

ENTSO-E Draft Network Code on Electricity Balancing

Version 1.22

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Notice

This document reflects the status of the work of Transmission System Operator experts as of 29 May 2013 in line with the ACER Framework Guidelines on Electricity System Operation published on 18 September 2012 after the EC mandate letter was received by ENTSO-E on 21 December 2012. Furthermore, it is based on the input received through extensive informal dialogue with stakeholders, as well as bilateral / trilateral meetings with ACER and with the EC.

The document does not in any case represent a firm, binding or definitive ENTSO-E position on the content, the structure or the prerogatives of the Network Code on Electricity Balancing.

Such version of the draft Network Code is released for public consultation in accordance with the provisions of the Article 10 of Regulation (EC) No 714/2009.

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 draft Regulation on Submission and Publication of Data in Electricity Markets being developed in concurrent timescales to this Network Code,

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 within a European Network of Transmission System Operators for Electricity (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) Transmission System Operators (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 in 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 Transmission System Operators, 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 to ensure system 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 contributing to non-discrimination, effective competition, completion and efficient functioning of the internal market in electricity and cross-border trade, security of supply, providing benefits for customers, participation of Demand 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.

HAS ADOPTED THIS NETWORK CODE:

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CHAPTER 1

GENERAL PROVISIONS

Article 1

SUBJECT MATTER AND SCOPE

1. This Network Code establishes common rules for Electricity Balancing. This will involve the establishment of common principles for procurement and common methodology for the activation and settlement of Frequency Containment Reserves, Frequency Restoration Reserves and Replacement Reserves.
2. The requirements set forth by this Network Code shall apply in particular to Transmission System Operators, National Regulatory Authorities, the Agency, Distribution System Operators, Designated Entities, where applicable, and Market Participants.

Article 2

DEFINITIONS

1. For the purpose of this Network Code, the definitions contained in Article 2 of Directive 2009/72/EC and in Article 2 of Regulation (EC) No 714/2009 shall apply. The definitions contained in Article 2 of the Network Codes for Requirements for Grid Connection applicable to all Generators, Capacity Allocation and Congestion Management, Demand Connection, Operational Security, Operational Planning and Scheduling, and Load-Frequency Control and Reserves and Forward Capacity Allocation shall also apply.
2. The following definitions shall apply:

Activation of Balancing Energy means the process of Transmission System Operators calling for Balancing Energy.

Activation Optimisation Function means the responsibility to operate the algorithm developed to be applied for the optimisation of the Activation of Balancing Energy within a Coordinated Balancing Area.

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

Balance Responsible Party means a market participant or its chosen representative responsible for its Imbalances.

Balancing means all actions and processes, on all timescales, through which Transmission System Operators ensure, in a continuous way, to maintain the system frequency within a predefined stability range as set forth in 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 the Network Code on Load-Frequency Control and Reserves.

Balancing Energy means energy activated by Transmission System Operators to perform Balancing.

Balancing Energy Bids means a product on a Common Merit Order List that entails an option to accept an Imbalance Adjustment on the Position of the associated Balance Responsible Party due to activation and specificities of the Balancing Energy activated from the product.

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 Reserves means the obligation of a Balancing Service Provider to place Balancing Energy Bids according to contractual specifications.

Balancing Reserve Bids means that the Balancing Service Provider offers to provide a certain amount of Balancing Reserve power for a certain reservation price for a given procurement cycle.

Balancing Services means Balancing Reserves or Balancing Energy.

Balancing Service Provider means a market participant providing Balancing Services to its Connection Transmission System Operator.

Central Dispatch System means a dispatch arrangement in a Relevant Area where the Transmission System Operator determines the commitment and output of a majority of generation or demand and issues dispatch instructions directly to them.

Common Merit Order List means a list of all Balancing Reserve Bids or Balancing Energy Bids per Standard Product, sorted per direction and in order of their bid prices, used for the Activation of Balancing Energy or procurement of Balancing Reserves within a Coordinated Balancing Area.

Connection Transmission System Operator means the single Transmission System Operator which operates the Relevant Area in which a Balancing Service Provider or Balance Responsible Party shall be compliant with the terms and conditions regarding Balancing or is connected to the grid.

Co-optimisation Process means Cross Zonal Capacity will be allocated in an existing auction or an electricity market in which Cross Zonal Capacities are allocated in the same time for market purposes and for Balancing purposes.

Coordinated Balancing Area means any cooperation with respect to the Exchange of Balancing Services between two or more Transmission System Operators, each operating a Relevant Area.

Counteracting Activation Minimisation Function means the responsibility to operate the algorithm developed to be applied for the minimisation of counteracting Activation of Balancing Energy between two or more Relevant Areas.

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

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

Designated Entity means a legal entity which is performing tasks delegated by a Connection Transmission System Operator.

Divisibility means the possibility for the Transmission System Operator to activate only part of the bid offered by the Balancing Service Provider, either in terms of power activation or time duration.

Exchange of Balancing Energy means the process of triggering the Activation of Balancing Energy at least in the form of a Standard Product by a Requesting Transmission System Operator from a different Relevant Area than the one in which the activated Balancing Service Provider is connected.

Exchange of Balancing Reserves means the process of procuring Balancing Reserves at least in the form of a Standard Product by a Requesting Transmission System Operator from a different Relevant Area than the one in which the procured Balancing Service Provider is connected.

Exchange of Balancing Services means the Exchange of Balancing Energy and the Exchange of Balancing Reserves.

Full Activation Time means the time period between the set point change and the corresponding full activation of the relevant product.

Imbalance means the difference between the Position of a Balance Responsible Party , the Allocated Volume of all injections and withdrawals covered by this Balance Responsible Party and any Imbalance Adjustment applied by the Transmission System Operator within a given Imbalance Settlement Period.

Imbalance Adjustment means the correction applied to the Position of a Balancing Service Provider or a Balance Responsible Party by Connection Transmission System Operator for the calculation of the Imbalance.

Imbalance Price means the price in each Imbalance Settlement Period for Imbalance in each direction.

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

Imbalance Settlement Period means time units used for computing Balance Responsible Parties' Imbalance.

Intentional Deviations means for each energy exchange that has taken place in a given time interval, between a Relevant Area and its Synchronous Zone, or between a Relevant Area and another Relevant Area in a different Synchronous Zone, the non-scheduled energy considered to be exchanged as a consequence of an intended process, including at least Imbalance Netting Process, Ramping Process, Frequency Containment requirement, Cross Zonal Frequency Containment Process and Cross Zonal Frequency Restoration Process.

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

Position means a sum of commercial trades, and physical injections and withdrawals were appropriate, of a Balance Responsible Party in a relevant Imbalance Settlement Period.

Price of the Bid means the price of Balancing Energy in Euro per megawatt hour or of Balancing Reserves in Euro per megawatt per hour.

Probabilistic Approach means that a decision or consideration of a situation is made based on calculated probabilities of the occurrence of events or values, where the real situation or the occurrence of an event is not known before real-time.

Ramp Rate Process means a process that aims at the coordinated change of interchange schedule values within or between LFC Blocks in different synchronous areas, and the coordinated settlement of the ensuing Imbalances.

Ramping Period means the time period for ramping, from the first delivery or withdrawal of power until the full change of power in-feed.

Relevant Area means the Area which is operated by a single Transmission System Operator in accordance with the Area Process Obligations pursuant to the Network Code on Load-Frequency Control and Reserves. In systems where Imbalance is determined on nodal level and/or energy prices are determined on nodal or zonal level, the Relevant Area for Imbalance pricing and Relevant Area for Imbalance calculation are the areas identified by the Connection Transmission System Operator. It implies that the Relevant Area for Imbalance Price may differ from the Relevant Area for Imbalance calculation.

Relevant Regulatory Authority means a National Regulatory Authority having jurisdiction over a Relevant Area forming a part of a Coordinated Balancing Area.

Requesting Transmission System Operator means the Transmission System Operator that requests Balancing Energy or Balancing Reserves.

Reserve Procurement Optimisation Function means the responsibility to operate the algorithm developed to be applied for the optimisation of the procurement of Balancing Reserves within a Coordinated Balancing Area in which Balancing Reserves are exchanged.

Specific Product means a product different from a Standard Product.

Standard Products means a set of harmonised Balancing products defined by all Transmission System Operators for the Exchange and Sharing of Balancing Services.

Transfer of Reserve Optimisation Function means the responsibility to operate the algorithm developed to be applied for the optimisation of the Transfer of Obligations of Balancing Service Providers for Balancing Reserves.

Transfer of Obligations means the Transfer of Obligations of Balancing Service Providers for procured Balancing Reserves, in order to ensure an adequate amount of Balancing Energy and accurate delivery.

TSO-BSP Model means a model for Exchange of Balancing Reserves where the Requesting Transmission System Operator has an agreement with a Balancing Service Provider in another Relevant Area.

TSO-TSO Model means a model for the Exchange of Balancing Services with Transmission System Operators being the only entities involved in the Exchange of Balancing Services between areas. The TSO-TSO Model is the standard model for the Exchange of Balancing Services.

TSO-TSO Settlement Function means the function that performs the settlement of the processes of Exchange of Balancing Services between the Transmission System Operators of a Coordinated Balancing Area.

Unintentional Deviations means for each energy exchange that has taken place in a given time interval, between a Relevant Area and its Synchronous Zone, or between a Relevant Area and another Relevant Area in a different Synchronous Zone, the difference between the actual measured energy exchange, and the scheduled energy exchange and all Intentional Deviations from that schedule.

Unshared Bids means an energy bid of a Standard Product or a Specific Product sent by a Balancing Service Provider to its Transmission System Operator which is not available for activation by other Transmission System Operators.

Validity Period means the time period when the bid offered by the Balancing Service Provider can be activated by the Connection Transmission System Operator, whereas all the

characteristics of the product are respected. The Validity Period is defined by a beginning time and an ending time.

Article 3 REGULATORY ASPECTS

1. The requirements established in this Network Code and their applications are based on the principle of non-discrimination and transparency as well as the principle of optimisation between the overall efficiency and total cost for all involved parties.
2. Notwithstanding the above, the application of the non-discrimination principle and the principle of optimisation between the overall efficiency and total costs for all involved parties shall be balanced with the aim of achieving transparency in issues of interest for the market and the assignment to the real originator of the costs.

Article 4 RECOVERY OF COSTS

1. The costs related to the obligations referred to in this Network Code which are to be borne by regulated Network Operators and Designated Entities, where applicable, shall be assessed by National Regulatory Authorities.
2. Costs assessed as reasonable and proportionate shall be recovered in a timely manner via network tariffs or appropriate mechanisms as determined by National Regulatory Authorities.
3. If requested to do so by National Regulatory Authorities, regulated Network Operators and Designated Entities shall, within three months of such a request, use best endeavours to provide such additional information as reasonably requested by National Regulatory Authorities to facilitate the assessment of the costs incurred.

Article 5 CONFIDENTIALITY OBLIGATIONS

1. All entities referred to in Article 1(2) shall preserve confidentiality of the information and data submitted to them in the fulfilment of the obligations arising from this Network Code and shall use them exclusively for the purpose they have been submitted in compliance with this Network Code.

Article 6 CONSULTATION

1. The following shall be publically consulted on for a period of at least four weeks by the party or parties responsible for developing the following proposals:
 - (a) terms and conditions related to Balancing pursuant to Article 16;
 - (b) the list of Standard Products pursuant to Article 17;
 - (c) common pricing methods within a Coordinated Balancing Area of Balancing Reserve products pursuant to Article 23(3);

- (d) amendments to the common pricing methods within a Coordinated Balancing Area of Balancing Reserve products pursuant to Article 23;
 - (e) the common pricing method for Balancing Energy Standard Products pursuant to Article 25;
 - (f) the amount of Unshared Bids pursuant to Article 26;
 - (g) a proposal for the Activation Optimisation Function pursuant to Article 28;
 - (h) capacity provision methodologies for Balancing Services pursuant to Article 32;
 - (i) a proposal for each algorithm developed pursuant to Article 55(1);
 - (j) the proposal on the target model for the exchanges of Balancing Energy from automatically activated Frequency Restoration Reserves pursuant to Article 58(1);
 - (k) a proposal for modification of targets pursuant to Article 58(1);
 - (l) a proposal for the implementation of the transitional arrangements pursuant to Article 58; and
 - (m) the methodology for the Cost-Benefit Analysis pursuant to Article 59.
2. The views of stakeholders emerging from the consultations undertaken pursuant to paragraph 1 shall be duly considered by the party to whom the obligation is addressed prior to the submission of the document 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 7

REGULATORY APPROVALS

1. The items specified in paragraphs 2 to 4 shall be treated in a manner consistent with Article 37 of Directive 2009/72/EC.
2. The following shall be subject to approval by all National Regulatory Authorities:
 - a) the proposals for Standard Products pursuant to Article 17;
 - b) the common pricing method and subsequent revisions for Balancing Energy Standard Products pursuant to Article 25;
 - c) the methodologies for the creation of a common function for the Activation of Balancing Energy pursuant to Article 26;
 - d) the necessary Common Merit Order Lists pursuant to Article 28;
 - e) the proposal for amendments to the annual report pursuant to Article 57(9);
 - f) the proposal of the target model for the exchanges of Balancing Energy from automatically activated Frequency Restoration Reserves as well as the proposal for modification of this target model, pursuant to Article 58;
 - g) the proposal for modification of the features of the target model for the exchanges of Balancing Energy from manually activated Frequency Restoration Reserves and Replacement Reserves, pursuant to Article 58; and
 - h) the criteria and methodology for the Cost-Benefit Analysis pursuant to Article 59.
3. The following shall be subject to approval by each Relevant Regulatory Authority of the concerned Coordinated Balancing Area:
 - a) all proposals for Coordinated Balancing Areas pursuant to Article 10;
 - b) proposals to combine procurement and accept additional bids linking upwards and downwards Balancing Reserve products pursuant to Article 22;

- c) the application for a contract on Balancing Reserves longer than twelve consecutive months and earlier than twelve months before the first time unit of the contract period in a Coordinated Balancing Area pursuant to Article 23(2);
 - d) common pricing methods within a Coordinated Balancing Area of each Balancing Reserve products pursuant to Article 23(3);
 - e) amendment to the applicable pricing method of each Exchanged or Shared Balancing Reserve product pursuant to Article 23;
 - f) requests for transitional exemptions for the procurement of Balancing Reserves pursuant to Article 24;
 - g) the change proposal of the common pricing method of Balancing Energy Standard Products pursuant to Article 25(3);
 - h) the capacity provision and pricing methodologies for Balancing Reserves pursuant to Article 30 and Article 32;
 - i) amendments to the capacity provision and pricing methodology pursuant to Article 32(2);
 - j) Reservation of Cross Zonal Capacity pursuant the capacity provision and pricing methodologies for Balancing Reserves pursuant to Article 30 and Article 32;
 - k) any algorithm developed pursuant to Article 55; and
 - l) any amendment to the algorithm pursuant to Article 56.
4. The following shall be subject to approval by the National Regulatory Authority of each Member State concerned on a case-by-case basis:
- a) the permission for Transmission System Operators to offer Balancing Services themselves pursuant to Article 11;
 - b) the application by a Transmission System Operator to offer the Balancing Services if system security is threatened due to insufficient bids from Balancing Service Providers pursuant to Article 11;
 - c) the delegation of tasks to Designated Entities pursuant to Article 11;
 - d) the terms and conditions related to Balancing pursuant to Article 16;
 - e) the proposal to oblige Balance Responsible Parties to provide balanced programs in the Day-Ahead timeframe pursuant to Article 16;
 - f) the existence and use of Specific Products pursuant to Article 17 and Article 18;
 - g) the selection and conversion of bids pursuant to Article 19;
 - h) the methodology and associated parameters for the procurement of Balancing Reserves pursuant to Article 22;
 - i) the application by a Transmission System Operator for a combined procurement and to accept additional bids linking upward and downward bids pursuant to Article 22(5)(b);
 - j) the application by a Transmission System Operator for a contract on Balancing Reserves longer than twelve consecutive months and earlier than twelve months before the first time unit of the contract period pursuant to Article 22(4);
 - k) the application by a Transmission System Operator to require a Balancing Service Provider to offer unused generation capacity in the Balancing Markets pursuant to Article 25;
 - l) rules for submission and updating bids by Balancing Service Providers in Central Dispatch Systems pursuant to Article 25(7);
 - m) the amount of Unshared Bids pursuant to Article 26;
 - m) Imbalance Settlement mechanisms, in particular:
 - the Imbalance Settlement Period pursuant to Article 48;
 - the procedure to define Imbalance pursuant to Article 49; and
 - the procedure to define Imbalance Prices pursuant to Article 50;

- n) the application by a Transmission System Operator for an Imbalance Settlement Period deviating from the decision pursuant to Article 48;
 - n) the procedures for settlement amendment pursuant to Article 54; and
 - o) the application for derogation in respect of one or more provisions of this Network Code pursuant to Article 61.
5. For each of the approvals specified in paragraphs 2 to 4, Transmission System Operators shall, prior to the expiry of the deadline for developing procedures for the provision of Balancing Services specified in this Network Code, submit those procedures, to the concerned National Regulatory Authority for approval. All submissions shall include a proposed timescale for implementation and a description of the expected impact of the procedure.
6. National Regulatory Authorities shall, after having received the proposals pursuant to paragraphs 1 to 5, provide Transmission System Operators with an approval or request to amend the proposals within:
- a) three months after having received a proposal if the approval process concerns only one National Regulatory Authority; and
 - b) six months after having received a proposal if the approval process concerns more than one National Regulatory Authority.
7. In the event that the concerned National Regulatory Authorities request an amendment to the proposals pursuant to paragraphs 1 to 5, Transmission System Operators shall resubmit an amended proposal for approval within three months.
8. The relevant National Regulatory Authorities shall inform the Agency of the outcome of any approval of fixing procedures.
9. Where the concerned National Regulatory Authorities have not been able to reach a decision in accordance with paragraph 6, the National Regulatory Authorities shall inform the Agency. The Agency shall decide upon those regulatory issues that fall within the competence of National Regulatory Authorities as specified under Article 8 of Regulation (EC) No 713/2009.

Article 8

PUBLICATION OF INFORMATION

1. The items consulted upon according to Article 6(1) shall be made publically available after their approval, if regulatory approval is required, or after finalisation in all other cases by the party 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 Transmission System Operator shall publish, in English at least, the following information:
- a) the terms and conditions of Balancing Services sufficiently in advance before the procurement starts, pursuant to Article 16;
 - b) information on Cross Zonal Capacity Reservation for each Delivery Period without undue delay before the Cross Zonal Gate Opening Time of the relevant timeframe, including the amount of Cross Zonal Capacity Reservation pursuant to Article 32;

- c) a description of the functional requirements of any algorithm developed and amendments to it, pursuant to Article 55;
 - d) information related to Cross Zonal Capacity Reservation pursuant to Article 32; and
 - e) all information contained in the common annual report pursuant to Article 57.
4. Each Transmission System Operator shall publish the following information on Specific Products:
- a) the volumes of Specific Products procured in their Relevant Area;
 - b) the volumes of Specific Products activated in their Relevant Area; and
 - c) the amount of Unshared Bids pursuant to Article 26.
5. ENTSO-E shall publish the information referred to in this Article on the central information transparency platform, established pursuant to Article 3, of Regulation (EC) No.../.. of XXX on the submission and publication of data in electricity markets, or on a public website.

CHAPTER 2

THE ELECTRICITY BALANCING SYSTEM

SECTION 1

PRINCIPLES OF THE BALANCING MARKET

Article 9

GENERAL OBJECTIVES OF THE BALANCING MARKET

1. All entities referred to in Article 1(2) shall cooperate in fulfilling the obligations specified within this Network Code, in order to safeguard operational security, promote the completion and efficient functioning of the internal market in electricity and to ensure the optimal management, coordinated operation and sound technical evolution of the European electricity transmission system.
2. This Network Code shall facilitate the achievement of the following objectives, in particular:
 - (a) safeguard operational security;
 - (b) foster effective competition, non-discrimination and transparency in Balancing Markets;
 - (c) promote the Exchange of Balancing Services;
 - (d) ensure that the procurement of Balancing Services is fair, objective, transparent and market-based, fosters the liquidity of Balancing Markets, avoids undue entry barriers for new entrants and prevents undue distortions from within the internal market in electricity and especially between adjacent Coordinated Balancing Areas;
 - (e) facilitate the efficient functioning of other electricity markets, in time frames different from the Balancing Markets;
 - (f) facilitate wide participation of Demand Side Response and supporting the achievement of the European Union target for the penetration of renewable generation;
 - (g) increase efficiency of the operation and functioning of Balancing Markets, avoiding undue market fragmentation whilst promoting the Exchange of Balancing Services and Sharing of Balancing Services;
 - (h) provide benefits for consumers;
 - (i) contribute to the efficient long-term operation and development of the European electricity Transmission System and electricity sector; and
 - (j) facilitate the integration of renewable energy sources in the Balancing Markets in order to enhance pan-European Social Welfare.
3. In fulfilling the requirements of this Network Code, Transmission System Operators and National Regulatory Authorities shall use reasonable endeavours to exploit synergies drawing on experience gained through existing Balancing cooperation projects, commenced, concluded or on-going at the date of the entry into force of this Network Code.

Article 10
COORDINATED BALANCING AREA

1. Each Transmission System Operator shall cooperate with at least one other Transmission System Operator operating in two different Member States in the form of a Coordinated Balancing Area. Such cooperation shall comprise the Exchange of Balancing Energy from at least Standard Product, or Imbalance Netting.
2. All Transmission System Operators intending to cooperate in a Coordinated Balancing Area shall submit a common proposal detailing the framework for common terms and conditions related to their cooperation, pursuant to Article 16, to the Relevant Regulatory Authorities at least six months before the intended implementation date. Coordinated Balancing Areas declared for the Exchange of Balancing Reserves shall be consistent with Coordinated Balancing Areas for the Exchange of Balancing Energy for the same Balancing Service, and shall not exceed it.
3. All Transmission System Operators of two or more interconnected Coordinated Balancing Areas shall be entitled to exchange all Balancing Services between these Coordinated Balancing Areas, which are already exchanged within these Coordinated Balancing Areas. Cooperation of Coordinated Balancing Areas in terms of Exchange of Balancing Services between them shall be encouraged in order to facilitate the achievement of the targets established in Article 58.
4. All Transmission System Operators shall cooperate loyally in promoting the creation, enlargement, and merging of Coordinated Balancing Areas in order to facilitate the achievement of the targets established in Article 58. Where two or more Coordinated Balancing Areas for a Standard Product merge, the result shall have the form of a single Coordinated Balancing Area replacing the previous ones.
5. The requirements of the Network Code on Load-Frequency Control and Reserves, especially regarding the roles and responsibilities established, or to be established as a consequence of the cooperation within a Coordinated Balancing Area, shall apply to all relevant Transmission System Operators.
6. Transmission System Operators of a Coordinated Balancing Area shall perform and share, amongst themselves, close-to-real-time short-term predictive forecasts of system conditions including at least information on generation, load, reserve requirements and the transmission network, in a harmonised way, in order to coordinate and optimise the Balancing actions taken.
7. All Transmission System Operators shall report to the Agency as soon as incompatibilities are identified.

SECTION 2
FUNCTIONS AND RESPONSIBILITIES

Article 11
ROLE OF THE TRANSMISSION SYSTEM OPERATORS

1. Transmission System Operators shall be responsible for organising European Balancing Markets and shall strive for their integration, keeping the system in balance in the most

efficient manner and following the general objectives defined in Article 9. To do so, they shall work in close cooperation and shall coordinate their activities as much as necessary.

2. Each Transmission System Operator shall be responsible for procuring the Balancing Services from Balancing Service Providers to safeguard operational security.
3. Transmission System Operators shall not offer the Balancing Services themselves except, if there are insufficient bids with respect to dimensioning requirements contained in the Network Code on Load-Frequency Control and Reserves from Balancing Service Providers or if foreseen under national law. If a Transmission System Operator is submitting a proposal for regulatory approval regarding the provision of Balancing Services following Article 7, it shall at the same time submit all relevant information and documents related to the opening of this approval to the Agency.
4. Notwithstanding paragraph 1, each Connection Transmission System Operator shall be entitled to delegate all or part of the tasks, including the responsibility for performing these tasks subject to National Regulatory Authority approval, necessary for the application of Imbalance Settlement between the Connection Transmission System Operator and the Balance Responsible Party, pursuant to CHAPTER 5 SECTION 4, to a Designated Entity. In case of the delegation of selected tasks only:
 - (a) the Transmission System Operator shall remain responsible for all tasks related to Imbalance Settlement;
 - (b) the delegating Transmission System Operator shall monitor the compliance with delegated tasks; and
 - (c) the delegating Transmission System Operator shall ensure that suitable confidentiality arrangements have been put in place prior to delegation.
5. Transmission System Operators shall use best endeavours to facilitate the Exchange of Balancing Energy within a Coordinated Balancing Area and ensure its applicability.
6. All decisions by Transmission System Operators within a Coordinated Balancing Area, or any other cooperation between two or more Transmission System Operators dealing with the Exchange and Sharing of Balancing Services or an Imbalance Netting Process as stipulated in this Network Code, shall be unanimous.
7. Where Transmission System Operators are required to adopt a decision in accordance with this Network Code, all Transmission System Operators shall cooperate loyally to adopt the decision.
8. Where all Transmission System Operators are required to adopt a decision in accordance with this Network Code, ENTSO-E shall facilitate the adoption of decisions.

Article 12

COOPERATION WITH DISTRIBUTION SYSTEM OPERATORS

1. Distribution System Operators shall cooperate with Transmission System Operators and Balancing Service Providers to ensure efficient and effective Balancing.
2. According to paragraph 1, each Distribution System Operator shall inform both the Connection Transmission System Operator and the relevant Balancing Service Provider when grid constraints are detected in case of scheduling and activation of bids from Balancing Service Provider:

- (a) during the prequalification stage of the Balancing Service Provider;
 - (b) in longer timeframes than the day ahead energy market Gate Closure Time for energy bid delivery due to structural constraints or grid congestion raised by maintenance works, and
 - (c) in shorter timeframes than the day ahead energy market Gate Closure Time for energy bid delivery in case an unexpected event affect the Distribution System Operator grid.
3. Distribution System Operator shall provide all necessary information to perform system Balancing, monitoring and Allocated Volumes, to the Connection Transmission System Operator or any delegated third party according to Article 10(4) and Article 15(3).
4. The Distribution System Operator shall bear all costs resulting from curtailment of schedules and Balancing Reserves limited by their own system as defined in Article 16, if no agreement on the cost recovery between the Distribution System Operator and the Connection Transmission System Operator or national legislation covering this matter is in place.

Article 13

ROLE OF BALANCING SERVICE PROVIDERS

1. Each Balancing Service Provider shall submit its Balancing Reserve Bids, or where Article 22(1)(c) is applicable, the capacities of their Providing Group and Reserve Providing Units, to the Connection Transmission System Operator in which the Balancing Service Provider is associated with a Balance Responsible Party.
2. All Balancing Service Providers shall be entitled to submit and update their Balancing Reserve Bids to the Connection Transmission System Operator until the Balancing Reserves Gate Closure Time.
3. Balancing Service Provider with a contract on a Balancing Reserve shall be obliged to submit at least the procured volume of Balancing Energy Bids respecting terms and conditions related to Balancing to its Connection Transmission System Operator.
4. All Balancing Service Providers shall be entitled to submit and update their Balancing Energy Bids until the Balancing Energy Gate Closure Time. Balancing Energy Standard Products cannot be activated prior to the Balancing Energy Gate Closure Time.
5. Balancing Service Providers are allowed to provide Standard Products or Specific Products for the Exchange of Balancing Energy and Balancing Reserves, only to the Connection Transmission System Operator.
6. Each Balancing Service Provider and all the Balance Responsible Parties, to which this Balancing Service Provider is associated in accordance with Article 16(2)(d), shall belong to the same Relevant Area where the Imbalance is calculated.

Article 14

ROLE OF BALANCE RESPONSIBLE PARTIES

1. Each Balance Responsible Party shall be entitled to change its Position in the Intraday timeframe. Transmission System Operators shall be entitled to refuse a change of Position after the Balancing Gate Closure Time.

2. Any modification of the Position declared by the Balance Responsible Party shall be submitted to the Connection Transmission System Operator.

Article 15
FUNCTIONS IN COORDINATED BALANCING AREAS

3. The cooperation processes in all Coordinated Balancing Areas shall involve the following functions:
 - (a) Counteracting Activation Minimisation Function;
 - (b) Reserve Procurement Optimisation Function, in case Balancing Reserves are exchanged;
 - (c) Transfer of Reserve Optimisation Function, in case a secondary market with the possibility to transfer obligations of Balancing Service Providers for providing Balancing Reserves from one Relevant Area to another is established;
 - (d) Activation Optimisation Function; and
 - (e) TSO-TSO Settlement Function.
4. Each function established in paragraph 3(a) to 3(d) shall operate the relevant algorithm developed pursuant to CHAPTER 6.
5. Each Transmission System Operator shall be responsible for exercising these functions in the Relevant Area.
6. Each Transmission System Operator shall be entitled to delegate each of the tasks corresponding to the functions listed in paragraph 3 to a competent third party while respecting the principles of transparency, proportionality and non-discrimination. In order to do so, the following principles shall be met:
 - (a) the delegating Transmission System Operator shall monitor the compliance with delegated tasks;
 - (b) the delegating Transmission System Operator shall ensure that suitable confidentiality arrangements have been put in place prior to delegation;
 - (c) the party to which the task is to be delegated shall have clearly demonstrated its ability to perform the delegated tasks;
 - (d) all Transmission System Operators of a Coordinated Balancing Area shall be entitled to delegate more than one function to the same party; and
 - (e) the delegating Transmission System Operator shall remain responsible for ensuring compliance with the obligations under this Network Code.

Article 16
TERMS AND CONDITIONS RELATED TO BALANCING

1. Within the proposal for a Coordinated Balancing Area following Article 10, all Transmission System Operators of a Coordinated Balancing Area shall develop a framework for the establishment of the terms and conditions related to Balancing, taking into account specificities of Central Dispatch, where applicable. This framework shall ensure a sufficient level of coordination between all Transmission System Operators of the Coordinated Balancing Area in order to foster effective competition.
2. The terms and conditions related to Balancing shall facilitate the achievement of the objectives of the Balancing Market as defined in Article 9, and shall:

- (a) allow for the aggregation of demand and generation units within a Relevant Area to offer Balancing Services;
 - (b) allow for load entities, whether through aggregators or not, and generation units from conventional and renewable energy sources as well as storage elements to become Balancing Service Providers subject to the fulfilment of the requirements according to paragraph 4(a);
 - (c) facilitate the participation of demand and renewable energy sources in the Balancing Markets; and
 - (d) oblige all Balancing Service Providers to appoint at least one Balance Responsible Party to accept application of an adjustment according to Article 39, at least for each Balancing Service product, that requires settlement of Balancing Energy according to CHAPTER 5, SECTION 2. Transmission System Operators shall be entitled to require Balancing Service Providers to appoint one Balance Responsible Party for all Balancing Service Products.
3. Each Transmission System Operator shall monitor the fulfilment of the requirements set in the terms and conditions related to Balancing in its Relevant Area by all parties subject to those terms and conditions.
4. No later than six months after development of the framework for the establishment of the terms and conditions related to Balancing in a Coordinated Balancing Area, each Transmission System Operator shall define the terms and conditions related to Balancing based on this framework in its Relevant Area. When elaborating the terms and conditions related to Balancing, each Connection Transmission System Operator shall coordinate with other relevant Transmission System Operators and relevant Distribution System Operators, and where applicable with the relevant Designated Entity. These terms and conditions related to Balancing shall consist of reasonable and justified requirements and shall at least contain:
 - (a) terms and conditions for Balancing Service Providers;
 - (b) terms and conditions for Balance Responsible Parties;
 - (c) terms and conditions for procurement of Balancing Services, in accordance with CHAPTER 3 of this Network Code;
 - (d) detailed modalities of Transfer of Obligations;
 - (e) rules for the settlement defined in accordance with CHAPTER 5 of this Network Code; and
 - (f) the consequences in case of non-compliance the terms and conditions related to Balancing.
5. Each Transmission System Operator shall ensure that the frameworks for the development of terms and conditions related to Balancing are consistent, in case the Transmission System Operator is part of more than one Coordinated Balancing Areas for different Standard Products.
6. The terms and conditions for Balancing Service Providers according to paragraph 4(a) shall at least contain:
 - (a) technical and contractual requirements for becoming a Balancing Service Provider ;
 - (b) the conditions for the aggregation of demand and generation units within a Relevant Area to become a Balancing Service Provider;
 - (c) data and information required by the Connection Transmission System Operator or Distribution System Operator defined at both Pre-qualification Stage and real time operation;

- (d) the requirement that the Balancing Service Provider submits information on the Balance Responsible Party, financially responsible for its Imbalances per product, pursuant to paragraph 2(d);
 - (e) data and information required by the Connection Transmission System Operator, or where applicable by the Designated Entity, to evaluate the provision of Balancing Services, to assess the need for Balancing Services and to calculate Imbalance; and
 - (f) penalties applicable to Balancing Service Providers in case of non-compliance with the relevant terms and conditions.
7. The terms and conditions for Balance Responsible Parties according to paragraph 4(b) shall at least contain:
- (a) technical and contractual requirements for becoming a Balance Responsible Party;
 - (b) the requirement that Balance Responsible Party shall be financially responsible for the Imbalance to be settled with the Connection Transmission System Operator; and
 - (c) data and information required by the Connection Transmission System Operator, or where applicable by the Designated Entity, to calculate Imbalance.
8. Each Transmission System Operator shall be entitled to launch a reassessment of the terms and conditions on the basis of their own judgment or following a request from its National Regulatory Authority.
9. Each Connection Transmission System Operator shall be entitled to oblige Balance Responsible Parties to provide a balanced Position in the Day-Ahead timeframe.

CHAPTER 3

PROCUREMENT OF BALANCING SERVICES

SECTION 1 **GENERAL PROVISIONS FOR PROCUREMENT**

Article 17 **REQUIREMENTS FOR STANDARD AND SPECIFIC PRODUCTS**

1. No later than twelve months after entry into force of this Network Code, all Transmission System Operators shall prepare a common initial proposal for standard Balancing Reserve and Energy products.
2. All Transmission System Operators shall review and update the characteristics of standard Balancing Reserve and Energy products regarding their adequacy with system needs.
3. Proposals from all Transmission System Operators to define, review or update standard Balancing Reserve and Energy products shall be submitted to the Agency.
4. The standard Balancing Reserve and Energy products shall consist of at least the following standard characteristics:
 - (a) Preparation Period
 - (b) Ramping Period
 - (c) Full Activation Time;
 - (d) minimum and maximum quantity;
 - (e) Deactivation Period;
 - (f) Price of the Bid;
 - (g) Divisibility;
 - (h) Delivery Period, including minimum and maximum duration of activation;
 - (i) location;
 - (j) Validity Period; and
 - (k) Mode of Activation.
5. Standard Balancing Reserve and Energy products shall:
 - (a) satisfy the needs of all Transmission System Operators of a Coordinated Balancing Area in order to safeguard operational security;
 - (b) allow participation of the load, energy storage facility and generation including renewables entities to become a Balancing Service Provider; and
 - (c) follow the rules defined in the Network Code on Load-Frequency Control and Reserves.
6. Each Transmission System Operator shall be entitled to define and use Specific Products. The following requirements shall be respected when defining Specific Products and evaluated for approval by the relevant National Regulatory Authority:
 - (a) in combination with Standards Products, the Specific Products shall enable the Transmission System Operator requesting the use of Specific Products to meet the system balance and System Security requirements;
 - (b) the Specific Products defined shall not create significant inefficiencies and distortions in national market or in the Coordinated Balancing Area;
 - (c) Specific Products shall be visible for other Transmission System Operators of the Coordinated Balancing Area; and

- (d) information concerning the Specific Products volumes available, procured and used, and possible distortions or inefficiencies in the Balancing Markets shall be published in the annual report.

Article 18

THE USE OF STANDARD AND SPECIFIC PRODUCTS

1. Each Transmission System Operator shall use Standard Products and Specific Products when available in order to:
 - (a) maintain system balance in the respect of the Network Code on Load-Frequency Control and Reserves; and
 - (b) safeguard operational security.

Article 19

SELECTION AND CONVERSION OF PRODUCTS

1. Where Transmission System Operators use Specific Products for the Balancing of the system, they shall be entitled to submit these Specific Products into the common procurement of Balancing Services, provided these are converted into a Standard Product exchanged in the relevant Coordinated Balancing Area.
2. Transmission System Operators operating in Central Dispatch Systems shall select and, if necessary, convert the bids into Standard Products submitted by Balancing Service Providers taking into account their technical availability for the Exchange of Balancing Services.
3. The process of selecting and converting bids as defined in this Article shall be fair, transparent and non-discriminatory.

Article 20

FIRMNESS OF BALANCING ENERGY BIDS AND BALANCING GATE CLOSURE TIME

1. Volumes of Balancing Energy Bids given by a Balancing Service Provider shall be firm after the Balancing Gate Closure Time. Unexpected unavailable volumes of Balancing Energy Bids of a Balancing Service Provider after the Balancing Gate Closure Time shall be reported to the Connection Transmission System Operator without delay. Connection Transmission System Operators shall qualify such bids as invalid within the relevant Common Merit Order Lists.
2. The Balancing Gate Closure Time shall be applicable for each Exchange of Balancing Energy of Standard Products.
3. The Balancing Gate Closure Time shall separate and be consistent with the timeframe for cross-border intraday trade from the Balancing timeframe, in order to avoid cross -border intraday trade taking place at the same time as the Exchange of Balancing Energy.
4. The Balancing Gate Closure Time shall be after Intraday Cross Zonal Gate Closure Time and must ensure sufficient time for Transmission System Operators to perform balancing actions, including cross border optimisation and local planning.

Article 21
FALL-BACK PROCEDURES

1. Each Transmission System Operator shall ensure that robust and timely fall-back solutions are in place to ensure efficient, transparent and non-discriminatory functioning of the procurement and activation of Balancing Services in case the normal procedures fail.
2. In case the procurement of Balancing Services fails prior to the activation period, all Transmission System Operators of a Coordinated Balancing Area shall use their best endeavours to perform repetition of the procurement process while respecting the objectives of this Network Code. Transmission System Operators shall use their best endeavours to inform market participants that fall-back procedures are used as soon as reasonably practicable. In case the coordinated Activation of Balancing Energy fails, Transmission System Operators may bypass the Common Merit Order List activation.
3. The use of fall-back procedures shall not affect a Transmission System Operator's right to perform any necessary actions to ensure system security according to the Network Code on Operational Security and national legislation.

SECTION 2
PROCUREMENT OF BALANCING RESERVES

Article 22
GENERAL PROVISIONS

1. Each Transmission System Operator shall use at least one of the following market based methods for the procurement of Frequency Containment Reserves, Frequency Restoration Reserves and Replacement Reserves:
 - (a) a call for tender;
 - (b) a call for tender with price caps; or
 - (c) an obligation for Balancing Service Providers to provide reserves, linked to a liquid secondary market for the Transfer of Obligations.
2. Transmission System Operators operating Central Dispatch Systems may apply integrated procedures containing the procurement of Balancing Reserves according to the terms and conditions related to Balancing pursuant to Article 15.
3. Each Transmission System Operator shall consider all Balancing Reserve Bids from Balancing Service Providers, or where paragraph 1(c) is applicable, all Reserve Providing Group and Reserve Providing Units, respecting terms and conditions related to Balancing in the procurement of Balancing Reserves.
4. Each Transmission System Operators shall be entitled to procure Balancing Reserves for a contract period longer than twelve months and earlier than twelve months before the first relevant unit of the contract period for products not exchanged within a Coordinated Balancing Area.
5. The terms and conditions related to Balancing for the procurement of Balancing Reserves shall establish that the procurement of upwards and downwards Balancing Reserves is done through separated processes. Notwithstanding that, each Transmission System Operator shall be entitled to combine procurement and accept additional bids linking upwards and downwards Balancing Reserve products if:

- (a) in case of procurement of Frequency Containment Reserves; or
 - (b) it can be demonstrated that a combination of upwards and downwards Balancing Reserve Bids does not decrease Social Welfare and combined procurement does not hinder participation of Demand Side Response in the procurement of Balancing Reserves.
- 6. If a Transmission System Operator is submitting a proposal for regulatory approval regarding linking of upwards and downwards Balancing Reserve Products following Article 7, it shall at the same time submit all relevant information and documents related to the opening of this approval to the Agency.
- 7. A Balancing Service Provider shall be entitled to transfer its obligations to deliver a Balancing Reserve to one or more Balancing Service Providers in order to fulfil its Balancing obligations, where such transfer is envisaged in the terms and conditions related to Balancing. In such event the following shall be taken into account:
 - (a) the Balancing Service Provider shall be entitled to transfer its obligations to deliver a Balancing Reserve to one or more Balancing Service Providers in timeframes closer to real-time;
 - (b) the Transfer of Obligations shall be authorised through a procedure established by all Transmission System Operators of a Coordinated Balancing Area;
 - (c) except for Frequency Containment Reserves, sufficient Cross Zonal Capacity shall have been provided in accordance with Article 29;
 - (d) both the Balancing Service Provider transferring the obligation and Balancing Service Provider receiving the obligation shall notify the Transfer of Obligations to the Connection Transmission System Operator;
 - (e) the Balancing Service Provider transferring the obligation shall comply with rights and duties to which it has committed to; and
 - (f) the limits for the Exchange and Sharing of Balancing Reserves, pursuant to the Network Code Load-Frequency Control and Reserves shall be respected.
- 8. The Reserve Procurement Optimisation Function shall select the combination of bids aiming at identifying the lowest overall procurement cost respecting the operational security constraints of other Network Codes, by at least taking into account:
 - (a) limits for the sharing and exchange of Balancing Reserves, pursuant to the Network Code on Load-Frequency Control and Reserves;
 - (b) costs of ensuring sufficient availability of transmission capacity; and
 - (c) technical grid limitations.
- 9. In case a secondary market for the Transfer of Obligations in a Coordinated Balancing Area is implemented, the following principles shall be respected:
 - (a) only one single secondary market shall be established per Coordinated Balancing Area and Standard Product;
 - (b) the terms and conditions related to Balancing of all Transmission System Operators of the Coordinated Balancing Area shall allow for the Transfer of Obligations between Relevant Areas;
 - (c) the processes and rules of the secondary market apply a TSO-TSO Model;
 - (d) transmission capacity is provided pursuant to Article 30;
 - (e) any Transfer of Obligation shall respect all technical constraints applied in accordance with Article 28; and
 - (f) the limits for the sharing and exchange of Balancing Reserves, pursuant to the Network Code on Load-Frequency Control and Reserves are respected.

10. Through the Exchange of Balancing Reserves, a Transmission System Operator shall be entitled to procure part of its Balancing Reserves obligations given by the Network Code on Load-Frequency Control and Reserves within a Coordinated Balancing Area.
11. Each Transmission System Operator of a Coordinated Balancing Area for the Exchange of Balancing Reserves shall submit all Balancing Reserve Bids for Standard Products compliant with the terms and conditions related to Balancing as specified with Article 16 to the Reserve Procurement Optimisation Function. Connection Transmission System Operators shall not modify or withhold Standard Balancing Reserve Bids from Balancing Service Providers, notwithstanding the exemptions set forth in Article 19.
12. Selected Balancing Service Providers shall be acknowledged about concluded contracts according to the terms and conditions related to Balancing by the Connection Transmission System Operator without undue delays.
13. Sharing of Frequency Restoration Reserves shall be envisaged between adjacent Transmission System Operators and supported by a Cost-Benefit Analysis pursuant to Article 59 if required by the relevant National Regulatory Authority.

SECTION 3
EXCHANGE AND SHARING OF BALANCING RESERVES

Article 23
GENERAL PROVISIONS

1. In accordance with the general objectives of this Network Code set forth in Article 9, each Transmission System Operator shall have the right to decide for the Exchange or Sharing of Balancing Reserves, respecting the Network Code on Load-Frequency Control and Reserves and CHAPTER 4 of this Network Code. Each Transmission System Operator is entitled to combine the Exchange and Sharing of Balancing Reserves.
2. All Transmission System Operators of a Coordinated Balancing Area shall be entitled to procure Balancing Reserves for a contract period longer than twelve months and earlier than twelve months before the first relevant unit of the contract period for products exchanged within a Coordinated Balancing Area.
3. All Transmission System Operators within a Coordinated Balancing Area Exchanging or Sharing Balancing Reserves shall develop a pricing method for each exchanged Balancing Reserves product to be included in the proposal for a Coordinated Balancing Area pursuant to Article 10, which shall:
 - (a) strive for an economically efficient use of all Balancing resources, including Demand Side Response and renewable energy sources subject to operational security limits;
 - (b) give correct price signals and right incentives to market participants;
 - (c) ensure that there are no significant distortions between adjacent Coordinated Balancing Areas; and
 - (d) enable Balancing Service Providers to participate in market based procurement of Balancing Reserves.
4. All Transmission System Operators of a Coordinated Balancing Area shall be entitled to propose to the Relevant Regulatory Authorities amendments to the applicable pricing method of each Exchanged or Shared Balancing Reserve product.

Article 24
TRANSITIONAL PROCUREMENT OF BALANCING RESERVES IN THE FORM OF A TSO-BSP
MODEL

1. For a period not exceeding six years after the entry into force of this Network Code, each Transmission System Operator and each Balancing Service Provider may, upon request, be exempted, from the application of the following provisions: Article 13(5), Article 22(11) and (11), Article 36(1), Article 37(1) and (2), Article 38(1) and (2), Article 49(3) and (5). In case the exemption is granted, they shall establish contractual arrangements in the form of a TSO-BSP Model, under the following conditions:
 - (a) settlement between Transmission System Operators in accordance to SECTION 3 of CHAPTER 5 shall be applicable, ensuring a fair distribution of costs and benefits resulting from Exchange of Balancing Reserves;
 - (b) a Cost-Benefit Analysis shall be performed by the contracting Transmission System Operator indicating Social Welfare implications of the application of a TSO-BSP Model for the procurement of Balancing Reserves for at least the Relevant Areas of the contracting and Connection Transmission System Operator;
 - (c) an agreement between the contracting Transmission System Operator and the Connection Transmission System Operator about technical and contractual requirements and the settlement of Balancing Services shall be established;
 - (d) the request for transitional exemptions is approved by both National Regulatory Authorities of the Relevant Areas of the contracting Transmission System Operator and the Connection Transmission System Operator; and
 - (e) a compensation mechanism for the use of Cross Zonal Capacity for the Exchange of Balancing Reserves under this Article shall be developed.
2. Every request for exemption shall contain:
 - (a) the detailed reasons on the basis of which the exemption was granted or refused, including the financial information justifying the need for the exemption; and
 - (b) the Cost-Benefit Analysis undertaken pursuant to Article 58.

SECTION 4
PROCUREMENT OF BALANCING ENERGY

Article 25
GENERAL PROVISIONS

1. All Transmission System Operators shall harmonise the pricing method for at least each Balancing Energy Standard Product, which shall:
 - (a) strive for an economically efficient use of Demand Side Response and other Balancing resources subject to operational security limits;
 - (b) give correct price signals and incentives to market participants;
 - (c) enable Balancing Service Providers to establish a market based bid pricing; and
 - (d) take into account markets of previous timeframes.
2. No later than twelve months after the entry into force of this Network Code, all Transmission System Operators shall develop an initial proposal for the pricing method of each Balancing Energy Standard Product and submit it to the Agency. The initial pricing method shall be based on marginal pricing (pay-as-cleared), unless Transmission System Operators provide all National Regulatory Authorities with a detailed analysis demonstrating that a different

pricing method is more efficient for EU-wide implementation in pursuing the general objectives defined in Article 9.

3. Notwithstanding paragraph 2, each Transmission System Operator shall be entitled to apply a different pricing method for any Balancing Energy Standard Product provided that the Transmission System Operator does not participate in a Coordinated Balancing Area for this Balancing Energy Standard Product.
4. After entry into force of the pricing method of Balancing Energy Standard Products as foreseen in paragraph 2, all Transmission System Operators shall be entitled to propose a change to the pricing method of Balancing Energy Standard Products.
5. Subject to its National Regulatory Authority's approval, each Transmission System Operator shall be authorised to require information on unused generation capacity and other Balancing resources from Balancing Service Providers after Day-Ahead and Intraday Gate Closure Time.
6. Subject to its National Regulatory Authority's approval, each Transmission System Operator shall be authorised to require Balancing Service Providers to offer their unused generation capacity or other Balancing resources through bids in the Balancing Markets after Day-ahead and Intraday Gate Closure Time.
7. Each Transmission System Operator of a Central Dispatch System shall be entitled to propose amendments to the rules for submission, activation and updating Balancing Energy Bids pursuant to Article 13(4)

SECTION 5 ACTIVATION OF THE BALANCING ENERGY

Article 26 GENERAL PROVISIONS

1. No later than specified in Article 58 for all relevant targets, all Transmission System Operators of a Coordinated Balancing Area shall establish an Activation Optimisation Function and define rules for its operation.
2. In any case where the Activation of Balancing Energy for Balancing purposes deviates from the merit order activation mechanism shall be reported by the Connection Transmission System Operators and in the annual report pursuant to Article 57.
3. The Activation of Balancing Energy by all Transmission System Operators of a Coordinated Balancing Area shall entail the acceptance of a firm bid for Balancing Energy by the requesting Transmission System Operator. Such acceptance qualifies activated Balancing Energy for settlement.
4. The Exchange of Balancing Energy shall be based on a TSO-TSO Model.
5. All Transmission System Operators of each Coordinated Balancing Area shall cooperate closely to ensure the compatibility of the methodologies developed and applied pursuant to this Network Code and the efficient convergence of Coordinated Balancing Areas for Exchange of Balancing Energy.

6. Each Transmission System Operator of a Coordinated Balancing Area shall submit all necessary data for the operation of the Activation Optimisation algorithm to the Activation Optimisation Function in accordance with the rules developed pursuant to paragraph 1.
7. Each Transmission System Operator shall be entitled to define an amount of Unshared Bids, while respecting the following principles:
 - (a) the amount of Unshared Bids shall not be higher than the Reserve Capacity;
 - (b) Unshared Bids shall be the most expensive available bids;
 - (c) the amount of Unshared Bids shall be justified;
 - (d) the Unshared Bids volumes shall be updated yearly; and
 - (e) the Unshared Bids volumes shall not be defined longer than the entry into force of the European-wide TSO-TSO Model with Common Merit Order Lists defined in Article 58 of this Network Code.
8. Each Connection Transmission System Operator shall submit to the Activation Optimisation Function all standard Balancing Energy Bids received from Balancing Service Providers, except Unshared Bids.
9. Each Transmission System Operator shall be responsible for covering the volumes for Frequency Restoration Reserve and Replacement Reserve based on the determination requirements as foreseen in the Network Code on Load-Frequency Control and Reserves.
10. Each Requesting Transmission System Operator shall be entitled 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 of all Balancing Energy Bids submitted by the Requesting Transmission System Operator for that Delivery Period and Standard Product to the Activation Optimisation Function.
11. The limitation as defined in paragraph 10 shall not be applicable in case the Requesting Transmission System Operator has declared an Alert State, or in case all Transmission System Operators of the relevant Coordinated Balancing Area agree on cases where this limitation is not to be applied. In any case, each Transmission System Operator requesting Balancing Energy beyond this limitation, all other Transmission System Operators of the relevant Coordinated Balancing Area shall be informed in a timely manner.
12. All Transmission System Operators of a Coordinated Balancing Area shall develop priority rules to be applied regarding the limitation as defined in paragraph 11 in case where at least two Transmission System Operators have declared an Alert State.
13. In case of reserve sharing, the Requesting Transmission System Operator shall be entitled to request additional volumes comparing to the volumes defined in paragraph 10. These additional volumes shall not exceed the shared reserve volumes and may not be used in case the other Transmission System Operator participating in the reserve sharing is already using these shared volumes.

Article 27

ACTIVATION MECHANISM OF BALANCING ENERGY

1. The Activation Optimisation Function shall optimise the Activation of Balancing Energy Bids from Common Merit Order Lists through a non-discriminatory, fair, objective and

transparent mechanism by optimisation of the use of Balancing resources and of the transmission infrastructure and minimises the costs of Balancing whilst taking into account technical and network constraints.

2. Common Merit Order Lists shall consist of Balancing Energy Bids from a Balancing Energy Standard Product as defined in Article 17. All Transmission System Operators of a Coordinated Balancing Area shall define the necessary Common Merit Order Lists based on the Standard Products defined in Article 17. 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 and one Common Merit Order List for downward Balancing Energy Bids.
4. Depending on the needed Balancing Energy Standard Products, Transmission System Operators shall be entitled to create more Common Merit Order Lists.
5. Each Transmission System Operator of a Coordinated Balancing Area shall submit all Balancing Energy Bids compliant with the terms and conditions related to Balancing as specified in accordance with Article 16 to the Activation Optimisation Function until the Gate Closure Time of Transmission System Operator Energy Bid Submission. Transmission System Operators shall not modify or withhold bids from Balancing Service Providers, notwithstanding the exemptions set forth in Article 19.
6. Each Transmission System Operator shall submit activation requests for Balancing Energy Standard Products to the Activation Optimisation Function.
7. The matched bids from the Activation Optimisation Function shall be activated by the Connection Transmission System Operators of the respective Coordinated Balancing Area or another responsible entity as specified in the Network Code on Load-Frequency Control and Reserves. The activated Balancing Service Providers shall be responsible for delivering the requested volume until the end of the Delivery Period.
8. The Activation Optimisation Function shall submit confirmation of activated bid to the Transmission System Operator requesting the activation of the bid.

Article 28

OPTIMISATION PRINCIPLES OF ACTIVATION FROM COMMON MERIT ORDER LISTS

1. All Transmission System Operators of a Coordinated Balancing Area shall establish an Activation Optimisation Function in accordance with Article 17 and Article 26 for the optimisation of the activation from different Common Merit Order Lists. The function shall define an assessment for the activation compatibility from Balancing Energy Standard Products of different Common Merit Order Lists. For all compatible Balancing Energy Standard Products from different Common Merit Order Lists, the Activation Optimisation Function shall calculate a cost optimal activation taking at least into account:
 - (a) the activation processes from different Balancing products pursuant to the Network Code on Load-Frequency Control and Reserves;
 - (b) all Balancing Energy Bids included in the compatible Common Merit Order Lists;
 - (c) submitted activation requests of all Transmission System Operators of a Coordinated Balancing Area; and
 - (d) the available transmission capacity.

CHAPTER 4

USE, ALLOCATION AND RESERVATION OF CROSS ZONAL CAPACITY FOR BALANCING RESERVES

Article 29

USE OF CROSS ZONAL CAPACITY FOR BALANCING RESERVES

1. The use of Cross Zonal Capacity for the Exchange and Sharing of Balancing Reserves by Transmission System Operators shall not endanger the secure operation of the system.
2. Cross Zonal Capacities provided in accordance with this Chapter are firm in a Normal State.
3. Each Transmission System Operator shall be entitled to use Cross Zonal Capacity for the Exchange and Sharing of Balancing Reserves, in accordance with the methodology specified in Article 32 using the approaches specified in Article 31, where Cross Zonal Capacity is:
 - (a) available after the Intraday Gate Closure Time; or
 - (b) provided for Balancing Services, in accordance with this Chapter.
4. The provision of Cross Zonal Capacity for the Exchange and Sharing of Balancing Reserves shall be consistent with Cross Zonal Capacities as defined in the Network Code on Capacity Allocation and Congestion Management.
5. Allocated or reserved Cross Zonal Capacity for the Exchange and Sharing of Balancing Reserves shall be used exclusively for Balancing purposes.
6. Transmission System Operators shall not use Reliability Margins for Exchanging or Sharing of Balancing Services except for Frequency Containment Reserves or in case of Emergency Situation.

Article 30

PRICING OF CROSS ZONAL CAPACITY FOR THE EXCHANGE OF BALANCING SERVICES OR SHARING OF BALANCING RESERVES

1. Cross Zonal Capacities allocated or reserved for the Exchange and Sharing of Balancing Reserves shall be priced in consistency with pricing methods for other purposes for similar timeframes.
2. Cross Zonal Capacity shall be priced in a manner which:
 - (a) reflects Market Congestion; and
 - (b) is based on actual bids for Balancing Reserves in the relevant timeframe.
3. For the Exchange of Balancing Energy additional charges for losses can be charged if the charge is consistent with other timeframes and approved by relevant National Regulatory Authorities. Any additional charges for the use of Cross Zonal Capacity for Exchanges of Balancing Energy are forbidden for Transmission System Operators. If a Transmission System Operator is submitting a proposal for regulatory approval regarding charges for such losses following Article 7, it shall at the same time submit all relevant information and documents related to the opening of this approval to the Agency.
4. The pricing mechanism for Cross Zonal Capacity allocated or reserved pursuant to Article 31(1)(b) and (c) shall provide an adequate compensation for Cross Zonal Capacity.

5. No later than twelve months before its implementation, Transmission System Operators providing Cross Zonal Capacity for the Exchange and Sharing of Balancing Reserves shall develop the applicable pricing mechanism, including a congestion income distribution methodology consistent with the arrangements established under the Network Code Capacity Allocation and Congestion Management.

Article 31

APPROACHES FOR THE PROVISION OF CROSS ZONAL CAPACITY FOR BALANCING RESERVES

1. Each Transmission System Operator shall apply one or more of the following approaches for providing Cross Zonal Capacity for the Exchange and Sharing of Balancing Reserves, safeguarding operational security, avoiding undue discrimination between Transmission System Operators and market participants, and taking into account:
 - (a) Probabilistic Approach, where no capacity from energy markets needs to be used for it;
 - (b) Allocation of Cross Zonal Capacity through a market-based Co-optimisation Process, taking into account cost and benefits of Cross Zonal Capacity provided for the Exchange and Sharing of Balancing Reserves; or
 - (c) Reservation of Cross Zonal Capacity, means the provision of Cross Zonal Capacity outside timeframes open for other market participants than Transmission System Operators, under methodologies agreed by all Transmission System Operators of a Coordinated Balancing Area. Cross Zonal Capacity shall be rereleased to the market at later timeframes if not used.

Article 32

CAPACITY PROVISION METHODOLOGIES FOR BALANCING SERVICES

1. No later than twelve months before its implementation, all Transmission System Operators providing Cross Zonal Capacity for the Exchange of Balancing Services shall develop capacity provision and pricing methodologies based on an approach defined in Article 31. The capacity provision methodologies shall meet the objectives defined in Article 9 and shall contain at least the following elements for each Cross Zonal Capacity provision methodology:
 - (a) the relevant time frame;
 - (b) a process description; and
 - (c) the criteria for required Social Welfare improvements.
2. For reservations of Cross Zonal Capacity for a specific Delivery Period for timeframes shorter than a month ahead, relevant Transmission System Operators providing capacity for Exchange of Balancing Reserves shall develop a modification to the capacity provision methodology developed pursuant to paragraph 1 in order to allow an accelerated application of the methodology close to real time, including the criteria for its application.
3. If a Transmission System Operator is submitting a proposal for regulatory approval regarding the reservation of cross border capacity following Article 7, it shall at the same time submit all relevant information and documents related to the opening of this approval to the Agency.

Article 33
CALCULATION OF CROSS ZONAL CAPACITY FOR BALANCING SERVICES

1. Allocated and reserved capacity for Exchange of Balancing Services and Sharing of Balancing Reserves shall be considered in the calculations of Cross Zonal Capacity for later Delivery Periods as previously Allocated Cross Zonal Capacity.
2. A Common Grid Model for calculations of Cross Zonal Capacity for Balancing shall be used, based on the grid model of the latest available Delivery Period.
3. All Transmission System Operators of a Coordinated Balancing Area shall ensure that the information of available Cross Zonal Capacity within the same Coordinated Balancing Area as well as between Coordinated Balancing Areas is reassessed sufficiently often for Balancing based on the latest available information on the usage of Cross Zonal Capacity.
4. The relevant information on the availability of Cross Zonal Capacity shall be provided and updated directly by the relevant Transmission System Operators in accordance with the relevant Cross Zonal Capacity provision methodologies as stipulated in Article 31.

CHAPTER 5 SETTLEMENT

SECTION 1 SETTLEMENT PRINCIPLES (GENERALITIES)

Article 34 GENERAL SETTLEMENT PRINCIPLES

1. The general objective of settlement is to:
 - (a) encourage Balance Responsible Parties, Balancing Service Providers and Transmission System Operators to be balanced as close to the physical reality as possible and/or help the system to restore its balance in an efficient way;
 - (b) increase of the liquidity of the Balancing Markets;
 - (c) promote the delivery of Balancing Services by Balancing Service Providers;
 - (d) avoid perverse incentives to Balance Responsible Parties, Balancing Service Providers and Transmission System Operators;
 - (e) increase of the Social Welfare;
 - (f) support competition among market participants by creating a level-playing field and not unduly discriminate against participants without generation or demand;
 - (g) provide a fair distribution of the benefits and costs associated to the Balancing Markets; and
 - (h) establish adequate economic signals which reflect the Imbalance situation in a Coordinated Balancing Area, parts of a Coordinated Balancing Area or in a Relevant Area.
2. Each Transmission System Operator shall define settlement mechanisms within the terms and conditions related to Balancing as defined in Article 16.
3. Each National Regulatory Authority shall ensure the neutrality of all Transmission System Operators under its competence with regard to the financial outcome as a result of the Balancing Energy settlement processes described in this Network Code, over any period not exceeding the maximum period as defined by the National Regulatory Authority.
4. All TSO-TSO exchanges of Balancing Energy between Relevant Areas shall be subject to TSO-TSO Settlement in accordance to SECTION 3 of this Chapter.
5. All Balancing Energy procured by the Connection Transmission System Operator in its Relevant Area shall be subject to TSO-BSP settlements.
6. All injections and withdrawals within a Relevant Area other than those mentioned in paragraph 4 and paragraph 5 shall be subject to Imbalance Settlement.

SECTION 2
SETTLEMENT OF BALANCING ENERGY TSO-BSP

Article 35
GENERAL PRINCIPLES

1. Within its terms and conditions for Balancing following Article 16 each Transmission System Operator shall establish a procedure for the calculation of Balancing Energy by the Transmission System Operator, the challenging by the Balancing Service Provider of the calculated Balancing Energy and the reconciliation of the Balancing Energy calculation by the Transmission System Operator, the Balancing Energy settlement from at least the Frequency Restoration Processes and Reserve Replacement Processes.
2. Balancing Energy from the performing of Frequency Containment Processes, Frequency Restoration Processes and Reserve Replacement Processes for an Imbalance Settlement Period, for each Relevant, Area shall have a magnitude for each direction, with negative indicating Balancing Service Provider relative withdrawal and positive indicating Balancing Service Provider relative injection.

Article 36
BALANCING ENERGY FROM FREQUENCY CONTAINMENT PROCESS

1. Each Reserve Connection Transmission System Operator shall be entitled to calculate the Balancing Energy to be settled with each Balancing Service Provider for each direction from the Frequency Containment Process for each Imbalance Settlement Period, for each Relevant Area.
2. The Balancing Energy from Frequency Containment Reserves, in case it is settled with each Balancing Service Provider, it shall be based on the deemed activated volumes of Frequency Containment Reserves for each direction.
3. The Balancing Energy from Frequency Containment Reserves, in case it is settled with each Balancing Service Provider, it shall be priced for each direction.

Article 37
BALANCING ENERGY FROM FREQUENCY RESTORATION PROCESS

1. Each Reserve Connection Transmission System Operator shall calculate the Balancing Energy to be settled with each Balancing Service Provider for each direction from Frequency Restoration Process for each Imbalance Settlement Period, for its Relevant Area.
2. The Balancing Energy from Frequency Restoration Reserve to be settled by the Connection Transmission System Operator with each Balancing Service Provider shall be based on the requested activation of Frequency Restoration Balancing Bids from the Balancing Service Provider for Frequency Restoration Process for each direction.
3. The Balancing Energy from Frequency Restoration Reserves to be settled with each Balancing Service Provider shall be priced for each direction in accordance with Article 25.

Article 38
BALANCING ENERGY FROM RESERVE REPLACEMENT PROCESS

1. Each Reserve Connection Transmission System Operator shall calculate the Balancing Energy to be settled with each Balancing Service Provider for each direction from Reserve Replacement Process for each Imbalance Settlement Period, for each Relevant Area.
2. The Balancing Energy from Replacement Reserve to be settled by the reserve Connection Transmission System Operator with each Balancing Service Provider shall be based on the requested activation of Reserve Replacement Balancing Bids from the Balancing Service Provider for Reserve Replacement Process for each direction.
3. The Balancing Energy from Reserve Replacement to be settled with each Balancing Service Provider shall be priced for each direction in accordance with Article 25.

Article 39
IMBALANCE ADJUSTMENT TO BALANCE RESPONSIBLE PARTY

1. Each Transmission System Operator shall calculate for Balancing Service Provider which have been activated an Imbalance Adjustment for each Imbalance Settlement Period, for each Relevant Area to be applied to the Balance Responsible Parties appointed by the Balancing Service Provider in accordance with Article 16 (2)(d).
2. The Imbalance Adjustment for each Imbalance Settlement Period, for each Relevant Area shall be the net Balancing Energy calculated as a consequence of Frequency Containment Processes when applicable, according to Article 36(1), Frequency Restoration Processes and Reserve Replacement Processes.
3. For Relevant Areas where several finalised positions for a single Balance Responsible Party are determined pursuant Article 49(3) an Imbalance Adjustment may be calculated per notified position.

SECTION 3
SETTLEMENT OF EXCHANGED ENERGY BETWEEN TRANSMISSION SYSTEM OPERATORS

Article 40
GENERAL PRINCIPLES

1. All Transmission System Operators shall settle among themselves in a transparent way all Balancing Energy exchanged between Relevant Areas.
2. No later than six months after the regulatory approval of a Coordinated Balancing Area, all Transmission System Operators of a Coordinated Balancing Area shall develop common rules for TSO-TSO Settlement of all energy exchanged between Relevant Areas, resulting from each of the following:
 - (a) Imbalance Netting Process;
 - (b) Frequency Restoration Activation Process; and
 - (c) Reserve Replacement Activation Process;

3. No later than two years after the entry into force of this Network Code all Transmission System Operators shall develop common rules for TSO-TSO Settlement of all energy exchanged between Relevant Areas resulting from Unintentional Deviations.
4. No later than two years after the entry into force of this Network Code Transmission System Operators exchanging energy through agreed Ramping Period or agreed Ramp Rate Process shall develop common rules for TSO-TSO Settlement of all energy exchanged between Relevant Areas resulting from intended exchange of energy through agreed Ramping Period or agreed Ramp Rate Process.
5. The settlement mechanism shall ensure:
 - (a) fair and equal distribution of costs and benefits resulting from Exchange of Balancing Energy and Unintentional Deviation; and
 - (b) that Transmission System Operators are incentivised to promote the objectives of Article 9.
6. All settlements of energy exchanged between Transmission System Operators due to the processes referred to in this Article shall be harmonised and conducted in accordance with Article 9.

Article 41

INTENDED EXCHANGE OF ENERGY THROUGH IMBALANCE NETTING PROCESS

1. Transmission System Operators in a Coordinated Balancing Area applying an Imbalance Netting Process as defined in Article 58 shall settle among themselves the intentionally exchanged energy due to this process.
2. The settlement price of intentionally exchanged energy due to the application of an Imbalance Netting Process shall be based on the value of the avoided Activation of Balancing Energy inside each participating Relevant Area during the Imbalance Settlement Period.

Article 42

INTENDED EXCHANGE OF ENERGY THROUGH FREQUENCY RESTORATION ACTIVATION PROCESS

1. All Transmission System Operators in a Coordinated Balancing Area participating in a Frequency Restoration Activation Process shall settle among themselves the intentionally exchanged energy due to these processes and in accordance with Article 40.

Article 43

INTENDED EXCHANGE OF ENERGY THROUGH RESERVE REPLACEMENT ACTIVATION PROCESS

1. All Transmission System Operators in a Coordinated Balancing Area participating in a Reserves Replacement Activation Process shall settle among themselves the intentionally exchanged energy due to these processes and in accordance with Article 40.

Article 44
INTENDED EXCHANGE OF ENERGY THROUGH AGREED RAMPING PERIOD OR AGREED RAMP RATE PROCESS

1. Transmission System Operators shall settle among themselves the intentionally exchanged energy through agreed Ramping Period or agreed Ramp Rate Process.
2. To perform the settlement of intentionally exchanged energy through agreed Ramping Period or agreed Ramp Rate Process according to paragraph 1, Transmission System Operators shall define a methodology to calculate the volume and the price of the intentionally exchanged energy due to this process, in accordance to Article 40.

Article 45
UNINTENDED EXCHANGE OF ENERGY THROUGH UNINTENTIONAL DEVIATIONS

1. No later than two years after entry into force of this Network Code all Transmission System Operators shall define the pricing method of Unintentional Deviation Energy.
2. All Transmission System Operators within the Synchronous Area shall financially settle among themselves the unintentionally exchanged energy within a Synchronous Area.
3. The price for unintentionally exchanged energy for withdrawal from the Synchronous Area shall not be less than the marginal price for activated upward Balancing Energy for Frequency Restoration Reserves or Replacement Reserves for this Synchronous Area.
4. The price for unintentionally exchanged energy for injection into the Synchronous Area shall not be higher than the marginal price for activated downward Balancing Energy for Frequency Restoration Reserves or Replacement Reserves for this Synchronous Area.
5. The unintentionally exchanged energy between asynchronously connected Transmission System Operators in different Synchronous Areas shall financially be settled by the Transmission System Operators involved.

Article 46
SETTLEMENT AND INVOICING

1. Each TSO-TSO Settlement Function shall perform settlement and Invoicing of financial rights and obligations caused by the Exchange of Balancing Services of a Coordinated Balancing Area.

SECTION 4
IMBALANCE SETTLEMENT TSO-BRP

Article 47
GENERAL PRINCIPLES

1. Each Transmission System Operator shall design the Imbalance Settlement mechanism in order to:
 - (a) encourage Balance Responsible Parties to be balanced as close to the physical reality as possible or help the system to restore its balance; and

- (b) avoid distortions of incentives or counterproductive incentives to Balance Responsible Parties, Balancing Service Providers and Transmission System Operators; and
 - (c) facilitate harmonisation of Imbalance Settlement mechanisms.
2. Each Transmission System Operator shall settle all Imbalances according to the Imbalance Settlement mechanism, applicable to all Balance Responsible Parties.

Article 48
IMBALANCE SETTLEMENT PERIOD

1. No later than three years after entry into force of this Network Code, all Transmission System Operators shall submit to all National Regulatory Authorities and the Agency a Cost-Benefit Analysis on harmonisation of the Imbalance Settlement Period within and between Synchronous Areas. This Cost-Benefit Analysis shall at least take into consideration:
- (a) the need of consistency between the Delivery Period and the Imbalance Settlement Period; and
 - (b) the need of consistency between the Imbalance Settlement Period and the resolution of the metering devices available in each system.
2. No later than six months after receiving the Cost-Benefit Analysis, all National Regulatory Authorities shall submit their decision on the harmonisation of the Imbalance Settlement Period to all Transmission System Operators and, if applicable, a date for the implementation of this decision. In any case, this implementation date shall not be prior to the implementation date of the terms and conditions related to Balancing according to Article 16.
3. No later than three months before the implementation date according to paragraph 2, each Transmission System Operator shall be entitled to submit a proposal of Imbalance Settlement Period to its National Regulatory Authority that deviates from this decision. In this case, the Transmission System Operator shall provide a detailed Cost-Benefit Analysis justifying this deviation.

Article 49
IMBALANCE CALCULATION

1. Within its terms and conditions for Balancing following Article 16 each Transmission System Operator shall establish a procedure for the Imbalance calculation consisting of at least the following process steps:
- (a) a calculation of the Imbalance;
 - (b) notification of the Imbalance; and
 - (c) reconciliation of the Imbalance.
2. All Balance Responsible Parties shall be entitled to appeal against the Imbalance calculation results towards the Connection Transmission System Operator, under the terms and conditions related to Balancing developed in accordance with Article 16.
3. This procedure shall include specifications related to the determination of the finalised notified Position for each Imbalance Settlement Period by the Connection Transmission System Operators, for each Balance Responsible Party, for each Relevant Area. Specifications may include the determination of several finalised notified Positions for a single Balance Responsible Party.

4. A notified Position for an Imbalance Settlement Period, for each Relevant Area shall have a magnitude and a direction, indicating the net direction of injections of Balance Responsible Party, with negative indicating Balance Responsible Party's withdrawal, and positive indicating Balance Responsible Party's injection.
5. This procedure shall include specifications on how Connection Transmission System Operators, for each Balance Responsible Party, determine the Allocated Volume of all injections and withdrawals covered by this Balance Responsible Party, for each Imbalance Settlement Period, per finalised notified position pursuant Article 49(3), for each Relevant Area.
6. An Allocated Volume for an Imbalance Settlement Period, for each Relevant Area shall have a magnitude and a direction, indicating the net direction of injections of Balance Responsible Party, with negative indicating Balancing Service Provider withdrawal, and positive indicating Balancing Service Provider injection.
7. For any Balance Responsible Party which does not cover injections or withdrawals:
 - (a) the Connection Transmission System Operator shall not determine an Allocated Volume; or
 - (b) the Allocated Volume shall be 0 MWh

for each Imbalance Settlement Period for each Relevant Area.
8. This procedure shall include specifications on how Connection Transmission System Operators, for each Balance Responsible Party, determine the Imbalance Adjustment for each Imbalance Settlement Period, for each finalised notified position pursuant Article 49(3), for each Relevant Area, due to:
 - (a) the application of Article 39; and
 - (b) any curtailment or redispatch.
9. An Imbalance Adjustment for an Imbalance Settlement Period, for each Relevant Area shall have a magnitude and a direction, indicating the net direction of injections of Balance Responsible Party, with negative indicating Balancing Service Provider withdrawal, and positive indicating Balancing Service Provider injection.
10. Transmission System Operator shall determine an Imbalance for each Balance Responsible Party, for each Imbalance Settlement Period, for each finalised notified position pursuant Article 49(3), for each Relevant Area from final notified Position, Allocated Volume and Imbalance Adjustment.
11. An Imbalance for an Imbalance Settlement Period, for a Relevant Area shall have a magnitude and a direction, indicating the direction of the settlement transaction between Balance Responsible Party and Transmission System Operator, with negative indicating Balance Responsible Party shortage, and positive indicating Balance Responsible Party surplus.

Article 50

IMBALANCE PRICING

1. Within its terms and conditions for Balancing following Article 16 each Transmission System Operator shall define a procedure to calculate Imbalance Prices, to be paid or received by the Balance Responsible Party to the Connection Transmission System Operator, including a definition of the value of avoided Activation of Balancing Energy from Frequency Restoration Reserves or Replacement Reserves in its Relevant Area.

2. Each Transmission System Operator shall determine an Imbalance Price for each Imbalance direction, shortage or surplus and for each Imbalance Settlement Period for each Relevant Area where Imbalance is calculated.
3. The Imbalance Price for shortage for each Relevant Area shall not be less than the weighted average price for activated Balancing Energy for Frequency Restoration Reserves and Replacement Reserves for this Relevant Area and the value of the avoided Activation of Balancing Energy for Frequency Restoration Reserves or Replacement Reserves for this Relevant Area during the Imbalance Settlement Period.
4. The Imbalance Price for surplus for each Relevant Area shall not be greater than the weighted average price for activated Balancing Energy for Frequency Restoration Reserves and Replacement Reserves for this Relevant Area and the value of the avoided Activation of Balancing Energy for Frequency Restoration Reserves or Replacement Reserves for this Relevant Area during the Imbalance Settlement Period.
5. In case both Balancing Energy for Frequency Restoration Reserves or Replacement Reserves for upward regulation and for downward regulation have been activated during the Imbalance Settlement Period, the Connection Transmission System Operator shall determine the Imbalance Prices for shortage and surplus based on at least one of the principles specified in paragraphs 1 to 4.

SECTION 5
SETTLEMENT OF PROCURED BALANCING RESERVES

Article 51
GENERAL PRINCIPLES

1. Within its terms and conditions for Balancing following Article 16 each Transmission System Operator shall define rules for the settlement of Balancing Reserves in accordance with the principles set forth in Article 34. These rules shall be included in the terms and conditions related to Balancing according to Article 16
2. Each Transmission System Operators shall perform settlement of Balancing Reserves in a manner which promotes the achievement of the objectives of this Network Code in a timely manner.

Article 52
SETTLEMENTS WITH BALANCING SERVICE PROVIDERS FOR PROVIDED BALANCING RESERVE PRODUCTS

1. Each Transmission System Operator shall ensure the settlement of all Standard Balancing Reserve products and all Specific Products procured using methods defined in Article 22(1) from all Balancing Service Providers inside its Relevant Area.
2. Each Transmission System Operator shall define the rules for the settlement of the Balancing Reserve Products procured using methods defined in Article 22(1) provided by all Balancing Service Providers inside its Relevant Area.
3. The rules for the settlement of the Balancing Reserve Products shall be transparent and published following the requirements specified in Article 8 and Article 16.

Article 53
SETTLEMENTS BETWEEN TRANSMISSION SYSTEM OPERATORS DUE TO THE EXCHANGE AND SHARING OF RESERVES

1. All Transmission System Operators of a Coordinated Balancing Area shall settle among themselves all the Balancing Reserve Products exchanged within the Coordinated Balancing Area. All Transmission System Operators of a Coordinated Balancing Area shall define the rules for the settlement of the Exchange of Balancing Reserve Products inside the Coordinated Balancing Area, based on the principles established in Article 34.
2. The TSO-TSO Settlement of each Balancing Reserve product exchanged within a Coordinated Balancing Area shall be consistent with:
 - (a) the common pricing method for the Balancing Reserve products in the Coordinated Balancing Area pursuant to Article 23(3); and
 - (b) the settlement of the Balancing Reserve product with the Balancing Service Providers described in Article 52.

SECTION 6
SETTLEMENT AMENDMENTS

Article 54
GENERAL PRINCIPLES

1. All Transmission System Operators of a Coordinated Balancing Area shall establish a coordinated mechanism for amendments to settlements between all Transmission System Operators within a Coordinated Balancing Area, based on the principles set forth in Article 40.
2. Each Transmission System Operator is responsible for shortcomings in its measurements and reporting and shall provide a mechanism for amendments to settlements with Balancing Service Providers and Balance Responsible Parties. These mechanisms shall state a maximum time period after delivery within which Balancing Service Providers and Balance Responsible Parties shall ask for amendments.

CHAPTER 6

ALGORITHM DEVELOPMENT

Article 55

ALGORITHM DEVELOPMENT

1. All Transmission System Operators shall develop principles for the development of algorithms, applied for the minimisation of counteracting activation, optimised operation of common procurements of Balancing Reserves and Activation of Balancing Energy, compliant with the requirements specified in this Network Code.
2. No later than twelve months after the entry into force of this Network Code, all Transmission System Operators shall submit the principles for the development of algorithms, to all National Regulatory Authorities and the Agency.
3. All Transmission System Operators of a Coordinated Balancing Area for Balancing Energy shall develop an algorithm to be applied for the minimisation of counteracting Activation of Balancing Energy, in accordance with the principles for the development of algorithms, developed in accordance with paragraph 1.
4. All Transmission System Operators of a Coordinated Balancing Area for Balancing Energy shall develop an algorithm to be applied for the optimised operation of the relevant Activation of Balancing Energy through the generation of Common Merit Order Lists, in accordance with the principles for the development of algorithms, developed in accordance with paragraph 1.
5. In case a secondary market with the possibility to transfer obligations of Balancing Service Providers for providing Balancing Reserves from one Relevant Area to another is established, all Transmission System Operators of a Coordinated Balancing Area for Balancing Reserves shall develop an algorithm to be applied for the optimised Transfer of Obligations, in accordance with the principles for the development of algorithms, developed in accordance with paragraph 1.
6. All Transmission System Operators of a Coordinated Balancing Area for Balancing Reserves shall develop an algorithm to be applied for the optimised operation of the relevant common procurement of Balancing Reserves through the generation of Common Merit Order Lists, in accordance with the principles for the development of algorithms, developed in accordance with paragraph 1.

Article 56

ALGORITHM AMENDMENT

1. All Transmission System Operators of a Coordinated Balancing Area shall be entitled to amend the algorithms applied in the Coordinated Balancing Area.
2. All Transmission System Operators of a Coordinated Balancing Area shall duly consider proposals for amendments from stakeholders.
3. Proposals for amendments of an algorithm shall be directed to all Transmission System Operators of the relevant Coordinated Balancing Area supported by detailed information explaining and documenting the rationale for them.

CHAPTER 7

REPORTING

SECTION 1

ENTSO-E REPORTING TO THE AGENCY

Article 57

ANNUAL REPORT

1. All Transmission System Operators shall provide input for the annual report to be published by ENTSO-E 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. Every second year the annual report can be published in a simpler version to review the progress made and update indicators but without performing detailed analysis.
3. No later than six months after the entry into force of this Network Code, ENTSO-E shall define and send to the Agency its proposal concerning the years where a complete annual report and the years where simple updates of the annual report will be performed.
4. The annual report shall:
 - (a) 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;
 - (b) include a description of the evolution of Balancing resources and the quality of Balancing;
 - (c) include an assessment of the progress for coordination of the Balancing Energy activation from Frequency Restoration Reserves and from Replacement Reserves;
 - (d) include an assessment of the development of Exchanges of Balancing Reserves, including a status of the Balancing projects in which each Transmission System Operator is involved;
 - (e) include the costs of overall Balancing including manual and automatic reserves or products, as well as an ex-post analysis of the realised costs and benefits of all reserved Cross Zonal Capacities;
 - (f) include of Balancing Energy used for Balancing purposes, both available and activated, from Standard Products and from Specific Products;
 - (g) include the evolution of Balancing Service prices of the previous years;
 - (h) include the costs and benefits from all capacity reservation for Balancing Services purposes;
 - (i) include an assessment of the compatibility between Coordinated Balancing Areas;
 - (j) include the assessment and the progress of harmonisation of Imbalance Settlement arrangements as well as the consequences and possible distortions due to non-harmonised features;
 - (k) analyse the costs and benefits, and the possible inefficiencies and distortions of having Specific Products in terms of competition and market fragmentation, facilitation of Demand Side Response and participation of renewable energy sources, integration of Balancing Markets and side-effects on other electricity markets; and
 - (l) assess the progress of harmonisation of products and rules for procurement of Balancing Reserves and analyse the effects of non-harmonisation.

5. The annual report shall be published on the ENTSO-E website and submitted to the Agency no later than nine months after the end of the year it refers to.
6. The ENTSO-E shall define and submit to the Agency the indicators which will be followed and updated in the annual report process no later than six months before the publication of the first report.
7. The performance indicators shall reflect:
 - (a) availability of Balancing Resources, including volumes available of Balancing products and reserves;
 - (b) welfare gain due to the Exchanges of Balancing Services;
 - (c) benefits from the use of Standard Balancing products;
 - (d) total cost of Balancing;
 - (e) quality of Balancing composed of data on efficiency and performance of the balance, occurrence of Unintentional and Intentional Deviations, area control error; and
 - (f) possible inefficiencies and distortions in terms of competition and market fragmentation, facilitation of Demand Side Response and participation of renewable energy sources, integration of Balancing Markets and side-effects on other electricity markets.
8. The ENTSO-E shall be entitled to design and review the annual report structure, content and the performance indicators while respecting the following:
 - (a) The ENTSO-E shall propose to the Agency and all National Regulatory Authorities the structure and justification of the report no later than six months before the submission of the first annual report.
 - (b) The Agency shall approve, reject or request to amend the proposal of annual report content no more than one month after the submission of the proposal.
9. No later than twelve months after entry in force of the target model defined in Article 58(1)(d), all Transmission System Operators shall review the content and modalities of publication of the annual report. Based on the outcome of that review, all Transmission System Operators may develop a new structure and timing for the publications of the annual report.

CHAPTER 8

TARGETS AND TRANSITIONAL ARRANGEMENTS

Article 58 TARGETS

1. All Transmission System Operators and National Regulatory Authorities shall promote the development of a European wide TSO-TSO Model for Balancing by applying the following step-by-step approach:
 - (a) no later than two years after the entry into force of this Network Code, all Transmission System Operators shall ensure that in their Coordinated Balancing Area:
 - the multilateral TSO-TSO Model with Common Merit Order Lists is implemented for the Exchange of Balancing Energy from resources that are used as Replacement Reserves; and
 - they cooperate to minimise, when economically efficient, counteracting Activation of Balancing Energy between Relevant Areas, taking into account Cross Zonal Capacities, respecting the conditions of the Network Code on Load-Frequency Control and Reserves.
 - (b) no later than three years after the entry into force of this Network Code, all Transmission System Operators:
 - shall elaborate a proposal on the target model for the exchanges of Balancing Energy from automatically activated Frequency Restoration Reserves. This proposal shall be submitted to all National Regulatory Authorities and the Agency. If certain features of the target model for the Exchange of Balancing Energy from Replacement Reserves and manually activated Frequency Restoration Reserves as defined in paragraph 1(d) are identified to be not feasible or do not ensure a positive Cost-Benefit Analysis result, all Transmission System Operators shall prepare a joint proposal for modification of these features. The proposal shall be supported by a Cost-Benefit Analysis and justification and submitted to all National Regulatory Authorities and the Agency;
 - shall harmonise the principles for Imbalance calculation pursuant to Article 49 and Imbalance Price calculation pursuant to Article 50; and
 - shall harmonise principles for the Imbalance Settlement Period pursuant to Article 48 and subject to the results of Cost-Benefit Analysis.
 - (c) no later than four years after the entry into force of this Network Code, all Transmission System Operators shall ensure that in their Coordinated Balancing Area:
 - the multilateral TSO-TSO Model with Common Merit Order List as defined in paragraph 1(a) is extended to Balancing Energy from resources that are used as manually activated Frequency Restoration Reserves; and
 - the Activation of Balancing Energy from automatically activated Frequency Restoration Reserves is coordinated between Transmission System Operators in order to optimise their use and reduce Balancing costs. It shall also be coordinated with the Activation of Balancing Energy from manually activated Frequency Restoration Reserves and Replacement Reserves to ensure the efficient use of all Balancing resources.
 - (d) no later than six years after the entry into force of this Network Code, all Transmission System Operators shall:

- share in a European-wide TSO-TSO Model with Common Merit Order Lists, all Balancing Energy Bids from resources that are used as Replacement Reserves and manually activated Frequency Restoration Reserves, taking into account features of the target model that have been changed pursuant to paragraph 1(b); and
 - develop a proposal for modification of features of the target model for the exchanges of Balancing Energy from automatically activated Frequency Restoration Reserves, if all Transmission System Operators have identified that certain features are not feasible or do not ensure a positive Cost-Benefit Analysis result.
2. The standards and requirements of the Network Code on Electricity Balancing shall also apply to existing agreements related to Electricity Balancing that were concluded between a Transmission System Operator and a relevant grid user before the expiration of the transition period in accordance with Article 60.

Article 59

COST-BENEFIT ANALYSIS

1. All Transmission System Operators shall apply a Cost-Benefit Analysis, before the implementation or use of mechanisms of the European wide TSO-TSO Model for Balancing and for the harmonisation of the Imbalance Settlement Period according to Article 48.
2. All Transmission System Operators of a Coordinated Balancing Area shall apply a Cost-Benefit Analysis, for any decision on the reservation of Cross Zonal Capacity as a part of the methodology for the provision of Cross Zonal Capacity, pursuant to Article 32.
3. For sharing Frequency Restoration Reserves, adjacent Transmission System Operators shall apply a Cost-Benefit Analysis if required by National Regulatory Authorities.
4. Six months before its application, all relevant Transmission System Operators shall submit the criteria and methodology of a Cost-Benefit Analysis to the Relevant Regulatory Authorities for approval.
5. The Cost-Benefit Analysis shall at least consider the objectives of this Network Code set forth in Article 9, and:
 - (a) a Social Welfare quantification in accordance with the Network Code on Capacity Allocation and Congestion Management;
 - (b) the cost and benefits of implementation of a new Balancing mechanism or platform;
 - (c) the impact on European, regional and national Balancing costs;
 - (d) the potential impact on regional energy market prices; and
 - (e) the impact on market parties in terms of additional technical or IT requirements.
6. All Transmission System Operators of a Coordinated Balancing Area shall provide the result of the Cost-Benefit Analysis to the Relevant Regulatory Authorities, together with justified proposals on how to tackle possible issues with any of the targets identified by the Cost-Benefit Analysis. On that basis, the Relevant Regulatory Authorities shall decide on the way forward after public consultation.
7. The results of all the Cost-Benefit Analyses shall be contained in the annual report.

Article 60
TRANSITION PERIOD

1. The duration of the transitory period shall be two years starting on the day of entry into force of this Network Code.
2. The transition period shall apply for Article 18, Article 22, Article 34 to Article 44, Article 47 to Article 52, Article 54 and Article 57 (1) to (8).
3. During the transition period standards and requirements of this Network Code which do not have defined specific time frames for their implementation shall not be applicable.

Article 61
DEROGATIONS

1. Each Transmission System Operator may apply for derogation in respect of one or more provisions of this Network Code by submitting a written request to the National Regulatory Authority.
2. The derogation process shall be transparent, non-discriminatory, non-biased, well documented and based on a reasoned request by the Transmission System Operator demonstrating the fulfilment of the conditions listed in paragraph 3.
3. Derogations can be granted to Transmission System Operators who would be unable to implement certain provisions of the Network Code within the timeframes required by the Network Code for the reasons that:
 - (a) the Requesting Transmission System Operator would be, at the day of application of the provisions for which derogation is requested, in a significantly different situation from other Transmission System Operators 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 Relevant Area of the requesting Transmission System Operator.
4. The application requesting 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 Transmission System Operator requesting derogation shall be deemed compliant with the provision from which derogation is requested.
5. Derogation may be granted for a maximum period of two years.
6. The reasoned 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 Transmission System Operator requesting derogations intends to address the reasons underlying the request for derogations and thus ensure the implementation of the concerned provisions of the 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. The National Regulatory Authority shall decide within six months following from the reception of an application for derogation on whether to grant the derogation. In assessing the request for derogation, the relevant National Regulatory Authority shall consider the following aspects:
 - (a) difficulties of implementing the concerned provisions due to the specificities of the derogation requesting Transmission System Operator's situation, 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 derogation Requesting Transmission System Operator 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 sources of energy;
 - (d) impacts on overall Social Welfare; and
 - (e) impacts on other Relevant Areas and overall consequences on European market integration process.
8. The National Regulatory Authority shall notify the Agency of the reception of applications for derogation.
9. The National Regulatory Authority shall notify the Agency and the European Commission of their decision with respect to applications for derogation and publish it on its web page.
10. Each National Regulatory Authority shall maintain 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 62

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.