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North Tyneside showcases new microgrid

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Fleet and facilities managers have learned how reusing former electric vehicle batteries can create microgrids to help power today's buildings and EVs.

Public and private sector professionals gathered at North Tyneside Council's flagship Killingworth site this week, to see its new infrastructure in action. The site – which is home to around 1,000 council staff and partners – features a rooftop solar PV array and car ports which help to power the building and will also support 40 EV chargers.

Running this microgrid is an E-STOR battery energy storage system from Connected Energy, based in nearby Newcastle. Connected Energy takes batteries from end-of-life electric vans, giving them a second life in E-STOR. Typically, the batteries still have up to 80% of their original energy storage capacity at the end of the vehicle's life, making them ideal for this application.

Furthermore, Connected Energy's intelligent management system enables E-STOR to integrate with solar PV, the grid, and other smart technology like building management systems. This means E-STOR can balance a site's energy needs, reduce energy bills, and make the most of on-site renewables.

Ian Lillie, strategic facilities manager for North Tyneside Council, with responsibility for the depot, said: "We have smart sub-metering capabilities to support energy efficiency, but battery energy storage takes this to another level.

"It effectively acts as the brain of our smart microgrid, communicating with and controlling all the other elements. This helps us to deliver the best possible economic and environmental return on investment.

"E-STOR repurposes batteries from end-of-life electric vans, so the ability to power the vans of the future using batteries from the vans of the past was a compelling argument for us. On top of that, the scalability

of the E-STOR solution means we can ramp up our use of BESS on site as the Council expands its own EV fleet."

The council is revitalising its Killingworth Site depot, in a multi-million-pound project supported by the European Regional Development Fund (ERDF). A core aim of this initiative is to futureproof the site for sustainability and energy efficiency.

"Since installing and commissioning the PV array in February 2023 we have already generated over 100,000kW of green energy," added Ian. "However, we've had to give back over 20,000kW to the grid because we can't store it.

"By using Connected Energy's battery energy storage system, we can capture that energy and use it to charge our electric vans and indeed the buildings on site overnight. And in the winter, we can use E-STOR to store energy from the grid on lower tariffs at night, to use during the day. The combination of solar and BESS should significantly reduce our electricity bills while also cutting carbon emissions from our energy consumption."

Connected Energy and North Tyneside Council held an open day at the Killingworth site to demonstrate how the integration works and showcase its key benefits. The fully booked event was attended by facilities and fleet managers from local authorities, NHS Trusts and an international airport, as well as decision makers from sectors including pharmaceutical and manufacturing.

Connected Energy has been developing and delivering battery energy storage projects for over ten years. The company's HQ is based on the Newcastle Helix site.

Matthew Lumsden, CEO and founder of Connected Energy said: "The concept for our systems came from our work in the North-East on a number of electric vehicle trials and driven by the mission to find a second life use for EV batteries.

"We now have over 30 systems operating across the UK and Europe – however this is our first installation in the North-East. We're proud to see a system in action so close to our HQ and look forward to seeing the benefits it will bring to the location."

Facilities and buildings operations managers who missed the open day can find out more from Connected Energy's white paper, Battery Energy Storage for Facilities Management, which can be downloaded for free here: https://connected-energy.co.uk/whitepapers/battery-energy-storage-for-facilities-management/.