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To: To candidates of the negotiated procedure

Date: July 4, 2017
Our ref: 500300-03-778/e

Subject: Negotiation procedure No AST2017/29 "Common Baltic balancing IT system development and implementation" - answers to the candidate questions

Dear Sir/Madam!

Hereby the Customer answers to the candidate questions.

No.	Requirement reference	Question	Proposed answer
1	F.60.TSOs should be able to choose bids for activation from available bids in CMOLs. F.59. The Nominated TSO should be able to choose or cancel proposed bids for activation from Activation Order list or select from available bids in CMOLs. Proposed bids cancelation must result in sending acknowledgement back to the system and changing AOF proposed bids statuses back to previous.	Do those requirements mean that we should build GUI functionality for usage by nominate TSO in Baltic balancing IT system? If not, we do not interpret "TSOs should be able" as real requirement for us, but just information to know.	There should be two ways for the functionality requested by F.59 and F.60: 1) GUI - initially will be used by AST, should be available for use by every TSO; 2) System interface – the requested functions are performed in the local systems, the result is available in the Baltic balancing IT system. Both options should work in parallel. System should be built so, that the internal process of the program does not differentiate between actions taken in GUI and actions performed in local systems by sending xml messages.
2	F.27. The system must check whether capacity data from SCADA or Local systems for certain period are received. If no data is received the system must	Cross-zonal capacities are expected to be sent as time series data. What is the content and form of the modelling data	· Modelling data means planned volumes and doesn't refer to a network model. · Methodology for Cross zonal capacities for

	inform (e.g. through e-mail, notifications in system) system host, Nominated TSO and Connecting TSOs	to be sent from SCADA to the Balancing IT System? In case modelling data refers to a network model, what complexity shall be considered? E.g.: - Bus-branch DC model, where buses are zones and branches are transmission lines between zones - Bus-branch AC model - Node-breaker network model • What is the methodology for defining the cross-zonal capacity for balancing? We assume that there is no requirement for network analyses (i.e. load flow, congestion management, etc) functionalities in the system, is that correct? • What is the geographical scope of the modelling data? Can it be assumed that only Baltic countries are considered?	balancing currently is under development (draft version attached). Formulas are being agreed, minor changes to the methodology may still be introduced. The approval of methodology is expected in September 2017. · There are no requirements for network analysis. · Calculation of CZCB shall be done for Baltic power systems; calculations shall be performed for interconnections between power systems of Estonia, Latvia, Lithuania and with Russia and Belorussia power systems, as well as on High-Voltage Direct Current (HVDC) connections with Finland, Sweden and Poland.
3	F.30. The system must store the capacity data in the list of capacity data. If the new capacity data are received for appropriate time period, newly received capacity data are replacing the existing data in the list of capacity data. The list of capacity data would consolidate the capacity data from AST SCADA system and all TSO's Local systems. The old list of capacity data should be stored for 3-5 years.	• What are the requirements for consolidating TSO and AST SCADA capacity data regarding both transmission capacities and modelling data? • What rules shall be applied when different data is received for the same cross-zonal capacity?	· If the capacity data are entered manually for the relevant bidding area for the relevant ISP then the capacity data from SCADA and TSOs Local systems are ignored. · If the new capacity data are received for appropriate time period, newly received capacity data are replacing the existing data in the list of capacity data · Main source of capacity data will be AST SCADA. If, according to the methodology, there will be need for data which are not available in AST SCADA, data will be provided from

			TSOs Local systems. There will be one source for each data.
4	F.32. The System must provide functionality of the planning transmission capacity calculation for balancing and storing the data. The calculation algorithm will use the following data in the System: • NTC (Net Transfer Capacity); • Planning power flow; • Distributed coefficients; The algorithm is under development now and will be provided by the Customer during the analysis stage of the respective increment(s). If capacity is entered manually for the relevant bidding area for the relevant ISP then the capacity calculation is skipped.	• Will the algorithm contain a power flow problem solution? • Does "Distributed coefficients" mean the power transfer distribution factors (PTDF)? • Please confirm that NTC, coefficients are inputs for the Baltic balancing IT system prepared by an external system. • What is the geographical scope of the calculation algorithm? • We assume that there is no requirement for network analyses (i.e. load flow, congestion management, etc) functionalities in the system, is that correct? • The RFP describes, that the calculation methodology is in progress. Is it possible to describe on high level the calculation?	· The algorithm will not contain a power flow problem solution. Power flow data needed for CZCB calculation will be provided to the System. · According to the current draft methodology of Cross zonal capacities for balancing, "Distributed coefficients" will not be used. · NTC are input for Baltic balancing IT system from an external system. · Calculation of CZCB shall be done for Baltic power systems; calculations shall be performed for interconnections between power systems of Estonia, Latvia, Lithuania and with Russia and Belorussia power systems, as well as on High-Voltage Direct Current (HVDC) connections with Finland, Sweden and Poland. · There are no requirements for network analysis. · Draft version of the Cross zonal capacities for balancing calculation is attached.
5	F.33. The System must provide functionality of the available transmission capacity calculation for balancing and storing the data. The calculation algorithm will use the following data in the System: • TTC (Total Transfer Capacity);	• Will the algorithm contain a power flow problem solution? • Does "Distributed coefficients" mean the power transfer distribution factors (PTDF)? • Please confirm that NTC, coefficients are inputs for the Baltic balancing IT system prepared by an	· The algorithm will not contain a power flow problem solution. Power flow data needed for CZCB calculation will be provided to the System. · According to the current draft of methodology for calculating Cross zonal capacities for balancing, "Distributed coefficients"

	• Actual flow from SCADA; • Distributed coefficients; The algorithm is under development now and will be provided by the Customer during the analysis stage of the respective increment(s). If capacity is entered manually for the relevant bidding area for the relevant ISP then the capacity calculation is skipped.	external system. • What is the geographical scope of the calculation algorithm? • We assume that there is no requirement for Network Analyses (i.e. load flow, congestion management, etc) functionalities in the system, is that correct? • The RFP describes, that the calculation methodology is in progress. Is it possible to describe on high level the calculation?	will not be used. · NTC are input for Baltic balancing IT system from an external system. · Calculation of CZCB shall be done for Baltic power systems; calculations shall be performed for interconnections between power systems of Estonia, Latvia, Lithuania and with Russia and Belorussia power systems, as well as on High-Voltage Direct Current (HVDC) connections with Finland, Sweden and Poland. There are no requirements for network analysis. Draft version of the Cross zonal capacities for balancing calculation is attached.
6	F.36. The system must provide a functionality for receiving forecast on total ACE using web services from AST SCADA periodically every minute or for uploading using GUI.	• Does the Baltic balancing IT system receive only the total ACE corresponding the Baltic CoBA (1 netted value) or balancing area control errors from each TSO also?	Baltic Balancing IT system will receive total ACE corresponding to the Baltic CoBA
7	F.45. The system must provide a proposition for needed activation volume based on ACE data received from SCADA. Algorithm of activation volume proposal should include following configurable parameters: a) Minimum and maximum activation volume; b) Time schedule of activation volume proposal; c) Algorithm to calculate activation volume proposal from ACE data (for provisional parameters see 4 Appendices. Precise algorithm and its	2.1.5 5. paragraph: "The Activation Optimization Function (AOF) process receives as input the capacity calculation and activation volume proposal from the connecting TSOs." • Please clarify that activation volume proposal is received from the connected TSO or produced by Baltic Balancing IT system AOF function.	Activation volume proposal should be produced by the Baltic Balancing IT system AOF function.

	parameters will be defined during analysis stage of respective increment(s)); d) ACE offset value which shall define minimum ACE value for which the activation volume proposal function shall run.		
8	F.59. The Nominated TSO should be able to choose or cancel proposed bids for activation from Activation Order list or select from available bids in CMOLs. Proposed bids cancelation must result in sending acknowledgement back to the system and changing AOF proposed bids statuses back to previous.	• Does Nominated TSO manipulates the AO list in the Baltic Balancing IT system? • If yes, what are the source and destination system of the ACK message?	Nominated TSO should be able to manipulate AO list in the Baltic Balancing IT system or the local system of the nominated TSO. The source can be either Nominated TSO's local system or the Baltic balancing IT system depending on which of the TSOs is fulfilling the role of the nominated TSO and whether local system or Baltic balancing IT system is used for running these processes. Destination system of the ACK message is the Baltic balancing IT system.
9	F.75. The system must provide a functionality for gathering information regarding activation orders	• Is there any external data required for the reports that are not available in the Baltic Balancing IT system (or cannot be calculated from data in the system) and need to be imported from an external system for reporting reasons only?	The reports have to be generated from the information available in the Baltic Balancing IT system.
10	F.79. The system must provide a functionality for sending reports including master data, requesting TSO, connecting TSO, product name etc. to Baltic Balancing Dashboard, ENTSO-E transparency platform and Connecting TSOs Local systems using web services and displaying if GUI is used.	Is ECP installation in scope of the project or can we assume that ECP is installed and setup by the customer?	ECP is available for every TSO. Installation and setup of the ECP is not the scope of this project.

	The reports should have availability to be grouped by areas, products etc.		
11	The whole "Technical requirements for organising the procurement regarding the development and implementation of the Baltic balancing IT system".	Question related to Master Data Management • Do you expect the IT system supplier to design and implement the master data model of the system? • What are your requirements in terms of Master Data management? Can we assume, that it will be the TSOs responsibility to provide the master data for initializing the database in the format requested by the IT system supplier (including mapping of data if required)?	Master data management is integral part of the Baltic Balancing IT system. The Master data in the context of the Baltic Balancing IT system includes, but is not limited to products, TSOs, timing etc. The supplier is expected to implement master data model. Filling in the initial Master data is the responsibility of TSOs.
12	F.113. The system must provide a SendAck implementation for data exchange with all systems	Is it true that SendAck implementation is meant only to give the instrument for other systems to send acknowledgements to Baltic balancing IT system? If so, can we assume that all other systems will be ready according to planed schedule to support processes described in technical specification and send those acknowledgements as described there? Is integration test phase coordinated with other parties and integrated into proposed schedule?	SendAck is supposed to send acknowledgements to local systems. It is supposed, that Baltic Balancing IT system receives acknowledgements from local systems as well. Implementation of the respective web services in local systems will be responsibility of the Customer, and the Customer will coordinate local developments so that they are in line with the project schedule. You should foresee efforts in testing to ensure that integrations are working appropriately.
13	In many places – sending Acknowledgements from Baltic balancing IT system to other systems	Is the assumption correct that all other involved systems will provide transport mechanism (e.g. web services or messaging nodes) to send acknowledgements from Baltic balancing IT system to them? Is this mechanism already existing or will it	The assumption that all other involved system will provide transport mechanism to send acknowledgments from Baltic balancing IT system to them is correct. Not all of the mechanisms exists, but they will be made in parallel with this project. You should foresee efforts in testing to

		be built in course of project? Should we foresee integration efforts in our schedule?	ensure that integrations are working appropriately.
14	Acknowledgements standard	Should Acknowledgement process be standardized according to ENTSO-E Acknowledgement Documents (see https://www.entsoe.eu/publications/electronic-data-interchange-edi-library/work%20products/Acknowledgement/Pages/default.aspx)? If yes, which version? Or, as alternative or additionally, there is (or should be invented) some local standard?	Acknowledgement process should be standardized according to ENTSO-E Acknowledgment Documents latest version which has been released by the start of the respective increment.
15	Local System for AST is developed in parallel with the Baltic balancing IT system.	Can we assume that those two projects are independent or should we plan some integration efforts in our proposal?	These projects are independent, however, you should provide integration manual according to N.86. You should foresee effort in testing to ensure that integration is working appropriately.

Annex Nr.1 shall be confidential and may be used only for this Negotiation procedure.

Annex:
1. Draft Methodology for calculating Cross-Zonal Capacity for Balancing - 5 pp.

Yours faithfully,

Chairman of the Management Board Varis Boks

Aivis Kapče 67725552

Annex No 1

Draft Methodology for calculating Cross-Zonal Capacity for Balancing

1. GENERAL TERMS

1.1. Methodology for calculating Cross-Zonal Capacity for Balancing is set to define:

1.1.1. Cross-Zonal capacity calculation, for balancing purposes between Estonian, Latvian, Lithuanian, Finnish, Swedish, Polish, Russian and Belarusian power systems;

1.2. Cross-Zonal capacities for balancing shall be calculated in a way that facilitates the achievement of the following objectives:

1.2.1. Maximizing capacities available to the balancing market while ensuring Operational Security of the interconnected power systems;

1.2.2. Producing results in a transparent and replicable manner;

1.3. Methodology described in the Rules covers calculation of Cross-Zonal Capacity for Balancing, during planning stage and during operational imbalance settlement period.

2. DEFINITIONS

For the purposes of these Rules, the following definitions shall have the following meaning:

2.1. **AAC** - the Already Allocated Capacity is the total amount of allocated transmission rights.

2.2. **AST** – AS "Augstsprieguma tīkls", Independent Transmission System Operator of the Republic of Latvia.

2.3. **Baltic TSOs** – the transmission system operators for electricity of the Republic of Estonia, the Republic of Latvia and the Republic of Lithuania.

2.4. **Common Grid Model (CGM)** – data set agreed between TSOs describing the main characteristic of the power system (generation, loads and grid topology) and rules for changing these characteristics during the capacity calculation process.

2.5. **Cross-Border Interconnection** – is a physical transmission link (e.g. tie-lines) which connects two power systems.

2.6. **Cross-Zonal Capacity for Balancing (CZCB)** – the capability of the interconnected system to accommodate energy transfer during particular imbalance settlement period from or to the power systems of Estonia, Latvia, Lithuania, Belarus or Russia as well as through HVDC connections from Finland, Sweden and Poland. Cross-Zonal Capacity for Balancing has to always include the direction whether it is from or to the relevant power system, i.e. up regulation or down regulation. .

2.7. **Down regulation** – Reduction in generation or increase in consumption.

2.8. **Elspot** – the market timeframe where commercial electricity transactions are executed the day prior to the day of delivery of traded products.

2.9. **Elering** – Elering AS, Transmission System Operator of the Republic of Estonia.

2.10. **Elbas** – the electricity market which operates for the period of time between Intraday Cross-Zonal Gate Opening Time and Intraday Cross-Zonal Gate Closure, where commercial electricity transactions are executed prior to the delivery of traded products.

2.11. **Litgrid** – LITGRID AB, electricity transmission system operator of the Republic of Lithuania.

2.12. **NTC** – Net Transmission Capacity of the designated Cross-Border Interconnections is the maximum Trading Capacity, which is permitted in transmission Cross-Border Interconnections compatible with Operational Security standards and taking into account the technical uncertainties on planned network conditions for each TSO.

2.13. **TSO** – a transmission system operator for electricity.

2.14. **TTC** – Total Transfer Capacity of the designated Cross-Border Interconnections is the maximum transmission of active power, which is permitted in transmission Cross-Border Interconnections compatible with Operational Security standards applicable for each TSO.

2.15. **Up regulation** - Increase in generation or reduction in consumption.

3. CALCULATING CROSS-ZONAL CAPACITY FOR BALANCING

3.1. Calculation of CZCB shall be performed for Estonian, Latvian, Lithuanian, Russian and Belarusian power systems as well as High-Voltage Direct Current (HVDC) connections from Finland, Sweden and Poland..

3.2. CZCB shall be calculated separately for up regulation and down regulation.

3.3. CZCB shall be calculated for each power system as well as each HVDC connection separately by taking into account planning and actual power flows on Cross-Border interconnections as well as Cross border capacities (TTC and NTC) in the internal and external interconnections of Baltic power system.

3.4. CZCB calculation shall be performed for planning and activation purposes:

3.4.1. Planning CZCB calculation shall be performed based on D-1 and intraday planning data using CGMs;

3.4.2. Available CZCB calculation for activation purposes shall be performed based on power system online (SCADA) data.

A. PLANNING BALANCING CAPACITY CALCULATION

3.5. Initial CZCB shall be calculated based on D-1 BRELL model by taking into account Elspot market data until 17:00(EET) according formulas described in Table 1 and Table 2.

3.6. Planning balancing capacity shall be updated every hour based on D-1 BRELL model (as long as intraday data from Russia TSO is not available) by taking into account last available Baltic power systems data from Elbas market according formulas described in Table 1 and Table 2.

3.7. Planning balancing capacity shall be used by dispatcher to evaluate possibilities to activate regulation up or down in the particular power system.

Table 1

$CZCB_{UP}$	Planning balancing capacity **for up regulation**
$CZCB_{LTUP}$	MIN [$(NTC_{LT\text{-}BY}\text{-}P_{PF(LT\text{-}BY)})$; $(NTC_{LT\text{-}LV}\text{-}P_{PF(LT\text{-}LV)})$; $(NTC_{LV\text{-}EE,RU}\text{-}P_{PF(LV\text{-}EE,RU)})$; $(TTC\text{-}TRM_{EE\text{-}RU}\text{-}P_{PF(EE\text{-}RU)})$]
$CZCB_{LVUP}$	MIN [$(NTC_{LT\text{-}BY}\text{-}P_{PF(LT\text{-}BY)})$; $(NTC_{LV\text{-}LT}\text{-}P_{PF(LV\text{-}LT)})$; $(NTC_{LV\text{-}EE,RU}\text{-}P_{PF(LV\text{-}EE,RU)})$; $(TTC\text{-}TRM_{EE\text{-}RU}\text{-}P_{PF(EE\text{-}RU)})$]
$CZCB_{EEUP}$	MIN [$(NTC_{LT\text{-}BY}\text{-}P_{PF(LT\text{-}BY)})$; $(NTC_{LV\text{-}LT}\text{-}P_{PF(LV\text{-}LT)})$; $(NTC_{EE,RU\text{-}LV}\text{-}P_{PF(EE,RU\text{-}LV)})$; $(TTC\text{-}TRM_{EE\text{-}RU}\text{-}P_{PF(EE\text{-}RU)})$]
$CZCB_{BYUP}$	MIN [$(NTC_{BY\text{-}LT}\text{-}P_{PF(BY\text{-}LT)})$; $(NTC_{LT\text{-}LV}\text{-}P_{PF(LT\text{-}LV)})$; $(NTC_{LV\text{-}EE,RU}\text{-}P_{PF(LV\text{-}EE,RU)})$; $(TTC\text{-}TRM_{EE\text{-}RU}\text{-}P_{PF(EE\text{-}RU)})_U$]
$CZCB_{RUUP}$	MIN [$(NTC_{BY\text{-}LT}\text{-}P_{PF(BY\text{-}LT)})$; $(NTC_{LT\text{-}BY}\text{-}P_{PF(LT\text{-}BY)})$; $(NTC_{LT\text{-}LV}\text{-}P_{PF(LT\text{-}LV)})$; $(NTC_{LV\text{-}LT}\text{-}P_{PF(LV\text{-}LT)})$; $(NTC_{EE,RU\text{-}LV}\text{-}P_{PF(EE,RU\text{-}LV)})$; $(NTC_{LV\text{-}EE,RU}\text{-}P_{PF(LV\text{-}EE,RU)})$; $(NTC_{EE,RU\text{-}LV}\text{-}P_{PF(EE,RU\text{-}LV)})$; $(TTC\text{-}TRM_{EE\text{-}RU}\text{-}P_{PF(EE\text{-}RU)})$]
$CZCB_{FIUP}$	$MIN[AAC_{FI\text{-}EE};CZCB_{EEUP}]$
$CZCB_{SEUP}$	$MIN[AAC_{SE\text{-}LT};CZCB_{LTUP}]$
$CZCB_{PLUP}$	$MIN[AAC_{PL\text{-}LT};CZCB_{LTUP}]$

Table 2

$CZCB_{DWN}$	Planning balancing capacity **for down regulation**
$CZCB_{LTDWN}$	MIN [$(NTC_{BY\text{-}LT}\text{-}P_{PF(BY\text{-}LT)})$; $(NTC_{LV\text{-}LT}\text{-}P_{PF(LV\text{-}LT)})$; $(NTC_{EE,RU\text{-}LV}\text{-}P_{PF(EE,RU\text{-}LV)})$; $(TTC\text{-}TRM_{RU\text{-}EE}\text{-}P_{PF(RU\text{-}EE)})$]
$CZCB_{LVDWN}$	MIN [$(NTC_{BY\text{-}LT}\text{-}P_{PF(BY\text{-}LT)})$; $(NTC_{LT\text{-}LV}\text{-}P_{PF(LT\text{-}LV)})$; $(NTC_{EE,RU\text{-}LV}\text{-}P_{PF(EE,RU\text{-}LV)})$; $(TTC\text{-}TRM_{RU\text{-}EE}\text{-}P_{PF(RU\text{-}EE)})$]
$CZCB_{EEDWN}$	MIN [$(NTC_{BY\text{-}LT}\text{-}P_{PF(BY\text{-}LT)})$; $(NTC_{LT\text{-}LV}\text{-}P_{PF(LT\text{-}LV)})$; $(NTC_{LV\text{-}EE,RU}\text{-}P_{PF(LV\text{-}EE,RU)})$; $(TTC\text{-}TRM_{RU\text{-}EE}\text{-}P_{PF(RU\text{-}EE)})$]
$CZCB_{FIDWN}$	$MIN[AAC_{EE\text{-}FI};CZCB_{EEDWN}]$
$CZCB_{SEDWN}$	$MIN[AAC_{LT\text{-}SE};CZCB_{LTDWN}]$
$CZCB_{PLDWN}$	$MIN[AAC_{LT\text{-}PL};CZCB_{LTDWN}]$

Where:

$NTC_{From\text{-}To}$ - net transmission capacity on interconnection cross-border with direction *from - to* power systems;

P_{PF} - power flow on the interconnection cross-border from D-1 model, if direction from power system which is linked to interconnection cross-border then value is positive, if direction to power system which is linked to interconnection cross-border then value is negative;

3.8. NTC's in the Table 1 and Table 2 shall be used the same values as for Elspot capacity calculation procedure.

B. AVAILABLE BALANCING CAPACITY CALCULATION

3.9. Available CZCB for activation purposes shall be performed based on power system online (SCADA) data (1(5) min. real time integral) according formulas described in Table 3 and Table 4.

3.10. Available CZCB shall be used by dispatcher in order to take a decision whether up regulation or down regulation is permissible in the particular power system during the particular time period.

Table 3

$CZCB_{UP}$	Available balancing capacity **for up regulation**
$CZCB_{LTUP}$	MIN [$(TTC_{LT-BY}-P_{PF(LT-BY)})$; $(TTC_{LT-LV}-P_{PF(LT-LV)})$; $(TTC_{LV-EE,RU}-P_{PF(LV-EE,RU)})$; $(TTC_{EE-RU}-P_{PF(EE-RU)})$]
$CZCB_{LVUP}$	MIN [$(TTC_{LT-BY}-P_{PF(LT-BY)})$; $(TTC_{LV-LT}-P_{PF(LV-LT)})$; $(TTC_{LV-EE,RU}-P_{PF(LV-EE,RU)})$; $(TTC_{EE-RU}-P_{PF(EE-RU)})$]
$CZCB_{EEUP}$	MIN [$(TTC_{LT-BY}-P_{PF(LT-BY)})$; $(TTC_{LV-LT}-P_{PF(LV-LT)})$; $(TTC_{EE,RU-LV}-P_{PF(EE,RU-LV)})$; $(TTC_{EE-RU}-P_{PF(EE-RU)})$]
$CZCB_{BYUP}$	MIN [$(TTC_{BY-LT}-P_{PF(LT-BY)})$; $(TTC_{LT-LV}-P_{PF(LT-LV)})$; $(TTC_{LV-EE,RU}-P_{PF(LV-EE,RU)})$; $(TTC_{EE-RU}-P_{PF(EE-RU)})$]
$CZCB_{RUUP}$	MIN [$(TTC_{BY-LT}-P_{PF(BY-LT)})$; $(TTC_{LT-BY}-P_{PF(LT-BY)})$; $(TTC_{LT-LV}-P_{PF(LT-LV)})$; $(TTC_{LV-LT}-P_{PF(LV-LT)})$; $(TTC_{EE,RU-LV}-P_{PF(EE,RU-LV)})$; $(TTC_{LV-EE,RU}-P_{PF(LV-EE,RU)})$; $(TTC_{EE,RU-LV}-P_{PF(EE,RU-LV)})$; $(TTC_{EE-RU}-P_{PF(EE-RU)})$]
$CZCB_{FIUP}$	$MIN[AAC_{FI-EE};CZCB_{EEUP}]$
$CZCB_{SEUP}$	$MIN[AAC_{SE-LT};CZCB_{LTUP}]$
$CZCB_{PLUP}$	$MIN[AAC_{PL-LT};CZCB_{LTUP}]$

Table 4

$CZCB_{DWN}$	Available balancing capacity **for down regulation**
$CZCB_{LTDWN}$	MIN [$(TTC_{BY\text{-}LT}-P_{PF(BY\text{-}LT)})$; $(TTC_{LV\text{-}LT}-P_{PF(LV\text{-}LT)})$; $(TTC_{EE,RU\text{-}LV}-P_{PF(EE,RU\text{-}LV)})$; $(TTC_{RU\text{-}EE}-P_{PF(RU\text{-}EE)})$]
$CZCB_{LVDWN}$	MIN [$(TTC_{BY\text{-}LT}-P_{PF(BY\text{-}LT)})$; $(TTC_{LT\text{-}LV}-P_{PF(LT\text{-}LV)})$; $(TTC_{EE,RU\text{-}LV}-P_{PF(EE,RU\text{-}LV)})$; $(TTC_{RU\text{-}EE}-P_{PF(RU\text{-}EE)})$]
$CZCB_{EEDWN}$	MIN [$(TTC_{BY\text{-}LT}-P_{PF(BY\text{-}LT)})$; $(TTC_{LT\text{-}LV}-P_{PF(LT\text{-}LV)})$; $(TTC_{LV\text{-}EE,RU}-P_{PF(LV\text{-}EE,RU)})$; $(TTC_{RU\text{-}EE}-P_{PF(RU\text{-}EE)})$]
$CZCB_{FIDWN}$	$MIN[AAC_{EE\text{-}FI};CZCB_{EEDWN}]$
$CZCB_{SEDWN}$	$MIN[AAC_{LT\text{-}SE};CZCB_{LTDWN}]$
$CZCB_{PLDWN}$	$MIN[AAC_{LT\text{-}PL};CZCB_{LTDWN}]$

Where:

$TTC_{From\text{-}To}$ - Total Transfer Capacity on interconnection cross-border with direction *from - to* power systems;

P_{PF} - actual power flow on the interconnection cross-border from SCADA, if direction from power system which is linked to interconnection cross-border then value is positive, if direction to power system which is linked to interconnection cross-border then value is negative.