



Change proposals to the structure of main grid fees

August 2024

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Fingrid's change proposals to the structure of main grid fees

Proposal 1: Reform of the connection fee

New power-based fee for connection to be applied regionally in addition to the current direct connection fee

Proposal 2: Introducing flexible service level in the main grid service alongside a traditional electricity transmission service

Flexible service level is a market-based contractual model in which the customer agrees to be flexible in its electricity consumption or production according to principles agreed upon in advance with the transmission system operator and receives a rebate tied to grid service fees.

Proposal 3: Flexible grid connections

Using flexible connections also as permanent solution, then grid investments could be avoided and customer would receive compensation

<https://www.fingrid.fi/en/news/news/2024/fingrid-proposes-reforms-to-the-structure-of-grid-service-fees/>

Production-dominated

Today 70 % of the total production is located in the production-dominated areas, according to 2030 forecast 80 %

Balanced area

Consumption-dominated

Today 50 % of the total consumption is located in the consumption-dominated area, according to 2030 forecast 60 %



A worker wearing a white safety helmet and a high-visibility yellow jacket with reflective stripes is seen from behind. The jacket has the word "FINGRID" printed in red on the back. The worker is looking towards a tall metal power line tower in a wooded area. In the background, there is a body of water and a cloudy sky. The overall scene is a construction or maintenance site in a natural setting.

Change proposals

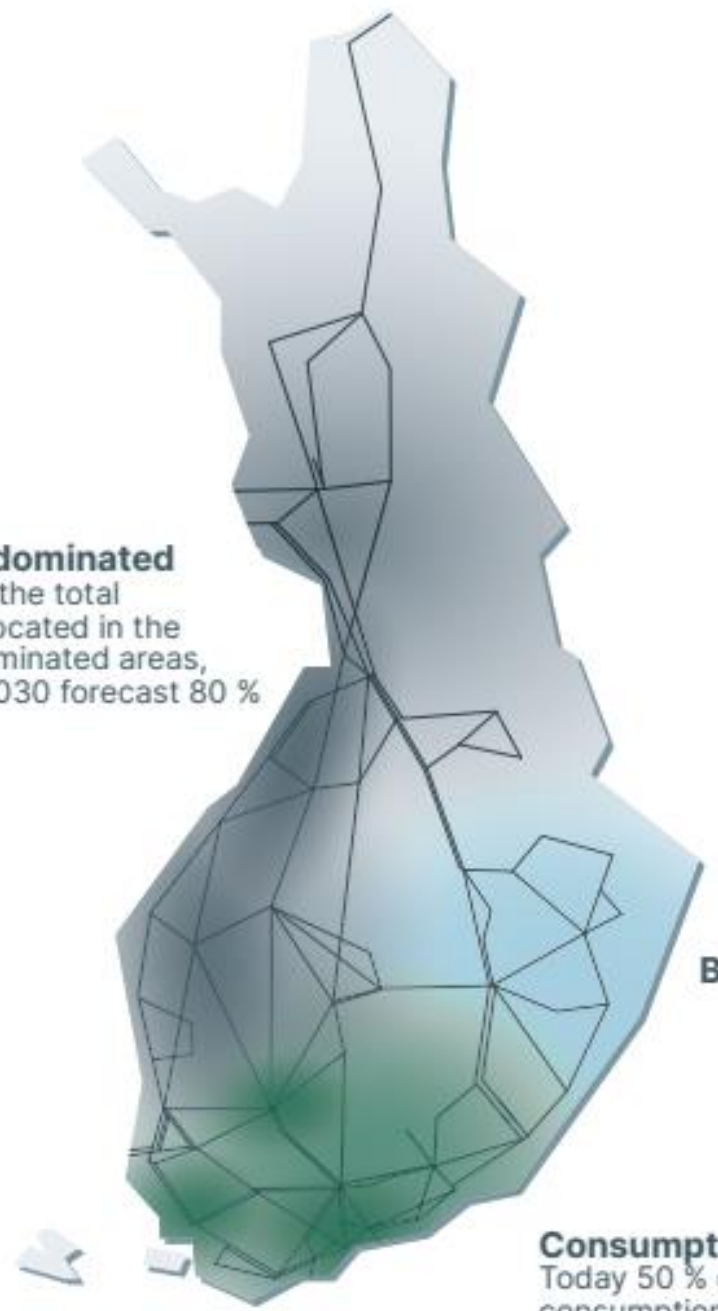
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Proposal 1: Reform of the connection fee

Current practice: Connection fee to the main grid is standard and depends only on the connection voltage

Proposal: Connection fee to the main grid would in future consist of direct connection fee (direct costs) and power-based fee for connection. Power-based fee for connection is applied for generation projects connecting to production-dominated areas, and for consumption and grid energy storage facilities connecting to consumption-dominated areas. The power-based fee is waived for production or consumption projects connecting to the grid in balanced areas.



Production-dominated
Today 70 % of the total production is located in the production-dominated areas, according to 2030 forecast 80 %

The map shows the geographical distribution of production and consumption in the UK. The northern and central regions are shaded in light blue and labeled as 'Production-dominated'. The southern and eastern regions are shaded in dark blue and labeled as 'Consumption-dominated'. A central region is shaded in green and labeled as 'Balanced area'. A network of black lines represents the power grid connecting these regions.

Balanced area

Consumption-dominated
Today 50 % of the total consumption is located in the consumption-dominated area, according to 2030 forecast 60 %

Power-based fee for connection

- New payment based on agreed connection's rated capacity (€/MW)
- The payment would depend on connection voltage, being roughly 10 000 €/MW for 400 kV connections and 20 000 €/MW for 110 kV ja 220 kV connections
- It would be applied also for high voltage distribution grid connections
- According to preliminary plans, the power-based fee for connection will only apply to connections with a rated capacity of at least 10 MW



Approximate examples of connection fees for the main grid following the proposed reform

CASE	LOCATION	RATED POWER OF CONNECTION (MW)	CONNECTION VOLTAGE (KV)	DIRECT CONNECTION FEE TO THE MAIN GRID* (M€)	POWER-BASED FEE FOR CONNECTION** (M€)	TOTAL CONNECTION FEE (M€)
CONSUMPTION	production-dominated	100	110	0.8	-	0.8
CONSUMPTION	production-dominated	1000	400	2.2	-	2.2
CONSUMPTION	balanced area	100	110	0.8	-	0.8
CONSUMPTION	balanced area	1000	400	2.2	-	2.2
CONSUMPTION	consumption-dominated	100	110	0.8	2.0	2.8
CONSUMPTION	consumption-dominated	1000	400	2.2	10.0	12.2
PRODUCTION	production-dominated	100	110	0.8	2.0	2.8
PRODUCTION	production-dominated	1000	400	2.2	10.0	12.2
PRODUCTION	balanced area	100	110	0.8	-	0.8
PRODUCTION	balanced area	1000	400	2.2	-	2.2
PRODUCTION	consumption-dominated	100	110	0.8	-	0.8
PRODUCTION	consumption-dominated	1000	400	2.2	-	2.2

* Assumption 2024 level. ** Assumption in this example, 10 000 €/MW for 400 kV connections and 20 000 €/MW for 110 kV connections.

Effects of the connection fee reform

Fingrid's revenue would not increase under the proposed reforms, even if higher connection fees were collected from connecting parties, and Fingrid also collected connection fees from parties connecting to a high-voltage distribution grid.

The proposed connection fee reform aims to create incentives for customer projects to be built in more efficient locations in terms of the power system and optimise the rated capacity of the connection and use hybrid connections, which contribute to the efficient utilisation of the grid and improve connectivity.

Based on the matching principle, new connecting parties would cover larger share of the system reinforcement costs that are today socialized to all grid users.



Proposal 2: Introducing service levels in the main grid service

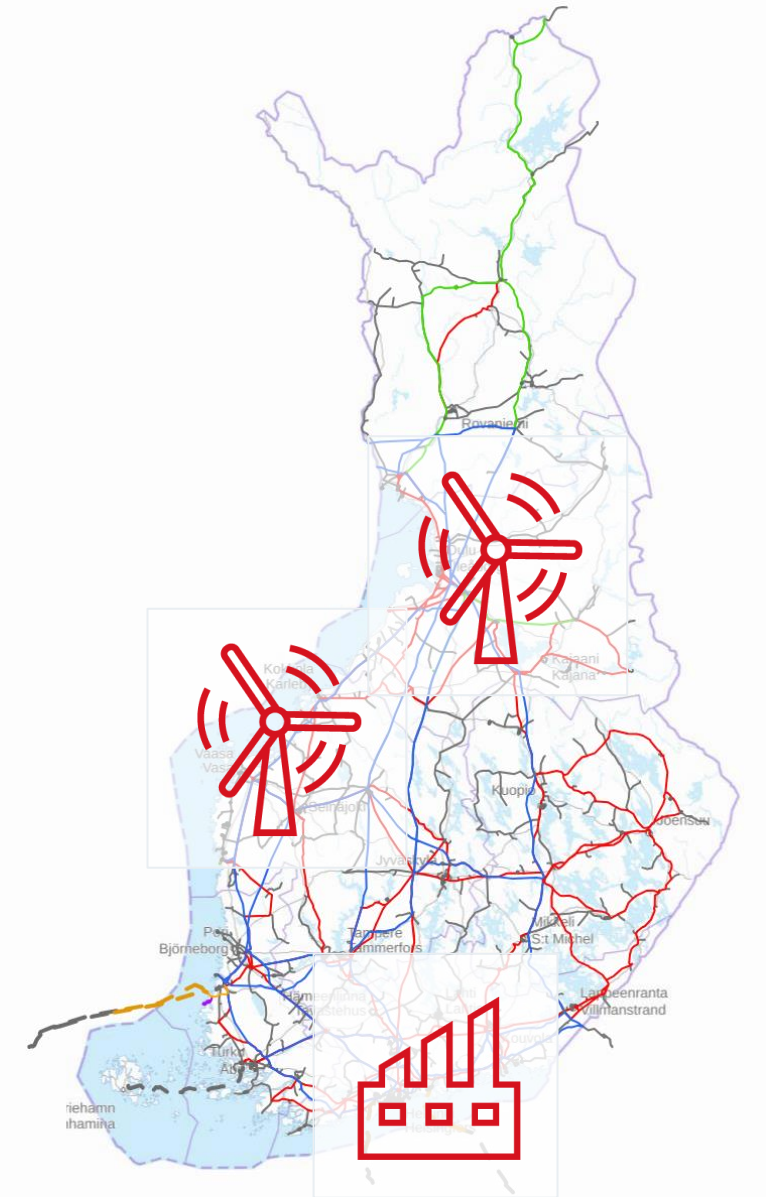
Current model: Only one service level available

Proposal: Introducing flexible service level to be selectable alongside a traditional electricity transmission service. Flexible service level is a market-based contractual model in which the customer agrees to be flexible in its electricity consumption or production according to principles agreed upon in advance with the transmission system operator. The benefit to the customer is a rebate paid for the flexible service level, tied to the grid service fees charged to the customer.



How flexible service level would be offered?

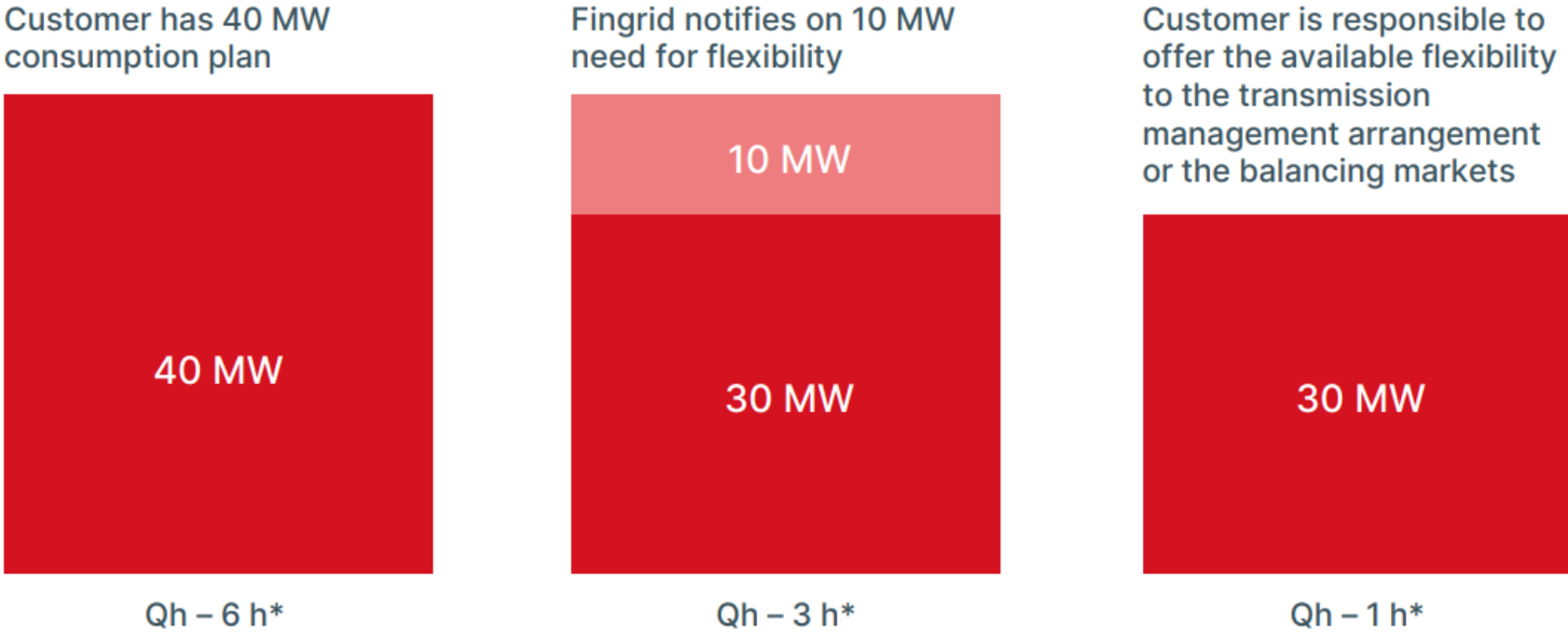
- In the future, existing customers and new connecting parties will be able to choose the service level.
- Fingrid would only offer the flexible service level in a limited way to cater to genuine transmission management needs, in practice flexible service level would be available for production in production-dominated areas and consumption in consumption-dominated areas.
- Service level would be chosen for each connections separately.
- Aim is to expand the service level model also to larger facilities connected to distribution grids.



Flexible main grid service operating model

- Contractual model, the principles will be equal for all customers
 - The initial proposal is to offer a rebate of about half the power-based or consumption fee
 - A fixed-term quota will be agreed upon with customers in advance to specify how much flexibility Fingrid can use
- The flexible main grid service is designed to be used at peak transmission times over the main cross-sections in the grid
- In practice, the required flexibility will be a reduction in electricity production in production-dominated areas (down-regulation) and a reduction in electricity consumption in consumption-dominated areas (up-regulation)
- Fingrid will notify customers of the need for flexibility during the operating day at least two hours before the 15-minute period when the resources are to be used
- Facilities covered by the flexible service level will be obligated to make themselves available for transmission management needs, even if Fingrid does not notify the customer of the need for flexibility by the advance notification deadline
 - In case of activations, the customer will receive compensation for flexibility in accordance with the arrangement or the terms and conditions of the marketplace, and the order for flexibility will not affect the flexibility quota

Case: 40 MW electric boiler in the flexible service level



Qh= operating quarterly hour. * Example times

- Fingrid proposes recording a fixed trade between itself and the customer's supplier for each time flexibility is used. The trade price will be the price quoted in the day-ahead market or another corresponding reference price. This will ensure that the flexibility will not cause the customer to incur an imbalance, and the effect on imbalance costs will be neutral.



Benefits to the customer who selects flexible service level

- ✓ Enables faster grid connections in congested areas
- ✓ Fixed long-term compensation for flexibility
- ✓ Enables using flexibility in other markets, too



Benefits on the system level

- ✓ Contractual model that enables avoiding inefficient grid investments that are only needed in the peak transmission situations
- ✓ Cost-efficient solution
- ✓ Promotes flexibility and Finland staying as single bidding zone

Proposal 3: Flexible grid connections

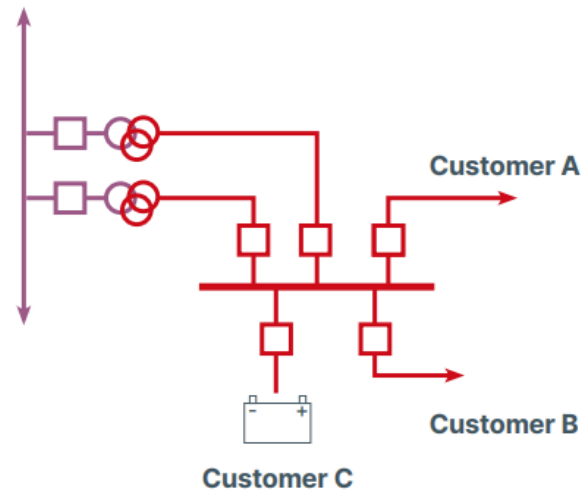
Current: Temporary flexible connections are offered case by case to enable faster connections, no monetary compensation to the customer

Proposal: Flexible connections should be available also as permanent solution, then grid investments could be avoided and customer would receive compensation

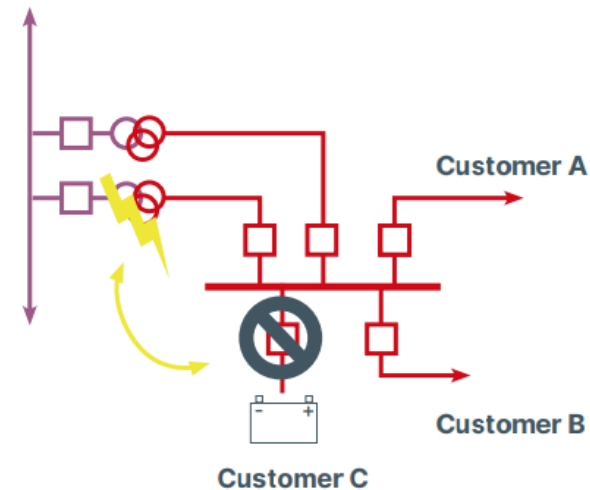


Flexible connection

- Fingrid dimensions the local transmission capacity using the traditional N-1 principle.
- In practice, great part of the transmission capability is unused because we are prepared for rare faults
- In flexible connection, customer would be flexible (curtailed) in case of local grid congestions or faults
- Current practice is that flexible connections are only temporary, i.e. investments are done to replace customer flexibility needs (for example third main transformer)



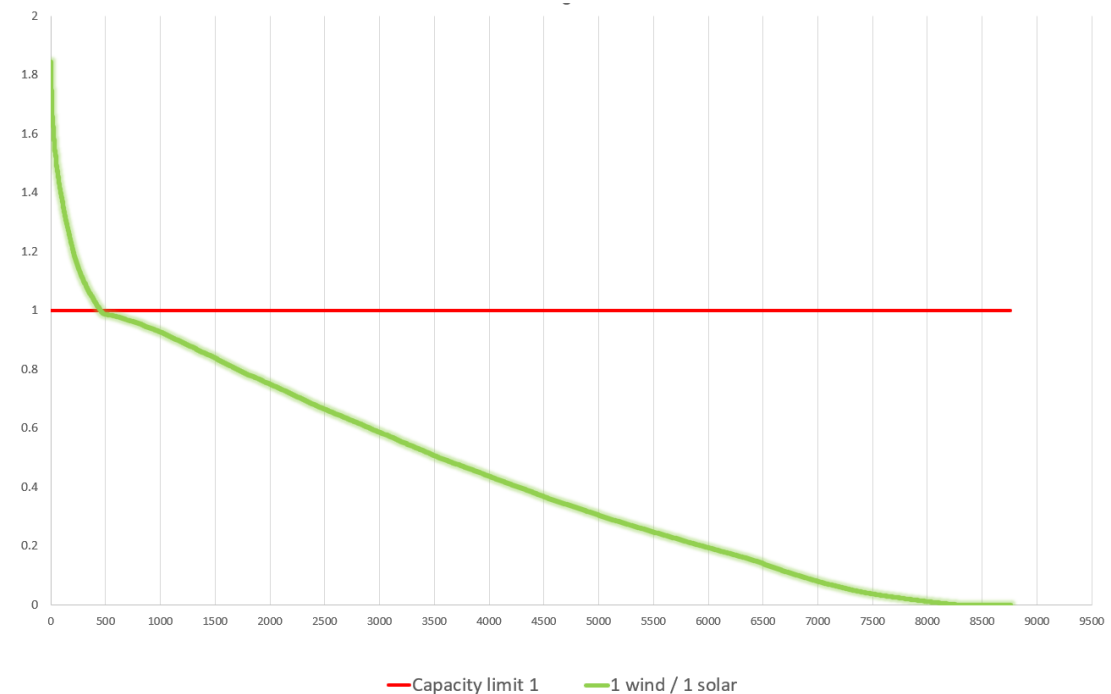
Base case:
All customers connected



Fault in second transformer:
Customer C with flexible connection
will be disconnected

Proposal: flexible connections should be available also as permanent solution

- Fingrid proposes flexible connections also as a permanent solution offered to existing customers as well as new connecting parties.
- Permanent flexible connection could be real alternative for grid reinforcement and efficient solution
- Customers with a permanent flexible connection could be offered financial compensation in the form of a fixed sum or a rebate tied to the activation of flexibility
- Flexible connections cannot be offered at every location on the grid





Summary

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Current structure of the main grid fees

	MAIN GRID CONNECTION FEE	GRID SERVICE FEES	
		MAIN GRID TRANSMISSION FEE	POWER / ENERGY FEE
CONSUMPTION	Yes (€/connection)	Input into the grid/output from the grid fee (€/MWh)	Consumption fee (€/MWh)
PRODUCTION	Yes (€/connection)	Input into the grid/output from the grid fee (€/MWh)	Generation capacity fee for power plants (€/MW) or energy fee for short operating times (€/MWh)
GRID ENERGY STORAGE	Yes (€/connection)	Input into the grid/output from the grid fee (€/MWh)	

Proposed new structure of the main grid fees

	CONNECTION FEE		GRID SERVICE FEES	
	DIRECT CONNECTION FEE TO THE MAIN GRID	POWER-BASED FEE FOR CONNECTION	MAIN GRID TRANSMISSION FEE	POWER / ENERGY FEE*
CONSUMPTION	Yes(€/connection)	In a consumption-oriented area (€/MW)	Input into the grid / output from the grid fee (€/MWh)	Consumption fee (€/MWh)
PRODUCTION	Yes(€/connection)	In a production-oriented area (€/MW)	Input into the grid / output from the grid fee (€/MWh)	Generation capacity fee for power plants (€/MW) or energy fee for short operating times (€/MWh)
GRID ENERGY STORAGE	Yes(€/connection)	In a consumption-oriented area (€/MW)	Input into the grid / output from the grid fee (€/MWh)	Capacity fee for grid energy storages** (€/MW)

* In the flexible service level, customer receives a rebate which is tied to these payments

** New fee component under reparation

