# Hargeisa industrial microgrids

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A system like this is usually comprised of energy generation (both renewable and fossil fuel as a backup), Battery Energy Storage Systems (BESS), Energy Management Software and, if necessary, other enabling technology such as Automatic Transfer Switches.

It"s critical to create a microgrid environment that maximises on self-consumption and intelligently stores/dispatches energy based on export limitations, grid prices, time of day and renewable energy availability.

Working with a customer based in a rural location, we set out to integrate Hark technology into a functionalmicrogrid, with the objective of creating a smart energy distribution system across three buildings. The customer has a 300kWp distributedsolar arrayacross 3 buildings on a distributed AC bus. Alongside this, is a 500kVa, 460kWh BESS, a diesel generator set and an ATS (automatic transfer switch).

The primary reason for this project was a mixture of export and import limitations at the grid connection point, which required a significant investment in transmission infrastructure that was not economically viable without Hark"s solutions in place.

By integrating Hark technology, this microgrid is enabled with smart decision making, based on specific criteria such as: export limitations, battery charge capacity, time of day and availability of renewable energy. This creates a highly optimised approach to microgrid energy and promotes efficient self-consumption throughout the estate.

This means the site"s load is entirely powered by the Solar PV Array and Battery Energy Storage System. However, due to the nature of this system, the Solar PV must be curtailed during periods related to the site load and the BESS state of charge, to ensure that the BESS does not exceed limitations and thus cause critical power loss.

This is also used to control any overnight requirements, whereby the energy storage system may not have enough capacity to maintain energy requirements for the site during prolonged periods without solar. The system then provides control to the ATS or generator, depending on the cost point of the grid charges that may be incurred or fuel costs. Ultimately, the site runs in a fully optimised program on Solar PV and Energy Storage, to maximize self-consumption as the priority and ensure the delta between the price for grid energy and the diesel generation is optimised.

Enterprise connectivity for industrial assets, buildings management systems and sensors. Securely connect to and collect data from any system source in real-time using The Hark Platform

Vendor-agnostic cloud connectivity to microgrid assets has allowed this customer to visualise their data within the Hark Platform. This provides the ability to see energy meter, battery and renewable data in real-time.

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