Rural microgrids stockholm

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Ports of Stockholm, in collaboration with partners, launched an innovative project combining onshore power supply (OPS) with microgrid technology to enhance sustainability.

Funded by the Swedish Innovation Agency Vinnova under the System Demonstrator Sustainable Port program, the project is led by the University of Sk?vde in partnership with Stella Futura and Ilmatar.

By integrating renewable energy with advanced energy management systems, the initiative seeks to improve efficiency, lower emissions, and enhance the port’s operational resilience. The demonstration at Sweden’s Port of Kapellsk?r is set to pave the way for future green port solutions.

In addition, OPS allows docked ships to connect to the port"s power grid, enabling the shutdown of auxiliary engines. This reduces emissions, noise, and fuel consumption in port areas.

Staffan Forsell, Chief Strategy and Development Officer at Ports of Stockholm, commented: “We are working strategically to meet EU regulations that require an onshore connection for ships by 2030. This places high demands on the electricity grid, especially in Port of Kapellsk?r where the current capacity is limited. In Kapellsk?r, the OPS facility already enables environmental benefits today. By integrating microgrids with OPS, we create a robust and sustainable solution that reduces the port’s environmental impact and strengthens our competitiveness.”

To address challenges like limited grid capacity and rising energy demands while optimizing OPS requirements, the project will develop an integrated microgrid solution. This system will combine solar panels, battery energy storage systems (BESS), and an advanced energy management system (EMS) to ensure reliable power, lower greenhouse gas emissions, and enhance the port’s resilience to disruptions.

Named “Innovative Microgrid Design for Sustainable Onshore Power Supply: Port of Stockholm Case Study,” the project runs from 2024 to 2027. The demonstration, hosted at the Port of Kapellsk?r, aligns with a broader strategy to create sustainable and efficient port environments.

With new microgrid technology and onshore power supply, Ports of Stockholm is taking further steps to meet future energy needs and strengthen the sustainability of port operations.

Ports of Stockholm and its partners are launching a project that combines onshore power supply (OPS) and microgrid technology. The initiative will reduce emissions, improve energy efficiency and increase port capacity to meet future demands for sustainable energy use. To meet current challenges, such as limited grid capacity and increased loads, while optimizing OPS needs, the project will develop a comprehensive microgrid solution that combines solar cell systems, battery energy storage systems (BESS) and an advanced

energy management system (EMS).

Furthermore, the solution will ensure a reliable power supply, reduce greenhouse gas emissions and strengthen the port’s resilience to disruptions. By integrating renewable energy and advanced energy management systems, energy efficiency can be improved, emissions reduced and the operational resilience of the port increased. The system demonstration, carried out in Port of Kapellskär, will show the way for future green port solutions.

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