MEMORANDUM OF UNDERSTANDING

ON DEVELOPMENT OF THE BALTIC LOAD-FREQUENCY CONTROL BLOCK

This Memorandum of Understanding (hereinafter referred to as "MoU") is entered into on the date of the last electronic signature (hereinafter referred to as "Effective Date"), by and between:

Elering AS, a public liability company, duly organized and validly existing under the laws of the Republic of Estonia, company code 11022625, registered with the Commercial Register of the Republic of Estonia, having its registered office at Kadaka tee 42, 12915 Tallinn, Estonia, duly represented by Mr. Taavi Veskimägi, CEO,

AS "Augstsprieguma tīkls", a company incorporated and validly existing under the laws of the Republic of Latvia, with V.A.T. number LV40003575567, having its registered office at Darzciema Street 86, Riga, LV-1073, Latvia, and registered with the Commercial Register of the Republic of Latvia with the registration number 40003575567, represented by Chairman of the Management Board Varis Boks and Member of the Management Board Gatis Junghāns, acting pursuant to basis of Articles of Association and Power of Attorney of 2 My 2016, No. 50VL00-07\40,

LITGRID AB, a limited liability company, duly organized and validly existing under the laws of the Republic of Lithuania, company code 302564383, registered with the Register of Legal Entities of the Republic of Lithuania, having its registered office at Viršuliškių skg. 99B, LT-05131 Vilnius, Lithuania, duly represented by Mr. Daivis Virbickas, CEO, acting in accordance with the Articles of Association, and Mr. Giedrius Radvila, the Director of Power System Operations Department, acting in accordance with authorization as of February 19 2019,

hereinafter each individually referred to as "the Party" and collectively as "the Parties" or "the Baltic TSOs",

Taking into consideration that desynchronization of the power systems of the Baltic States from the synchronous area of IPS/UPS and their synchronization with the Continental Europe Synchronous Area (hereinafter referred to as "CESA") requires the Baltic TSOs to develop and start operating the load frequency control (hereinafter referred to as "LFC") process pursuant to the Synchronous Area Framework Agreement (hereinafter referred to as "SAFA") of CESA and other relevant arrangements,

Referring to the Agreement on the Conditions for a Future Synchronous Interconnection of the Power System of the Baltic States and the Power System of Continental Europe concluded, *inter alia*, by the Baltic TSOs on 27 May 2019, under which the Parties committed to work together towards creation of an effectively functioning LFC process,

Whereas the Parties commit to desynchronise their operated power systems from the synchronous area of IPS/UPS and to fulfil all requirements for their synchronization with the CESA,

Confirming the existing successful cooperation between the Parties in endeavours to develop an effectively functioning regional LFC process in the Baltic States;

Taking into consideration this common understanding and acknowledging their intentions for mutual cooperation, the Parties have agreed to enter into this MoU in good faith in order to highlight the key concepts, principles and actions to establish a framework for development of an effectively functioning Baltic LFC process, which will open the Baltic power market for new type of reserves and make it more attractive for new market participants,

have reached the following understanding and agree as follows:

1. DEFINITIONS

For the purpose of this MoU:

LFC reserves – Load-Frequency Control reserves that include frequency containment reserves and frequency restoration reserves.

Frequency restoration reserves or '**FRR**' – means the active power reserves available to restore system frequency to the nominal frequency and, for a synchronous area consisting of more than one LFC area, to restore power balance to the scheduled value. FRR includes both automatically and manually activated restoration reserves.

LFC Concept Document (hereinafter referred to as **LFC Concept**) – a public document, which shall describe the technical requirements and procedures for the future Baltic LFC block reserves. Current MoU will be the basis for the LFC Concept Document.

LFC Conceptual Agreement (hereinafter referred to as **LFC CA**) – an agreement to be concluded between the Baltic TSOs, which shall define the rules, processes and methodologies according to agreed main principles for the future Baltic LFC block.

LFC Block Operational Agreement (hereinafter referred to as **LFC BOA)** – an agreement to be concluded between the Baltic TSOs which shall define the rules, processes and methodologies according to Article 119 of the Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation (hereinafter referred to as – **SOGL**) for implementation of Baltic LFC block.

EBGL – Commission Regulation (EU) 2017/219 of 23 November 2017 establishing a guideline on electricity balancing.

2. PURPOSE AND SCOPE

The purpose of this MoU is to establish the key principles agreed by the Baltic TSOs for development of the Baltic LFC block and fully functional LFC processes that will be further specified and elaborated in the LFC Concept and LFC BOA.

As a result of this MoU, the Parties will commonly until 18th of September 2020 develop the LFC Concept for the key principles stipulated herein to be elaborated in due detail and to cover necessary reserves as well as organisational arrangements for the LFC block cooperation which shall be consulted with the stakeholders. Based on the LFC Concept, other relevant arrangements and methodologies within the LFC BOA will be drafted and concluded.

The Parties commit to prepare and sign LFC CA with scope as defined in this MoU by the 31st of December 2020.

The Parties agree that the LFC BOA will be concluded before synchronisation and LFC BOA will be based on LFC CA and comply with article 119 of SO GL until the synchronization of Baltic Power systems with CESA.

3. LFC BLOCK STRUCTURE

The Parties agree the structure where each Party will establish an LFC area and all Parties together will form a common LFC block to ensure the LFC cooperation in the Baltics.

Each Party for its LFC area will establish frequency containment process and frequency restoration processes according to requirements defined in SOGL and SAFA Policy 1, which will be further specified in the LFC Concept.

The Parties agree implementation of imbalance netting process for frequency restoration reserve (hereinafter referred to as "FRR") demands between LFC areas to maximize socioeconomic welfare.

The Parties agree that the following tasks shall be performed by a nominated Party with coordination between Parties:

a) LFC block monitor according to Article 134 of SOGL;
b) Time correction notifications according to B-7-1-6 of SAFA Policy 1.

In case there are additional tasks that need to be covered by the LFC block, the Parties agree that they will be defined and allocated in the LFC CA and LFC BOA.

According to agreement among parties, responsibility for a specific task may be permanently assigned to one Party or rotated among Parties.

4. LFC RESERVE DIMENSIONING, DISTRIBUTION AND SHARING

Each Party will follow CESA frequency containment reserve (hereinafter referred to as "FCR") dimensioning principles and will be responsible for ensuring the LFC area necessary capacity of FCR.

The LFC block will dimension the necessary amount of FRR capacities taking into account requirements defined in SOGL Article 157, dimensioned FRR amount distribution between mFRR and aFRR amounts shall be based on the recommendation according B-6-2-2-1-5 of SAFA Policy 1.

Distribution of mFRR and aFRR capacities between LFC areas shall be based on distribution of largest incidents and historical imbalances of each LFC areas, unless Parties agree otherwise in the LFC CA. Detailed principles for LFC reserve dimensioning and distribution will be developed as a part of the LFC Concept and included in LFC CA. Dimensioning principles shall include following topics:

a) Reserve dimensioning methodology principles and detailed description of the method;
b) Distribution principles of automatically and manually activated FRR in the Baltic LFC block;
c) The capacity responsibility share of FRR distributed between LFC areas of the LFC block;
d) Timeline and process of application of methodology.

The Parties agree to share the distributed aFRR and mFRR capacities. Each Party is responsible for ensuring availability of its part of aFRR and mFRR for other Parties including the availability of cross-zonal capacity. Availability of cross-zonal capacity shall be ensured as the remaining capacity from day-ahead and intraday

markets, countertrade activity or cross-zonal capacity allocation mechanisms in accordance with Article 38 of EBGL.

5. LFC RESERVES CAPACITIES EXCHANGE PRINCIPLES

The Parties agree to exchange the LFC reserves under the following principles, which will be described more detailed in the LFC Concept:

a) Limits for the exchange of LFC reserves outside the Baltic LFC block shall be set according to agreement among Parties and in accordance with SOGL;
b) Limits for the exchange of LFC reserves within Baltic LFC block shall be agreed among Parties and defined in the LFC BOA;
c) Exchange of LFC reserves shall be made on market condition accordance with common harmonised rules and process for the exchange and procurement of balancing capacity in accordance with Article 33 of EBGL;
d) Parties shall ensure available cross-zonal capacities in accordance with methodologies for allocating cross-zonal capacity pursuant to Chapter 2 of Title IV of EBGL.

6. LFC RESERVE CAPACITY MONITORING

The Parties agree to share data regarding procured LFC reserve volume and additional reserve capacity in planning and near real-time phase.

LFC reserves capacity monitoring principles will be agreed among Parties together with the methodology for ensuring total LFC Block need in case part of the shared capacity cannot be provided. The aforementioned principles of methodology including possible remuneration mechanisms for procurement of additional reserve capacities will be specified in the LFC CA.

The Parties agree to take measures in order to ensure system security and necessary levels of reserve capacities, if Parties are unable to ensure the necessary reserve capacity levels, then the largest possible dimensioning incident shall be reduced or additional measures shall be taken to ensure system security. The Parties agree that reducing the largest possible dimensioning incident will be performed as a last measure to avoid emergency state in the Baltic power systems.

7. LFC RESERVE CAPACITY PRODUCTS

The Parties agree to select and use standard balancing capacity product for FRR capacities sharing and exchange within the Baltic LFC block as defined by all European TSOs and in accordance with Article 25 of EBGL.
The Parties will define harmonised detailed requirements for LFC reserves balancing capacity products within Baltic LFC block.

The Parties encourage the harmonization of the following items:

a) Requirements for balancing capacity products: market time unit, maximum volume of balancing capacity provided by single unit, linking and etc.;
b) Prequalification requirements;
c) Balancing capacity service quality requirements.

Proposal for the harmonized Baltic balancing capacity products shall be included in the LFC Concept.

8. FRR ENERGY STANDARD PRODUCTS

The Parties agree to apply standard balancing energy product for FRR energy exchange within Baltic LFC block as defined by all European TSOs and in accordance with Article 25 of EBGL for FRR reserves. The Parties will define common detailed requirements for standard balancing energy product within Baltic LFC block.

Proposal for the standard Baltic balancing energy products shall be included in the LFC Concept. The Parties agree that, if needed, specific balancing products are to be developed.

9. LFC RESERVE PROCUREMENT PROCESS

Each Party will be responsible to procure and provide its LFC area distributed share of dimensioned LFC Block reserves. The Parties will promote the establishment of a common market for LFC reserves inside the LFC block in order to maximize the socio-economic welfare.

The Parties will strive to implement the common LFC reserves capacity market among two or all LFC areas within the agreed timeline with following principles:

a) Balancing markets and exchanging balancing capacity shall ensure operational security whilst allowing for maximum use and efficient allocation of cross-zonal capacity across timeframes;
b) The procurement of balancing capacity shall be market-based and organised in such a way as to be non-discriminatory between market participants in the prequalification process whether market participants participate individually or through aggregation;
c) Allocation of cross-border capacity shall be arranged in accordance with Article 38 of EBGL.

LITGRID AB has identified some non-discriminatory conditions to be fulfilled for LITGRID AB to join common market for LFC reserves inside the LFC block:

a) Common methodology for cross zonal capacity calculation and allocation for trade with third countries;
b) Harmonised tariff and tax regulatory framework for market participants;
c) Capacity remuneration mechanism on the Baltic level.

These conditions will be described in the LFC Concept to ensure non-discriminatory conditions for market participants.

10. FRR ACTIVATION PROCESS

The Parties agree that activation of LFC reserves within the Baltic LFC block shall be arranged in accordance with the EBGL's requirements for mFRR and aFRR balancing energy markets and shall follow the implementation framework requirements for European platforms for mFRR and aFRR.

Each Party will be responsible for the estimation of FRR activation demand for its LFC areas. The Parties agree that FRR demand determination principles will be described in LFC CA.

The Parties acknowledge that additional coordination procedure for the FRR demand determination and activation may be developed for the purposes to ensure the secure synchronous operation of the power systems of the Baltic States with CESA.

11. LFC RESERVE ACTIVATION SETTLEMENT PROCESS

The Parties agree that activation of FRR through the European platforms for mFRR and aFRR shall be settled in accordance with the EBGL's requirements for mFRR and aFRR balancing energy markets.

The Parties agree that settlement of energy exchange for FCR activation will be performed in accordance with the methodology defined in EBGL Article 51.1

The Parties agree that additional settlement mechanisms will be established if process for the activation of FRR outside the European platforms for mFRR and aFRR will be defined in LFC BOA.

12. TERM

This MoU becomes effective on the Effective Date upon signature by authorised representatives of all Parties and shall remain in force until LFC BOA is concluded by all Parties, unless terminated by the Parties by unanimous decision or upon withdrawal by one of the Parties.

13. COSTS

This MoU does not impose any financial responsibilities on the Parties with regard to the each other, *i.e.* each Party will be responsible for its own costs and expenses related to the execution of this MoU.

14. FINAL PROVISIONS

This MoU shall constitute the principle arrangement by and between the Parties regarding the Baltic LFC process and shall serve as the basis for development of the LFC Concept, LFC CA, LFC BOA and other corresponding documents.

The Parties expressly agree that the implementation of the potential cooperation as envisioned by the Parties under this MoU shall be subject to LFC BOA or, as the case may be, other separate agreement(s) or other means of legal coordination to be negotiated and executed between the Parties at a later stage.

This MoU may be amended at any time, in writing, by the mutual consent between the Parties.

The Parties shall at all times remain independent and separate legally, organizationally and financially and may not act nor bind the other in any way nor may either represent that it is in any way responsible for the acts of the other.

The Parties expressly agree that in the event that any Party is not satisfied with progress of the discussions relating to the subject matter of the MoU then such Party may at any time, and at its sole and independent discretion, withdraw from the discussions and further cooperation without any risk of liability.

Any dispute regarding the interpretation or application of this MoU will be resolved by means of mutual negotiations and consultation between the Parties and will not be referred to any third party for settlement.

Any information relating to the existence of the MoU or exchanged in connection with the discussions relating to the regional cooperation are to be considered confidential information and will be treated with utmost regard to their confidential nature. The receiving Party shall not have the right to disclose, use or utilize any confidential information without the express consent of the disclosing Party.

This MoU is signed electronically using ASICE file format and will be shared with all Parties.

On behalf of Elering:	**On behalf of Augstsprieguma tīkls:**	**On behalf of LITGRID:**
Taavi Veskimägi CEO	Varis Boks	Daivis Virbickas CEO
	[electronically signed]	[electronically signed]
	Gatis Junghāns	Giedrius Radvila Director of Power System Operations Department
[electronically signed]	[electronically signed]	[electronically signed]