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Governing for Growth in Georgia

REPORT ON INTERCONNECTION CAPACITY ALLOCATION AND CONGESTION MANAGEMENT

GOVERNING FOR GROWTH (G4G) IN GEORGIA

23 March 2015

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ACRONYMS

Acronym	Definition/Description
AC	Alternating Current
ACER	Agency for the Cooperation of Energy Regulators
ATC	Available Transfer Capacity
CBETA	Cross Border Electricity Trading Agreement
CTR	Capacity Transmission Right
DAM	Day Ahead Market
DC	Direct Current
DSO	Distribution System Operator (for electricity)
EC	European Commission
EMRA	Electricity Market Regulatory Authority (of Turkey)
EnCT	Energy Community Treaty
ENTSO-E	European Network of Transmission System Operators for Electricity
ESCO	Electricity System Commercial Operator
EU	European Union
G4G	USAID Governing for Growth in Georgia
GNERC	Georgian National Energy and Water Supply Regulatory Commission
GSE	Georgian State Electrosystem
HV	High Voltage
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
IDM	Intra-Day Market
MENR	Ministry of Energy and Natural Resources of Turkey
MO	Market Operator
MOE	Ministry of Energy of Georgia
MW	Megawatt
MWh	Megawatt Hour
NREAP	National Renewable Energy Action Plan
NTC	Net Transfer Capacity
OHL	Overhead Lines
PMUM	Piyasa Mali Uzlastirma Merkezi – electricity market operator in Turkey
PSRC	Public Service Regulatory Commission – regulatory authority of Armenia
RAMENR	Republic of Armenia Ministry of Energy and Natural Resources
RES	Renewable Energy Sources
SoS	Security of Supply
TEIAS	Turkiye Elektrik Iletim Anonim Sirketi – Electricity transmission company and electricity transmission system operator of Turkey
TSO	Transmission System Operator (for electricity)
TTC	Total Transfer Capacity
TYNDP	Ten Year Network Development Plan
USAID	United States Agency for International Development

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EXECUTIVE SUMMARY

Governing for Growth for Georgia (G4G) is a USAID 5-year initiative aimed at supporting the Government of Georgia to create a better enabling environment in which legal and regulatory reforms are fairly and transparently conceived, implemented and enforced providing a level playing field for small and medium size enterprise growth.

G4G will strengthen the capacity of both public and private sectors to effectively cooperate on elaboration of the legislative changes required for the identified reforms through an inclusive consultative process.

To achieve the goal, G4G will support inclusive public-private dialogue for the effective formulation of reforms to drive economic development nurtured through transparent and accountable oversight of the state.

The objectives of this report are to:

- Summarize the procedures within the European Union (EU) for electricity interconnection capacity allocation and congestion management for cross-border trade.
- Identify and describe the existing electricity interconnection capacity allocation and congestion management issues in Georgia that need to be addressed from a legal, contractual, and operational perspectives for compliance with international best practices.
- Provide recommendations for a transitional plan on electricity interconnection capacity allocation and congestion management for Georgia.

Electricity Transmission Interconnection Capacity Allocation is the process used by the electricity system operator of a country to determine which energy traders have the right to use the transmission facilities to export or import power and the amount of interconnection capacity (measured in Megawatts (MW)) that is allocated to each energy trader.

Congestion management is the process used by a country to determine the allocation of interconnection capacity when the total interconnection capacity requested by traders exceeds the amount of interconnection capacity available. Typically an auction is held by the electricity system operator to determine the winners of the interconnection capacity for a specified period (year, month, day).

Georgian State Electrosystem (GSE) has developed procedures for capacity allocation and congestion management and posted these procedures on their website. The Ministry of Energy has adopted market rule changes covering many aspects of capacity allocation and congestion management,

In 2011, the Agency for Cooperation of European Regulators (ACER), an EU agency, adopted its Framework Guidelines on Capacity Allocation and Congestion Management for Electricity. The Framework Guidelines and the associated network codes to be developed pursuant to Guidelines provide the legal framework and requirements for European transmission system operators and power exchanges for the operation of an integrated electricity market including the procedures for interconnection capacity allocation and congestion management.

In developing this document, consideration was given to Georgian energy policy goals, Georgia's electricity transmission system grid code, and consistency with the European Network of Transmission System Operators for Electricity (ENTSO-E) approach to network code development for capacity allocation and congestion management.

The EU procedures covering electricity interconnection capacity allocation and congestion management provide the best practices for Georgia – Turkey is already a member of ENTSO-E and Georgia has applied to join the EU's Energy Community Treaty (EnCT) which will require adherence to EU's energy legislation.

The EU rules require:

- Transparency of rules and procedures.
- Market player involvement in review of rules and procedures.
- Publishing of important system information/data by the electricity system operators on a specified timetable (hourly, daily, monthly, annually).
- Non-discrimination of the allocation of transmission interconnection capacity.
- Monitoring of the process by an independent regulatory authority, especially related to the calculation of the available transmission capacity and the auctions for congestion management.

There are several existing problems/issues in Georgia related to capacity allocation and congestions management. The main challenge for Georgia and hydropower developers is to produce bankable results for project financing. Provisions are needed to establish and maintain electricity sales continuously so that revenue flows can be estimated and debt service coverage ratios can be calculated. Apart from access to the domestic Day Ahead and Intra-Day markets, project lenders will require guaranteed long term cross border (yearly and beyond) capacity allocation to ensure cash flow stability for hydropower projects.

Other issues regarding capacity allocation and congestion management include:

- Difficulties experienced by small hydropower plants in acquiring interconnection capacity allocation.
- Lack of interconnection capacity allocation for daily cross border trading.
- Constantly changing interconnection capacity allocation rules (over 15 amendments in the last 12 months).
- Procedures or rules not followed (congestion management auctions announced with little or no notice except to specified traders).
- Lack of monitoring of the implementation of the interconnection capacity allocation rules by the energy regulator.
- New interconnections are being developed (more lines to Turkey, 500 KV line to Armenia) and rules should be expanded cover all new interconnections, not just the existing single transmission line to Turkey.
- Georgia and Turkey agreed to a new cross border trading agreement allowing for simultaneous importing and exporting on the existing and future electricity transmission interconnections, but the rules for such trading have not been developed.

Proposed Transitional Plan

G4G recommends that GSE adopt a 3-phase transitional plan to resolve all outstanding problems and issues related to interconnection capacity allocation and congestion management. The proposed transitional plan is separated into three distinct phases:

Phase 1 – Priority issues (non-ENTSO-E) are resolved;

Phase 2 – Follow-up activities to approximate ENTSO-E rules and procedures;

Phase 3 – Monitoring is established by the energy regulator and updating of the rules and procedures, as needed, as a result of the monitoring.

INTRODUCTION

European electricity networks are becoming increasingly interconnected to allow electricity traders to import and export electricity between countries. The point of electricity connection between is referred to as “the interconnection”. The right to trade between countries using the interconnection facilities is referred to as capacity allocation. When the amount of electricity trades, measured in MWs, exceed the capacity of the interconnection, then the transmission system operators (TSOs) run an auction to determine the allocation of interconnection capacity. Similar to Europe, Georgia is increasing its electricity transmission interconnections with its neighbors (Russia, Turkey, Azerbaijan and Armenia).

Capacity allocation and congestion management (CACM) rules set out the methods for allocating electricity interconnection capacity in annual, monthly, day-ahead and intra-day timescales and outline the approach in which interconnection capacity will be calculated across the different transmission network zones.

Common CACM rules provide the basis for the implementation of a single energy market across Europe. The Agency for the Cooperation of Energy Regulators (ACER), an EU agency, was created by the EU’s Third Energy Package to further implement the internal competitive energy market for both electricity and for natural gas. Agency for the Cooperation of Energy Regulators (ACER) is responsible for adopting regulatory policy on such issues as CACM.

Based on guidelines from ACER, ENTSO-E developed the Capacity Allocation and Congestion Management (CACM) Network Code which is an important step in implementing the European competitive electricity market. Putting in place harmonized cross border (between countries) markets in all timeframes is leading to a more efficient European market and will benefit customers.

Georgia recently (2013) interconnected its electricity network to Turkey’s electricity network through a new 400 kV line. Georgia has developed some preliminary rules and procedures, but those rules, as explained later in this report, are not consistent with ENTSO-E rules and procedures, Given that Turkey is already a member of ENTSO-E and Georgia aspires to become a member of ENTSO-E, a transitional plan is needed to bring rules and procedures related to the new Turkey interconnection as well as for other electricity interconnections planned or under development.

In previous USAID projects, presentations of cross border trading and interconnection capacity were provided to GSE and to the Georgian National Energy and Water Supply Regulatory Commission (GNERC). One of those presentations is included as Appendix E to this report.

EU OBJECTIVES OF CACM RULES AND PROCEDURES

ACER, within its Guidelines for CACM laid out specific objectives for establishing CACM Network Code as stated below:

In order to enhance pan-European Social Welfare, the ENTSO-E created a network code for capacity allocation and congestion management to facilitate the following objectives:

1. Promoting effective competition in the generation, trading and supply of electricity;
2. Ensuring operational security;
3. Optimizing the calculation and allocation of Cross Zonal Capacity;
4. Ensuring non-discrimination;
5. Ensuring and enhancing the transparency and reliability of information; and
6. Contributing to the efficient long-term operation and development of the European Electricity Transmission System and electricity sector.

EU EXPERIENCE IN CROSS-BORDER CAPACITY ALLOCATION AND CONGESTION MANAGEMENT

The EU is gradually completing the process of creating the European single electricity market, aimed at establishing a fully integrated internal (competitive) electricity market. In regulatory/legislative terms, the process (which has been going on for several years) began with the approval of the Third Energy Package by the European Parliament and Council.

Among the various regulatory/legislative measures concerning the electricity sector, two key pieces of EU legislation are:

- Directive 2009/72/EC (approved on 13 July 2009); and
- Regulation (EC) No. 714/2009 (see Appendices A&B).

The latter Regulation identifies the common requirements that each EU Member State must comply to enable access by electricity traders to power grids and cross-border power trade within the EU. After its adoption, the regulatory process continued with the publication of the "Framework Guidelines on Capacity Allocation and Congestion Management" by ACER on 29 July 2011. Since then, these guidelines have represented the reference program document that the ENTSO-E and the European Commission's Directorate-General (DG) Energy have adopted for drafting the "Network Code on Capacity Allocation and Congestion Management" (CACM), i.e. the EU-wide technical regulation defining operational procedures and key harmonization measures for the individual market models that each TSO and each national power exchange will have to implement in order to:

a. Harmonize cross-border transmission capacity allocation; and
b. Align cross-border congestion management processes.

CACM rules and procedures (see outline of the draft CACM Network Code in Appendix D of this report) set out the methods for allocating interconnection capacity in yearly, monthly, day-ahead and intra-day timescales and outline the way in which capacity will be calculated across different bidding zones. Putting in place harmonized cross border markets in all timeframes will lead to a more efficient European market and will benefit customers. These rules will provide the basis for the implementation of a single electricity market across Europe.

The network codes and related guidelines have been developed to help realize Europe's three energy policy goals – of ensuring security of supply (SoS); creating a competitive Internal Electricity Market; and decarbonizing the electricity sector. For this to happen, the network codes and related guidelines will be implemented and complied with across Europe.

Each code requires a series of steps to be taken before they can enter into force. This could be national decisions, the conclusion of regional agreements or the creation of more detailed methodologies. All market participants, electricity distribution system operators (DSOs), electricity transmission system operators (TSOs), electricity market operators and energy regulators will be involved and there will be extensive development work and consultation required.

The CACM rules set specify the procedures for calculating cross-border capacity, defining and reviewing bidding zones and operating day ahead and intraday markets. Many of the subjects included in the CACM are highly complex and there is relatively little operational experience on which to draw from (for example, the flow-based method of capacity calculation). For this reason, CACM requires additional work and a series of methodologies to be jointly developed and approved by regulators after the code enters into force.

In December 2014, the European Commission submitted the Network Code on Capacity Allocation and Congestion Management to the Council and European Parliament for approval and it is expected the CACM will enter into force in second quarter 2015. After

entry into force, the implementation process will begin and the effectiveness of the network code will be monitored and amended, as needed.

For further reference, a list of EU documents covering CACM is included in Appendix C of this report.

OVERVIEW OF ACER'S FRAMEWORK GUIDELINES ON CAPACITY ALLOCATION AND CONGESTION MANAGEMENT

On 29 July 2011, ACER[1] adopted its Framework Guidelines on Capacity Allocation and Congestion Management for Electricity[2].

The Framework Guidelines and the network codes to be developed pursuant to the Guidelines provide the legal framework and requirements to TSOs and power exchanges for the operation of an integrated electricity market in the long-term, day-ahead and intraday timeframes.

The core elements of the Framework Guidelines are:

- Optimal definition of bidding (price setting) zones with respect to overall market efficiency. The Framework Guidelines define a process to regularly investigate and report on whether existing bidding zones are efficient. In case inefficiencies are identified, the review of bidding zones should be triggered to compare the overall market efficiency of alternative bidding zones configurations against the existing one;
- Calculation of capacities between bidding zones should maximise the possibilities to trade between bidding zones taking into account the limitations of existing network infrastructure. Capacity calculation should be efficient, transparent, and strongly coordinated among TSOs. Flow-based capacity calculation should be applied in highly meshed networks, whereas Net Transfer Capacity (NTC) calculations may be used in less meshed networks (see Appendix F – Table 2 for an example of NTC calculations);
- Efficient allocation of cross-zonal capacity. In the forward timeframe, cross-zonal capacity shall be allocated through explicit auctions in a form of Physical or Financial Transmission Rights. In the day-ahead timeframe, cross-zonal capacity should be allocated via implicit auctions (price market coupling). For the intraday timeframe, cross-zonal capacity should be allocated through implicit continuous allocation (continuous market coupling), which can be complemented with implicit auctions in specific cases.
- The cross-zonal capacity allocated in the forward timeframe should be financially firm, whereas cross-zonal capacity allocated in the day-ahead and intraday timeframe should be physically firm.

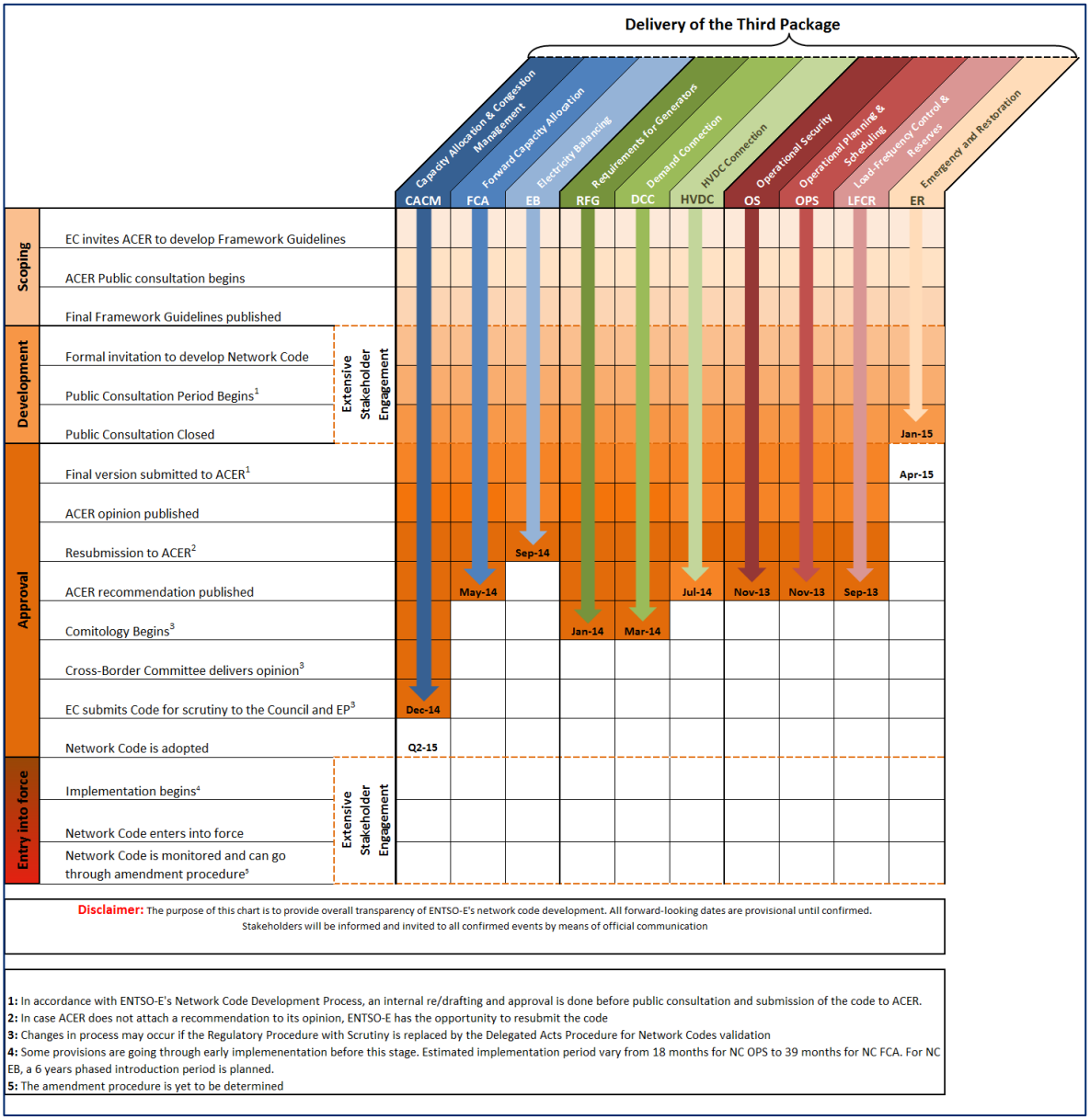
[1] ACER website: www.acer.europa.eu

[2] Framework Guidelines on Capacity Allocation and Congestion Management (CACM) for Electricity

OVERVIEW OF THE ENTSO-E NETWORK CODE ON CAPACITY ALLOCATION AND CONGESTION MANAGEMENT

The ENTSO-E created draft CACM Network Code in 2011 and 2012. The draft code enjoyed wide distribution (website, presentations and workshops) that resulted in significant public review and comment. The draft Network Code was approved by the European Commission (EC). The EC has sent the final draft for adoption by the European Council and EU Parliament. The process that ENTSO-E is following is shown in the graphic below.

ENTSO-E Process for CACM Network Code Development



Source: ENTSO-E

The draft CACM Network Code provides exact specification on most aspects of CACM, including:

- Roles and responsibilities of market players, TSOs, DSOs and market operators.
- Coordination between the parties.
- Timeframes for determining capacity allocation and holding auctions for congestion management.
- Calculation of NTC and Available Transfer Capacity (ATC).
- Notifications and publications.
- Holding auctions for congestion management.
- Clearing and settlement.
- Monitoring.
- Process for amending the Code.

The draft Network Code puts significant emphasis on day-ahead and intra-day capacity allocation, something absent from the Georgia's electricity rules and procedures. The table below highlights the nine major aspects of the CACM Network Code.

Aspects of Network Code for Capacity Allocation and Congestion Management:

Roles and responsibilities of market players TSOs, DSOs, MOs	**Calculation of NTC and ATC**	**Clearing and settlement**
Coordination between the parties	**Holding auctions for congestion management**	**Monitoring**
Timeframes for determining capacity allocation	**Notifications and publications**	**Process for amending the Code**

RECOMMENDATIONS FOR A TRANSITIONAL PLAN ON INTERCONNECTION CAPACITY ALLOCATION AND CONGESTION MANAGEMENT

The process for exporting electricity is currently focused on annual and seasonal considerations. The Georgian Ministry of Energy (MoE) approves annual and monthly energy balances, including projected supply, consumption, and imports/exports. The Electricity System Commercial Operator (ESCO) transacts the purchase and sale of balance electricity, including import/export agreements. Exports by individual generators require contract registration with the TSO (GSE dispatch). ESCO must also register any export contract with the TSO. According to the treaty signed by Georgia and Turkey in 2012 – the Cross Border Electricity Trading Agreement (CBETA), direction of electricity flow through the interconnector is predetermined on annual bases for each month. The exporting country has the priority of selecting exporting entities and allocating interconnection transmission capacity to them. Currently there are negotiations between Georgia and Turkey on the new Intergovernmental Agreement (IGA) which will include a new approach to the cross border trade. Under the IGA, cross border trading directions will not be predetermined and simultaneous directional trading will be introduced. The electricity flow direction will be determined by market conditions. The Agreement also will includes creation of a working group for cross border trading harmonization and possible market coupling between Georgia and Turkey.

Day-ahead cross border transactions require a somewhat different framework. They are not driven by domestic annual or seasonal energy balances. Instead, the volume of day-ahead transactions depends largely on daily market conditions in both countries such as rainfall, temperature, generator and transmission outages and market prices.

Removing congestion caused by too much electricity generated near the border of the importing country or over-subscription of the ATC by generators on the exporting side requires a methodology to eliminate the congestion.

Commonly used methods for congestion management between the borders in EU are implicit and explicit auctions. In addition, in some regions a hybrid model where these two auction methods are combined is also used.

Explicit auctions are widely used for long term capacity allocation in interconnections among European countries. In each EU Member State, the controlling party of the interconnection capacity is the TSO. The TSO allocates this capacity through yearly, monthly or daily auctions. Participants of the auctions give bids for the capacity allocation and all of the bids are ordered from the highest to the lowest price. Capacity is allocated starting from the highest one until the available capacity is used up and usually the price is set to the bid price of the lowest allocated bid. In explicit auction methodology, energy and capacity trading are done independently. The main challenge with the explicit auction is coordination between the TSOs.

On the other hand, an implicit auction (market coupling, market splitting) is used for short term capacity allocation, energy and capacity is allocated together and energy price reflects both congestion cost and energy cost. In this method, electricity flow is always from the low price region to the high price region. Implicit auction is presently used in Scandinavian countries and between France-Belgium-Netherlands, to name a few regions. Both of these congestion management methods (explicit and implicit auctions) are market based and supported by European Commission.

The establishment of a transitional plan for CACM in Georgia is a tool to facilitate the implementation of the CACM mechanism in Georgia by:

- Promoting experience sharing and exchange of information between TSOs and regulatory authorities from Georgia, Turkey and Armenia on methodologies for CACM; In the absence of membership to an umbrella organization, such as ENTSO-E, countries need to sign bilateral and multilateral cross-border energy trading agreements, specify and prioritize the exchanges of power, energy transits, etc. Georgia has signed the CBETA and Interconnection Operability Agreement (IOA) with Turkey. Similar treaties and agreements need to be signed with other neighboring countries.
- Ensuring that problems related to the implementation of the CACM are correctly identified, solutions adopted by methodologies for CACM are shared and lessons drawn from the implementation of methodologies for CACM are carefully considered;
- Adequately informing all interested stakeholders about the ongoing process;
- Enabling separate meetings 1) between GNERC and regional regulators - Turkey's regulator, Electricity Market Regulatory Authority (EMRA) and Armenia's regulator, Public Service Regulatory Commission (PSRC) and GSE and 2) between GSE as Georgia's TSO and Turkiye Elektrik Iletim Anonim Sirketi (TIEAS), Turkey's TSO and Armenia's TSO, Armenergo, to monitor the whole process, ensuring the coherence of solutions adopted by Georgia, Armenia and Turkey, avoiding duplication of costs and aiming to facilitate and enable the early implementation of the mechanism for CACM.
- Establishment of a joint committee between the TSOs that shall create rules of procedure for TSOs, including rules of procedures for consultations of other stakeholders.
- Creation of a Network Code for Capacity Allocation and Congestion Management.

DRAFT TRANSITIONAL PLAN ON INTERCONNECTION CAPACITY ALLOCATION AND CONGESTION MANAGEMENT

The following table provides a template plan for further discussion with power sector entities that includes a list of proposed activities and prioritizes them in three categories:

Stage A activity means that the activity is urgent and necessary for the earlier stage of transition for implementation of the CACM mechanism.

Stage B activity means that activity should start after the completion of another activity and that it supports a later stage of CACM implementation.

Stage C activity means that activity would be necessary on a permanent basis as a rolling activity in order to help monitoring of CACM developments.

No	Activity	Stage A	Stage B	Stage C
1	Creation of joint TSOs committee for interconnector capacity allocation and congestion management			
2	Long term planning for generation capacity and interconnector transmission infrastructure			
3	Transmission system planning and simulation			
4	Development of network code for capacity allocation and congestion management			
5	Economic analysis of the investment requirements for cross-border transmission infrastructure			
6	Benchmarking and monitoring procedures			
7	Institutional building			
8	Harmonization of the licenses			
9	Development and provision of software and necessary real time tools			
10	Training and dissemination and promotion of CACM mechanism to national stakeholders			
11	Implementation of the transitional plan for CACM			

CONCLUSIONS AND RECOMMENDATIONS

- The Georgian competitive electricity market will increase the possibility for electricity customers to choose between different electricity suppliers. More competition and choice mean better deals for customers.
- The competitive electricity market will allow a wider range of companies to enter the electricity market, particularly existing small hydro generators and others that invest in new renewable energy sources (RES), and will help guarantee that the electricity system can operate effectively, reliably and securely.
- Introduction of the CACM mechanism and procedures will increase efficiency by increasing electricity sector competition in the region.
- Market coupling will establish an approach to pricing of electricity sales at their market value, comparable to pricing methodologies in the EnCT and EU.
- Increased cross border trading of competitive electricity will:
    - Ensure essential public services and obligations by appropriate measures.
    - Reduce the required reserve capacity by sharing it with neighboring countries.
    - Improve efficiency and avoid wasting resources in generation.

- Capacity allocation and congestion management procedures are prerequisite to start up and facilitate electricity trading between Georgia and Turkey and on later stage with Armenia, Azerbaijan and Russia.
- Joint committees for cooperation between respective ministries, TSOs and energy regulatory authorities between Georgia, Turkey and Armenia for facilitating the process of implementation of CACM mechanism and procedures should be created.
- All TSOs should be cooperating at Community level for implementation of the CACM mechanism, including Georgia's TSO.
- The ministers' committee shall coordinate the work of the committee of TSOs.
- On a later stage, the coordinated mechanism and unified procedures for CACM may be extended in broader scale with neighboring countries – Armenia, Azerbaijan and Russia.

GLOSSARY OF TERMS AND DEFINITIONS

TERM	DEFINITION
ACER	Agency for the Cooperation of Energy Regulators – an EU Agency, created by Third Energy Package to further progress on the completion of the internal European market both for electricity and for natural gas.
Allocated CTRs	Those interconnection capacity rights the successful Bidder obtains upon publication of the Auction Results in form of Commercial Transmission Rights and for such renewable energy projects that have been granted contractual rights for long term access to interconnection capacity.
Annual Auction	The auction covering a Period from the first Day to the last Day of a calendar year.
Annual ATC	That part of ATC to be allocated in the Annual Auction.
Auction	The mechanism used to Allocate CTRs via explicit Annual, Monthly and/or Daily Auctions.
Auction Day(s)	Such days on which Auctions take place. Bids can be submitted until the deadline specified in the Auction Specifications.
Auction Specifications	The information regarding a specific Auction provided on the Auction Website.
Auction Tool	The IT system used by the TSO to receive and process Bids from Bidders, and publish the Results of the Auction.
Auction Website	The website developed and operated by the TSO with the content as described in the Auction Rules.
ATC	That portion of Net Transfer Capacity available for each phase of the allocation procedure and which shall be used for determining the volumes available in the Annual, Monthly and Daily Auctions after accounting for such renewable energy projects that have been granted contractual rights for long term access to interconnection capacity.
Bank Guarantee	An irrevocable and enforceable bank guarantee valid for a specified period of time, waiving any exceptions or set-offs, issued at the request of the Bidder in order to perform its obligations arising under these Auction Rules. Bank Guarantee shall also include any amendment of the initial Bank Guarantee, duly signed, and approved by the TSO.
Bid	An offer submitted by a Bidder to purchase CTRs pursuant to and in compliance with these Auction Rules. A Bid consists of a Capacity in MW and a price in Lari [Euro?] per Megawatt Hour (MWh).
Bid File	A set of Bids submitted to the TSO by a Bidder for a given Auction in electronic form.
Bidder	An enterprise that meets the eligibility requirements described in this document and participates in, intends to participate in, or has participated in an auction and/or Secondary Capacity Transmission Right (CTR) Market.
Block	A quantity of MW made available at a Daily Auction over one hour.
Business Day	Every day except for Saturdays, Sundays and any public Georgian public holidays.
Business Hours	Every hour on a Working Day from [XX:00 to YY:00] Georgia Time Zone.
Capacity Cost	The cost, expressed in GEL (or EUR?), payable by a CTR Holder as a result of the CTRs awarded in an Auction, equal to the Clearing Price times Allocated CTRs times number of hours in the relevant time period in the Auction Specifications.
Clearing Price	Lowest Bid Price selected for award of CTRs at an Auction expressed in GEL (or EUR?) per MW per hour.
Commercial Transmission Right	The instrument that provides successful Bidders and such renewable energy projects that have been granted contractual rights for long term access to interconnection capacity the right to use Interconnection Capacity for electricity transport expressed in

	MW for a specified period of time in the direction from Georgia to Turkey.
Counterparty	The qualified legal entity in Turkey, which has been designated by the CTR Holder as its Counterparty regarding Nomination of Schedules according to the Auction Rules.
Cross-border flow	Physical flow of electricity on a transmission network of a country that results from the impact of the activity of producers and/or consumers outside that country on its transmission network
Congestion	A situation in which an interconnection linking national transmission networks cannot accommodate all physical flows resulting from international trade requested by market participants, because of a lack of capacity of the interconnectors and/or the national transmission systems concerned.
CTR Holder	An entity that has obtained CTR(s).
CTR Resale	The mechanism by which a CTR Holder may resell CTR(s) back to the TSO.
CTR Transfer	The process by which a CTR Holder may transfer a CTR to a Beneficiary.
Daily ATC	That part of ATC to be allocated in the Daily Auction.
Daily Auction	The day-ahead auction covering a daily 24 hour period beginning at the start of the following day.
DSO	'distribution system operator' means a natural or legal person responsible for operating, ensuring the maintenance of and, if necessary, developing the distribution system in a given area and, where applicable, its interconnections with other systems and for ensuring the long-term ability of the system to meet reasonable demands for the distribution of electricity;
Entitlement	The right of a Bidder to participate in an Auction.
Export Schedule	A schedule established by a CTR Holder in accordance with its CTR rights and that specifies the power, expressed in MW per hour, to be exported over the Interconnection to a Counterparty.
ENTSO-E	European Network of Transmission System Operators for Electricity - International Association with membership of European TSOs with the aim to promote the reliable operation, optimal management and sound technical evolution of the European electricity transmission system in order to ensure SoS and to meet the needs of the Internal Energy Market.
Force Majeure	Any unforeseeable and/or unusual event or situation beyond the reasonable control of a System Operator, and not due to a fault of such System Operator, which cannot be avoided or overcome with reasonable foresight and diligence, which cannot be solved by measures which are from a technical, financial and/or economic point of view, reasonably possible for the System Operator, which has actually happened and is objectively verifiable, and which makes it impossible for such System Operator to fulfil temporarily or definitively, its obligations in accordance with this Network Code
GNERC	The Georgian National Energy and Water Supply Regulatory Commission, with regulatory jurisdiction over the Capacity Allocation Auction Rules and their implementation.
Interconnector	"Interconnector" means equipment used to link electricity systems
Interconnected systems	"interconnected system" means a number of transmission and distribution systems linked together by means of one or more interconnectors
Maintenance Period	The period of time during which a Product has to be adjusted due to planned maintenance.
Market Clearing House	An agency or separate corporation of a electricity market power exchange responsible for settling trading accounts, clearing trades, collecting and maintaining margin monies, regulating delivery and reporting trading data.
Monthly ATC	Part of ATC to be allocated in the Monthly Auctions.
Monthly Auction	The auction covering a Period from the first Day to the last Day of a calendar month.

NTC	The maximum interconnection capacity, expressed in MW that can be transmitted from Georgia to Turkey compatible with security standards applicable in both Georgia and Turkey.
Nomination	Notification to the TSO and TEIAS by a CTR Holder and its Counterparty of the Schedules relating to the power expressed in integer value of MW which they want to use within the limits of the Capacity of the CTRs awarded to the CTR Holder.
Operational Security Constraints	A limit that guarantees the secure and reliable operation of the transmission system
Party	The TSO or a Bidder.
Product	The whole or part of the Annual, Monthly or Daily ATCs offered in an Auction with reference to a specific period of time.
Secondary CTR Market	The mechanism that permits the transfer of CTR(s) acquired at Annual or Monthly Auctions by a CTR Holder and automatic resale to Daily Auctions of the CTR(s) that have not been nominated for electricity schedules.
Statement of Acceptance	A declaration by the Bidder to comply with all the provisions contained in these Auction Rules.
TEIAS	The Turkish Electricity Transmission Company, which is the transmission system operator in Turkey.
Transfer Notification	Information about a CTR Transfer submitted to the TSO by a Transferor in electronic form.
TSO	'transmission system operator' means a natural or legal person responsible for operating, ensuring the maintenance of and, if necessary, developing the transmission system in a given area and, where applicable, its interconnections with other systems, and for ensuring the long-term ability of the system to meet reasonable demands for the transmission of electricity.

APPENDICES

A. SUMMARY OF EU REGULATION (EC) 714/2009 OF 13 JULY 2009 ON CONDITIONS FOR ACCESS TO THE NETWORK FOR CROSS-BORDER EXCHANGES IN ELECTRICITY

The Regulation aims at laying down rules for cross-border exchanges in electricity with a view to improving competition and harmonization in the internal market for electricity.

Certification of TSOs

National regulatory authorities shall send the European Commission notification of decisions concerning the certification of a TSO. The Commission then has a period of two months to deliver its opinion to the national regulatory authority. The authority then adopts the final decision concerning the certification of the TSO. This decision and the Commission's opinion are published.

ENTSO– E

Creation of the ENTSO - E

The ENTSO – E is responsible for managing the electricity transmission system and for allowing the trading and supplying of electricity across borders in the Community.

Tasks of the ENTSO – E concerning network codes

The Commission shall consult the ACER and the ENTSO - E in order to establish an annual list of the priorities which are to contribute to developing network codes. These codes shall be developed using a non-binding framework guideline submitted to the Commission by the Agency. The codes include rules and procedures relating in particular to:

- network security and reliability;
- data interexchange;
- technical and operational exchanges;
- transparency rules;
- harmonized transmission tariff structures;
- energy efficiency.

Tasks of the ENTSO - E

The ENTSO - E is responsible for adopting:

- common network operation tools;
- a ten-year network development plan;
- recommendations relating to the coordination of technical cooperation between Community TSOs;
- an annual work program;
- an annual report;
- Annual summer and winter generation supply outlooks.

Costs and financing

The costs related to the activities of the ENTSO - E shall be borne by the TSOs. They shall establish regional cooperation within the ENTSO - E and publish a regional investment plan every two years, on which investments may be based.

Transmission system operators shall receive compensation for costs incurred as a result of hosting cross-border flows of electricity on their networks. The compensation shall be paid by the operators of national transmission systems from which cross-border flows originate. The costs shall be established on the basis of forecasted costs.

Charges for access to networks shall also be applied by operators.

Information and congestion management

Transmission system operators shall put in place information exchange mechanisms to ensure the security of networks in the context of congestion management.

Network congestion problems shall be addressed with non-discriminatory solutions based on market mechanisms which give economic signals to the market participants and TSOs.

New interconnectors may, upon request, be exempted, for a limited period of time, from the general provisions governing congestion management on condition that:

- their installation increases competition in electricity supply;
- the level of risk necessitates the exemption;
- the interconnection must be owned by a natural or legal person;
- charges are levied on users of the interconnection;
- The exemption must not be to the detriment of competition or the effective functioning of the internal market, or the efficient functioning of the regulated system to which the interconnector is linked.

B. EXCERPTION OF EU REGULATION (EC) 714/2009 OF 13 JULY 2009 ON CONDITIONS FOR ACCESS TO THE NETWORK FOR CROSS-BORDER EXCHANGES IN ELECTRICITY

Art 15, Section 2

The safety, operational and planning standards used by transmission system operators shall be made public. The information published shall include a general scheme for the calculation of the Total Transfer Capacity (TTC) and the transmission reliability margin based upon the electrical and physical features of the network. Such schemes shall be subject to the approval of the regulatory authorities.

Art 15, Section 3

TSOs shall publish estimates of ATC for each day, indicating any ATC already reserved. Those publications shall be made at specified intervals before the day of transport and shall include, in any event, week-ahead and month-ahead estimates, as well as a quantitative indication of the expected reliability of the available capacity.

Annex I,

Section 5.1

TSOs shall publish all relevant data related to network availability, network access and network use, including a report on where and why congestion exists, the methods applied for managing the congestion and the plans for its future management.

Section 5.2

TSOs shall publish a general description of the congestion-management method applied under different circumstances for maximizing the capacity available to the market, and a general scheme for the calculation of the interconnection capacity for the different timeframes, based upon the electrical and physical realities of the network. Such a scheme shall be subject to review by the regulatory authorities of the Member States concerned.

Section 5.3

The congestion management and capacity-allocation procedures in use, together with the times and procedures for applying for capacity, a description of the products offered and the obligations and rights of both the TSOs and the party obtaining the capacity, including the liabilities that accrue upon failure to honor obligations, shall be described in detail and made available in a transparent manner to all potential network users by TSOs.

C. EU CACM-RELATED DOCUMENTS

05/12/2014	Draft Commission Regulation establishing a Guideline on CACM
29/07/14	Preliminary service-level draft sent by DG ENER to the Electricity Cross Border Committee
27/09/12	Final ENTSO-E's Draft CACM Network Code
08/02/13	ENTSO-E's response to ACER's reasoned opinion on CACM
18/03/13	ENTSO-E's letter to the European Commission
18-19/03/13	ACER's recommendation on the CACM Network Code
18-19/03/13	ACER's specific amendments to the CACM Network Code
19/09/11	EC request for ENTSO-E to start drafting the CACM NC
29/07/11	ACER Framework Guidelines on CACM
15/07/11	ENTSO-E explanatory note on the CACM development

D. OUTLINE OF THE ENTSO-E NETWORK CODE ON CAPACITY ALLOCATION AND CONGESTION MANAGEMENT

The ENTSO-E Network Code sets common rules for Capacity Allocation and Congestion Management in the Day Ahead and Intraday Markets. This involves the establishment of common methodologies for determining the volumes of capacity simultaneously available between Bidding Zones and methodologies for defining Bidding Zones. The requirements set forth by the ENTSO-E Network Code apply to Transmission System Operators, National Regulatory Authorities, and the ACER, Designated Nominated Electricity Market Operators and Market Participants. Capacity Allocation and Congestion Management Code, along with other network codes will facilitate the creation of European single electricity market. CACM is closely related to two other network codes – Electricity Balancing and Forward Capacity Allocation codes.

1.1. Objectives of capacity allocation and congestion management.

The main goal of Network Code for CACM is to facilitate the achievement of the following objectives:

a. promoting effective competition in the generation, trading and supply of electricity;
b. ensuring Operational Security;
c. optimizing the calculation and Allocation of Cross Zonal Capacity;
d. ensuring non-discrimination;
e. ensuring and enhancing the transparency and reliability of information; and
f. contributing to the efficient long-term operation and development of the European electricity Transmission System and electricity sector.

1.2. Roles in capacity allocation and congestion management

The process of capacity allocation and congestion management under the Network Code involves the following roles:

a. System Operator;
b. Nominated Electricity Market Operator;
c. Market Coupling Operator(s);
d. Scheduled Exchange Calculator;
e. Market Information Aggregator;
f. Coordinated Capacity Calculator(s);
g. European Merging Function;
h. Shipping Agent;
i. Central Counter Party; and
j. Congestion Income Distributor.

The entities designated as nominated Electricity Market Operator are responsible for performing the role of Nominated Electricity Market Operator and the role of Central Counter Party. While respecting the principles of transparency, proportionality and non-discrimination, each Member State shall, assign the following roles to TSOs:

a. System Operator;
b. Scheduled Exchange Calculator;
c. Market Information Aggregator;
d. Coordinated Capacity Calculator(s);
e. European Merging Function;
f. Shipping Agent; and
g. Congestion Income Distributor.

1.3. Requirements for capacity allocation and congestion management

1.3.1. Capacity calculation timeframes

1.3.2. Capacity calculation regions

1.4. Common grid model methodology

The common grid model methodology requires specified generation and load units to provide information to their respective System Operators. The information includes, but not limited to the following:

a. information related to technical data;

b. information related to availability;

c. information related to scheduling of generation units;

d. Relevant available information relating to how generation units will be dispatched.

1.5. Scenarios

System Operators are required to define a common set of scenarios for each Capacity Calculation Timeframe for use in the Common Grid Model. System Operators shall define one scenario per Market Time Period for the Day Ahead and Intraday Capacity Calculation Timeframe. For each scenario, all System Operators shall define common rules fixing the Net Position for each Bidding Zone and the flow for each Direct Current (DC) Line. These common rules shall be based on the best forecast of the Net Position for each Bidding Zone and flows on each DC Line for each scenario and include the overall balance between load and generation for the European Interconnected System.

1.6. Capacity calculation methodology

1. The common coordinated Capacity Calculation Methodology for a Capacity Calculation Region shall meet the objectives of the Network Code and shall contain at least the following for each Capacity Calculation Timeframe:

a. Capacity Calculation inputs:

- a determination of the Reliability Margin;

- a determination of Operational Security Constraints;

- a determination of Allocation Constraints to be taken into account directly in capacity allocation in accordance with;

- a determination of the Generation Shift Keys; and

- a determination of Remedial Actions to be considered in Capacity Calculation in accordance with Article 30.

b. Capacity Calculation Approach:

- a mathematical description of the applied Capacity Calculation Approach with different Capacity Calculation inputs;

- a rule to treat, where appropriate, Cross Zonal Capacity which has been allocated previously;

- a rule to combine the Remedial Actions made available by System Operators for Capacity Calculation;

- a rule to share the Cross Zonal Capacity between the borders of the Capacity Calculation Regions prior to Capacity Allocation, where appropriate, and when using the Coordinated Net Transmission Capacity Approach; and

- a rule to share the Cross Zonal Capacity between the different Capacity Calculation Regions prior to Capacity Allocation, where appropriate.

c. Validation of Cross Zonal Capacity.

3. The Capacity Calculation Methodology shall include the frequency at which capacity will be calculated for the Intraday Market, including a justification.
4. The Capacity Calculation Methodology shall include a fallback procedure consistent with the objectives of this Network Code.
5. All System Operators of each Capacity Calculation Region shall use best endeavors to progressively harmonize the Capacity Calculation inputs used for the Capacity Calculation.
6. All System Operators shall use best endeavors to progressively harmonize the Capacity Calculation Methodologies across Capacity Calculation Regions.

1.19 Reliability margin

The Reliability Margin shall take into account uncertainties between the Capacity Calculation Timeframe and real time respecting Operational Security and taking into account, Remedial Actions available after Capacity Calculation, and financial risks arising as a consequence of the applicable firmness regime.

2. The Reliability Margin shall integrate a statistical analysis of historic data showing the deviation of power flows and shall take into account expectation of future deviations. In particular, it shall consider deviations caused by:

a. unintended deviations of physical electricity flows within a Market Time Period caused by the regulation of electricity flows within and between Control Areas to maintain a constant frequency; and
b. uncertainties which could affect Capacity Calculation and which could occur between the Capacity Calculation Timeframe and real time, for the Market Time Period being considered.

1.20 Operational security constraints.

Performing their functions TSOs are responsible on the Operational Security in their responsibility areas. ENTSO-E creates a network code on Operational security where operational security constraints are defined as a limit that guarantees the secure and reliable operation of the transmission system. According the network code for CACM each system operator is obliged to define:

a. Thermal limits of the critical network elements
b. Voltage limits, imposing admissible substation voltage ranges

Also each System Operator shall be entitled to define additional Operational Security Constraints. Where appropriate, such constraints may include but shall not be limited to:

a. dynamic or voltage stability limits ensuring the stability of the power system;
b. short circuit current limits; and/or
c. generation limits for a Bidding Zone or a set of Bidding Zones ensuring adequate availability of generation and generation reserves.

1.21 Day - Ahead electricity Market

Network Code on CACM covers the design of the day ahead intraday market as well as outlining the approach to calculating cross-border capacity and defining the bidding zones. These issues are closely related to the Network Code on Forward Capacity Allocation.

1.22 Day - Ahead market coupling concept

Market coupling is a method for integrating markets which allows two or more wholesale electricity market areas to be merged into a single market area. With market coupling the daily cross-border transmission capacity between the various areas is not sold separately

(explicitly auctioned) among the market parties, but is implicitly made available via energy transactions on power exchanges on either side of the border (hence the term implicit auction). Buyers and sellers on a power exchange can match their bids and offers submitted via another power exchange as if it was one single market area, without the need to separately acquire the corresponding transmission capacity necessary to transport electricity between the two (or more) market areas.

1.23 The intraday electricity market

Intraday markets take place during the day of operation, as opposed to day-ahead markets where trades are concluded the day before the physical delivery of the electricity. Intraday markets are an important tool for market participants to adjust their positions by buying/selling electricity in deficit/excess, as their needs may change after the closure of the day-ahead market and before real time operations. This might occur because a power plant may generate less than planned due to a fault, or demand from customers may be higher due to colder weather than expected.

1.24 Clearing and settlement for the Day Ahead Market (DAM) and Intra-Day Market (IDM)

Network Code on CACM defines the Central Counter Parties as entity or entities with the task of entering into contracts with market participants, by novation of the contracts resulting from the matching process, and of organizing the transfer of net positions resulting from capacity allocation with other central counter parties or shipping agents.

1.25 Firmness of allocated cross-zonal capacity

1.26 Congestion income distribution

1.27 Cross-border redispatching or countertrading cost sharing methodology

1.28 Capacity allocation and congestion management costs

E. AUCTIONING PROCEDURES FOR CROSS-BORDER CAPACITY ALLOCATION – HIPP POWERPOINT PRESENTATION

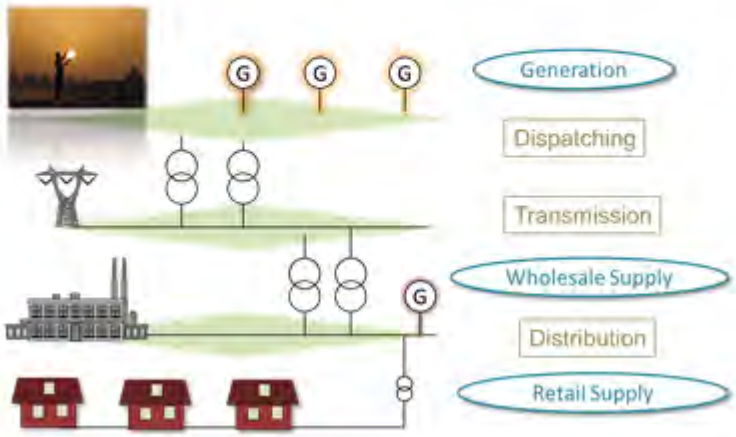
USAID | Hydropower Investment Promotion Project (HIPP)

Auctioning Procedures for CBT and responsibilities of the regulators

June 2012

USAID | Hydropower Investment Promotion Project (HIPP)

Introduction



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Products in the Electricity Markets

- Electric power produced by generators
  - Active power
  - Reactive power
  - Renewable power
- Generators capacity
  - Spinning reserve
  - Cold reserve
- Transmission rights (capacity)
- Ancillary services:
  - Primary, secondary and tertiary reserve
  - Frequency regulation
  - Voltage regulation

3

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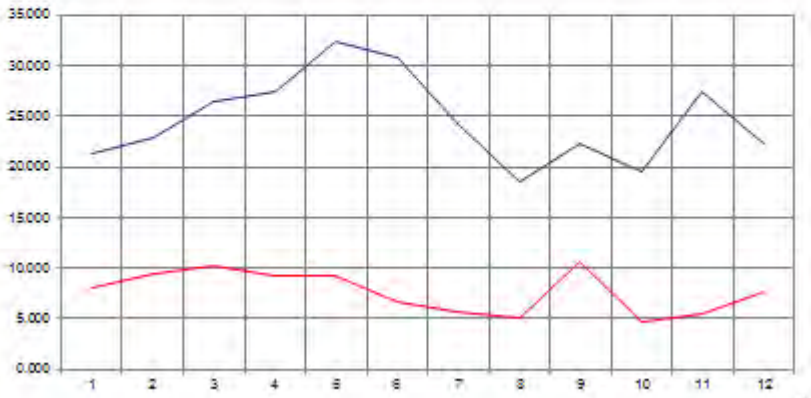
Hydrology of Machakhela 2 HPP for typical flood year 1981 and drought year 1974, m3/sec



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Generation of Machakhela 2HPP for typical flood and drought year

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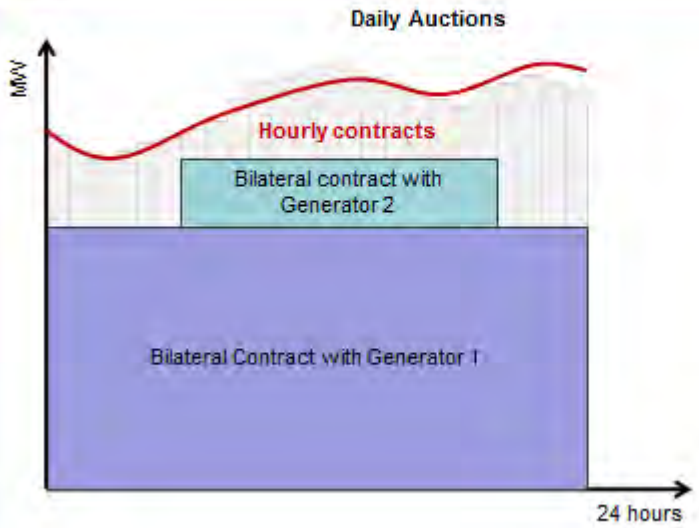

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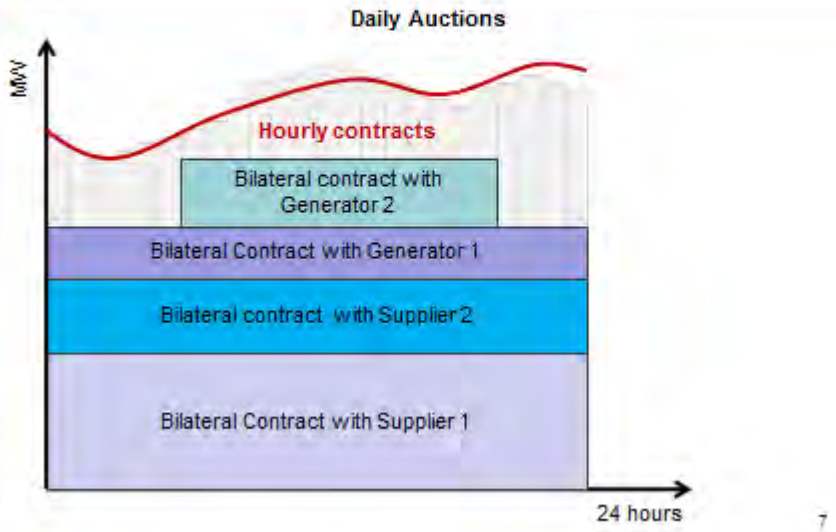

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Main principles in cross border trading

- Economic efficiency and promotion of competition
- Maximisation of amount of available transmission capacity
- Transparency to network users
- Secure Network operation
- Neutrality in revenue allocation
- Non-discrimination of the network users
- Coordination between the TSOs
- Cooperation between regulatory authorities

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Auctioning Design

- Auction rules creation and approval
- Defining the auctioning office
- Auction registration process
- Auction bids and offers
- Auctions clearing
- Auction Information
- Dispute settlement

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Type of Auctions for cross-border capacity

- Explicit auctions
- Implicit auctions
- Direction of products are in both directions
  - from A to B
  - from B to A
- Long term auctions
- Daily auctions
- Midterm auctions
- Intraday auctions

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Secondary market

- The procedure enable the participants to resale the units which have previously been auctioned
- The secondary market is conducted electronically
- The format of the resale request is specified in the rules and must bi compliant with ENTSO-E requirements
- The timing in auctioning is specified in the rules

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Explicit auction principles

- Capacity and electricity is traded separately
- Capacity allocation for long-term and short-term transactions (annual, monthly, weekly and daily basis)
- Promoting liquid electricity markets: capacity bought at an auction should be freely tradable before the moment of notification provided that the TSO is informed
- Coordination among TSOs of neighbouring systems is essential
- Priority access rights. Existing long-term contracts

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Implicit auction principles

- The capacity and the electricity are traded together
- The method is applicable in the DAM
- This methods requires the existence of an organised generation market or PX in the importing area (an electricity price in this area)
- Importers in the importing areas send prices bids to the Market Operator in importing area
- Implicit auctions are used for integration of spot markets in the different bidding areas

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BritNed DC cable connection between UK and Netherlands

Cable between Isle of Grain, England and Maasvlakte, Netherlands

- 256 km between AC – DC converter stations

Cable characteristics

- Voltage 450 kV
- Power - 1000 MW
- Length
  - 247 km submarine MI cable (Cu)
  - 9 km underground MI cable (Cu)
- Completion 2010
- Investments 790 Mill USD

The line allows for the two countries to trade in both directions to better utilize surplus renewable energy.

BritNed is the first attempt to sell renewable energy competitively across international borders using AC-DC interconnection. **BritNed** provides for the flexibility needed to sell renewable energy into the competitive market.

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Case: Explicit Auctions at BritNed

- Market participants can purchase capacity and electricity separately and can buy tranches capacity up to one year before the date of delivery day;
- Market participants are able to bid for capacity rights in both flow directions;
- Through explicit auctions Brit Ned is selling capacity rights with a maximum duration of one year;
- BritNed is developed its own explicit auction platform Kingdom;
- Participants can bid for capacity rights in auctions running on a monthly and annual basis;
- Early 2013 the year intraday auctions will be added to the BritNed product portfolio
- The loss factor of BritNed DC is 3%

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Case: Implicit Auctions at BritNed

- In implicit auctions the electricity and capacity are traded together;
- It enables electricity to be moved from one power exchange to another power exchange;
- BritNed day-ahead implicit auctions is facilitated by APX-ENDEX;
- The implicit auction system is similar to the current auction system between the region of Central Western European power market (The Netherlands, Belgium, Luxembourg, Germany and France)
- The implicit auctions are used for coupling the GB market with CWE

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Regulatory and Legal Requirements

- The auctioning rules defined the responsibilities of participants
- It is responsibility of each Participant to ensure that it has complied with all requirements, including:
  - Applicable Laws;
  - Regulations;
  - Requirements of any Competent Authority.
- Obtained all necessary authorizations for participation in Auctions;
- Obtained all necessary authorizations for use of Interconnector Capacity.

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DAM APX-ENDEX results for 10/07/2012

ATC hourly results

	GE - SL Capacity (MW)			SL - GE Capacity (MW)		
	Quantity	Flow Tariff(€)	Loss Factor	Quantity	Flow Tariff (€)	Loss Factor
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Flow hourly results

	Flow (MW)		Clearing Prices		
	GE-SL	SL-GE	MCP	Flow, Loss and Congestion	MCP
			(GEL)	Adjusted GE Price	(€/MJ)
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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USAID | Hydropower Investment Promotion Project (HIPP)

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F. GREECE-TURKEY INTERCONNECTION (CAPACITY ALLOCATION AUCTION RESULTS) 2012

Table 1. Interconnection Auction Results on Bulgarian – Turkish border and Turkish – Greece border

Origin	Destination	Starting From	Valid Until	Capacity (MW)	Capacity Fee (€/MWh)
Bulgaria	Turkey	01.01.2012	01.02.2012	25	12,07 €
Bulgaria	Turkey	01.02.2012	01.03.2012	50	3,42 €
Bulgaria	Turkey	01.03.2012	01.04.2012	25	6,13 €
Bulgaria	Turkey	17.03.2012	01.04.2012	25	1,54 €
Bulgaria	Turkey	01.04.2012	23.04.2012	25	2,22 €
Bulgaria	Turkey	01.04.2012	01.05.2012	25	2,15 €
Bulgaria	Turkey	01.05.2012	01.06.2012	41	0,00 €
Bulgaria	Turkey	01.06.2012	09.06.2012	67	7,31 €
Bulgaria	Turkey	01.06.2012	01.07.2012	133	9,10 €
Bulgaria	Turkey	01.07.2012	01.08.2012	133	22,32 €
Bulgaria	Turkey	01.08.2012	01.09.2012	133	12,21 €
Bulgaria	Turkey	01.09.2012	01.10.2012	133	6,43 €
Bulgaria	Turkey	24.09.2012	28.09.2012	67	0,59 €
Bulgaria	Turkey	01.10.2012	01.11.2012	100	6,10 €
Bulgaria	Turkey	15.10.2012	01.11.2012	33	2,92 €
Greece	Turkey	01.12.2011	01.01.2012	20	0,00 €
Greece	Turkey	01.01.2012	01.02.2012	67	0,31 €
Greece	Turkey	01.02.2012	01.03.2012	67	1,00 €
Greece	Turkey	01.03.2012	01.04.2012	67	0,84 €
Greece	Turkey	01.04.2012	01.05.2012	55	0,00 €
Greece	Turkey	02.04.2012	21.04.2012	10	0,00 €
Greece	Turkey	01.05.2012	01.06.2012	67	0,01 €
Greece	Turkey	09.06.2012	01.07.2012	67	2,67 €
Greece	Turkey	01.07.2012	01.08.2012	67	10,11 €
Greece	Turkey	01.08.2012	01.09.2012	67	4,65 €
Greece	Turkey	01.09.2012	24.09.2012	67	1,59 €
Greece	Turkey	28.09.2012	01.10.2012	60	0,00 €
Greece	Turkey	01.10.2012	01.11.2012	60	0,00 €
Greece	Turkey	01.10.2012	15.10.2012	33	0,42 €
Turkey	Bulgaria	01.12.2011	01.01.2012	20	0,00 €
Turkey	Bulgaria	01.04.2012	01.05.2012	5	0,00 €
Turkey	Bulgaria	01.05.2012	01.06.2012	5	0,00 €
Turkey	Bulgaria	01.06.2012	09.06.2012	20	0,00 €
Turkey	Bulgaria	01.06.2012	01.07.2012	55	0,00 €
Turkey	Greece	01.12.2011	01.01.2012	50	6,50 €
Turkey	Greece	01.01.2012	01.02.2012	50	0,10 €
Turkey	Greece	01.02.2012	01.03.2012	50	1,02 €
Turkey	Greece	01.03.2012	01.04.2012	50	1,50 €
Turkey	Greece	01.04.2012	01.05.2012	50	4,53 €
Turkey	Greece	02.04.2012	21.04.2012	25	4,32 €
Turkey	Greece	23.04.2012	28.04.2012	25	4,23 €
Turkey	Greece	01.05.2012	01.06.2012	50	0,53 €
Turkey	Greece	09.06.2012	01.07.2012	50	0,05 €
Turkey	Greece	01.10.2012	01.11.2012	20	0,00 €

Source: TEIAS

Table 2: Summary of TEIAS Net Transfer Capacities for 2012

From	To	Connection Method	Allocation Period	Net Transfer Capacity (MW)	Capacity that can be allocated (MW)	Allocated Capacity (MW)
Turkey	Bulgaria	Synchronous Parallel	Monthly	Monthly determined	Monthly determined	0
Bulgaria	Turkey	Synchronous Parallel	Monthly	Monthly determined	Monthly determined	0
Turkey	Greece	Synchronous Parallel	Monthly	Monthly determined	Monthly determined	0
Greece	Turkey	Synchronous Parallel	Monthly	Monthly determined	Monthly determined	0
Turkey	Georgia	Directed Unit	Yearly	150	150	0
Turkey	Georgia	Isolated Region	Yearly	150	150	0
Georgia	Turkey	Directed Unit	Yearly	150	150	0
Georgia	Turkey	Isolated Region	2012 Winter	80	0	80
			2012 Spring	20	0	20
			2012 Summer	60	0	60
Turkey	Armenia	Directed Unit	-	0	0	0
Turkey	Armenia	Isolated Region	-	0	0	0
Armenia	Turkey	Directed Unit	-	0	0	0
Armenia	Turkey	Isolated Region	-	0	0	0
Turkey	Azerbaijan	Directed Unit	Yearly	0	0	0
Turkey	Azerbaijan	Isolated Region	Yearly	50	50	0
Azerbaijan	Turkey	Directed Unit	Yearly	100	40	60
Azerbaijan	Turkey	Isolated Region	Yearly	70	70	0
Turkey	Iran (1)	Directed Unit	Yearly	0	0	0
Turkey	Iran (1)	Isolated Region	Yearly	To be determined	To be determined	0
Iran (1)	Turkey	Directed Unit	Yearly	0	0	0
Iran (1)	Turkey	Isolated Region	Yearly	40	0	40
Turkey	Iran (2)	Directed Unit	Yearly	0	0	0
Turkey	Iran (2)	Isolated Region	Yearly	0	0	0
Iran (2)	Turkey	Directed Unit	Yearly	105	105	0
Iran (2)	Turkey	Isolated Region	Winter	400	250	150
			Spring	300	150	150
			Summer	200	50	150
			Autumn	300	150	150
Turkey	Iraq	Directed Unit	Yearly	0	0	0
Turkey	Iraq	Isolated Region	Yearly	50	50	0
Iraq	Turkey	Directed Unit	Yearly	To be determined	To be determined	0
Iraq	Turkey	Isolated Region	Yearly	To be determined	To be determined	0
Turkey	Syria	Directed Unit	Yearly	500	500	0
Turkey	Syria	Isolated Region	Yearly	500	0	500
Syria	Turkey	Directed Unit	Yearly	230	230	0
Syria	Turkey	Isolated Region	Yearly	0	0	0

Source: TEIAS

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