

EUROPEAN GREEN DIGITAL COALITION

Supported by the European Commission and Parliament at the EU Council's request, the EGDC unites companies to use digital solutions for reducing emissions across key sectors.



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The Kiona Edge AI Steering Function solution is a digital building energy optimisation solution that uses temperature and humidity sensors, Edge Hubs, connectivity networks, and a cloud-based AI platform to optimise district heating in residential buildings. The AI steering function predicts forward heating demand based on building physics, weather conditions, and thermal capacity, enabling more efficient heat supply and improved indoor climate comfort.

This case study is an ex-post assessment covering 356 residential buildings located in Sweden and Finland, all heated by district heating, using one year (rolling 12-months) of operational data (2022). The assessment compares actual energy consumption with AI steering to a hypothetical reference scenario without the solution.

Organisational contribution: Kiona is responsible for developing, deploying, and operating the Edge AI building management solution, while Ericsson enables the deployment and operation of the solution through the provision of ICT infrastructure and connectivity. The contributions of both organisations align with A-level and B-level classification respectively under ITU-T L.1480, reflecting their role in implementing and enabling the integrated ICT solution within a real-world deployment context.

Quantified impacts:

1 year <i>Assessment period</i>	-1,027 to -1,199 tCO ₂ e <i>Net carbon impact range</i>	-0.87 kgCO ₂ e/m ² /year <i>Net carbon impact per square meter per year</i>
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Other identified impacts:

The optimisation of building heating results in **significant energy cost savings** for building owners and tenants. Potential rebound effects associated with the use of financial savings were identified. However, these were not quantified and were addressed through sensitivity and scenario analyses.

The solution also enables **more stable indoor temperatures**, reduces peak heating demand, and may contribute to peak load shifting, potentially lowering reliance on fossil fuel-based reserve generation during high demand periods. These additional system level benefits were identified and assessed qualitatively but not quantified due to data limitations.

[Website](#)

[Contact Ericsson](#)

Relevant links: [Contact the EGDC](#) | [Methodology](#) | [Calculator](#)

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