**Innovative solutions for decarbonisation, load-shedding from Hitachi Energy**

*Hitachi Energy collaborates with customers and partners to ensure a sustainable energy future for generations to come*

**14 February 2022:** With many corporates and industries resuming operations following the festive season break, electricity utility Eskom has warned of a potential 4000MW shortfall in generation capacity in 2022. It places the spotlight firmly on the need for appropriate solutions to deal with load-shedding.

This is especially important due to the shared goal of accelerating a carbon-neutral future, whereby electricity is the backbone of the entire energy system. Meeting this challenge requires new technologies, business models, ways of thinking and ways of working. Hitachi Energy’s industry-leading experience, deep domain knowledge and pioneering technologies continue to support its stakeholders to accelerate the global energy transition.

Hitachi Energy has a global reputation for innovation, in line with its Sustainability 2030 business strategy based on the UN’s Sustainable Development Goals. Targets include becoming carbon-neutral in its own operations by 2030. As a first step, the business has plans to move to 100% fossil-free electricity. It has also announced a target to halve CO2 emissions along the value chain by 2030 and is working closely with suppliers and multi-stakeholders to achieve this.

An example of such a global partnership is the work that Hitachi Energy is carrying out for Empresa de Electricidade da Madeira (EEM), a publicly owned utility responsible for the production, transportation, distribution, and commercialisation of energy on the Madeira Islands of Madeira and Porto Santo. The small island system is a testbed in terms of learning how to integrate renewable resources with energy storage and electric vehicles, for example, explains **Hennie Nel**, Industry Solution Executive at Hitachi Energy. The addition of Hitachi Energy’s PowerStore Battery Energy Storage (BESS) enables increased adoption of renewable energy while stabilising the system and reducing voltage fluctuation.

To effectively manage the large penetration of renewables required to make Porto Santo fossil fuel-free, EEM uses Network Manager, an integrated network operations platform that includes advanced distribution management system (ADMS) capabilities to extend grid control and optimisation. Network Manager provides the functionality for the safe and efficient operation of sub-transmission, medium- and low-voltage distribution networks on the islands. This means EEM can efficiently manage its distribution assets, as well as adequately prepare for the changing world of distribution, improving reliability and reducing the impacts of outages.

Other practical examples of Hitachi Energy’s solutions in action include microgrids it commissioned in Longmeadow, Johannesburg in 2016 and on Robben Island in 2017, a UNESCO World Heritage Site. Systems that are grid-connected and need to meet grid code requirements or are over 1MW in size can become quite complex. Hitachi Energy has a range of solutions to address these types of applications, from the distribution substation all the way to the battery, says **Randall September**, Business Development Manager: Microgrids, Grid Automation and Battery Energy Storage Systems.

Asset Performance Management (APM) is key, especially as load-shedding represents abnormal operation of a power grid. Load-shedding introduces more potential risk of equipment failure because it is difficult to continuously monitor the health of your assets and ensure that potential failures can be predicted, and maintenance reprioritised accordingly. “It is key to not only provide a more effective maintenance management environment but also to improve the productivity of the technical teams carrying out the work, and Hitachi’s Lumada APM enables this,” says **Francois Le Roux**, Business Development Executive at Enterprise Software at Hitachi Energy.

Power system control is also critical to manage load-shedding. “This is a major component, because at the end of the day the reliability of power supply and making best use of available power sources will be achieved by means of the layer of software control,” says **Stuart Michie**, Head of Sales and Marketing for Southern Africa. Hitachi Energy’s BESS solutions are ideal to manage all the different elements of a distributed power generation system that combines solar, wind, batteries, other generation sources and the grid, for example. Microgrid control and automation architecture is important to optimise such a system.

For example, Hitachi Energy’s e-mesh™ digital ecosystem provides software management for distributed generation at both a local and fleet level, with built-in maintenance management for performance prediction at both a local and fleet level. “If we talk about solutions to load-shedding, these are all elements that need to be incorporated in a wider power system to refine its optimal management,” says Michie.

Hitachi Energy’s mission is to ensure that the world’s energy system is sustainable, flexible, and secure. The world of energy continues to evolve, and therefore Hitachi Energy is developing its energy market reach and portfolio into new areas, expanding beyond the grid. “It is crucial that we take on the challenge of accelerating the pace of change. “We need to support this global challenge with global solutions, and that is where Hitachi Energy stands to play a key role,” concludes **Malvin Naicker**, Managing Director, Hitachi Energy Sub-Saharan Africa.