Quisqueya I & II

CASE STUDY

Powering the Dominican Republic

Sometimes, one plus one does not equal two. The 25,000 inhabitants of Quisqueya, a small town close to San Pedro de Macorís, in the Dominican Republic, know so. In September 2011, Barrick Gold Corporation acquired a majority share in a soon-to-be-opened gold mine, some 100 kilometres away from the Dominican capital, Santo Domingo. As soon as the mining company understood the needs of their new power-hungry mine, they decided to place an order for a state-of-the-art Wärtsilä power plant. The way in which Barrick, its host country and Wärtsilä would cooperate for the greater good came to exceed the initial expectations of any of the three involved parties and strike gold in an unforeseen way.

"Since we need to match the generation to the mine's load, the advantage of Wärtsilä's power plant is that we can vary the dispatch to match the load without sacrificing efficiency or suffering maintenance impacts."

Bernerd L. Crill,
Commercial Manager
Barrick Gold Mine

The Quisqueya project is a rare combination of two power plants. Due to clever project design it satisfies not only the gold mine's power needs, but also those of the local population. Quisqueya is presently the largest power plant in the Dominican Republic.

The dual function came to be as the largest utility in the country, EGE Haina, decided to jump on the boat of efficient and reliable power generation, turning the initial project to a synergetic effort where the total value exceeds the sum of its parts'.

While Quisqueya I is owned by Barrick Gold and serves the Pueblo Viejo Gold Mine, its twin sister Quisqueya II is owned by EGE Haina. Both power plants are operated by EGE Haina. Although ordered by different parties, the plants were built on the same site and together formed the largest power plant delivered by Wärtsilä at the time of the order, setting a new standard for the 21st century power plants. Quisqueya provides reliable flexible baseload power to the national grid of the Dominican Republic, and additionally provides primary and secondary frequency control services.

Both Quisqueya plants feature Wärtsilä Flexicycle™ combined cycle technology and operate on 12 Wärtsilä 50DF dual-fuel engines each. The primary fuel is to be natural gas with liquid fuel as back-up, and the combined output from the two plants will be 430 MW. Wärtsilä's scope of supply for the Quisqueya power plant includes full engineering, procurement, and construction (EPC). The power plant has a net efficiency of 48 %, which is an astonishingly high figure in tropical conditions, with soaring humidity and temperatures above 35 degrees. Does this sound like a new gold rush? Yes, but not like the one that struck California in the mid-1800s. This time, the quest for the yellow metal is taking the Dominican Republic by storm in a well-thought manner and providing the local community with new hopes and improved quality of life. One site, two plants, twenty-four Wärtsilä engines and hundreds of happy families.

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KEY DATA

CUSTOMER
Barrick & EGE Haina

TYPE
Flexicycle 50DF multi-fuel power plant

OPERATING MODE
Flexible baseload

GENSETS 12+12 x Wärtsilä 18V50DF

TOTAL OUTPUT 430 MW

FUEL Natural gas & heavy fuel oil (HFO)

SCOPE Engineering, Procurement & Construction (EPC)

DELIVERY 2013

CHALLENGE	WÄRTSILÄ'S SOLUTION	BENEFIT
Covering power need for both a mine and national utility	2-in-1 Flexicycle™ plant featuring 24 highly efficient 50DF engines	Dual benefit for both a mining company and the local population through a joint project
Coordinating the very different needs of two customers with a single solution	EPC delivery, Wärtsilä takes care of the project up to the last bolt	Peace of mind due to a turnkey solution
Demanding tropical operating conditions	Internal combustion engines insensitive to ambient conditions	Outstandingly high efficiency in a tropical climate – above 48%

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