# UK's first smart electricity substation launched in Maidstone



A new initiative in the UK is set to revolutionise energy distribution with the installation of what claims to be the UK's first smart electricity substation in Kent. This advanced facility, located in Maidstone, is part of UK Power Networks’ innovative Constellation trial, which aims to modernise the electricity grid by integrating powerful computer systems into existing substations. The objective is to better analyse power flows and facilitate energy redistribution during peak demand times, ensuring that power is directed where it is most needed.

The Maidstone substation represents the forefront of a series of digital substations that are being developed across the South East of England. These next-generation installations are designed to communicate more effectively with each other, potentially enabling a greater number of distributed generators to connect to the electric network. By utilising artificial intelligence (AI) and machine learning technologies, these smart substations can enhance energy release capabilities safely, which is pivotal in supporting the UK’s transition towards achieving net zero carbon emissions.

Speaking about the initiative, a representative from UK Power Networks noted, "Enhancing the service provided to our energy-generating customers, and making our network more resilient in the process, will go a long way to preparing our network for a decarbonised future." Such advancements allow for a more flexible and responsive energy infrastructure, with the potential to dynamically adjust settings to free up to 50 per cent additional capacity when conditions permit.

A significant milestone was achieved when Allington Energy from Waste became the first distributed generator to connect to the new system, benefiting from a dedicated smart substation at its Maidstone site. UK Power Networks plans to install an additional five smart substations throughout the Southeast as part of this ongoing trial, marking a crucial step in the evolution of energy management and distribution in the region. This initiative not only aims to enhance current operations but also prepares the grid for future energy demands and sustainability goals.

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

* <https://digitalisation.ukpowernetworks.co.uk/project/constellation> - Corroborates the Constellation project's objective of modernising the electricity grid by integrating computer systems into substations to analyse and reconfigure the network.
* <https://digitalisation.ukpowernetworks.co.uk/project/constellation> - Details the smart substation architecture, design, and implementation, as well as the use of site-to-site communication using a slice of the public 5G network.
* <https://d1oyzg0jo3ox9g.cloudfront.net/app/uploads/2023/10/Constellation-Project-Progress-Report-December-2023-V1.0.pdf> - Provides information on the project's progress, including the trial preparation and the involvement of various partners like ABB, GE, Siemens, and Vodafone.
* <https://www.analysysmason.com/contentassets/d9fba902675f49888498edaabe43c458/analysys_mason_renewable_energy_edge_driver_dec2023_rma08_rma04_rma18.pdf> - Explains how the Constellation project improves the UK grid's reliability and flexibility, helping to meet net zero targets by connecting more small-scale renewable energy resources.
* <https://digitalisation.ukpowernetworks.co.uk/project/constellation> - Mentions the stakeholder engagement and validation of the smart substation solutions through workshops with various industry stakeholders.
* <https://d1oyzg0jo3ox9g.cloudfront.net/app/uploads/2023/10/Constellation-Project-Progress-Report-December-2023-V1.0.pdf> - Details the project's timeline, including the planned trials and the expected outcomes such as carbon savings and network capacity release.
* <https://www.analysysmason.com/contentassets/d9fba902675f49888498edaabe43c458/analysys_mason_renewable_energy_edge_driver_dec2023_rma08_rma04_rma18.pdf> - Discusses the potential to dynamically adjust settings to free up additional capacity and support the UK’s transition towards net zero carbon emissions.
* <https://digitalisation.ukpowernetworks.co.uk/project/constellation> - Outlines the target outcomes, including reduced curtailment for distributed energy resources, increased stakeholder satisfaction, and improved network resilience.
* <https://d1oyzg0jo3ox9g.cloudfront.net/app/uploads/2023/10/Constellation-Project-Progress-Report-December-2023-V1.0.pdf> - Provides estimates of the potential savings and benefits, such as saving customers £132m and reducing CO2 emissions by 1.9m tCO2 by 2030.
* <https://www.analysysmason.com/contentassets/d9fba902675f49888498edaabe43c458/analysys_mason_renewable_energy_edge_driver_dec2023_rma08_rma04_rma18.pdf> - Explains how the initiative aims to enhance current operations and prepare the grid for future energy demands and sustainability goals.
* <https://digitalisation.ukpowernetworks.co.uk/project/constellation> - Mentions the project's status and key milestones, including trials in two UK Power Networks areas and preparation for deployment into business as usual.
* <https://www.smartcitiesworld.net/news/uk-reveals-first-electricity-smart-substation-11102> - Please view link - unable to able to access data