HOPE – Highly Optimized Energy Systems

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Co-Innovation project:

HOPE – Highly Optimized Energy Systems

Project duration: 1.8.2020 – 31.7.2022

Partners: Oulun Energia, ABB, Fortum, HögforsGST, Fidelix, Vexve, Valmet Automation, Sumitomo SHI FW, Vaisala, Oilon, University of Oulu (UO), Finnish Meteorological Institute (FMI), Lappeenranta-Lahti University of Technology (LUT), VTT and Finnish Environment Institute (SYKE)

Contact organization: CLIC Innovation Oy

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Aim & Content of the Project

The project Highly Optimized Energy Systems (HOPE) is established to support the industry actors to develop solutions to increase energy efficiency within energy networks and advance cross- sectoral integration. Aim of the research is to develop tools and solutions for the multi-objective optimization of energy systems by taking into account the operating conditions and uncertainty. This enables optimization to be adapted to the prevailing conditions. Use of advanced weather forecasts aims to improve predictions on the state of energy devices and enable the inclusion of the uncertainty in the optimization. The integration of heat and electricity including production, distribution and demand aims to more efficient energy systems.

Benefit & Competitive Advantage of the Solution

The project aims to solve problems by applying multiobjective optimization approach to the energy system with integration of heat and electricity. This provides new tools for the operational optimization of energy systems and takes into account the production, distribution and demand. Optimization solution will be modular and use advanced predictions on energy production and consumption. Integration of heat and electricity is expected to reveal new. synergies in the energy system. With this approach better management of energy systems can be achieved increasing the overall energy efficiency of the systems. Modular optimization solution facilitates the applicability of the approach to different systems. Furthermore, the project provides environment for new business models.

Target Markets & Global Market Potential

The project provides a foundation for a platform business model that has great commercial potential on a global scale. The aim of the HOPE- project is to generate over 1 billion new revenue in the next 10 years after the project has ended.