoration Reserves and Replacement Reserves pursuant to Article 34.

Article 64
PROCUREMENT OF A BALANCING CAPACITY WITHIN A COORDINATED BALANCING AREA

1. All TSOs participating in a Coordinated Balancing Area declared for the Exchange of Balancing Capacity shall define rules for the settlement of procured Balancing Capacity pursuant Article 36.
2. All TSOs participating in a Coordinated Balancing Area declared for the Exchange of Balancing Capacity shall settle jointly procured Balancing Capacity using the TSO-TSO Settlement Function pursuant to Article 36.
3. All TSOs participating in a Coordinated Balancing Area declared for the Exchange of Balancing Capacity shall define rules for the settlement of reservation of Cross Zonal Capacity pursuant to CHAPTER 4 SECTION 1.
4. All TSOs participating in a Coordinated Balancing Area declared for the Exchange of Balancing Capacity shall settle the reservation of Cross Zonal Capacity pursuant to CHAPTER 4 SECTION 1.

SECTION 6
SETTLEMENT AMENDMENTS

Article 65
GENERAL PRINCIPLES

All TSOs of a Coordinated Balancing Area shall establish a coordinated mechanism for amendments to settlements between all TSOs of a Coordinated Balancing Area, based on the principles set forth in Article 58 and Article 59.

CHAPTER 6 ALGORITHM

Article 66 ALGORITHM DEVELOPMENT

1. No later than one year after the entry into force of this Network Code, all TSOs shall jointly define principles for each of the algorithms applied for the following functions:
 - (a) Imbalance Netting Process Function;
 - (b) Capacity Procurement Optimisation Function;
 - (c) Transfer of Balancing Capacity Function; and
 - (d) Activation Optimisation Function.
2. All functions as described in this Article shall:
 - (a) respect Operational Security constraints;
 - (b) take into account technical and network constraints; and
 - (c) if applicable, take into account the available Cross Zonal Capacities.
3. All TSOs of a Coordinated Balancing Area operating the Imbalance Netting Process shall develop an algorithm to be operated by the Imbalance Netting Process Function, in accordance with the algorithm principles to minimise, when cost effective, the counter activation of Balancing resources by performing the Imbalance Netting Process as defined in Network Code on Load-Frequency Control and Reserves.
4. All TSOs of a Coordinated Balancing Area for Balancing Capacity shall develop an algorithm to be operated by the Capacity Procurement Optimisation Function for the procurement of Balancing Capacity in accordance with the algorithm principles:
 - (a) to minimise the overall procurement costs of all jointly procured Balancing Capacity for the Coordinated Balancing Area declared for the Exchange of Balancing Capacity; and
 - (b) to take into account the costs of ensuring the availability of Cross Zonal Capacity for Balancing Capacity pursuant to CHAPTER 4 SECTION 1.
5. In case a Transfer of Balancing Capacity is possible, all TSOs of a Coordinated Balancing Area declared for the Exchange of Balancing Capacity shall develop an algorithm to be operated by the Transfer of Balancing Capacity Function for the Transfer of Balancing Capacity, in accordance with the algorithm principles to allow for Balancing Service Providers to transfer their Balancing Capacity obligation to another Balancing Service Provider taking into account Prequalification requirements for each Standard Product.
6. All TSOs of a Coordinated Balancing Area declared for the Exchange of Balancing Energy shall develop an algorithm to be operated by the Activation Optimisation Function for the activation of Balancing Energy bids in accordance with the algorithm principles:
 - (a) to minimise the costs of Balancing; and
 - (b) to take into account the process descriptions for imbalance netting and cross-border activation pursuant to *[Chapter 4 Load Frequency Control Structure]* of the Network Code on Load-Frequency Control and Reserves.

Article 67
ALGORITHM AMENDMENT

1. All TSOs of a Coordinated Balancing Area shall have the right to propose an amendment of the algorithms applied, in accordance with the principles pursuant to Article 66(1).
2. Proposal for amendments of algorithms from one TSO shall be submitted to all TSOs of the concerned Coordinated Balancing Area and supported by detailed information explaining and documenting the rationale for them.
3. If all TSOs of a Coordinated Balancing Area agree on the proposed amendment, they shall implement the amendment of the algorithm and publish information pursuant to Article 8(3).

CHAPTER 7 REPORTING

Article 68 REPORTING

1. ENTSO-E shall publish a report monitoring, describing and analysing the implementation of this Network Code, as well as the progress made in terms of harmonisation and integration of Balancing Markets.
2. The level of report shall vary as follows:
 - (a) every second year a detailed report shall be published; and
 - (b) in the intervening years a simpler version of the report shall be published to review the progress made and update performance indicators, but without performing additional detailed analysis.
3. No later than six months after the entry into force of this Network Code, ENTSO-E shall inform the Agency on the years in which a detailed report will be published.
4. The detailed report shall:
 - (a) list all events where in Alert State the Activation Optimisation Function is not used including a detailed justification;
 - (b) describe and analyse the harmonisation process through the evolution of Coordinated Balancing Areas, as well as the progress made in terms of harmonisation and integration of Balancing Markets through the application of this Network Code. The harmonisation process shall include for two adjacent Coordinated Balancing Areas which use the same Standard Product or operating the Imbalance Netting Process:
 - i. an explanation why the Coordinated Balancing Areas do not exchange the concerned Standard Product;
 - ii. all required changes for the exchange of Standard Products; and
 - iii. the progress made since the last report and the expected harmonisation between the Coordinated Balancing Areas for the following year;
 - (c) describe the evolution of Balancing resources;
 - (d) assess the progress of harmonisation of Balancing Energy products and analyse the effects of non-harmonisation;
 - (e) assess the progress of exchanging all Standard Products per Coordinated Balancing Area for the
 - i. Frequency Restoration Process with automatic activation;
 - ii. Frequency Restoration Process with manual activation; and
 - iii. Reserve Replacement Process;
 - (f) assess the progress of coordination of the Balancing Energy activation from Frequency Restoration Reserves and from Replacement Reserves; including a status of the Balancing projects in which each TSO is involved;
 - (g) assess the development of the Exchange of Balancing Capacity and the opportunities for Sharing of Reserves and describe prerequisites and actions that are needed to implement the TSO-TSO Model for the Exchange of Balancing Capacity;
 - (h) include an explanation of each TSO procuring Balancing Capacity what prevents it from using the Exchange of Balancing Capacity or the Sharing of Reserves after the implementation of the Regional Integration Models;
 - (i) assess the compatibility between Coordinated Balancing Areas;
 - (j) assess the progress of harmonisation of Imbalance Settlement arrangements as well as the consequences and possible distortions due to non-harmonised features;

- (k) include information concerning the volumes of available, procured and used Specific Products, as well as justification of Specific Products subject to conditions pursuant to Article 29(8);
 - (l) justify the volume of Balancing Capacity per TSO;
 - (m) analyse the costs and benefits, and the possible inefficiencies and distortions of having Specific Products in terms of competition and market fragmentation, participation of Demand Side Response and Renewable Energy Sources, integration of Balancing Markets and side-effects on other electricity markets;
 - (n) assess the progress of harmonisation of products and rules for procurement of Balancing Capacity and analyse the effects of non-harmonisation;
 - (o) include the results of Cost-Benefit Analyses pursuant to Article 69; and
 - (p) list all TSOs operating Central Dispatch systems.
5. All TSOs shall provide all required input for the establishment of the report.
 6. ENTSO-E shall publish the report on the ENTSO-E website and submit it to the Agency no later than six months after the end of the year it refers to.
 7. ENTSO-E shall define performance indicators which shall reflect:
 - (a) availability of Balancing resources, including their distribution and Balancing Capacity;
 - (b) welfare gain due to the Exchange of Balancing Services;
 - (c) benefits from the use of Standard Balancing products;
 - (d) total cost of Balancing;
 - (e) quality of Balancing;
 - (f) possible inefficiencies and distortions on Balancing Markets;
 - (g) the volume and price of Balancing Energy used for Balancing purposes, both available and activated, from Standard Products and from Specific Products;
 - (h) the evolution of Balancing Service prices of the previous years; and
 - (i) the total costs and benefits from all reservations of Cross Zonal Capacity for Balancing Services purposes.
 8. All TSOs shall have the right to design and review the report structure, content and the performance indicators while respecting the following:
 - (a) ENTSO-E shall propose to the Agency the structure of the report no later than three month after the entry into force of the Network Code; and
 - (b) the Agency shall approve or request to amend the proposal of the report content no more than two month after the submission of the proposal.
 9. Proposal for amendments of the report structure, content and the performance indicators from one TSO shall be submitted to all TSOs including detailed information explaining and documenting the rationale for the amendments.
 10. After implementation of the European integration models pursuant to CHAPTER 2 SECTION 2 to SECTION 5, all TSOs shall review the content and conditions of publication of the reports. Based on the outcome of that review, all TSOs shall develop a new structure and timing for the publication of the reports.

CHAPTER 8

COST-BENEFIT ANALYSIS; TRANSITIONAL ARRANGEMENTS AND DEROGATIONS

Article 69

COST-BENEFIT ANALYSIS

1. No later than six months before its application, all TSOs shall submit the criteria and methodology for each Cost-Benefit Analysis for regulatory approval.
2. The Cost-Benefit Analysis shall at least take into account the objectives of this Network Code set forth in Article 10, and:
 - (a) technical feasibility;
 - (b) Social Welfare;
 - (c) the costs and benefits of implementation;
 - (d) the impact on European, regional and national Balancing costs;
 - (e) the potential impact on regional energy market prices;
 - (f) the ability of TSOs and Balancing Responsible Parties to fulfil their obligations; and
 - (g) the impact on market parties in terms of additional technical or IT requirements.
3. All concerned TSOs shall provide the results of the Cost-Benefit Analysis to all concerned NRAs, together with a justified proposal on how to address possible issues identified by the Cost-Benefit Analysis. The proposal shall be publically consulted pursuant to Article 5. On that basis, the above mentioned NRAs and TSOs shall decide on the way forward.

Article 70

TRANSITION PERIOD

1. The duration of the transition period shall be two years starting on the day of entry into force of this Network Code.
2. The transition period covers the application of Article 34 to Article 37 and CHAPTER 5. During the transition period these provisions shall not apply.
3. During the transition period the requirements of this Network Code shall not apply to agreements related to Electricity Balancing between TSOs or between a TSO and a concerned grid user being in force at the date of the entry into force of this Network Code. After the transition period the requirements of this Network Code shall also apply to agreements related to Electricity Balancing between TSOs or between a TSO and a concerned grid user being in force at the date of the entry into force of this Network Code as well as those concluded during the transition period.
4. NRAs of a Coordinated Balancing Area shall have the right to approve other methodologies for reservation of Cross Zonal Capacity for Balancing Capacity until methodologies for reservation of Cross Zonal Capacity for Balancing Capacity are developed and approved pursuant to Article 45, Article 46 and Article 47.

Article 71
DEROGATIONS

1. Each TSO shall have the right to apply for derogation in respect of one or more provisions of this Network Code by submitting a written request to the NRA.
2. The derogation process shall be transparent, non-discriminatory, non-biased, well documented and based on a reasoned request by the TSO seeking the derogation and demonstrating the fulfilment of the conditions pursuant to paragraph 3.
3. Derogations shall be granted to TSOs who would be unable to implement certain provisions of this Network Code within the timelines required by this Network Code for the reasons that:
 - (a) the TSO seeking the derogation and would be, at the day of application of the provisions for which derogation is requested, in a significantly different situation from other TSOs in Europe in terms of Balancing arrangements; or
 - (b) the implementation of the provisions for which derogation is requested would result in significant problems in Balancing the Responsibility Area of the TSO seeking the derogation.
4. The request for derogation shall be submitted six months prior to the day of application of the provisions from which derogation is requested. During the derogation process the TSO requesting derogation shall be deemed compliant with the provision from which derogation is requested.
5. Derogation shall be granted once and for a maximum period of two years.
6. The request for derogation shall include all the following information and documents:
 - (a) provisions for which derogation is requested;
 - (b) requested derogation period;
 - (c) a detailed plan and timeline specifying how the TSO requesting derogation intends to address the underlying reasons and intends to ensure the implementation of the concerned provisions of this Network Code after expiration of the derogation period;
 - (d) assessment of the consequences of requested derogation on adjacent markets; and
 - (e) assessment of the possible jeopardies for the integration of Balancing Markets across Europe caused by the requested derogation.
7. No later than six months following the reception of request for derogation, the relevant NRA shall decide on whether to grant the derogation or not. In assessing the request for derogation, the NRA shall consider the following aspects:
 - (a) difficulties of implementing the concerned provisions due to the specificities of the situation of the TSO seeking the derogation, in terms of national Balancing arrangements; as well as risks and implications of the concerned provisions, in terms of Operational Security;
 - (b) actions taken by the TSO seeking the derogation to facilitate the implementation of the concerned provisions;
 - (c) impacts of non-implementation of the concerned provisions, in terms of non-discrimination and competition with other European Market Participants, in particular as regards Demand Side Response and Renewable Energy Sources;
 - (d) impacts on overall Social Welfare; and
 - (e) impacts on other Responsibility Areas and overall consequences on European market integration process.

8. The NRA shall communicate to the TSO requesting derogation, the Agency and the European Commission its decision granting or rejecting derogation. The decision shall also be published on its website.
9. The NRA shall create and operate a register in which derogations are recorded, together with the reasons for their granting and the consequences of the derogations.

CHAPTER 9 FINAL PROVISIONS

Article 72 ENTRY INTO FORCE

1. This Network Code shall enter into force on the twentieth day following that of its publication in the Official Journal of the European Union.
2. This Network Code shall be binding in its entirety and directly applicable in all Member States.