

Ingeteam supplies its storage power station for pilot BESS project in Dubai's largest Mohammed bin Rashid Al Maktoum Solar Park



Ingeteam's power station equipped with two storage inverters and all the MV equipment.

Ingeteam. March 12th, 2019.

Amplex-Emirates LLC was awarded a pilot project by Dubai's Electricity & Water Authority (DEWA) to install a battery energy storage system (BESS) at the Mohammed Bin Rashid Al Maktoum Solar Park in Dubai; the first energy storage system paired with a photovoltaic plant at a grid-scale level in the United Arab Emirates. NGK Insulators LTD supplied its NAS batteries and INGETEAM was responsible for the supply of a 1.2 MW power conversion system (PCS) with its medium voltage components (power transformer, MV switchgear, etc.), and the power plant controller (PPC).

Dubai has accelerated investment in renewable energy to eliminate dependence on fossil fuels and for sustainable economic growth, and is building the Mohammed bin Rashid Al Maktoum Solar Park, the world's largest solar park, in the south of the Emirate. Dubai is targeting introduction of 5,000 MW of solar photovoltaic (PV) and concentrating solar power (CSP) by 2030, which will raise the ratio of renewable energy to 25% of total

generation capacity. Furthermore, Dubai is seeking a 75% power output from clean energy sources by 2050.

In anticipation of the large-scale introduction of renewable energy in the future, DEWA installed a NAS battery system in the solar park to demonstrate its effectiveness in stabilizing grid fluctuations caused by the nature of renewable energy. The 1.2 MW/7.2 MWh NAS storage system is allowing DEWA for evaluating the technical and economic capabilities of this technology when integrated with PV arrays in order to increase grid stability and reduce CO₂ emissions. In fact, the storage system will be also used for energy time shifting, frequency control and voltage control by using the large capacity of the batteries. This kind of hybrid systems help to deliver clean and reliable power to energy consumers with a greater availability and cost-effectiveness.

The Ingeteam supply was comprised of a 1.2 MVA power station equipped with two storage inverters and all the rest of components for a LV-to-MV and DC-to-AC conversion (medium voltage transformer, medium voltage switchgear, etc.). These inverters have been conceived to perform according to the most demanding international grid codes, featuring some very advanced operating functions such as black start capability. Moreover, they are suitable for both stand-alone and grid-tied systems. Also, Ingeteam supplied the Power Plant Controller (PPC) and the BMS interface control that manages the operation of the overall system, developing the more advanced control features, such as:

- Energy Time Shifting. This control mode enables an advanced power generation planning, making the power plant's production profile unmatch the consumption profile, allowing electric utilities to address daily peak demand that falls outside periods of solar generation.
- Predictable PV+BESS production: The BESS is connected in the boundary of the PV plant and receives the real-time PV production. The power station automatically changes the active power according to the PV production variations to ensure a PV+BESS predictable power production in the common point of connection at the Syhaslm- 33/11kV substation.
- Fast Frequency Regulation. The system adjusts the power production depending on the frequency variations.
- Voltage Droop Control. According to an established droop gain, the system selects the necessary reactive power at the point of connection, depending on the existing voltage difference.

Energy Storage Europe

Energy storage is a key sector for Ingeteam, where the company is positioning itself for the considerable development expected in the short and medium term for systems of this type, both at a residential level and also on a large scale. For that reason, Ingeteam is going to exhibit at Europe's main energy storage event: Energy Storage Europe, to be held in Düsseldorf, Germany, between the 12th and the 14th of March.

The company will be showcasing the latest news of its main products and services in stand H12.

Ingeteam

Ingeteam is a leading company specialising in the design of power and control electronics (frequency converters, process automation and control systems), electric machines (generators and motors), electrical engineering and generating plants. To date, Ingeteam has supplied 57 GW in power converters for renewable energy plants and is amongst the TOP 10 companies dedicated to the operation and maintenance of renewable plants, with a portfolio of more than 12 GW.

The company operates in all continents, and has a headcount of around 3,900 employees around the world. Ingeteam invests 5% of its annual turnover in R&D, which is the backbone of the company's business activity.

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