



Temporary Agreement on the Principles of Calculation and Allocation of the Cross-border Capacity within Estonian and Latvian Power Systems

Elering AS, a company incorporated and existing under the laws of the Republic of Estonia, legal entity code 11022625, located at Kadaka tee 42, Tallinn, 12915, Republic of Estonia (referred to as "**Elering**"), represented by Mr. Taavi Veskimägi, the Chairman of the Management Board, acting in accordance with the Articles of Association,

AS "Augstsprieguma tīkls", a company incorporated and existing under the laws of the Republic of Latvia, legal entity code 40003575567, located at Dārziema street 86, Riga, LV-1073, Republic of Latvia (referred to as "**AST**"), represented by Mr. Varis Boks, Chairman of the Management Board, and Mr. Jānis Osītis, the Member of the Management Board, acting in accordance with the Articles of Association and the power of attorney No.50VL00-15\2 issued on 18 January 2012 by the Management Board,

Together further referred to as "**TSOs**" and each separately – "**TSO**",

Taking into account the unilateral decision of the Lithuanian TSO to follow their separate cross-border capacity calculation rules starting from 1 January 2014;

Taking into account already existing results of common work so far;

Recognising the necessity to provide reliable operation of power systems, ensure effective operation of power market (Elsport and Elbas) in the frame of NPS as well as a capacity allocation method on Estonian-Latvian border via auctions in the form of limited physical transmission rights (PTR-limited);

Whereas recognising the high importance and urgency of reaching the trilateral TSO agreement on cross-border capacity calculation and allocation;

By concluding this **Agreement**, agree on the following:

1. TSOs follow the capacity calculation rules on Estonian-Latvian cross-border stipulated into the *Cross-border between Estonian and Latvian power systems trading capacity calculation rules (Annex)*.
2. Until 15 January 2014, TSOs will agree on the new cross-border capacity calculation and allocation principles which shall stipulate cross-border capacity

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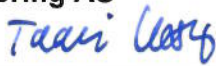
calculation and allocation rules aimed to provide Estonian and Latvian traders to bid their deals also in Estonia-Russia and Latvia-Russia cross-border bidding areas. The new principles shall be submitted to the Estonian and Latvian Regulators for acceptance.

3. Agreement shall come into force on 1st January 2014 after it is signed by TSOs. TSOs agree that the Agreement and the Rules (as defined in the Agreement) shall be effective until Estonian and Latvian Regulators accept the new capacity calculation and allocation principles agreed by TSOs on 15th of January at the latest.

4. Agreement is prepared in English in 2 (two) original copies of equal legal power, one for each TSO.

Signatures:

Elering AS



Taavi Veskimägi, CEO

AS "Augstsprieguma tīkls"



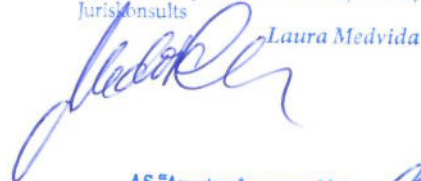
Varis Boks, Chairman of the Board



Jānis Osītis, Board member

31.12.2013.

AS "Augstsprieguma tīkls"
Iepirkumu un juridiskā nodrošinājuma daļa
Juriskonsults



AS "Augstsprieguma tīkls"
Režīmu un plānošanas dienests
vadītājs



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**CROSS-BORDER BETWEEN ESTONIAN AND LATVIAN POWER SYSTEMS
TRADING CAPACITY CALCULATION RULES**

Between

Elering AS

AS "Augstsprieguma tīkls"

1. INTRODUCTION

The electricity transmission system operators of the Republic of Estonia – Elering AS and the Republic of Latvia – AS “Augstsprieguma tīkls” (the “TSOs”),

A. Declaring their commitment for mutual cooperation within the framework and based on the virtues and principles of the European Network of Transmission System Operators for Electricity (the “ENTSO-E”),

B. Considering that the integrated power systems shall be operated in a coordinated manner by adopting common operational framework to ensure the security and reliability of supply and the required quality of electricity,

C. Aiming at adoption of the coordinated and harmonized principles and procedures for calculation of the cross-border capacity for trading in electricity between the Estonia and the Latvia based on clear, transparent, and non-discriminatory manner,

Have therefore agreed on mutual application of the internal cross-border trading capacity calculation rules (the “Rules”) under the following terms and conditions:

2. DEFINITIONS

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

TSO (TSOs) – shall mean the transmission system operator (or operators) for electricity of the Republic of Estonia and the Republic of Latvia, unless otherwise expressly provided.

BRELL Loop – shall mean transmission networks of the power systems of the Baltic States, the Republic of Belarus and the Russian Federation (Central and North-Western parts).

NPS – shall mean Nord Pool Spot.

Elspot – shall mean the day-ahead market for trading power operated by NPS.

Elbas – shall mean the intraday market for trading power operated by NPS.

Individual Grid Model – shall mean data set prepared by responsible TSO, to be merged with other Individual Grid Model components through the European Merging Function in order to create Common Grid Model

N-1 Criterion – means the rule according to which elements remaining in operation within TSO’s Responsibility Area after a Contingency from the Contingency List must be capable of accommodating the new operational situation without violating Operational Security Limits.

Contingency List – means the list of Contingencies to be simulated in the Contingency Analysis in order to test the compliance with the Operational Security Limits before or after a Contingency took place.

Operational Security Limits – means the acceptable operating boundaries: thermal limits, voltage limits, short-circuit current limits, frequency and Dynamic Stability limits.

TTC – shall mean the Total Transfer Capacity of the designated cross-border interconnections, which is the maximum transmission of active power in accordance with the system security criteria which is permitted in transmission the cross-border interconnections between the areas.

TRM – shall mean the Transmission Reliability Margin of the designated cross-border interconnections and is the gap between the TTC and the trading capacity. TRM is maintained due to uncertainties in planned hourly power transmission values and helps to ensure power system operational security.

NTC – shall mean the Net Transfer Capacity of the designated cross-border interconnections, which is the maximum possible total exchange value between two adjacent control areas

compatible with security standards applicable in all control areas of the synchronous area, and taking into account the technical uncertainties on future network conditions.

ATC – shall mean the Available Transmission Capacity of the designated cross-border interconnections, which is the part of NTC that remains available after each phase of the transmission capacity allocation procedure for further commercial activity.

Cross border interconnection Estonia/Pskov –Latvia – shall mean the common cross-border interconnection between Estonia-Latvia and Russia-Latvia.

3. OBJECTIVE AND MAIN PRINCIPLES

3.1. The Rules shall facilitate the achievement of the following objectives:

- a) Ensuring operational security of the interconnected power systems;
- b) Ensuring that maximum cross-border transmission capacity between the power systems of the Republic of Estonia and the Republic of Latvia, when reasonably available due to operational and other technical conditions, is made available to the market;
- c) Producing results of coordinated activities of TSOs in a transparent and replicable manner;
- d) Ensuring non-discrimination in calculation of internal cross-border trading capacities between the power systems of the Republic of Estonia and the Republic of Latvia.

3.2. The Rules shall be applied by TSOs while calculating and determining the cross-border trading capacities for different operational planning periods (*i.e.* annual, monthly, weekly, day-ahead and intraday).

3.3. The time used in this document is Baltic time.

4. TOTAL TRANSFER CAPACITY CALCULATION

4.1. The TTC between two integrated power systems is determined following methodological principles established in the “Stability Methodology Guidelines for BRELL Loop 2005”, as well as in national regulations and standards implemented and agreed in the instruction for parallel operation in the cross-border interconnections between TSOs involved, while taking into account the intersystem operation stability, planned outages and dimensioning faults in the network.

4.2 The TTC value of cross-border intersection is checked during operations planning phase against operational security constraints on those individual 330kV power transmission objects within area of responsibility of TSO, affecting cross-border intersection flows. Operational security constraints are based at least on thermal capability and stability criterions. BRELL instruction based cross-border TTC is modified by TSOs whenever technically justified, for ensuring the collective secure operation with neighbouring interconnected TSOs.

4.3. TSOs shall use for TTC calculations the common grid model of the BRELL Loop compiled based on the data exchange format as agreed commonly in BRELL as well as specifications to be set out in Data Exchange Rules, agreed among Baltic TSO-s. Upon coming in force of ENTSO-E Network Code on Capacity Allocation and Congestion Management as well as various other ENTSO-E network codes, the Common Grid Model Exchange Standard (CGMES) will be also used as baseline for data exchange of Individual Grid Models among Baltic TSO-s.

4.4. If neighbouring TSOs determine different TTC values for the same cross-border interconnection, the lowest value shall be used as a coordinated value.

4.5 TSO-s shall inform each other about planned TTC values according to Data Exchange Rules.

5. TRANSMISSION RELIABILITY MARGIN CALCULATION

5.1. The Transmission Reliability Margin TRM is arising from:

- a) Unintended deviations of physical flows during operations due to physical functioning of load-frequency regulation;
 - b) Emergency exchanges between TSOs to cope with unexpected unbalanced situations in real time;
 - c) Inaccuracies, e.g. in data collection and measurements;
 - d) Planning error, including the error due to imperfect information from 3rd Countries at the time the transfer capacities have been computed.
- 5.2. As a rule TSOs use only information indicated in paragraph d) of clause 5.1 for TRM evaluation. TRM shall integrate a statistical analysis of historic data showing the deviation of power flows and shall take into account expectation of future deviations.
- 5.3. Each TSO shall define the size of the TRM on its cross-border interconnections
- 5.4. TSO-s shall inform each other about planned TRM values according to Data Exchange Rules.

6. NET TRANSFER CAPACITY CALCULATION

- 6.1. AS "Augstsprieguma tīkls" calculate NTC values for Estonia-Latvia cross-border interconnection, taking into account guaranteed emergency power emergency reserves for TSOs to ensure readiness for normal operation within 20 min. after N-1 situation has occurred, by using following formula:

$$NTC = (TTC_1 + \sum K * P) - TRM,$$

where:

$$(TTC_1 + \sum K * P) \leq TTC;$$

TTC₁ - total transmission capacity after N-1 situation has occurred from actual power system network status according to mutually signed instruction for parallel operation in the cross-border respective interconnection;

P- amount of guaranteed emergency power reserves in respective power system;

K- reserve power distribution coefficients considering location of the emergency power reserve and down regulation according to Annex 1;

TTC- total transmission capacity in actual power system network status according to mutually signed instructions for parallel operation in the cross - border interconnections;

TRM – TRM value defined by AS "Augstsprieguma tīkls".

- 6.2. Elering AS calculates NTC values for Estonia-Latvia cross border interconnection by using following formula:

$$NTC = TTC - TRM$$

where the definitions are further amended as follows:

TTC- total transmission capacity value for actual power system network status, according to signed instruction for parallel operation in the cross border interconnection Estonia/Pskov - Latvia. The value of TTC is also dependent from the influence of ambient temperatures to transmission lines conductors.

TRM – TRM value defined by Elering AS.

- 6.3. If TSOs determine different NTC values in the cross-border interconnections, the lowest value shall be used.
- 6.4. Coordination and publishing cross-border capacities for Nord Pool Spot is described in the Data Exchange Rules.

7. INTRADAY TRANSMISSION CAPACITY CALCULATION

- 7.1. After receiving Elspot trading results from NPS and actual D-1 data from Russian TSO, Latvian and Estonian TSO's shall update power flow model and recalculate power flows in BRELL Loop.
- 7.2. TSO's until 14:40 shall coordinate ATC value and until 15:00 responsible TSO shall send coordinated ATC values to NPS.
- 7.3. In case D-1 data from Russian TSO is not available, TSO's shall set ATC values to 0 MW. New ATC values shall be coordinated as soon as D-1 data from Russian TSO is available. In case D-1 data from Russian TSO is not available before 18:00 TSOs shall coordinate ATC values taking into account D-2 data from Russian TSO. Appointed TSOs shall send the coordinated ATC values to NPS as soon as possible.
- 7.4. Coordination and publishing ATC values for the next day is described in the Data Exchange Rules.
- 7.5. AS "Augstsprieguma tīkls" calculate ATC values for Estonia/Pskov-Latvia cross-border interconnection as follows:
$$ATC = \text{MIN}(NTC - P_{PF}; NTC - AAC_{\text{Elspot}} + TRM)$$
where:
NTC - maximum trading capacity in the particular cross-border interconnections;
 P_{PF} – calculated power flow in the particular cross-border interconnections based on Elspot trading data and actual D-1 data from Russian TSO;
 AAC_{Elspot} - already allocated capacity or total amount of all allocated trading capacity after Elspot trading;
TRM – TRM value defined by AS "Augstsprieguma tīkls".
- 7.6. Elering AS calculates ATC values for Estonia/Pskov-Latvia cross border interconnection as follows:
$$ATC = NTC - AAC_{\text{Elspot}}$$
where:
NTC - maximum trading capacity for trading in the particular cross-border interconnection;
 AAC_{Elspot} - already allocated capacity or total amount of all allocated trading capacity after Elspot trading.
- 7.7. In case TSOs determine different ATC values for the cross-border intersections the lowest value shall be used.
- 7.8. For ensuring operational security ATC values shall be reassessed during the operational stage considering all the changes in BRELL Loop (line disconnection or generator trip) that have influence on the intraday transmission capacities.

8. FINAL PROVISIONS

- 8.1. These Rules are drawn up in English in 2 (two) copies of equal legal value.
- 8.2. These Rules shall be understood as an integral part of the Temporary Agreement on the Principles of Calculation and Allocation of the Cross-border Capacity within Estonian and Latvian power systems

AS "Augstsprieguma tīkls"
Režīmu un plānošanas dienests
vadītājs

Jevgenijs Mežinskis

Reserve power distribution coefficients

Down regulation, %	Cross-Border interconnections	Reserves location			
		Lithuania	Latvia	Belarus	Estonia
100	Estonia-Russia → Latvia	0,64	0,74	0,45	
	Latvia →Russia-Estonia				0,74
50	Estonia-Russia → Latvia	0,49	0,60	0,31	
	Latvia →Russia-Estonia				0,49
0	Estonia-Russia → Latvia	0,34	0,45	0,16	
	Latvia →Russia-Estonia				0,24