



Photo credit: TREFOR

Improving grid capacity through real-time monitoring of electrical transformer stations

The integration of renewable energy sources combined with rising electrification from electric vehicles and heat pumps is putting unprecedented strain on our electricity grid.

To tackle these challenges, Digital Energy Hub, a Danish energy and utility innovation platform established by the non-profit Center Denmark, has developed two innovative micro-services that boost transformer station capacity. The solution lies in digitalisation.

One is an IoT data service that uses built-in technology to deliver live-streaming data on electrical and temperature conditions of transformer stations. The second solution is an analytics service that provides forecasts that predict when transformer stations will reach their maximum safe temperature and load capacity. Together, these allow the Distribution System Operator (DSO) to safely run the transformer at 120 percent capacity for short periods, thus minimising potential energy waste and reducing the need for expensive infrastructure upgrades.

The Danish DSO TREFOR made their data available for the two companies Linc Systems and AI-nergy to conduct a proof-of-concept. Using TREFOR's grid, they documented better surveillance of the transformers' capacity load, which enables the DSO to make qualified decisions regarding the operation and future investments.

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