



PRESS RELEASE

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Western Power Distribution and Ricardo to lead innovative rapid EV charging trial

An innovative project, 'DC share', will develop and trial a novel solution that shares capacity across existing AC electricity distribution network substations, enabling increased numbers of high-power electric vehicle (EV) chargers to be connected to the network at lower cost

The DC Share project has seen Western Power Distribution (WPD) and Electricity North West Limited (ENWL) join forces with global strategic engineering and environmental consultancy Ricardo to use latent capacity in distribution networks to power charging hubs.

DC Share has been awarded funding by the UK energy market regulator Ofgem (the Office of Gas and Electricity Markets) through the Network Innovation Competition Project. The project aims to use latent capacity in distribution networks, which is difficult to access using traditional means. The DC share project will trial a novel approach to supplying rapid charging hubs, using power electronics to extract power from existing substations and distributing this to rapid EV charge points via a new high capacity DC cable network.

The location of the rapid chargers will be an important factor in the successful widespread uptake of EVs and should be dictated by user requirements, rather than network constraints. To ensure charger availability for multiple users, rapid chargers are expected to be deployed in hubs, meaning that significant



amounts of power will be needed in one location. While an existing substation might be able to connect one or two rapid chargers, if they are required at scale, network reinforcement is likely to be needed. DC Share will facilitate the connection of rapid charging facilities in locations where they are required by users, using latent capacity in the surrounding networks to minimize the cost of connection.

The trial will explore the comparative benefits of a DC network, where power flows can be actively managed, and fault level contained, over the traditional approach of AC network reinforcement. The DC Share project will lay a new high capacity DC equalization cable network, which will balance demands so that transformers experiencing heavy demand receive support from those that are more lightly loaded. This approach enables uncertainty in demand to be managed more effectively, optimizing power flows in real time to react as needed.

This project will use the expertise of Ricardo's energy team which has extensive expertise in implementing smart grid solutions, and its partners: WPD, who will be the funding licensee; ENWL; Turbo Power Systems, who will develop substation converters and rapid chargers; and Vectos, whose transport planning expertise will provide charger planning support.

Jonathan Berry, innovation manager at WPD said: "The need to facilitate fast and rapid electric vehicle charging has never been more prevalent. New technologies and solutions need to be developed to deliver on-street charging solutions, as over 40 per cent of people don't have access to off-street parking, which in turn helps to support the UK's net-zero 2050 targets. The DC Share project will offer a revolutionary solution, using DC to interconnect traditional AC assets. This will maximize the utilization of these existing assets and take advantage of the diversity between them in a manner that has not previously been possible. We're excited to now kick-off the project and work with Ricardo, who proposed and developed this project through the ENA's NIC third party call, which we use to ensure that third parties have access to Ofgem's innovation funds for ground-breaking new projects just like this."

Geraldine Paterson, innovation strategy manager at Electricity North West commented "We're proud to be part of this innovative project. We can see the significant benefits this project can deliver in helping to decarbonise transport and

progress towards the UK's net zero carbon targets. We are really pleased that Ofgem saw the same benefits and have awarded this important funding. We are looking forward to working with Ricardo, WPD and the other partners to deliver a successful solution, which will benefit consumers and provide a lasting solution for charging EVs in urban areas.”



Ricardo's Sarah Carter, manager of power planning and solutions, said: “This project takes UK networks another step forward in developing flexible networks and supporting the mass adoption of electric vehicles. By using a DC equalization network to support the existing infrastructure and to facilitate large demand from rapid chargers, we are demonstrating that there are alternatives to traditional reinforcement. We are delighted to be using our expertise from previous smart grid projects to help the UK transition to a low carbon economy.”

To find out more about Ricardo's work delivering unique and innovative smart grid solutions, visit <https://ee.ricardo.com/energy/smart-grids>

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NOTES TO EDITORS:

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Ricardo Energy & Environment is a leading sustainability consultancy, helping clients to respond to environmental challenges and opportunities around the world. Its team of over 450 staff draws on an impressive heritage supporting governments and businesses for over 40 years. Ricardo works with public and private sector organisations around the world to develop and implement smart networks that intelligently integrate energy generation, storage and demand in real-time. Its energy teams also provide strategic, economic and technical advice on how to connect renewable energy technologies into existing energy networks. Ricardo is providing strategic services to help businesses adapt to the UK's changing energy mix. This includes supporting some of Europe's largest road-vehicle fleet operators to plan for electrification. The consultancy is an operating division of Ricardo plc. For more information, visit <https://ee.ricardo.com/>

Western Power Distribution (WPD) is the distribution network operator for the Midlands, South West England and South Wales. It is responsible for delivering electricity to approximately 7.9 million customers in the UK and committed to investing around £1 billion on its network annually. The distribution element makes up around 17% of an average customer's annual bill which is around £100 or 27p a day.

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