

ENERGY  
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## CASE MARSEGLIA GROUP: WIRELESS MONITORING OF BEARING TEMPERATURE IMPROVES PLANT OPERATIONAL SAFETY



Francesco Semerano  
Plant Manager at Marseglia Group

To protect their two bio-oil driven power plants from potential damage, the Italian Marseglia Group installed Wärtasilä's real-time wireless monitoring system to control bearing temperatures.

– We have always had a solid trust in Wärtasilä's knowledge and competence. Now that we have increased the operational safety, our staff's trust in the engines remains steadfast, says Francesco Semerano, Plant Manager at Marseglia Group.



The Marseglia Group was established in Italy in 1974 and has today reached a turnover of more than 550 million Euros. Although the group has 30 years of experience in the processing and marketing of vegetable oils, its activities are also found in a range of different sectors that include industrial farming products, electricity generation, civil and industrial construction, hotels and tourism, finance and real estate.

– The Group was one of the first Italian companies to start using renewable resources for the generation of electricity, says Francesco Semerano.

### **MORE THAN 150 MW FROM LIQUID BIOFUEL**

With an installed capacity of more than 200 MW, the Marseglia Group is the first

producer in the world to use liquid biomass with internal combustion engines to generate green energy on an industrial scale.

– We produce and refine our own sunflower, soybean, palm, and rapeseed biodiesel to be used instead of conventional diesel. Our current daily production is approximately 550 metric tons.

The two power plants are located on the coastline near the city of Bari in the region of Puglia: the BL2 plant is in Monopoli, south of Bari and the BL3 plant is in Molfetta, north of Bari. Both plants are equipped with Wärtasilä 18V46 engines producing 153 MW in total. The larger plant, BL2, with an output of 115 MW has an annual consumption of 181,000 tons of liquid biomass, whereas the BL3, with an output of 38 MW, consumes 60,000 tons.



# “The reliability of our systems has improved significantly.”

Challenges	Solution	Benefits
<ul style="list-style-type: none"> <li>– Reducing engine downtime to a minimum</li> <li>– Enhancing operational safety</li> </ul>	<ul style="list-style-type: none"> <li>– Installing a wireless system for real-time monitoring of bearing temperature into 8 x 18V46 engines</li> </ul>	<ul style="list-style-type: none"> <li>– Improved operational safety</li> <li>– Improved system reliability</li> <li>– Reduced engine downtime</li> <li>– Prevented most serious crankshaft and engine-block breakdowns</li> </ul>

– The plants are operated by our own company, Ital Green Project Engineering Srl, and the electricity generated is sold to the national grid, says Francesco.

## IMPROVING OPERATIONAL SAFETY

Francesco says that Marseglia wants to be able to safely and reliably operate their power plants and prevent any potential engine breakdowns. In this respect, the monitoring of rising bearing temperatures is a hard yet vital thing to discover in good time. If left undetected, rising bearing temperatures could eventually lead to very costly engine breakdowns.

– Wärtsilä introduced us to their state-of-the-art wireless system for the continuous monitoring of bearing temperatures. We really liked the idea of being able to detect any uncharacteristic deviation in bearing temperature and immediately get a warning signal about it, before actual damage occurs.

Bearing damage always occurs unexpectedly and quickly. One of the most common reasons for engine breakdown among four-stroke, medium-speed engines is damage to the big-end bearings of the

connecting rod. The solution Wärtsilä offered consists of a wireless temperature sensor with one stationary antenna per cylinder and one signal processing unit.

The wireless temperature sensor is installed in the connecting rod. The core of the system is based on advanced radar technology, which makes it possible to use high quality, wireless passive sensors which require no external power sources.

– Now we have a wireless, real-time monitoring of the big-end bearing temperature, where we can also follow up on trends and see historical data, states Francesco.

The system is very fast in detecting emerging bearing failures as the reaction time is approx. 25 seconds; most common oil mist detectors require more than four minutes to react.

– This will certainly improve the operational security in our plants and prevent most serious crankshaft and engine-block breakdowns, which would lead to long engine downtimes. The reliability of our systems has improved significantly, which is one of the most important benefits with it all, says Francesco.

It is recommended that the sensors and cabling are installed during an engine overhaul and that the complete monitoring system be installed by authorized personnel.

– The installation work went very well and was done in only one week. Wärtsilä’s people did a really good job and the cooperation with our technicians went very smoothly. We have been cooperating with Wärtsilä for more than six years and have always received the support we needed. We are, all in all, very satisfied with the installation and it is our pleasure to recommend Wärtsilä’s solution to other customers with similar needs, concludes Francesco Semerano.