

# **Framework Guidelines on Capacity Allocation and Congestion Management for Electricity**

**Draft for Consultation**

**DFGC-2011-E-003**

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This Document contains the draft Framework Guidelines on Capacity Allocation and Congestion Management for Electricity, which the Agency for the Cooperation of Energy Regulators (ACER) is preparing pursuant to Article 6 of Regulation (EC) No 713/2009 and on the basis of a request from the European Commission.

The draft Framework Guidelines contained on this document are issued for consultation of ENTSO for Electricity and other relevant stakeholders, who are invited to submit their comments by:

**10 June 2011**

by sending them to:

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This document contains a number of specific questions for consultation. Stakeholders are invited to address the issues raised in the questions, as well as provide comments on other aspects of these draft Framework Guidelines.

## Related Documents

- [1] “EREG Final Draft Framework Guidelines on Capacity Allocation and Congestion Management for Electricity”, 11 February 2011, Ref. E10-ENM-20-03.
- [2] “EREG Framework Guidelines on Capacity Allocation and Congestion Management for electricity – Evaluation of Responses to the Public Consultation,” 11 February 2011, Ref. E10-ENM-20-03a
- [3] “EREG Framework Guidelines on Capacity Allocation and Congestion Management for electricity – Initial Impact Assessment“, 8 September 2010, Ref. E10-ENM-20-04, [http://www.energy-regulators.eu/portal/page/portal/EER\\_HOME/EER\\_CONSULT/CLOSED%20PUBLIC%20CONSULTATIONS/ELECTRICITY/draft%20Framework%20Guideline%20CACM%20Electricity/CD/E10-ENM-20-04\\_FG-CACM\\_IIA\\_8-Sept-2010.pdf](http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_CONSULT/CLOSED%20PUBLIC%20CONSULTATIONS/ELECTRICITY/draft%20Framework%20Guideline%20CACM%20Electricity/CD/E10-ENM-20-04_FG-CACM_IIA_8-Sept-2010.pdf)
- [4] “Implementing the 3rd Package: next steps”, CEER/EREG, 18 June 2009, Ref. C09-GA-52-06a, [http://www.energy-regulators.eu/portal/page/portal/EER\\_HOME/EER\\_PUBLICATIONS/CEER\\_EREG\\_PAPER\\_S/Cross-Sectoral/2009/C09-GA-52-06a\\_Implementing\\_3rdpackage\\_18-Jun-09.pdf](http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_EREG_PAPER_S/Cross-Sectoral/2009/C09-GA-52-06a_Implementing_3rdpackage_18-Jun-09.pdf)
- [5] 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. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:211:0055:0093:EN:PDF>
- [6] 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. [http://eur-](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:018:0001:0001:EN:PDF)

[lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:211:0001:0014:EN:PDF](http://lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:211:0001:0014:EN:PDF)

- [7] 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. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:211:0015:0035:EN:PDF>

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## **1 General Provisions**

### **1.1 Scope**

These Framework Guidelines aim at setting out clear and objective principles for the development of network codes pursuant to Article 6(6)(g) of Regulation (EC) No 714/2009 (the “Electricity Regulation”)<sup>1</sup>.

The network code(s) adopted according to these Framework Guidelines will apply to Capacity Allocation and Congestion Management (“CACM”) between the zones in the EU electricity market. These Framework Guidelines deal with the integration, coordination and harmonisation of the congestion management regimes, insofar as such harmonisation is necessary in order to facilitate electricity trade within the EU in compliance with Directive 2009/72/EC<sup>2</sup> (the “Electricity Directive”) and the Electricity Regulation, including also the relevant aspects from the existing Congestion Management Guidelines from the Annex of the Regulation (the “CM Guidelines”).

These Framework Guidelines complement the CM Guidelines where necessary and specify the detailed aspects which need to be implemented in the related Network Code(s). Moreover, the relevant provisions from the CM Guidelines have been referred to where needed.

The Network Code(s) developed by ENTSO-E on the basis of these Framework Guidelines will amend, repeal or, where applicable and necessary, also replace the relevant sections of the CM Guidelines.

The Network Code(s) developed according to these Framework Guidelines will be applied by electricity Transmission System Operators (TSOs) taking into account possible public service obligations and without prejudice to the regulatory regime for cross-border issues pursuant to Article 38 of the Electricity Directive and of the responsibilities and powers of regulatory authorities established according to Article 37 paragraph 6 of the Electricity Directive.

The Framework Guidelines were elaborated based on the related Initial Impact Assessment (IIA) [3] and the selected preferred policy options from this IIA. The IIA shall be read in parallel with these Framework Guidelines. Finally, relevant background information, problem definition and objectives of this initiative, policy options assessment and preferred policy options, as well as a glossary, abbreviation and references are also described in detail in the IIA [3].

These Framework Guidelines do not address the integration of electricity balancing markets even though coordination between balancing and the intraday market will be essential. Electricity balancing markets integration is a subject of separate Framework Guidelines and related Network Code(s).

In addition, these Framework Guidelines do not address the requirements on transparency and information management in the electricity market – these requirements are a subject of dedicated Comitology Guidelines on fundamental electricity data transparency, under development by the European Commission, NRAs and stakeholders.

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<sup>1</sup> 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.

<sup>2</sup> 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

## **1.2 Entry into force of the Network Code(s) and roadmap**

The Network Code(s) developed according to these Framework Guidelines shall contain a description and a roadmap (time plan) for the implementation of its provisions, starting from the date of entry into force of the Network Code(s).

This roadmap shall set out each significant step of the implementation of the provisions of the Network Code(s) on capacity calculation, definition of zones, day-ahead, forward and intraday markets.

For each significant step in the roadmap, ENTSO-E shall provide a clear understanding of the options, if any, and associated costs and benefits.

This roadmap shall provide for the implementation of the provisions of the Network Code(s) by 2014.

## **1.3 Definitions and references**

The Network Code(s) shall contain a section with a glossary and definition of words and expressions adopted.

## **2 Optimal and Coordinated Use of Transmission Network Capacity**

Capacity calculation and the definition of zones for CACM are essential elements for ensuring optimal use of transmission network capacity in a coordinated way.

### **2.1 Capacity Calculation**

#### **2.1.1 Capacity calculation methods**

The CACM Network Code(s) shall foresee that the TSOs define and implement either a Flow-Based (FB) method or an Available Transfer Capacity (ATC) method for capacity calculation. Both methods shall make use of the information on relevant generation and consumption units (i.e. "locational information"), through a detailed common grid model and ensure compliance with legal provisions for transparency. Both methods shall be thoroughly described in the Network Code(s).

The FB method for capacity calculation makes use of locational information in the grid model for the assessment of system security at the allocation stage without arbitrary assignment of capacity per border, and thus allows an efficient utilisation of the network. This method is therefore considered to be preferred to the ATC method for short term capacity calculation in cases where transmission networks are highly meshed and interdependencies between the interconnections are high (e.g. ENTSO-E Continental Europe, most notably the Central West - CWE and Central East – CEE regions).

The CACM Network Code(s) shall foresee that the practical usage of the FB calculation and allocation starts only after market participants have been consulted and allowed sufficient time for their preparation and for a smooth transition to the new arrangement.

Provided that it is done in a coordinated way, ATC is considered as an acceptable method for short term capacity calculation in less meshed networks, such as the Nordic power system or possibly the cases of interconnections between the large peninsulas or islands in Europe. However, both methods must be applied with due caution as it is essential to ensure that the trade of electricity within one zone and/or between zones is managed so as to minimise any adverse impacts on other zones.

Long-term calculation methodologies shall be fully compatible with the short term capacity calculation, taking into account the actual impact of commercial transactions on the physical grid situation and the fact that basic input data has only limited reliability because of changing market situations.

In cases where different capacity calculation methods are applied at different interconnections of one same zone, the CACM Network Code(s) shall provide for ENTSO-E to develop the necessary methods and implement the required solution in order to ensure technical and operational feasibility, neither reducing social welfare nor operational security in the network.

The CACM Network Code(s) shall stipulate that the capacity calculation method (including the approach to assess the required security margins and to split capacity between interdependent borders) are submitted to the relevant NRAs for approval.

#### 2.1.2 Capacity calculation process

The CACM Network Code(s) shall ensure that the process for determining the common grid model / common base case does not discriminate between exchanges internal to a zone and cross-border (cross-zonal) exchanges.

The CACM Network Code(s) shall ensure that the description of the capacity calculation method is made publicly available by the TSOs and that it contains a detailed and clear explanation of the elaboration of the common grid model, of the security assessment methods and the level of security margins and where applicable, of the critical branches taken into account.

The CACM Network Code(s) shall ensure that, in order to cope with variations in network use during the day, available maximum flows (for the FB method) or available transmission capacity (for the ATC method) shall be reassessed sufficiently often within the intraday time frame, in accordance with the timing of the allocation method. This is particularly important in order to take into account the most timely and relevant information from possible outages, variable generation (e.g. wind, solar) or to consider accordingly other events which occur close to real-time.

#### 2.1.3 Common grid model and base case

The CACM Network Code(s) shall foresee that the TSOs establish a common grid model suitable for community-wide application. As a minimum, the common grid model shall cover an area appropriate for the capacity calculation method used, at least the synchronous area. The common grid model shall include a detailed description of the transmission network including the location of generation units and demand.

The CACM Network Code(s) shall foresee that the TSOs update the common grid model and common base case as often as required for a given allocation procedure, with all the data relevant for the respective calculations, such as the expected network topology, generation and demand forecast. The data shall be available to all concerned TSOs and ready for immediate use.

## **2.2 Definition of Zones for Capacity Allocation and Congestion Management**

The CACM Network Code(s) shall define a zone as a bidding area, i.e. a network area, within which market participants shall submit their bids day-ahead, in intraday and in the longer term timeframes. The CACM Network Code(s) shall ensure that, when defining the zones, the TSOs are guided by the principle of overall market efficiency (including all economic, technical and legal aspects of relevance) and the respective network structure and topology. The definition of zones shall further contribute towards correct price signals and support adequate treatment of internal congestion.

Zone definitions concern all timeframes: long-term, day-ahead and intraday. Moreover, zone delimitations should be coordinated with balancing zones.

The CACM Network Code(s) shall provide that TSOs propose the delimitation of zones for subsequent review by NRAs. In cases where it can be shown that there is no significant internal congestion within or between control areas, one or several control areas may constitute one zone. The above-mentioned market efficiency principle and aspects such as system security must be reflected in the proposal and be assessed in a sound and comprehensive substantiation for either the proposed new delimitation or preservation of existing zones. The assessment shall be prepared in a region-wide coordinated way, also taking into account possible impact on other zones in the respective region. The CACM Network Code(s) shall envisage that TSOs repeat the assessment when network topology or patterns of generation and load, or local energy situations (deficits or surplus) are significantly changed or if it is necessary to ensure system security. NRAs shall assess the delimitation of zones against the criteria of overall market efficiency. In case a change in the zone delimitation is foreseen, it is of the utmost importance that market participants be consulted and have sufficient time to prepare.

While limiting cross-border capacity to solve internal congestion inside a control area is generally not permitted, the CACM Network Code(s) shall provide that if such a situation occurs, it is reported transparently. Detailed information on internal and cross-border congestion and limiting constraints (exact location, exact hour of congestion) shall also be reported to the NRAs.

The CACM Network Code(s) shall require TSOs to submit every two years, on a regional basis to the responsible NRAs and to the Agency, an analysis of the current zone delimitation based on detailed data on redispatching/countertrade costs and structural congestion. Based on this analysis, the market structure and possible market power issues shall be evaluated by the NRAs and the Agency and, where necessary, measures shall be adopted. The CACM Network Code(s) shall foresee stable and robust zones over time.

## **3 Day-Ahead Capacity Allocation**

### **3.1 Capacity allocation methods for the day-ahead market**

The CACM Network Code(s) shall foresee that TSOs implement capacity allocation in the day-ahead market on the basis of implicit auctions via a single price coupling algorithm which simultaneously determines volumes and prices in all relevant zones, based on the marginal



pricing principle. The implementation shall take into account the role of the power exchanges (PXs)<sup>3</sup>.

Calculated zonal prices shall differ only in the case of congestion between the concerned zones. The single price coupling algorithm calculates volumes and prices for all bidding areas and for each time unit. This means that there can only be one price calculated per bidding area and per hour<sup>4</sup>. The algorithm shall allow for block bids and any other products that are deemed feasible and appropriate.

The CACM Network Code(s) shall ensure that the TSOs and PXs provide all the necessary data to the relevant NRAs and the Agency, in order to enable all necessary monitoring and regulatory supervision of the day-ahead allocation.

### **3.2 Pricing**

The CACM Network Code(s) shall define the price of transmission capacity between zones (when congestion occurs) as the difference between the corresponding day-ahead zonal electricity prices.

In addition to congestion pricing, CACM methods for the day-ahead market shall provide the necessary elements for the establishment of price references for the forward market.

### **3.3 Firmness**

The CACM Network Code(s) shall provide that reduction of allocated capacity may only be used in emergency situations and *force majeure*, and when all other means are exhausted (as a last resort measure). Market participants shall not be affected and PXs shall not bear additional costs deriving from such reductions.

## **4 Forward Capacity Allocation**

### **4.1 Capacity allocation methods for the forward market**

The objective of long-term transmission rights, physical or financial, is to provide market participants with long-term hedging solutions against congestion costs and the day-ahead congestion pricing, compatible with zone delimitation.

Therefore, the CACM Network Code(s) shall foresee that the options for enabling risk hedging for cross-border trading are Financial Transmission Rights (FTR) or Physical Transmission Rights (PTR) with the Use-It-Or-Sell-It (UIOSI) requirement, unless appropriate cross-border financial hedging is offered in liquid financial markets on both side of an interconnector.

PTR shall be defined as options and subject to UIOSI. The CACM Network Code(s) shall define the nature of FTR in terms of options or obligations. Hybrid solutions, mixing PTR and FTR on the same border, shall not be implemented. The CACM Network Code(s) shall also foresee a harmonised set of rules for borders where PTRs with UIOSI are applied and a harmonised set of rules for borders where FTRs are applied.

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<sup>3</sup> The function of PX may also be performed by a pool operator.

<sup>4</sup> This is the price at which all electricity is bought and sold in the specific zone and hour.

The CACM Network Code(s) shall provide for a single platform (single point of contact) for the allocation and nomination (in case of PTRs) of long-term transmission rights (PTR and FTR).

**Q1** As price-based market coupling is the mandated capacity allocation method in the day-ahead framework, should FTRs be preferred to PTRs for long term capacity allocation?

#### **4.2 Time frames, volumes and secondary market with relevance for PTR and FTR**

The CACM Network Code(s) shall require that PTR are subject to the UIOSI requirement at the time of nomination (or equivalent market allocation process), which means, as a default, the resale of non-nominated rights. TSOs shall give the total financial resale value of capacity (in the case of an explicit auction this is equal to the clearing price of the auction in which the capacity is resold; in the case of an implicit auction this is equal to the day-ahead price differential between the two zones) back to the market participants who owned the PTR.

The CACM Network Code(s) shall require that TSOs determine the volume of long-term capacity rights in accordance with the technical capabilities of the network and for each long-term timeframe. The CACM Network Code(s) shall also ensure that the TSOs submit (at least indicative) levels of capacity available for the whole year sufficiently in advance before the yearly allocation takes place. NRAs shall review and approve the volume of yearly capacity rights, as well as the principles for sharing capacity between the different time frames.

In line with the Article 2(12) of the CM Guidelines, the CACM Network Code(s) shall foresee that the TSOs provide a single platform for anonymous secondary trading.

### **5 Intraday Capacity Allocation**

#### **5.1 A pan-European intra-day platform**

The key feature of the intraday market is to enable market participants to trade energy as close to real-time as possible in order to (re-)balance their position. Intraday trading is particularly important to accommodate intermittent generation and unexpected events such as outages.

The CACM Network Code(s) shall set out all necessary provisions for the implementation of a pan-European intraday platform supporting continuous implicit trading, with reliable pricing of intraday transmission capacity reflecting congestion (i.e. in case of scarce capacity). The method for pricing capacity and the allocation of congestion rents shall be subject to regulatory approval.

The CACM Network Code(s) shall also envisage that, where there is sufficient liquidity or in the case of pool markets with central dispatch, regional auctions may complement the implicit continuous allocation mechanism. Where implemented, implicit auctions should have adequate gate closures to provide the necessary flexibility to the market and be coordinated with, and linked to, the pan-European platform.

The process to develop in detail and implement the pan-European platform shall be led by ENTSO-E, include the participation of PXs and the consultation of market parties and be subject to regulatory approval. In particular, regulators will require a good understanding of the options and associated costs and benefits for each significant step in the implementation of the approved intraday roadmap.

To implement the pan-European platform, the CACM Network Code(s) shall require the development of a pan-European shared order book function and a pan-European capacity management module.

The CACM code(s) shall ensure that all cross-zonal intraday capacity is allocated via the pan-European platform and that there is a one-to-one relationship between the pan-European shared order book function and the capacity management module

The capacity management module shall provide a pan-European capacity matrix with up to date and real-time information on available transmission capacity. This capacity management module needs to be coordinated with the general capacity calculation for other timeframes (in particular day-ahead).

The CACM Network Code(s) shall set out a process for TSOs to establish clear rules on the process and timings for the coordinated recalculation and updating of intraday capacity. These rules shall be developed in consultation with market parties and subject to regulatory approval.

The CACM Network Code(s) shall ensure that the shared order book function is provided with the bids submitted to all participating PXs and intraday platforms and real-time information on available transmission capacity. The shared order book function shall include one unique algorithm which performs automatic matching of all bids, including appropriate block bids. The rules for matching and accepting bids shall be developed by ENTSO-E and PXs in consultation with market parties and subject to regulatory review.

The matching rules and algorithm should avoid undue discrimination in matching the different types of intraday products.

Where needed, sophisticated products shall be developed by ENTSO-E and PXs in consultation with market parties and subject to regulatory review. The objective of developing sophisticated products is to meet market needs concerning the start of additional generation units in the intraday time frame and to replace explicit access to cross-border intraday capacity for Over-the-Counter (OTC) trades.

The CACM Network Code(s) shall foresee that the allocated intraday capacity is firm, and that the use of intraday capacity is obligatory when allocated.

Intraday allocation and trade foreseen in the CACM Network Code(s) shall be coordinated by the TSOs with redispatching/countertrade and with (cross-border) balancing markets, while being guided by the principle of overall efficiency.

In order to increase liquidity while taking advantage of all trading possibilities enabled by the transmission system, the intraday mechanism shall avoid market segmentation.

The CACM Network Code(s) shall foresee that efficient arbitrage across timeframes is possible but preventing abuse.

<p><b>Q2</b> Is implementing implicit auctions on top of continuous trading considered to improve the intra-day market?</p>
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## 5.2 Transitional arrangements

Where applicable, until the full implementation of the provisions of these Framework Guidelines in the CACM Network Code(s), the capacity management module may provide direct access for bilateral supply (OTC) contracts to the capacity. As a minimum, the price and volume of any OTC contract allocated intraday capacity shall be made transparent.

On borders where OTC access has been allowed, if it is broadly accepted that sophisticated products meet the needs of market parties, they shall replace direct OTC access to the capacity. The removal of direct OTC access shall be subject to consultation with market parties and regulatory approval.

**Q3 Is allowing direct OTC access to the Capacity Management Module important as a transitional feature?**

## **6 General Issues, Requirements and Provisions**

### **6.1 Time table**

The CACM Network Code(s) shall define a common timetable (including publication of available capacity, gate closure where applicable, publication of results and, when applicable, ex post analysis) for day-ahead and intraday timeframes respectively.

### **6.2 Force Majeure**

A common definition of *force majeure* shall be given in the CACM Network Code(s) to be used in all capacity allocation rules (including auction rules, market coupling rules, rules for continuous trading).

*Force majeure* shall be defined as any sudden unforeseeable event or situation which:

- is beyond the reasonable control of the claiming party;
- is not a fault of the claiming party;
- cannot reasonably be avoided or overcome with reasonable foresight and diligence;
- cannot be solved by measures which are from a technical, financial and/or economic point of view, reasonably possible for the claiming party;
- makes it impossible for the claiming party to fulfill temporarily or definitively its obligations;
- has actually happened;
- is objectively verifiable.

The CACM Network Code(s) shall envisage that the claiming party which invokes *force majeure* sends the other contractual party, as soon as it is aware or should reasonably have been aware of this event, a notification describing the nature of the event of *force majeure* and its probable duration.

The CACM Network Code(s) shall provide that the obligations of a party subject to the *force majeure*, with the exception of confidentiality obligations, are suspended from the beginning of the *force majeure*. Allocated capacity that has been paid for and which becomes subject to a *force majeure* is reimbursed for the period of that force majeure. The claiming party can under no circumstances be held responsible or held liable to pay any compensation for damage suffered, due to the non-performance or faulty performance of all or part of its obligations, when such non-performance or faulty performance is due to a *force majeure*. The claiming party shall make every possible effort to limit the consequences and duration of the *force majeure*.

If a *force majeure* lasts for more than a certain amount of time, to be defined in the CACM Network Code(s), either contractual party may terminate contractual relation by sending a registered mail with acknowledgement of receipt, if the event adversely affects the essential obligations of the contractual parties.

The CACM Network Code(s) shall require TSOs to make transparent where congestion usually occurs and how, where and when it is physically relieved by enhancing the cross-border network capacity or by adjusting the critical network elements through e.g. new transmission lines.

### **6.3 Cross-border redispatching/countertrade**

The CACM Network Code(s) shall ensure that TSOs implement coordinated cross-border redispatching/countertrade at least at regional level, with a fair allocation of congestion costs

between countries/zones. It shall be coordinated with control-area internal redispatching/countertrade.

The coordination of redispatching/countertrading measures shall be based on the use of a common grid model<sup>5</sup> and the relevant data shared among all concerned TSOs.

Redispatching shall be conducted on the basis of its efficiency. The CACM Network Code(s) shall oblige the TSOs to avoid that the pricing of generation capacity reservation distorts the market and to coordinate capacity reservation conditions.

#### **6.4 Capacity products co-existence and firmness**

The CACM Network Code(s) shall provide that curtailments of cross-border transactions is applied only in emergency situations and ensure that the TSOs avoid any discrimination between the different types of commercial exchanges, between the relevant time frames and between exchanges internal to countries and cross-border exchanges. Other measures, such as redispatching and countertrading, shall be considered and the most efficient solution shall be applied.

TSOs shall ensure, on a coordinated basis, that enough redispatching/countertrade means are available for ensuring firmness.

The CACM Network Code(s) shall require that, except in the case of *force majeure*, capacity holders shall be compensated for any curtailment. Compensation shall be based on the price difference between the concerned zones/countries of the relevant time frame (day-ahead, intraday or balancing).

All nominated capacity shall be firm. Physical firmness is the preferred approach, but financial firmness may be accepted in case of explicit auctions.

The CACM Network Code(s) shall define a certain period of time ahead of capacity allocation during which capacity announced for an auction (explicit or implicit) can no longer be changed. This period shall be submitted to regulatory approval.

The CACM Network Code(s) shall foresee that capacity which cannot be used as a consequence of a *force majeure* event shall be reimbursed on the basis of the initial price paid.

**Q4** Should the draft Framework Guidelines be more explicit in the area of compensation? If yes, please indicate how.

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<sup>5</sup> Please refer to the glossary of the CACM IIA for the definition of the common grid model.