


# Rehabilitation project restores original capacity

## CASE STUDY: LIMBE POWER PLANT



**"I ALWAYS RECOMMEND TO WORK WITH AND USE A GOOD OEM, SUCH AS WÄRTSILÄ."**

Limbe power plant, located in the southwest region of Cameroon, plays a significant role in the generation of electrical power for households and industries, most specifically in the Southern Interconnected Grid (SIG). Hence, it was vital to regain the full capacity of the plant after a severe decline in output.

"Prior to the rehabilitation project, each of the five engines had power derates of about 3-5MW. We definitely needed to improve the performance of the plant," says Mr. John Louis Batoko, South Grid Thermal Plants Sub-director at Generation Eneo.

Eneo Cameroon S.A. is a semi-public Cameroon-based company in the energy sector (56% of the company is owned by the British investment group Actis, the remaining 44% by the State of Cameroon). Eneo has an installed

generation capacity of 968MW, of which approximately 74% comes from hydro-power. Eneo has close to a million customers with around 45% living in the capitol Douala and the city of Yaounde. Eneo's activities

### CHALLENGE

- Regaining full plant capacity (16.0MW power from each engine) after a severe decline in output
- Overhauling five engines and a whole power plant in seven months

### SOLUTION

- Complete customised power plant rehabilitation, including upgrade of auxiliaries to achieve 16.0MW engine output

### BENEFITS

- Original total generation capacity of 80MW recovered, even ahead of schedule
- Reliable engines and power stability
- Savings through reduced fuel and lube oil consumption
- Reduced air emissions

are governed by a concession agreement between the Government of Cameroon and Actis.

## **VITAL NEED FOR PERFORMANCE IMPROVEMENT**

As much as 70% of power generation in Cameroon relies on hydro-power. During the country's eight-month dry season, from November to June, there is a projected shortfall in electricity. This -in addition to an increasing demand for power- easily leads to the stringent rationing of electricity.

The Limbe Thermal Power Plant in the southern region of Cameroon has five Wärtsilä 18V46 engines providing approximately 7-8% of the power generated in Cameroon.

– The main purpose of the Limbe baseload power plant is to supply electricity to the national grid. Due to power derates on each engine, caused by maintenance issues and extensive corrosion on the cooling system, we ended up in a situation where the plant could generate only about 40% of the installed total capacity of 80MW. We needed to rehabilitate and upgrade systems in the whole plant to regain the needed original output, says Mr. Batoko.

According to Mr. Batoko, there was no other option than to request for a rehabilitation of the power plant. Wärtsilä's solution was a complete power plant rehabilitation; a total overhaul of four Wärtsilä 18V46 engines and five alternators. In addition, the overhaul covered all critical auxiliaries, including the replacement and upgrade of radiator systems, as well as other auxiliaries.

– Our company has a preference for OEMs (Original Equipment



Manufacturers) in major maintenance activities, because of reliability in terms of spare parts and service work. So, for us it was only natural to work with Wärtsilä, says Mr. Batoko.

## **SUCCESSFUL PROJECT IN EVERY SENSE**

During seven months, Wärtsilä's engineers totally rehabilitated the entire power plant, including four engines. Mr. Batoko says that everything went according to the schedule and Eneo's expectations. Thanks to the project, the power plant has now regained its original 80MW output in baseload operation. The total electrical output is 85MW.

– We are very satisfied with the work of Wärtsilä's engineers. They did an excellent job in a very professional manner.

The project that was recently finished (February 2017) encountered only a few minor initial challenges regarding the timing of different project phases.

Mr. Batoko adds that there have been mainly positive experiences,

both with the project and the improved power plant.

– The reliability of the engines is a truly critical benefit for us. Other benefits other than improved performance include the training of our technical teams. The totally overhauled engines will also have a favourable heat rate, which means clear operational savings for us, says Mr. Batoko.

## **IMPACT ON THE COMPANY'S IMAGE**

Thanks to the plant rehabilitation, electricity is now accessible year-round, which improves living standards and promotes business growth in Cameroon.

– We are a long-term customer of Wärtsilä and would appreciate increased technical collaboration and knowledge sharing with Wärtsilä. A huge rehabilitation project like this one has a big impact on our company's overall performance, which in a way also has an impact on Wärtsilä's image, concludes Mr. Batoko.