BRIDGE POWER FOR DATA CENTERS

MODULAR - OPEN AND COMBINED CYCLE POWER PLANT

SINGLE TENANT; FOUR BUILDINGS, 124 MW IT

OWNER
Colocation, Single Hyperscaler Tenant

LOCATION
Ireland, IE

PRODUCT
Ten (10) x Titan™ 130 Gas Turbines

CUSTOMER VALUE
Bridge Power, High Reliability, High Efficiency, Path to Zero-Carbon Power

Beginning in 2021, a large colocation data center (colo) in Ireland had their local electrical utility severely limit new grid connection permits. The site had a power utility connection agreement in place for only part of their necessary campus demand. The utility advised of the potential for a new connection, but not until 2028.

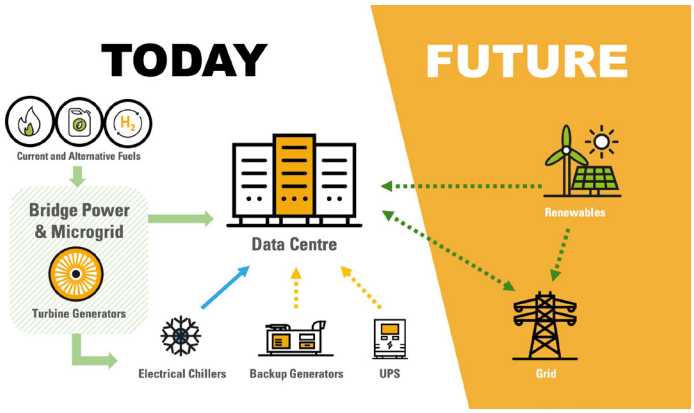
The colo needed highly reliable and efficient on-site generation to meet the needs of their hyper-scaler customer and chose multiple Titan™ 130 generators from Solar Turbines as the basis for their continuous duty power solution. The campus consists of four buildings totaling 124 MW peak IT load with a design PUE of about 1.3.

Solar's experience and capabilities were key in meeting the colo's primary requirements of bridging the power utility gap while achieving low emissions, maintaining a grid-type cost of electricity, and providing a path to zero-carbon power.

Solar® Turbines

A Caterpillar Company

Bridge Power For Data Centers – Modular; Open and Combined Cycle Power Plant



PLANT DATA

PGM130 Generator Sets; 16 MW each
Eight combined cycle (CCGT) plus two open cycle (OC)

Heat Recovery Steam Generators (HRSG); Eight total

Steam Turbine Generators (STG); two at 18 MW

Fuel: Natural gas with up to 20% H2 today, 100% H2 in future and HVO (renewable diesel)

OUR PRODUCTS AND SERVICES

Gas Turbine Package Supply, Power Plant FEED

Gas Turbine, HRSG and STG Design

Gas Turbine Full Installation and Commissioning

Long-Term Service Agreement (LTSA) and Equipment Health Monitoring (EHM)

Given the limited real estate, Solar installed 220 MW of gas generation (45% more than the original gas reciprocating engine solution) to power the remaining data center halls with Tier III required availability.

Critical customer decision factors included:

- Ability of the PGM130 based combined cycle power plant to facilitate permitting, meeting 18.5 mg/Nm3 (9 ppm) without SCR (selective catalytic reduction).
- Very low H_2O usage. No water needed for combustion.
- No lube oil combustion (which aids permitting).
- Dual fuel gas turbines able to run on HVO and natural gas, including 20% H2 in natural gas blends with the ability to burn up to 100% H2 when available.
- High power density of the solution.
- Local manufacturer support presence able to deliver and service in Dublin metropolitan area.

LOW NOX AND CO EMISSIONS

HIGH POWER DENSITY

<5 MIN START TO FULL POWER

PATH TO ZERO CO2 EMISSIONS

POWER COST BELOW GRID PRICES

ON-TIME DELIVERY SCHEDULE

The delivery schedule met customer expectations with four PGM130 gas turbine packages arriving on site to power the first data center ramp-up in open cycle. Subsequent gas turbine packages and related combined cycle, high efficiency equipment arrived on time to meet the hyperscaler tenant's growing requirements.

Solar Turbines Incorporated
Phone: +1 619 544 5352
Email: infocorp@solarturbines.com Web: www.solarturbines.com

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