

Press Release

DEWA enhances its smart grid and Distributed Energy Resource integration through its Virtual Power Plant

Dubai, UAE, 29 July 2022: Dubai Electricity and Water Authority (DEWA) has enhanced integration between different energy resources in its smart grid through its Virtual Power Plant (VPP), the first of its kind in the region. The first phase has aggregated the Distributed Energy Resources (DERs) operated by DEWA's R&D Centre, and managed them as a single mixed portfolio of generation and load connected to the grid. The VPP is an advanced technology based on aggregation, orchestration, Artificial Intelligence (AI) based forecasting, and optimisation to integrate various types of DERs to support DEWA's smart grid.

The VPP is a digital platform that establishes connectivity to many distributed, small and medium scale DER units such as solar photovoltaic, battery storage, electric vehicle charging stations, and other flexible loads. The aim is to enable the participation of these DERs to support the network operation and maximise their value to the grid operator and end customer by providing grid services such as peak shaving, frequency regulation or energy balancing. The successful completion of the first phase of the VPP project resulted from a fruitful research collaboration between DEWA's R&D Centre at the Mohammed bin Rashid Al Maktoum Solar Park and Generac Grid Services (GSS). The project's next phase is to build a more comprehensive techno-economic feasibility study for the wide deployment of the VPP on DEWA's grid, define the most desirable use cases for DEWA's distribution and transmission networks, and implement them on a larger scale.

HE Saeed Mohammed Al Tayer, MD & CEO of DEWA, said that the VPP increases renewable energy integration capabilities. This supports DEWA's efforts to achieve the Dubai Clean Energy Strategy 2050 and the Dubai Net Zero Emissions Strategy 2050 to provide 100% of the energy production capacity from clean energy sources by 2050.

"We use research and development to explore and shape the future of the energy sector and make Dubai a smart and sustainable city. In accordance with DEWA's vision to become a globally leading sustainable innovative corporation, we strive to shape the future of energy locally, regionally, and globally by keeping pace with the Fourth Industrial Revolution and adopting innovative disruptive technologies. Our strategies and plans align with federal and local strategies to support economic growth and develop innovative and sustainable clean energy solutions. We have strategic partnerships with global companies and organisations in integrating renewable energy and distributed generation in the electricity grid, the Internet of Things (IoT), using AI in

energy production units, energy efficiency, cybersecurity, robotics, and smart buildings. These partnerships aim to build national capacities in the energy sector. The total investment in DEWA's Smart Grid programme is AED 7 billion. It is a major pillar in the success of smart cities. It also ensures continuity and availability of services around the clock," added **Al Tayer**.

"Through its VPP, DEWA has integrated the following DERs: Electric Vehicles with a total consumption of 132 kW; Battery Energy Storage Sodium Sulfur (NaS) and Lithium Iron Li+ of a total capacity of 2.4 MW, 8 MWh; Chiller system at the R&D Centre representing flexible loads of total power consumption of 390 kW; Outdoor Testing Facility at R&D Centre with 12 kW PV Inverter; Residential PV inverters of 9kW; a Smart Grid Station with PV Solar inverter of 200kW; Battery Energy Storage of 120kW; and EV charging stations with 44kW," said **Waleed Bin Salman, Executive Vice President of Business Development and Excellence at DEWA**.

The total flexibility provided by the VPP in this pilot project is approximately 3.3 MW. DEWA's next step is to identify and aggregate similar sites to provide additional flexibility to operate DEWA's grid more efficiently and reliably.

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