Lahti energia
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Electricity network connection fee principles

1. General information

Lahti Energia Sähköverkko Oy (hereinafter referred to as the "network company") applies the practices described in this document in determining the electricity network connection fees as of 1 December 2020.

Connection fees are non-refundable and value added tax is charged on the connection fee. All prices shown in this document are exclusive of value added tax and value added tax will be added to them.

2. Connection fees in the low-voltage network (0.4 kV)

The methods applied in the low-voltage network include zone pricing, area pricing and case-by-case pricing. The pricing of low-voltage connections is based on average construction costs and a capacity reservation fee.

At a distance of more than 600 metres from a transformer substation, the connection fee is based on either the area price or case-by-case pricing. Metering is installed in all electricity connections.

2.1 Zone pricing

In the area of the existing low-voltage network, zone pricing is generally used. In zone pricing, the connection is priced based on its location and the rated current of the main fuses. Each price zone has a standard price. For zone pricing, the network company uses zones 1A, 1B, 2A and 2B.

Zone 1A is valid on building plots covered by the town plan and outside the town plan area when the distance of the connection point is no more than 50 metres from the network company's existing transformer substation. Does not apply to detailed shore plans or old shoreline plans.

Zone 1B pricing is applied to connections located in street areas, parks or other areas classified as public areas covered by the town plan. If the connecting party builds a connection line at their own expense to a ready-made connection point indicated by the network company (e.g. a distribution cabinet), the connection fee is determined in accordance with zone 1A.

Zone 2A is valid outside the town plan area. The directly measured distance of the connection point from a transformer substation is 50–400 metres. Zone 2B is valid outside the town plan area. The directly measured distance of the connection point from a transformer substation is 400–600 metres. The fuse size is 25–63 A.

Zone pricing shall not be applied when connecting to a network where area pricing is valid, unless the new connection was priced in accordance with zone pricing before

the construction of the area-priced network.

2.2 Area pricing

Area pricing refers to defining the connection price for connecting parties in a limited area that is not subject to zone pricing. The area price is calculated by dividing the construction costs of the connections estimated for the limited area to which the pricing relates and the calculated costs of reserving existing network capacity (capacity reservation fee) by the number of potential connecting parties in the area.

If there are also connecting parties belonging to the zones in the area to be formed, they shall be charged a connection fee in accordance with the zones. The connection fee for the other potential connecting parties in the area is determined by dividing the implementation costs of the whole area by the number of potential connecting parties located in the area.

In an area-priced area, the connection fee for small-scale production does not include a capacity reservation fee. However, a capacity reservation fee shall be charged according to the connection capacity for consumption of the connection.

Area pricing is valid for ten years.

Potential connecting parties

Potential connecting parties include existing buildings or zoned construction sites, including known exceptional permits.

Construction threshold

The construction threshold is defined as the percentage of the total electrification costs of the area at which the network company starts the construction of the connections in the area. In the network company's area pricing, the construction threshold is 60 per cent.

Increased area price

If the construction threshold is not met, the interested connecting parties will be offered the possibility to join at an increased area price. The connection fee for the increased area price is determined by dividing the percentage of the electrification costs corresponding to the construction threshold of the area by the number of connecting parties who have declared their willingness to join.

Where an increased area price is applied, a late connection clause shall be included in the connection contracts. According to it, part of the connection fee will be refunded to the connecting party if new connecting parties join the network during the period of validity of the area price, until the construction threshold has been met. The refund shall be paid such that each connecting party has paid the same amount at any given

time (in proportion to the connection capacity). Once the construction threshold set by the network company has been met, refunds will no longer be paid.

2.3 Case-by-case pricing

Case-by-case pricing is used outside of zone pricing and area pricing, as well as in cases where the construction threshold for area pricing is not met. The case-by-case price is based on the construction costs of the distribution network resulting from the construction of the connection in question and the capacity reservation fee. The costs of any reinforcement of the existing core network shall not be included in the connection fee.

The case-by-case price takes into account the technical boundary conditions (construction method, rated short-circuit current, voltage drop, voltage stiffness). Where case-by-case pricing is applied, a late connection clause shall be included in the connection contracts. According to it, part of the connection fee will be refunded to the connecting party if a new connecting party joins the core network built for the connecting party during the 10-year period of validity of the clause. The refund shall be paid such that each connecting party that has joined the network built for the connection has paid the same amount (in proportion to the connection capacity).

2.4 Pricing of low-voltage connections

The pricing of low-voltage connections is based on fuse size. The available sizes are listed in the price list. If a zone does not have the connection class (fuse size) mentioned in the other zones, it can be priced according to case-by-case pricing.

Pricing follows the following formula:

$a + b \times I$

where

a is the construction cost resulting from connection or the average connection and construction cost (€).

b is the capacity reservation fee covering the reinforcement of the existing low-voltage core network, distribution substation, medium-voltage network and main transformer (€/A).

I is the fuse size of the connecting party (A).

2.5. Determination of the capacity reservation fee

The network company uses the Energy Authority's spreadsheet to determine the fee. The capacity reservation fee for the low-voltage network is €48.7/kVA, which has been

converted to €33.60/A for amperage-based connection fees.

2.6 Increasing the size of the connection in the low-voltage network

When increasing the size of the connection, the difference between the prices of the new connection size and the existing fuse size according to the price list is charged. In old connections that do not have a contract with a fixed current amount (A), the connection class is defined either by the size of the main fuse or the load capacity of the connection line, depending on which is lower.

When reducing the size of a low-voltage connection, the connection fee will not be refunded.

2.7 Switching to a 3-phase connection

The prices in the price list are used for switching to a 3-phase connection.

2.8 Other principles

With low voltage, the maximum connection is 3 x 1200 A. The price of the connection does not include the section of the connection line on the plot (the section between the connection point and the place of electricity use), the construction of which the connecting party can put out to tender with the contractor of their choice. If there is no clear plot or space at the construction site, the network company defines the connection point. The network company has the network that will remain in its ownership built by tendered contractors.

The connection price includes one connection visit. Additional visits will be charged according to the service price list. The connection line is dimensioned according to the main fuse or contracted capacity indicated by the connecting party in the connection contract.

One connection is generally built on each plot. If the size of the connection is 400 A or greater, the connection customer must, if necessary, indicate a transformer substation facility in a building or on a plot occupied by the customer. A single connection contract is concluded for semi-detached houses, where the connection fee is determined based on the main fuse of the property.

When changing an existing connection, the network company determines a new connection point, if necessary. All costs related to the change are paid by the connecting party.
The technical requirements have been published on the website www.lahtienergia.fi.

3. Connection fees in the medium-voltage distribution network

The medium-voltage network here refers to the 10 kV and 20 kV networks. In the

medium-voltage network, pricing based on construction costs and a capacity reservation fee (power fee) is applied.

The network company builds a new network using 20 kV structures, so the medium-voltage network is subject to a single capacity reservation fee. The network company determines whether electricity is supplied at a voltage of 10 kV or 20 kV. The connecting party pays for and owns their transformer substation and the medium-voltage connection line it has had built, and is responsible for the use of the network section it owns as well as the related installations and obligations. If the supply voltage is 10 kV, the transformer substation will be equipped such that it can later be converted to 20 kV.

A ring network guarantees the customer the best possible operational reliability and is the primary construction method. If the customer requires connection with a radial line, the connection will be made possible and the customer will be charged no more than the costs incurred from the connection and a capacity reservation fee. The customer has the connection line for the section between their place of use and the connection point done by an external contractor in accordance with the network company's technical instructions. The costs of the connection line will be borne by the customer. Connecting with a radial line often results in a more expensive solution in terms of total cost.

Pricing follows the following formula:

$a + b \times P$

where

a is the cost that includes the direct network expansion costs resulting from connecting to the network (€)

b is the capacity reservation fee covering the reinforcement of the existing medium- and high-voltage distribution network (€/kW)

P is the connection capacity of the connecting party

The connection fee is based on the number of lines, line length and contracted capacity.
Line length refers to the length of the line following the line route according to the normal way of construction from the transformer substation or other connection point of the medium-voltage network to the place of electricity use and, in the case of ring supply, further to another connection point of the medium-voltage network.

The capacity reservation fee is determined based on the contracted capacity. The minimum connection class is 500 kW and it can be increased in increments of 100 kW.

The connecting party shall arrange a fire-protected (30 min) cable route in their building. The capacity reservation fee for a new medium-voltage connection is

determined by the peak power ordered.

3.1 Determination of the amount of the capacity reservation fee in the medium-voltage distribution network

The network company uses the Energy Authority's spreadsheet to determine the fee. The capacity reservation fee is €31.7/kVA.

3.2. Changing the size of the connection in the medium-voltage distribution network

Increasing the size

Pricing follows the following formula:

b x (Pnew – Pold)

where

b is the capacity reservation fee

Pnew is the connecting party's new connection capacity (kW)

Pold is the connecting party's old connection capacity (kW)

If the connection's metered maximum active power in the metering period exceeds the value specified in the connection contract, the metered output shall be used as the basis for determining the size of the connection and the connection size shall be increased in increments of 100 kW. If the contracted capacity of the connection is increased, or if it is found to have increased based on metering, the difference between the old and the new contracted capacity will be invoiced as the connection fee in accordance with the valid price list.

Reducing the size or dividing capacity

If the connection capacity of the connection is reduced, or if it is found to have reduced based on metering, the connection fee will not be refunded. If the contract holder wants to divide the previous contracted capacity (capacity reservation fee), the capacity can be divided between two connections in the same medium-voltage line, taking into account the minimum of 500 kW/connection. The network company will charge for the costs related to the change based on actual figures.

3.3 Other principles

The network company builds the network that will remain under its control using tendered contractors.

At the transformer substation, the network feeder bays are used only by the network company. In a ring network, the ownership boundary for the MV lines is at the cable

connectors, with the cable terminals being the property of the network company. In the case of a single connection line, the ownership boundary is at the connection point.

The network company defines the minimum dimensions and equipment level of the transformer substation's feeder bays.

If the customer wants their electricity supply to be secured with a network connection that is additional in terms of load, the customer pays the costs arising from the securing, which are determined on a case-by-case basis. If the backup connection has to be renewed, the customer pays the costs incurred from the renewal.

4. Connection fee principles in the high-voltage distribution network

In this context, the high-voltage distribution network refers to the network company's 110 kV network.
The connection fee consists of a capacity reservation fee and the construction cost of the network.
The construction cost of the network is either the cost of expanding the substation, the construction cost of a new substation or, when connecting to an existing substation bay, the average construction cost of a substation bay.
The construction cost is agreed upon in the connection contract.

The connecting party is responsible for the construction of the connection and/or connection line they will own in accordance with the requirements of the network company. The minimum capacity reservation is 5 MVA and upwards in increments of 1 MVA with the same criteria as in the medium-voltage network.

If a new switchgear is built due to the customer's needs, the customer pays the construction costs. If new connections are added to this within ten years, the portion exceeding the share in accordance with the new calculation situation will be refunded to the customer.

4.1 Determination of the amount of the capacity reservation fee in the high-voltage distribution network

The network company uses the calculated marginal cost and the average mains length for determining the fee in accordance with the Energy Authority's guidelines. The capacity reservation fee is €9,500/MVA.

5. Changing the voltage level of the connection

If the customer decides to change the connection voltage of the place of electricity use, the old connection will be terminated and the new connection will be made according to the principles of the new voltage level.

6. Late connection clause

The late connection clause refers to a refund condition based on which a connecting party or several connecting parties will be refunded the connection fees previously paid by them when new connecting parties join the section of the network financed by them. The late connection clause is valid for ten years.

7. Information used in the calculation of the capacity reservation fee

Power angle 0.95

MV network
Voltage drop 3 %
Average output length 14 km
Voltage level 20 kV
Cabling rate (network to be built) 100 %
Permitted utilisation rate of the main transformer 60 %

LV network
Voltage drop in the low-voltage network 5 %
Voltage level 0.4 kV
Average mains output length 150 m
Cabling rate (network to be built) 95 %

8. Connection point

8.1 When connecting to the low-voltage network 0.4 kV

Properties

The connection point is at the network company's transformer substation, switchboard, cable extension or overhead line pole located on the border of the property or in its immediate vicinity, but no more than 200 metres from the place of electricity use.

Public areas

The connection point is at the main distribution board of the place of electricity use to be connected or at the network company's transformer substation, switchboard, cable extension or overhead line pole located in its immediate vicinity.

8.2 When connecting to the medium-voltage network

The connection point of a medium-voltage connection is at the customer's switching station/transformer substation, unless a different connection point is agreed upon separately with the customer.

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8.3 When connecting to the high-voltage network

The connection point of a high-voltage connection to the network company's network is determined in accordance with the pricing method principles confirmed by the Energy Authority along the line or at a substation.

9. Capacity reservation fee for electricity connections for production

A connection that has a higher maximum connection capacity for production than for consumption is considered an electricity connection for production.

9.1 Connection of a production plant with a maximum capacity of 2 MVA

No capacity reservation fee is charged for production. The capacity reservation fee is determined according to the electricity consumption share of the connection.

9.2 Connection of a production plant with a maximum capacityw of over 2 MVA

A capacity reservation fee is charged for the connection of production plants with a maximum capacity of over 2 MVA.
The capacity reservation fee is €16/kVA when connecting to the medium-voltage network and €2,375/MVA when connecting to the high-voltage network.