



Draft Framework Guidelines on Capacity Allocation and Congestion Management for Electricity

**Ref: E10-ENM-20-03
8 September 2010**

INFORMATION PAGE

Abstract

This document (Ref. E10-ENM-20-03) presents ERGEG's draft Framework Guidelines on Capacity Allocation and Congestion Management for electricity for public consultation with stakeholders.

The final Framework Guidelines to be prepared following the consultation are intended as input to ACER, which becomes fully operational on 3 March 2011.

Related Documents

CEER/ERGEG Documents

- [1] "ERGEG Framework Guidelines on Capacity Allocation and Congestion Management – Initial Impact Assessment", ERGEG, 7 September 2010, Ref. E10-ENM-20-04
- [2] "Implementing the 3rd Package: next steps", CEER/ERGEG, 18 June 2009, Ref. C09-GA-52-06a, http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_ERGEG_PAPER_S/Cross-Sectoral/2009/C09-GA-52-06a_Implementing_3rdpackage_18-Jun-09.pdf

External Documents

- [3] 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>
- [4] 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-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:211:0001:0014:EN:PDF>
- [5] 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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Scope

These Framework Guidelines (FG) apply to Capacity Allocation and Congestion Management (CACM) between the zones in the EU electricity market. The FG 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 Electricity Directive 2009/72/EC (Directive) and Electricity Regulation (EC) 714/2009 (Regulation), including also the relevant aspects from the existing Congestion Management Guidelines in Annex to the Regulation (CM Guidelines).

It is important to emphasise that these FG do not replace any provision from the CM Guidelines. The FG here complement the CM Guidelines where necessary and specify the detailed aspects which need to be implemented in the related electricity CACM network code(s). Moreover, the relevant provisions from the CM Guidelines have been referred to where needed.

The network code(s) developed by the European Network of Transmission System Operators for Electricity (ENTSO-E) on the basis of these Framework Guidelines will amend, repeal, or where applicable and necessary also replace the relevant sections of the Congestion Management Guidelines.

The FG serve as the basis for the development of the related network codes for capacity allocation and congestion management, according to the Article 8.6.(g) of the Regulation. Moreover, the FG also make use of the key relevant points from the Governance Project chaired by the EC (established following the 17th Florence Forum in December 2009).

The network Code(s) developed according to these FG 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 Directive 2009/72/EC and of the responsibilities and powers of regulatory authorities established according to Article 37 paragraph 6 of Directive 2009/72/EC.

The Guidelines were elaborated based on the related Initial Impact Assessment [1] and the selected preferred policy options from this IIA. The Initial Impact Assessment shall be read in parallel to these Framework Guidelines. Moreover, the Chapters of the Framework Guidelines are in line with the corresponding chapters of the Initial Impact Assessment. Finally, the IIA also describes in detail the relevant background information, problem definition and objectives of this initiative, policy options assessment and preferred policy options, as well as a glossary, list of abbreviation and references [1].

The network Code(s) prepared according to these Framework Guidelines, will be evaluated by the Agency for the Cooperation of Energy Regulators (ACER), taking into account the degree of compliance with the Guidelines and the fulfillment of the objectives: maintaining security of supply, supporting the completion and functioning of the internal market in electricity and cross-border trade including delivering benefits to the customers and facilitating the targets for penetration of renewable generation.

These FG do not address the integration of electricity balancing markets even though the coordination between balancing and the intraday market will be essential. Electricity balancing markets integration is the subject of another FG and related codes. Moreover, these FG also do not address the requirements on transparency and information management in the electricity

market – these requirements are the subject of dedicated comitology Guidelines on Transparency, under development by the EU Commission, ERGEG and stakeholders.

Structure of the FG for CACM

The FG on CACM (this document) are structured according to the objectives and related policy options for achievement of these objectives, described in detail in the IIA [1]:

The overarching objective of these FG is to ensure an optimal use of power generation plants and transmission infrastructure across Europe.

1. To Ensure Optimal Use of Transmission Network Capacity in a Coordinated Way
 - 1.1 Objective #1-1: Capacity Calculation
 - 1.2 Objective #1-2: Definition of Zones for CACM
2. Objective #2: To Achieve Reliable Prices and Liquidity in the Day-Ahead Electricity Market
3. Objective #3: To Achieve Efficient Forward Electricity Market
4. Objective #4: To Achieve Efficient Intraday Market

Moreover, the General requirements and provisions are defined in a separate chapter:

5. General Issues, Requirements and Provisions

1 Ensure Optimal Use of Transmission Network Capacity in a Coordinated Way

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

1.1 Objective #1-1: Capacity Calculation

Capacity calculation methods

1.1.1 The CACM network code(s) shall foresee that the Transmission System Operators (TSOs) define and implement either the Flow-Based (FB) method or the ATC (Available Transmission Capacity) 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 model¹ and ensure compliance with legal provisions for transparency.

The Flow-Based 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 a better utilisation of the network. This method is therefore considered to be the best one 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 regions CWE and CEE).

1.1.2 The CACM network code(s) shall foresee that the practical usage of the FB calculation and allocation start only after the market participants have been 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, this method must be applied with due caution as it is essential to ensure that the trade of electricity within one zone is managed accordingly to minimise any adverse impacts on other zones.

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

1.1.4 In cases where different capacity algorithms have to be applied at different interconnections of one same control area / zone, the CACM network code(s) shall provide for the 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.

1.1.5 The capacity calculation method (including the approach for the assessment of required security margins) shall be approved by relevant regulatory authorities.

¹ Please refer to the glossary of the CACM IIA for the definition of the common grid model.

Capacity calculation process

- 1.1.6 The CACM network code(s) shall ensure that the process for the determination of the common grid model² / common base case does not discriminate between exchanges internal to a control area / zone and cross-border (cross-zonal) exchanges.
- 1.1.7 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 model¹, of the security assessment methods and of the level of security margins and where applicable, that it takes into account the critical branches.
- 1.1.8 In order to cope with variations in the network use during the day, Available Maximum Flows (AMF in the FB method) or 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 variable generation (wind) or to consider accordingly other events which occur close to real-time.

Common grid model³ and base case

- 1.1.9 The CACM network code(s) shall foresee that the TSOs establish a common grid model³ 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 encompass a detailed description of the transmission network including the location of generation units and demand.
- 1.1.10 The CACM network code(s) shall foresee that the TSOs update the common grid model³ 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, expected generation and demand forecast. The data shall be available to all concerned TSOs and ready for immediate use.

1.2 Objective #1-2: Definition of Zones for CACM

- 1.2.1 A zone shall be defined as a bidding area, i.e. a network area, within which market participants shall submit their bids day ahead, intraday and in the longer term time-frames. The CACM network code(s) shall ensure that the TSOs are guided by the principle of overall market efficiency and the respective network structure and topology when defining the zones. The definition of zones shall further contribute towards correct price signals and support adequate dealing with internal congestion.
- 1.2.2 Zone definitions concern all time frames and, whereas different zones could be defined for the different timeframes, they should be consistent and coherent. Medium term and long-term delimitations shall be compatible with the zone definition for the day-ahead market.

² Please refer to the glossary of the CACM IIA for the definition of the common grid model.

³ Please refer to the glossary of the CACM IIA for the definition of the common grid model.

- 1.2.3 The TSOs shall 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. However, the impact in terms of welfare on other control areas/zones must be investigated and proven to be negligible. TSOs shall repeat the assessment when network topology is significantly changed. NRAs shall assess the delimitation of zones against the criteria of overall welfare gain.
- 1.2.4 The CACM network code(s) shall ensure further that the TSOs define zones in order to stimulate trade and competition. Several zones are possible in case of structural congestion within the control areas, which cannot be solved by methods of countertrade / redispatch or where the welfare gain is higher with smaller zones. In any case, the impact of redispatching/countertrade costs on the welfare related to the delimitation of zones shall be taken into account.
- 1.2.5 While limiting cross-border capacity to solve internal congestion inside a control area is generally not permitted, if such a situation occurs, then this must be reported transparently in accordance with comitology guidelines for transparency. Detailed information on internal and cross-border congestion and limiting constraints (exact location, exact hour of congestion) shall also be reported to the NRAs.
- 1.2.6 The TSOs shall submit yearly, on a regional basis to the responsible NRAs, an analysis of the current zone delimitation based on detailed data on redispatching costs and structural congestion. Based on this analysis, the market structure and possible market power issues shall be evaluated and where necessary measures shall be undertaken by the NRAs.

2 Objective #2: To Achieve Reliable Prices and Liquidity in the Day-Ahead Capacity Allocation

Capacity allocation methods for the day-ahead market

- 2.1 In the day-ahead time-frame, the CACM network code(s) shall foresee that the TSOs, in cooperation with PXs and according to the respective Governance provisions, implement capacity allocation on the basis of implicit auctions via a single price coupling algorithm which determines at the same time the volumes and prices in all relevant zones. If there is not enough capacity between the zones to enable all requested trade, calculated zone prices will differ. The term “single” (price) means one algorithm calculating volumes and prices for a given place and for a given time frame. The algorithm shall allow for block bids.
- 2.2 The CACM network code(s) shall ensure that the TSOs provide all the necessary data to the relevant regulatory authorities, in order to enable all necessary monitoring and regulatory supervision of the day-ahead allocation.

Pricing

- 2.3 In each control area / zone, the CACM network code(s) shall ensure that the day-ahead hourly electricity price is based on the marginal pricing principle. The price of transmission capacity (congestion) shall correspond to the difference of the day-ahead electricity prices in the corresponding zones.
- 2.4 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.

Scheduling

- 2.5 Accepted implicit day-ahead trades shall be firm after gate closure, therefore also in-line with the respective cross-border exchange schedules.

3 Objective #3: To Achieve Efficient Forward Market

Capacity allocation methods for the forward market

- 3.1 The objective of long-term transmission rights, physical or financial, is to provide to market participants long-term hedging solutions against congestion costs and the day-ahead congestion pricing, compatible with zones delimitation.
- 3.2 It is within that framework that 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 UIOSI (Use-It-Or-Sell-It) unless appropriate cross-border financial hedging instruments are offered in liquid financial markets.
- 3.3 The nature of PTR and FTR in terms of options or obligations should be defined in the respective CACM network code(s). PTR shall be options and subject to UIOSI. FTRs may allow for both possibilities (options or obligations). Hybrid solutions, mixing both options on the same border, shall not be implemented. Whereas FTRs and/or PTRs with UIOSI can be used at the interconnections both, with well developed and with less developed liquid financial forward markets, the FTRs on interconnectors between these two kinds of regions shall only be used if efficiency gains can be clearly documented.

Timeframes, volumes and secondary market with relevance for PTR and FTR

- 3.4 PTR shall be subject to UIOSI at the time of nomination, which means as a default the resale of non-nominated rights. TSOs shall give the total financial resale value of capacity (in case of explicit auction it is equal to the clearing price of the auction, in case of implicit auction it is equal to the price differential between the two zones) back to the market players who are the PTR capacity owners.
- 3.5 Volume of long-term capacity rights shall be determined by TSOs in accordance with the technical capabilities of the network and for each long-term timeframe. The CACM network code(s) shall ensure that the TSOs submit (at least indicative) levels of capacity offered in each time frame sufficiently in advance before the respective allocation takes place, in order to allow national regulatory authorities (NRAs) to review and approve them.
- 3.6 In line with the Article 2.12 of the CM Guidelines, the CACM network code(s) shall foresee that the TSOs provide for a platform for anonymous secondary trading at least at the regional level. The long-term compatibility of such platforms shall be ensured, in order to enable a future pan-European extension of secondary trade.

4 Objective #4: To Design Efficient Intraday Market Capacity Allocation

Capacity allocation methods for the intraday market

- 4.1 The key feature of the intraday market is the trade of energy as close to real time as possible (see the IIA). Intraday trading is particularly important to accommodate intermittent generation.
- 4.2 Within that framework, the CACM network code(s) shall foresee the evolution of continuous implicit trading, including reliable pricing of intraday transmission capacity reflecting congestion (i.e. in case of scarce of capacity). This should include automatic matching and appropriate block bids and sophisticated products where needed.
- 4.3 As the first step, the CACM network code(s) shall foresee that the TSOs or PXs, in accordance with the relevant Governance framework, implement continuous implicit allocation for the intraday trading. When there is sufficient liquidity, implicit auctions may be implemented. In case of coexistence of both solutions, they should be coordinated, provided that implicit auctions have adequate gate closures to provide necessary flexibility for the market.
- 4.4 The CACM network code(s) shall foresee that the intraday trade capacity is firm.
- 4.5 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.
- 4.6 In order to increase liquidity while taking advantage of all trading possibilities enabled by the transmission system, the intraday mechanism shall avoid market segmentation and its geographical scope shall eventually be Europe-wide. During the evolution towards the pan-European solution, the CACM network code(s) shall foresee that the TSOs ensure compatibility between the regional approaches and that efficient arbitrage with the day-ahead and balancing time-frames is possible.
- 4.7 The CACM network code(s) shall foresee that the TSOs pay attention to and avoid possible discrimination between the different types of products, in particular related to the use of block bids spanning several hours. In that sense, the TSOs shall ensure an appropriate matching methodology or algorithm between the different products (simple or sophisticated) and timeframes. The CACM network code(s) shall ensure further that the data required for market monitoring are provided to the NRAs.

5 General Issues, Requirements and Provisions

In terms of general issues, requirements and provisions, the relevant Articles of the CM Guidelines also apply and are not repeated here again.

10-Year Network Development Plan

- 5.1 TSOs shall make transparent in the 10-Year Network Development Plan, 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.

Cross-border redispatching/countertrade

- 5.2 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.
- 5.3 The coordination of redispatching/countertrading measures shall be based on the use of a common grid model⁴ and the relevant data shared among all concerned TSOs.
- 5.4 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.

Capacity products coexistence and firmness

- 5.5 The CACM network code(s) shall ensure that there is no discrimination between the OTC and organised markets. However, where the whole interconnection capacity (for a given timeframe) is assigned e.g. to a Power Exchange in order to implement implicit auctions, this shall be duly taken into account. This shall result in the independence and non-discriminatory organisation of the Power Exchange in question, including also a proper regulatory oversight (effectively, this can be achieved by the “unbundling” of the respective activities, i.e. physical market and financial market) in order to avoid any discriminatory treatment of different market participants or products.
- 5.6 Curtailments of cross-border transactions may only be applied in emergency situations and the CACM network code(s) shall ensure that the TSOs avoid any discrimination between the different types of commercial exchanges, between the relevant timeframes 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.
- 5.7 Congestion rents shall be used, inter alia, for guaranteeing the firmness of allocated capacity rights, in particular through the activation of coordinated redispatching/countertrade actions.

⁴ Please refer to the glossary of the CACM IIA for the definition of the common grid model.

- 5.8 TSOs shall ensure on a coordinated basis that enough redispatching/countertrade means are available for ensuring firmness.
- 5.9 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).
- 5.10 All nominated capacity shall be firm. Physical firmness is the preferred approach, but financial firmness may be accepted in case of explicit auctions.
- 5.11 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. The CACM network code(s) shall also specify that the TSOs jointly define the terms of Force Majeure subject to the approval by relevant regulators.

Implementation

- 5.12 While evaluating CM methods, regulators shall apply the high level principles of the target model as defined in the IIA in order to ensure continuous advancement towards target solution.
- 5.13 Before any major implementation step, all relevant stakeholders shall be consulted and their opinions shall be taken into account appropriately.