



Saving money and carbon in Papua New Guinea

Papua New Guinea

NiuPower Limited (NiuPower), established in 2017, is a power generation company jointly owned by Kumul Energy Limited and Santos Limited. As an independent power producer, NiuPower focuses on natural gas-fuelled power generation using locally produced gas to power Papua New Guinea.

Papua New Guinea, the most populated country among the Pacific Island nations, requires reliable power to meet its energy needs. Near Port Moresby, the capital, NiuPower operates a 58.74 MW power plant delivered by Wärtsilä.

Lower costs, reduced emissions

The Port Moresby 58.74 MW power plant is the first ever utility-scale gas engine project in Papua New Guinea. It enhances the reliability of the local electricity grid and significantly reduces the carbon footprint of the country's power generation.

The power plant was built on an engineering, procurement, and construction (EPC) basis by Wärtsilä, in partnership with Clough Ltd, a construction and asset support services provider. The plant is part of NiuPower's infrastructure development programme that focuses on the development of power generation in Papua New Guinea.

The plant operates on six Wärtsilä 34SG engines running on natural gas, providing a reliable source of baseload power. The flexible Wärtsilä engines enable the power dispatch to match Papua New Guinea's real-time energy demand.

The plant is the lowest cost dedicated grid-connected thermal generation in the country. By replacing heavy oil and diesel fuels, it enhances sustainability of power generation across Papua New Guinea.

The plant's net capacity represents approximately 29% of the installed capacity of the whole Port Moresby System. Since no imported diesel fuel is required, the plant creates annual savings of around 100 million Papua New Guinean kina (approximately 25.6 million euros).

Reliable operations

In 2018, Wärtsilä and NiuPower signed a 15-year Operation and Maintenance Agreement. Under the agreement, Wärtsilä is responsible for the full operation and maintenance of the 58.74 MW power plant, ensuring optimal performance at all times. This lifecycle solution is supported remotely by Wärtsilä Expertise Centres.

Over the past five years, dispatch compliance has consistently been at 99%, with plant availability above 95%

Challenge	Solution	Benefit
<ul style="list-style-type: none">• Dependence on diesel with high fuel import costs• Need for stable, affordable, and lower-emission power supply	<ul style="list-style-type: none">• 58.74 MW gas engine power plant running on six Wärtsilä 34SG engines• 15-year O&M agreement supported by Wärtsilä Expertise Centres	<ul style="list-style-type: none">• A power plant providing approximately 29% of the Port Moresby grid's installed capacity• Reduced dependency on diesel, lowering emissions and power generation costs by up to PGK 100 million (EUR 25.6 million)• Power reliability, grid stability, and long-term sustainability

Customer

NiuPower Ltd.

Solution

58.74 MW gas engine power plant

Operating mode

Baseload & isochronous mode
(major grid frequency controller)
and grid black start

Gensets

6 x Wärtsilä 34SG

Location

Port Moresby, Papua New Guinea

Fuel

Natural gas

Wärtsilä scope

Engineering, procurement, and construction (EPC) delivery in partnership with Clough Ltd., 15-year operations & maintenance (O&M) agreement

Year of commercial operations

2019

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and reliability at 99.86% in 2024. All planned maintenance was completed till date without rework, demonstrating the high quality and workmanship of Wärtsilä engineers. Additionally, scheduled maintenance days were reduced from 18 to 11, achieving the target seven days ahead of time. In 2022, the system was configured for grid frequency control, enhancing grid strength. NiuPower plant currently operates in isochronous mode to maintain grid stability, a change successfully planned and executed by Wärtsilä.

Safety is a top priority, with zero LTIs reported over the past five years. Zero safety incidents demonstrate our focus on safety performance and lifesaving behaviors.

Community investment beyond the power station

Wärtsilä PNG and NiuPower extend their strong partnership beyond power generation. The companies have implemented several initiatives under the community investment program in five villages near the power plant. In 2024, they hosted a medical camp in Papa Village, the nearest village to the power plant, supported by the Port Moresby General Hospital staff. Michael Uilari, CEO of NiuPower, highlighted Wärtsilä's role in the initiative as instrumental in bringing all stakeholders together.

“The reduction in the scheduled maintenance days from 18 to 11 resulted in greater availability and increased revenue for our customer, PNG Power Ltd. The maintenance outcomes by the Wärtsilä PNG team were excellent.”

Michael Uilari
CEO, NiuPower Ltd.

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