

# **Consumer Protection and Technical Regulatory Authority**

Endla 10a, 10122 Tallinn

[20.05.2024]

## **Application for a Construction Permit to Install a Marine Power Cable in Public Waters**

### **1. General Information**

Elering AS hereby submits an application to the Consumer Protection and Technical Regulatory Authority (hereinafter referred to as TTJA) for a construction permit to install a high-voltage direct current (hereinafter HVDC) transmission line in the sea area. This application has been prepared in accordance with the Building Code and the Water Act, using information and data obtained from preliminary studies, analyses, and other relevant activities. The most significant of these include the Estonian Marine Spatial Plan and its Environmental Impact Assessment report.<sup>1</sup>

The main grid operators of Estonia and Finland, Elering AS and Fingrid Oyj, agreed in a Memorandum of Understanding signed on 28.06.2022 to jointly develop and establish a third additional electricity transmission line between the two countries (hereinafter EstLink 3), in addition to the already existing EstLink 1 (with a capacity of 350 MW) and EstLink 2 (with a capacity of 650 MW). A land and sea-based corridor (both land and marine cable) will need to be constructed for the third Estonia-Finland transmission line. Additionally, a converter station on land will be necessary to connect the additional electricity to the existing 330kV grid. The planned EstLink 3 marine cable from Estonia to Finland would have a total capacity of up to 700 MW. The desired starting point for the marine cable connection is Aulepa. (See Annex 1)

EstLink 3 is necessary to create additional electricity transmission capacity between the two countries. EstLink 3 will contribute to the security of electricity supply and support the decarbonization of the energy system by bringing additional renewable energy produced in northern Finland to the Baltic region. Additionally, EstLink 3 will help achieve climate and

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<sup>1</sup> <https://www.agri.ee/regionaalareng-planeeringud/ruumiline-planeerimine/mereala-planeering>

energy policy goals and further integrate markets to ensure the security of supply for both countries and the region as a whole.

EstLink 3 will allow energy to be transported to the markets that need it. More connections will enable a more secure network, making it less vulnerable to third-party interventions. The connection will strengthen supply security and allow additional renewable energy production in the region, positively impacting electricity prices by bringing them closer to Nordic electricity prices.

EstLink 3 is planned to be financed primarily from two sources: EU co-financing from the CEF-E fund and congestion revenue. Congestion revenue is a fee collected to stabilize the price difference between various electricity price zones, which obliges the electricity transmission system operator across Europe to establish additional external electricity connections.

## **2. Technical Information of the Application**

Elering is legally obligated to develop cross-border transmission capacities. This is also essential for fulfilling the obligation to ensure supply security and energy security under today's open energy market conditions.

The marine cable, which is the object of this construction permit application, is planned to be located within the Estonian territorial sea. Currently, the possible starting point for the cable connection has been selected as Aulepa, where the HVDC converter station will be located, and the connection will be further established at the planned 330 kV substation in Risti, which will connect the EstLink 3 connection to the existing 330 kV electricity transmission network.

The landing point on the Finnish southern coast is the Inkoo substation. The choice of route corridor has considered existing nature reserves, significant shipping lanes, and air corridors, and the optimal distance from the shore.

The exact location will be determined during the preliminary assessment or EIA process.

For electricity transmission via EstLink 3, depending on the technology, up to four cables are required (which may consist of several sub-cables): 3 power cables and a fiber optic communication line.

The planned power of the marine cable is a maximum of 700 MW.

The main technical specifications of the planned EstLink 3 marine connection are as follows:

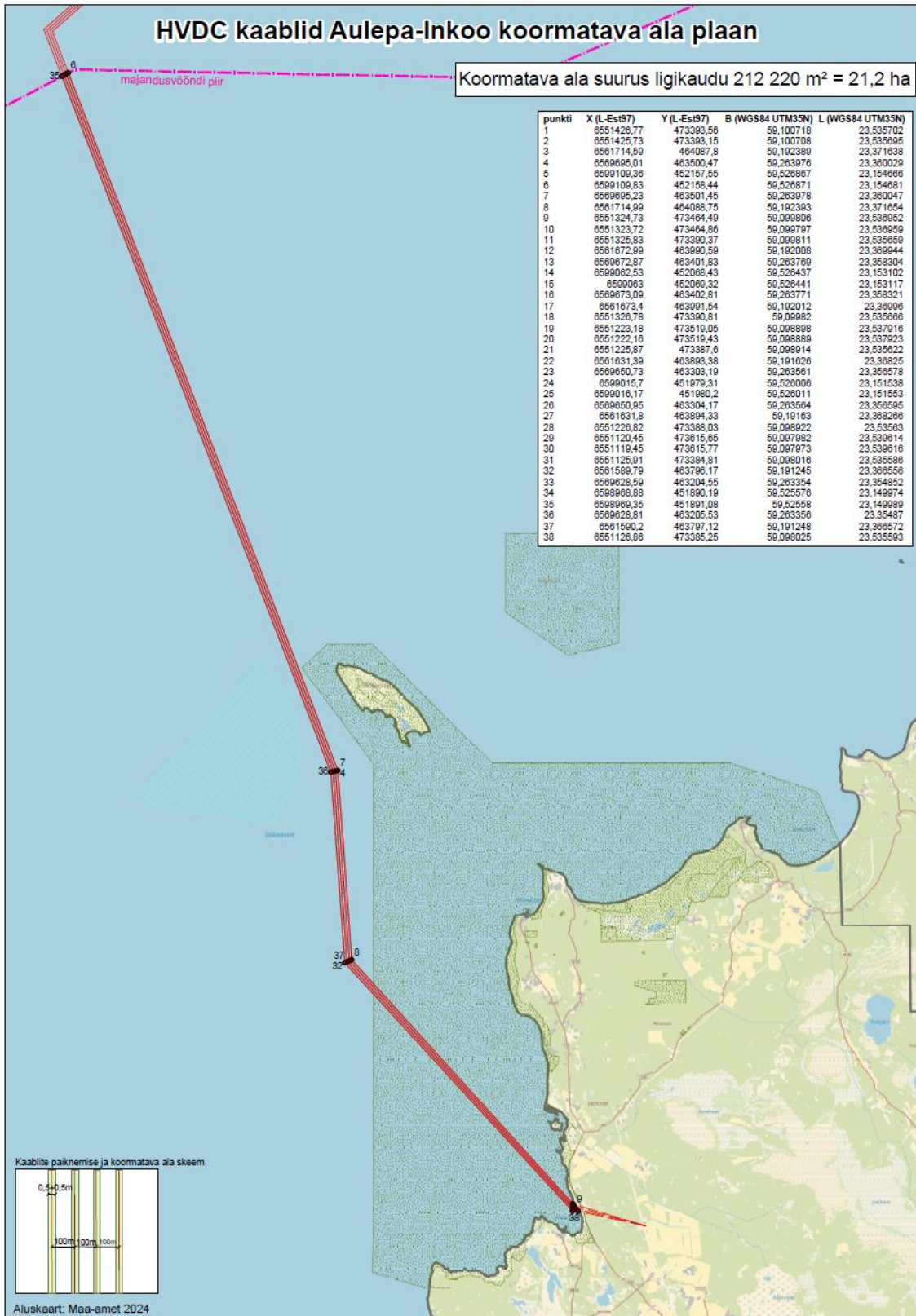
- Direct current voltage (up to 525 kV)
- Length of about 130 kilometers, of which about 53 kilometers are in Estonia
- Buried in seabed sediments (about 1-15 meters deep)

Variables affecting the amount of work to be done on the seabed, which will be determined during the project:

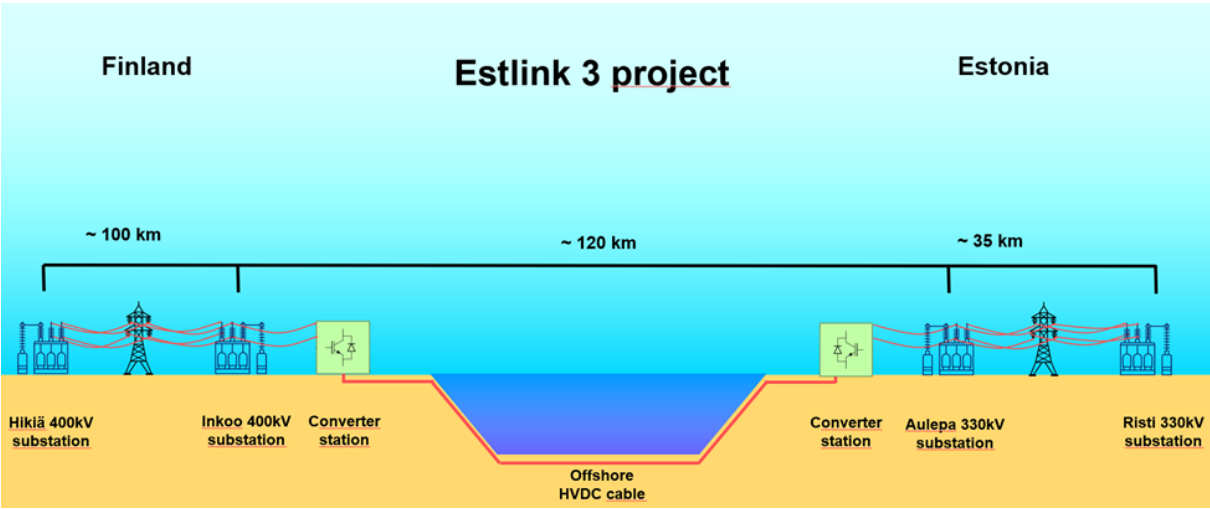
- Number of cables (depending on the technology, fewer cables may be needed; it is possible to create the connection with one cable)
- Composition of the seabed (the cross-sectional area of the trench decreases depending on the type of soil)
- Chosen technology (plowing or jetting would not involve soil removal; the technology for landing sites is not yet known and depends on geology and environmental conditions)
- Number of crossings and technical solutions for crossings must be coordinated with the crossing party (from the Balticconnector experience, the amount of backfill required for crossings is about 250 m<sup>3</sup> of stone for cable crossings and about 2,000 m<sup>3</sup> of stone for pipeline crossings)

### 3. ANNEXES

#### Annex 1. Aulepa–Inkoo marine cable and land connection.



Annex 2. Possible Cross-Sections of the EstLink 3 Marine Cable



Annex 3. General EstLink 3 Project Diagram

	Two-core cable or two single-core cables bundled
	Two separate single-core cables
	Single-core cable with metallic return
	Two separate single-core cables with metallic return
	Concentric cable (integrated return)