Microgrids london

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The London City Airport microgrid, now under development, will nearly double the size of the airport"s electricity distribution infrastructure, from 3.6 MVA to 7 MVA, and help power a major airport expansion and upgrade.

The microgrid is a critical element of the airport"s broader $630.5 million City Airport Development Program, which includes construction of a new terminal four times the size of the airport"s current terminal and the first digital air traffic control tower in the world for an airport of its size, The microgrid is scheduled to come online in phases through 2022 and into 2023.

The airport"s development transformation program "is central to the airport"s plans to help tackle the climate challenge and operate sustainably to achieve their net-zero carbon emissions goal by 2050," said Tony Blackwell, design & interface manager for UK Power Networks Services (UKPNS), which operates the London City Airport"s existing electricity network.

Blackwell declined to provide the microgrid project"s total cost. He did explain that the cost of the microgrid will be incorporated within UKPNS" existing Marketspur Agreement with London City Airport, which runs until 2033. UKPNS is designing, building, operating, maintaining and financing the microgrid.

UKPNS" distribution management system will be the centerpiece of the microgrid and the airport"s new, much larger electricity distribution network, providing full remote control and systems automation and rapid fault response to the high-voltage distribution network.

"UK Power Networks" ability to provide disaster recovery service from their control center will ensure that the operations are secure," Blackwell said in an interview with Microgrid Knowledge. "The disaster recovery service is provided by an experienced team which controls the whole of the south east of the UK"s distribution network including London and will provide 24/7, 365 support to the dedicated UK Power Networks Services" operations and maintenance team.

He added: "This experience is unmatched within our industry, since this network is one of the most complex, demanding and includes one of the most critical cities in the world with a very high availability rate of electrical infrastructure."

The London City Airport microgrid will incorporate solar and combined heat and power (CHP) and a new, smart SCADA (supervisory control and data acquisition) system. It"s designed to enhance energy security and resilience while at the same time reducing infrastructure costs. The project also is designed to help improve the air quality around the airport and meet London"s citywide decarbonization goals.

The CHP and PV systems will be linked to the airport"s building management system, Blackwell said. Both systems are in their detailed design stages. Plans call for a solar PV system with a capacity of about 140 MWh and a CHP plant of 230 kW, as well as a second CHP unit of the same size in the future.

Sustainable development is an airport priority. The facility has reduced its per-passenger carbon emissions 28% since 2013 and holds Level 3 Airport Carbon Accreditation. Its goal is to be carbon-neutral in terms of emissions by 2020. It is the closest airport to London"s city center and nearly 70% of the airport"s passengers arrive and leave via public transports -- the highest proportion among all UK airports and something the airport actively encourages, according to UKPNS.

Airports in the US also have been showing interest in investing and deploying microgrids in recent years, a trend that picked up momentum in the wake of a 90-minute utility grid outage at Reagan International Airport in Washington, D.C. in August 2018 and an 11-hour power outage at Hartsfield-Jackson Atlanta International Airport in February 2018.

For example, AlphaStruxure, a joint venture of Schneider Electric and The Carlyle Group, is developing multiple microgrids as part of the modernization of JFK Airport in New York.