Trigeneration

Case History

Nigerian Bottling Company

Cummins gas power is first choice for bottling factories

Where:
Ikeja, Owerri, Port Harcourt and Asejire

What:
9 x Cummins 1750 kW QSV91 gas generator sets plus 1 x 2000 kW QSV91 unit

Purpose:
Off-grid natural gas powered trigeneration plant for bottling factories

Primary Choice Factors:

- Reliability and expertise
- Significant cost savings
- Revenue generation
- High level of power availability
- Innovative Compressed Natural Gas delivery

Cummins Power Generation Nigeria is supplying steam, electricity and cooling for bottling factories across the country. In an initial three year period, Cummins has installed nine 1750 kW QSV91 gas generator sets and one 2000 kW QSV91 unit across three sites. The sets power 10 single steam boilers with a total capacity of 23.6 tons of steam per hour and roll-out continues across further sites.

The customer for these extensive works is the Nigerian Bottling Company (NBC), one of the largest participants in the country's beverage sector with 11 factories in operation. NBC's portfolio of brands includes Coca-Cola, Sprite, Schweppes, 5 Alive juices, and Eva water.

Cummins Power Generation Nigeria specialises in natural-gas-fired, full responsibility energy solutions that allow customers to focus on their core business operations. As part of this capability, Cummins trigeneration installations capture

The NBC Ikeja site employs four 1750 kW Cummins generator sets

A 5.5 MW solution has been installed at the NBC Port Harcourt site

waste heat for steam generation, hot water, heating and cooling whilst saving costs, reducing fuel consumption, lowering CO_2 and NOx emissions, and generating surplus electricity for sale to the grid.

The company has an installed capacity across West Africa of over 100 MW, and Power Purchase Agreements signed for another 450 MW. Its customers include factories, hotels and residential estates, with requirements ranging from 1 MW captive power installations to large 300 MW grid-connected plants. Cummins Power Generation Nigeria has become one of the leading independent power producers in Nigeria, owning, financing and operating power plants throughout the country.

The first Cummins installation for NBC was at the company's Port Harcourt factory. This all-encompassing solution included load study, technical evaluation of the site, installation of optimal generator sets based on NBC's power requirements and load spikes, plus sourcing a secure natural gas supply. In addition, Cummins is now responsible for the full operation and maintenance of the power plant, and the 24/7 supply of reliable, cost-effective electricity.

The 5.5 MW solution operates off-grid in 'island mode'. The factory does not require 100% of its power output, so Cummins has partnered with Port Harcourt Electricity Distribution Company to operate as an Independent Power Producer. The factory now exports power to the grid, effectively reducing the electricity tariff for NBC and contributing directly to Nigeria's energy supply.

Over the past three years Cummins has deployed the same expertise at further NBC sites, generating a total of 120 million kWh. NBC has realised a saving of 50% per kWh compared to diesel-fired power generation. The quality and reliability of the electricity generated has proven so high that NBC has been able to disconnect its grid supply and invest further in new bottling lines.

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Cummins Power Generation Nigeria has so far installed nine QSV91 gas generator sets for NBC across three locations. Four 1750 kW generator sets are installed at NBC Ikeja, and two each at NBC Owerri and NBC Port Harcourt. The Port Harcourt location also has a single 2000 kW unit. Cummins Power Generation Nigeria recently won the bid for a further two 1750 kW generator sets for another site, known as NBC Enugu.

With each installation Cummins has adapted its solution to the exact needs of the factory. Pipeline gas is not available at an NBC site in Owerri, so Cummins is supplying Compressed Natural Gas (CNG) via Powergas Africa's 'gas on wheels' service. Natural gas is delivered through a virtual pipeline of high-pressure mobile storage 'skids' for decompression on site. This innovative solution has achieved 99.46% power availability for the customer. The new site at NBC Enugu will also operate on CNG.

The successful roll-out of gas based solutions at NBC factories around the country is testament to Cummins' investment in the full energy value chain. From gas supply to power generation equipment, to maintenance and aftermarket teams located in the client's own country, Cummins Power Generation Nigeria has proven its ability to deliver trigeneration technology and ensure 24/7 power where it's needed.

For more information about trigeneration power systems or other energy solutions, contact your local Cummins distributor or visit power.cummins.com

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