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New project launched to cut site energy costs and carbon footprint through optimised energy storage

- **Project combines and optimises local energy storage, renewable microgeneration, and site energy usage - including electric vehicle (EV) fast charging**
- **Scalable energy storage solution uses second life Renault EV batteries**
- **Avoids distribution network upgrades required to meet growing demands such as EV fast charging**
- **Enables site-based optimisation of energy usage and exploitation of off-peak energy tariffs**

A PROJECT to manage and optimise complex energy requirements for industrial and commercial sites is now underway.

The Battery Optimisation and Storage System project (BOSS) creates additional on-site energy storage capacity with repurposed batteries from Renault electric vehicles (EVs). Used intelligently, this extra storage capacity enables sites to take control of their energy management, delivering substantial economic and environmental savings. An innovative combination of technologies, it also integrates and optimises other local infrastructure such as renewable energy generation and EV charging.

BOSS is led by EDF Energy, in partnership with Route Monkey and Connected Energy, a subsidiary of Future Transport Systems. It is part-funded by the UK's innovation agency, Innovate UK.

Xavier Mamo, R&D Director, EDF Energy R&D UK Centre said: "Commercial and industrial sites are faced with an increasing localised demand for low carbon energy. Project BOSS is bringing together experts from EDF Energy's R&D UK Centre, Route Monkey and Connected Energy to demonstrate a cost-effective, local energy storage solution to help alleviate this growing pressure. This system aims to deliver greater capacity from existing assets, along with improved efficiencies and lower costs for the customer."

BOSS combines technologies to encompass key aspects of local energy use and generation, including maximising the value of on-site renewables, minimising exposure to peak tariffs, and managing site peak loads as well as EV charging.

For Distribution Network Operators (DNOs), enhanced local energy storage capacity can reduce the need for expensive network upgrades, required to meet growing energy demands from EV charging. In addition to minimising energy costs for the site, the project will also evaluate opportunities for the system to provide services to the national grid.

The BOSS project will integrate a 50kWh E-STOR energy storage unit provided by Connected Energy, with a site energy management and optimisation system developed by Route Monkey.

The modular E-STOR system, which can be scaled to the requirements of each specific site, uses EV batteries from Renault that have completed their automotive life. These second life

batteries typically retain up to 75 per cent of their energy storage capabilities. E-STOR creates another use for them prior to recycling.

Route Monkey's complex algorithms automate and optimise energy management, in real time. Its unique software integrates generation from micro-renewables, local energy storage and management, access to off-peak tariffs, and high capacity EV charging.

The project plans to commission an installation at a site in the North of England, where the system will integrate with and manage infrastructure including a solar photovoltaic (PV) panel array and EV charging stations. This site will also link to an existing E-STOR installation in Norfolk that also features EV charging, PV and micro-wind generation. In this way, the project can evaluate the benefits to individual sites, as well as the grid-level benefits achieved by aggregating and optimising the two systems.

EDF Energy is commissioning the demonstrator, and is responsible for overall project management.

Matthew Lumsden, managing director of Connected Energy, said: "The BOSS project enables us to learn more about how our E-STOR units can be commercially operated within a distributed energy storage portfolio. Combining E-STOR with optimisation software will help us provide our customers with maximum commercial and environmental benefits."

Colin Ferguson, CEO of Route Monkey said: "Our solution optimises E-STOR, enabling energy from renewable sources or off-peak tariffs to be stored for later use. This significantly reduces the cost and carbon footprint of the site's energy needs. Our ability to forecast aggregate energy demand for multiple sites also enables wholesale energy purchasing at more attractive rates."

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NOTES TO EDITORS

About EDF Energy

EDF Energy is one of the UK's largest energy companies and the largest producer of low-carbon electricity, producing around one-fifth of the nation's electricity from its nuclear power stations, wind farms, coal and gas power stations and combined heat and power plants. The company supplies gas and electricity to 6 million business and residential customer accounts and is the biggest supplier of electricity by volume in Great Britain. EDF Energy is part of EDF Group, one of Europe's largest power companies.

The EDF Energy R&D UK Centre is an integral part of the Group R&D network and is responsible for leading research and development activities in the UK. The Centre's 50-strong fully international team is engaged in projects of various sizes in support of EDF Energy and EDF Group and works across all types of energy including nuclear collaboration with Generation R&D, renewable technologies, energy management, energy efficiency, smart meters and digital innovation.

About Route Monkey

Route Monkey is a multi-award winning leader in the development and provision of complex, multi-criterion algorithms. It provides solutions for scheduling, modelling and optimisation of assets including people, goods, energy, infrastructure and vehicles. Route Monkey is also a pioneer in the optimisation of ultra-low emission vehicles (ULEVs), energy management solutions and Intelligent Mobility.
The high quality and growing customer base for its route optimisation and scheduling algorithms includes household names such as Iceland. Route Monkey also works with, or has delivered projects for, UK government agencies and NGOs including Energy Savings Trust, Innovate UK, Scottish Enterprise, Transport for London and Transport Scotland.
Route Monkey is owned by Trakm8 Holdings Trakm8 Holdings PLC, an AIM listed company providing market leading fleet management solutions and vehicle tracking systems, engineering services and telematics devices to organisations worldwide.
www.routemonkey.com / www.trakm8.com

About Connected Energy

Connected Energy provides distributed energy storage technologies and services. The Connected Energy E-STOR energy storage system uses second life lithium ion electric vehicle batteries to provide stationary storage solutions for electric vehicle charging and industrial and commercial applications. The E-STOR system is operated using an in house control system which is specifically designed to enable customers to maximise the value of the system and their return on investment.

Connected Energy provides a range of solutions from system feasibility assessments and design, through to standard and bespoke system supply, installation, maintenance and operation. Where viable, a 'Storage as a Service' business model can also be provided, co-financed with the customer. Projects to date have involved developing and delivering energy storage solutions integrated into a range of electrical systems including building energy management systems, photovoltaics, wind turbines and electric vehicle charging infrastructure.

Connected Energy was set up by parent company Future Transport Systems to commercialise a range of technologies and services developed through in-house research and development activity. Both companies are UK SMEs with offices in Newcastle upon Tyne and Norfolk. For further information, visit www.c-e-int.com.