

Invest In Veitsiluoto

Datacenter locations in Sea Lapland

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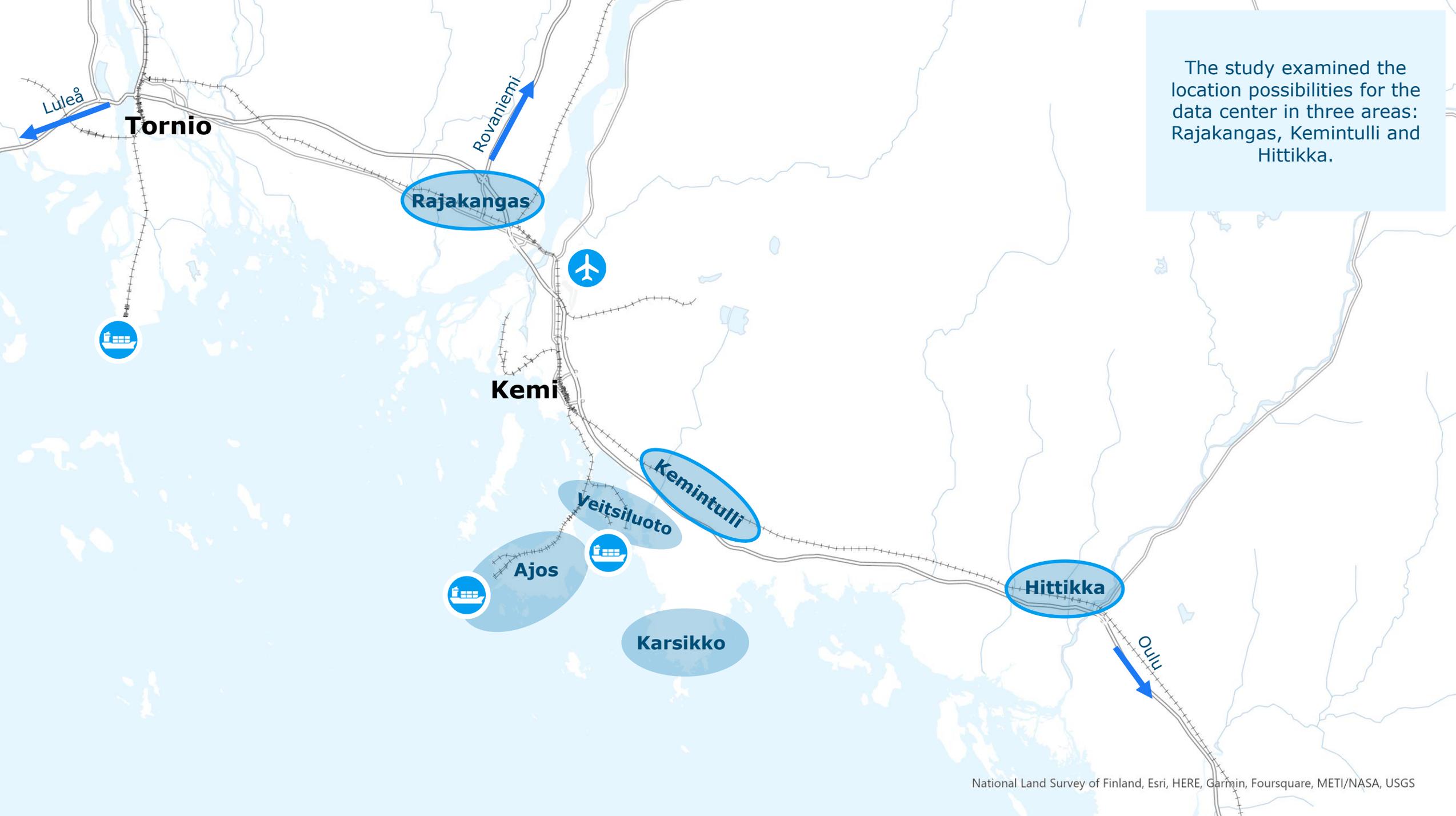
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Background

The study mapped the possibilities of locating a data center in Sea Lapland. Three pre-identified potential areas were examined.

Highly efficient data centers combine versatile features to integrate into existing energy networks and promote the circular economy. Data center design considers the ability to act as loads in the power grid, which brings flexibility and stability to electricity production and consumption. In addition, waste heat generated in these data centers can be transferred to the district heating network as carbon-dioxide-free heat.

The areas surveyed are zoned as industrial areas and business parks and are therefore Greenfield areas. When finding suitable locations for data centers, the availability of electricity, water and district heating network connections, as well as telecommunications and logistics connections must be ensured. When making more detailed planning, the cooling methods of the data center (air/liquid), safety rules, the availability of potential employees and possible noise problems must also be taken into account.



The study examined the location possibilities for the data center in three areas: Rajakangas, Kemintulli and Hittikka.

Area 1 Rajakangas

Electric power

- An electricity connection with a capacity of 4 MW from the Keminmaan Energia ja Vesi local network is available in the area. The electrical power capacity can be increased with additional investment. It is estimated that this would require completely new cabling at the Isohaara station and a new main transformer.
- The nearest 110 kV transmission line, owned by Fingrid, is 0.3 km away.
- The closest 110 kV substation (Isohaara), which also belongs to Fingrid, is located 2 km from the site. There is no information on connection capacity available for this substation.
- Another substation that supports both 110 kV and 400 kV (Keminmaa) is 10 km away. Connection capacities available are 200 MW at 110 kV and 500 MW at 400 kV.

Waste heat supply

- Waste heat can be supplied to the district heating network with a capacity of 5 MW, at 0 km.
- The use of district heating in Keminmaa is estimated to be 36 GWh per annum (GWh/a). Keminmaan Energia ja Vesi Oy operates a heating plant with a capacity of 14 MW.

Communications

- There is no existing fibre optic connection in the area
- In 2024, Valokuitunen Oy and Valoo Oy are building their own fibre optic networks in the residential areas on the eastern and southern sides of the area.

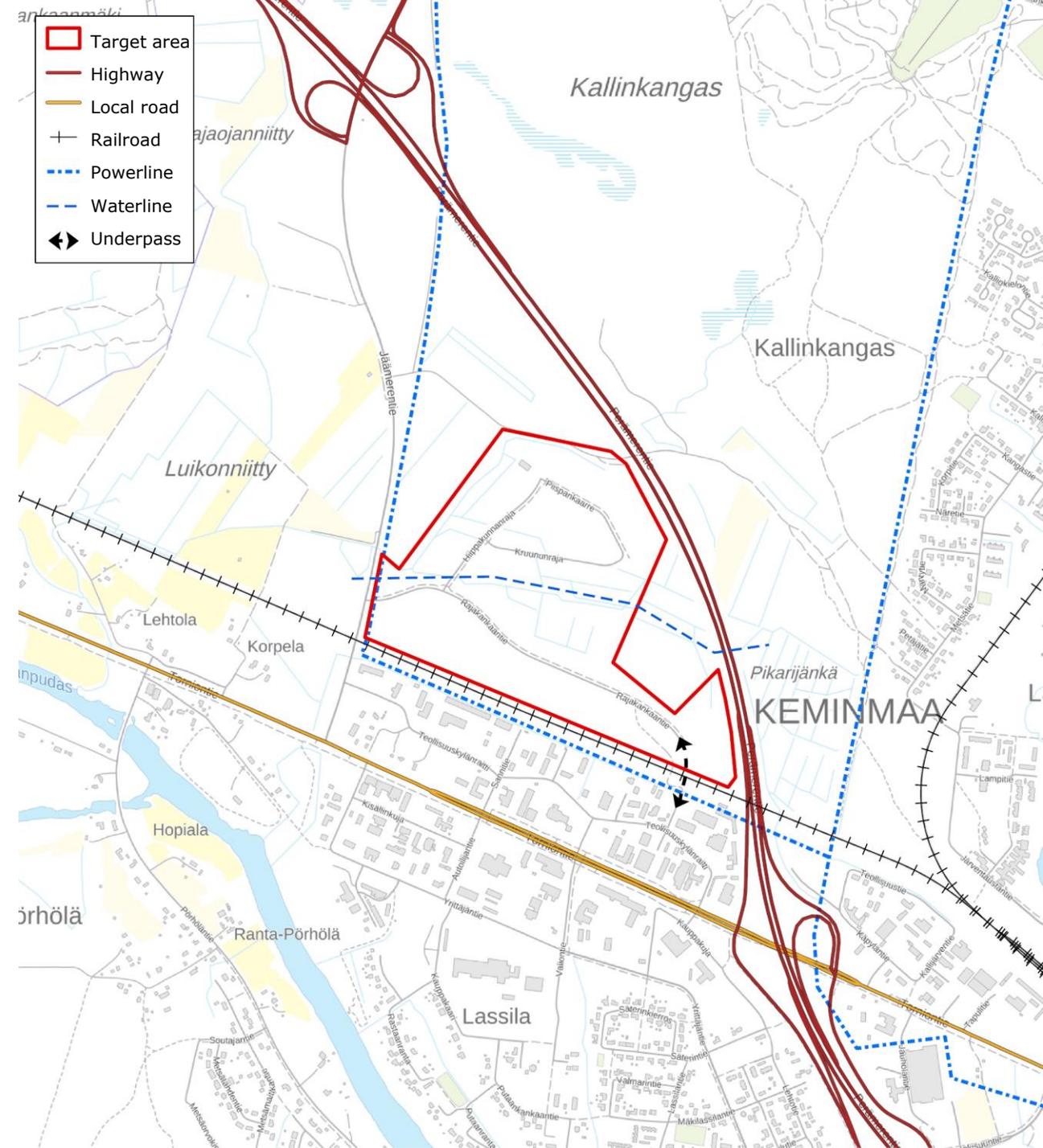
Municipality: Keminmaa

Area size: 30 ha

Owner: Municipality of Keminmaa

Zoning (T, T-1, KTY, TKEM)

Area ready for construction



Area 2 Kemintulli

Electric power

- A 110 kV transmission line (Fingrid) is 4 km from Kemintulli. Currently (2/2024) no available connection capacity
- The closest to Kemintulli is the planned Kittilänjärvi 110 kV substation, 3.5 km away.
- The 110 kV transmission line, 100 metres from Kemintulli, is owned by private company Stora Enso Veitsiluoto Oy. Electricity network connection capacity 100 MW.
- The closest to Kemintulli is the Simojoki 400 kV substation, 20 km away
 - The 400 kV switchgear could accommodate 500 MW of consumption and the 110 kV switching station could have 200 MW of consumption.
- Kemin Energia ja Vesi Oy has the Syväkangas 20 kV substation 5 km away, to which 10 MW could be connected. Next to the area is a 20 kV network, to which <5 MW could be connected.

Waste heat supply

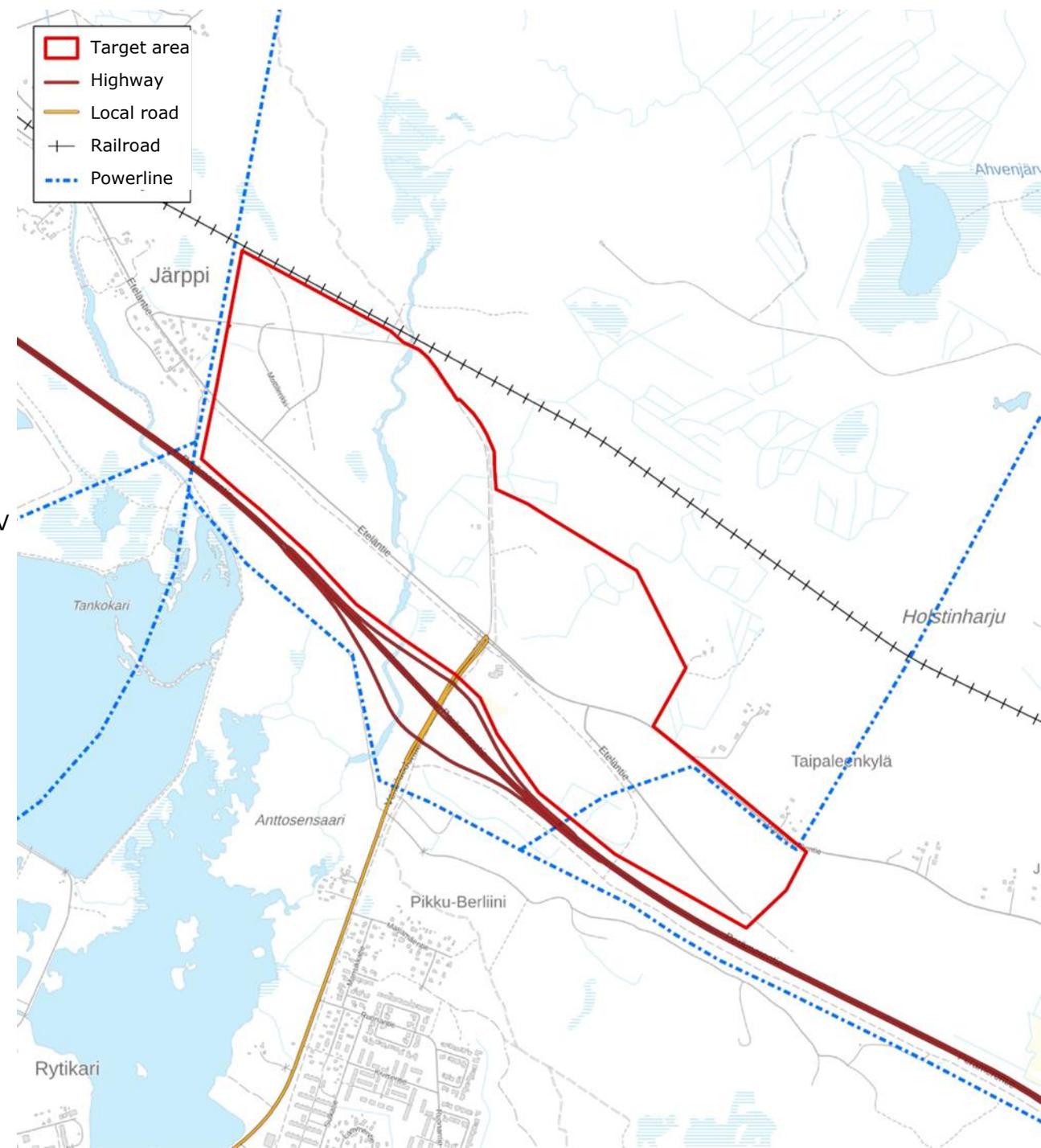
- District heating connection within 2 km to Kemin Vesi ja Energia Oy's district heating network. Kemi's district heat consumption is estimated at 174 GWh/a. Kemin Energia ja Vesi Oy has 69 MW of baseload boiler capacity. In Rytikari, about 1.5 km south, there is another small separate heating network.

Communications

- There is no existing fibre optic connection in the area
- Valokuitunen Oy has a fibre optic network 1.5 km away in the south and another network 3 km in the northwest.

Municipality: Kemi
Area size: 140 ha
Owner: City of Kemi, private

Zoning (K, K-TY, TKL-1)
Area partially ready for construction



Area 3 Hittikka

Electric power

- Hittikka's nearest 110kV transmission line is 1.2 km away (Fingrid)
 - Electricity network connection capacity 100 MW (up to 500 MW with line reinforcement)
- The nearest 110 kV substation Simo is 2.4 km away. No information on connection capacity.
- The nearest 400 kV substation Simojoki is 6 km away.
 - Available power connection capacity 500 MW
- The local distribution network company Rantakairan Sähkö Oy has a 20 kV cable next to the area, to which a maximum of 10 MW can be connected. This requires that the substation's current 16 kVA main transformer be replaced with a main transformer of at least 25 kVA.

Waste heat supply

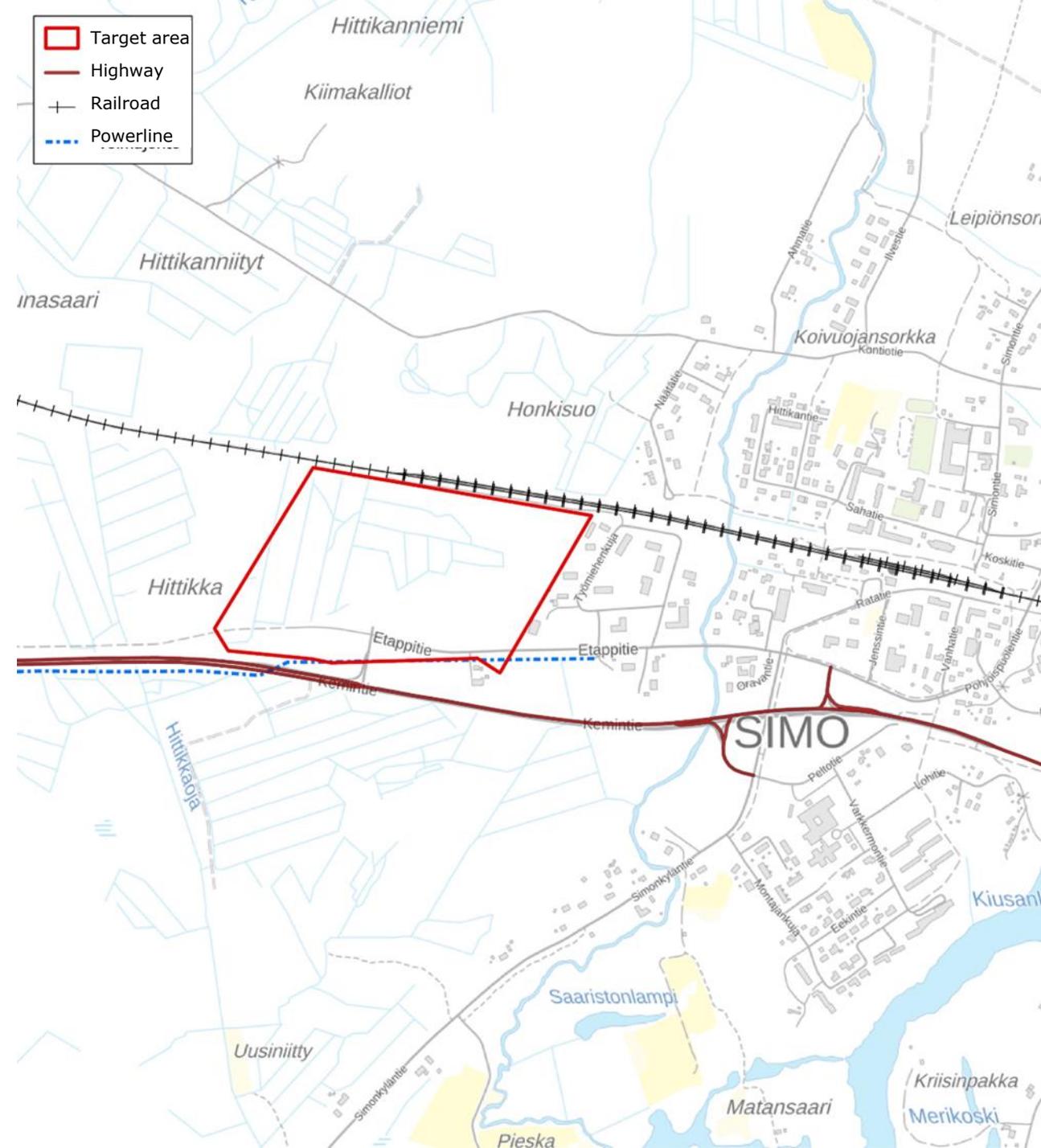
- District heating connection distance 0.2 km. The district heat consumption in the centre of Simo is estimated to be around <5 GWh. There is a small operator with a 1 MW heating plant in the city centre. Simo's district heating power requirement is too low for the waste heat supplied by the data center.

Communications

- There is no existing fibre optic connection in the area
- Valokuitunen Oy has a fibre optic network in the centre of Simo 0.5 km away.

Municipality: Simo
Alueen koko: 22 ha
Owner: Municipality of Simo

Site plan pending 27.2.2023 §53
Area requires approved zoning plan,
earthworks and infrastructure development.



Kooste

Electrical power of the data center	1 MW	5 MW	10 MW	Comments
Rajakangas	Possible	Possible	Bad starting point	Available electric power 4 MW and 5 MW DH-connection. 110 kV junction 2 km away. Increasing the electrical power by 10 MW requires an additional investment.
Kemintulli	Possible	Possible	Maybe possible	High heat consumption in Kemi at 2 km distance. 110 kV electricity connection far away.
Hittikka	Maybe possible	Bad starting point	Bad starting point	110 kV electricity connection is far away. Heat demand is too low.

The table above illustrates the suitability of the Greenfield areas in Sea Lapland for data centers of different sizes.

400 kV and 110 kV switching stations are located 2-20 km from the areas. Fingrid's 110 kV transmission lines are closer, but the branch connection is expensive.

The local distribution system operators' 20 kV networks are closer, but their connection capacity is in the order of <5 MW. Increasing capacity requires additional investments.

There is no existing fibre optic connection in the locations, but a network is being built next to the areas.

Of the areas considered, the most suitable sites for 1...5 MW data centers are Rajakangas and Kemintulli.

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