Dc coupled battery storage system

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But it"s not just large ground-mount and residential projects that contribute to the growth of solar PV. Industrial and commercial (I& C) organisations have also been quick to spot the potential of solar, and many have already invested in onsite solar projects to reduce their electricity bills, increase their energy resilience, and accelerate their transition to net zero.

What"s more, the benefits of onsite-generated solar power go well beyond companies" bottom lines. A report by business energy provider, npower Business Solutions, showed that businesses could achieve 6.5 GW of installed rooftop solar by 2035, supporting the UK"s independence from imported gas and helping accelerate the clean energy transition.

The financial and environmental benefits of onsite solar projects - both for businesses and on a national scale - are clear to all. However, grid constraints have often limited the potential of these projects. The grid is in danger of reaching full capacity as more renewable sources are added. New solar installations are either denied permission to connect, or forced to downsize, making them unprofitable.

Wattstor"s DC coupled solar and battery storage systems offer organisations the chance to really think outside the grid - building a solar project big enough to satisfy their energy needs, without having to worry about grid constraints. Here"s how it works.

Our expert engineers will consider the energy profile of an organisation and the characteristics of its premises. They will then create a bespoke project design that maximises available space to allow the client to install as much solar capacity as possible - in line with the client"s energy needs and net-zero ambitions.

Solar panels generate DC electricity, and sends it to a battery large enough to store it. Think of the battery as a bucket of sunshine: the larger the bucket, the more solar energy it can accommodate.

Because batteries also store energy as DC electricity, there is no need to convert it into AC electricity (alternating current, i.e.: what comes out of a power plug and is used to power machines, lights etc) at this stage.

We can then connect the battery to the electricity network on site (which is connected directly to the National Grid) to allow customers to use the energy onsite, sell any excess solar energy they generate, or to charge the battery with grid electricity when this is convenient. To do this, we"ll need to install an inverter to convert the electricity from DC to AC, as our grid system runs on AC electricity.

The inverter we install will only be as big as the grid allows (AC electricity supplied to users on site is what the grid uses to determine any potential constraints). While the rest of the energy in your "bucket" (stored as

DC electricity) will not impact any grid limits and will be used to power your business operations, as and when needed.

This means that customers can use and/or sell their excess energy within grid constraints, while harnessing the full potential of their solar PV installation to run business operations on up to 100% renewable energy.

If you"ve already looked into building an onsite solar+battery project, or would like to add a battery to your existing solar installation, you"ve probably come across the difference between alternating (AC) and direct current (DC) coupled solutions.

Solar panels generate DC electricity. This is sent to a solar inverter that turns it into AC electricity, before being sent to the grid to be sold, and to your business premises to be used. Excess energy is converted again into DC electricity and stored in a battery.

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