



## MAN Diesel's green cooperation with Termoindustriale

# BioFuel Power Generation on the Rise in Italy

**26 June 2007.** MAN Diesel's Power Plant Division is strongly developing its traditional 'heavy fuel oil' medium-speed engine business and is currently also heavily involved in the area of environmentally friendly, alternative fuels. Renewable and CO<sub>2</sub>-neutral, liquid fuels such as vegetable oils (palm, coconut, sunflower and rapeseed) are today greatly appreciated in more and more European countries as 'green' energy sources for land-based, electrical power generation; this power-plant segment seems to be particularly thriving in Italy. Currently, in the Italian biofuel power-plant market, the MAN Diesel Group is cooperating with Termoindustriale S.p.A., a specialist engineering, research and process-plant company, located about 70 km south of Turin in Santa Vittoria d'Alba.

### **Termoindustriale and MAN Diesel**

The successful partnership has thus far yielded 18 large (27- and 32-cm bore), medium-speed engines/generating sets, ranging in size from 2.6 to 8.7 MW. Walter Brovia, President of Termoindustriale, is pleased with the existing cooperation agreement, and expresses a positive view of the future: "We envisage very good prospects for the Termoindustriale biofuel power plants fitted with MAN Diesel engines. MAN engines are renowned in Italy for their quality, robustness and long lifetime. While the initial investments required are sometimes a little high, they are acceptable to our customers because the inherent,

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favourable, long-term, operational savings means they profit in the long run.”

## Current Italian orders and projects

The references listed here show the plants, their engine combinations and status, with the first power-plant start-up due to occur during September of this year.

Name	Engines	Plant	Site	Start / Status
CEREAL DOCKS	2 x 9L27/38	Industry	Camisano Vicentino (VI)	September 2007
IGI	18V32/40	Industry	Palomonte (SA)	December 2007
SBE	8L27/38 9L27/38	Industry	Monfalcone (GO)	July 2008
OXON	18V32/40	Industry	Mezzana Bigli (PV)	July 2008
NRG	3 x 9L27/38	Private	Lecce (LE)	Authorisation 2008
MAMO NEW ENERGY	3 x 9L27/38	Private	Andria (BA)	Authorisation 2008
ARCHE	4 x 8L27/38	Private	San Nicola (LE)	Authorisation 2008
Undisclosed client	2 x 8L27/38	Industry	Lombardia	Contract definition, Dec. 2007

## Safe and reliable operation with vegetable oils

All MAN Diesel medium-speed engines basically designed to handle very high-viscosity, heavy fuel oils are ideal for the reliable and efficient utilisation of a broad range of liquid, biological fuels. According to Ivano Laganà of Termodindustriale’s Research & Development Division: “For the time being, palm oil is the best solution and the cheapest oil. Our system is customised for palm oil, which,

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however, is a relatively high-viscosity oil that becomes solid at normal, ambient, temperature levels. Therefore, the fuel temperature and viscosity have to be controlled and kept within the correct temperature/viscosity levels – via our plants’ heater/booster modules – ensuring pumpability, optimal engine-injection, and efficient atomisation and combustion.”

## **Direct start on palm oil**

“The MAN Diesel engines integrated into our plants are uniquely operated, stopped and started directly with palm oil. This means that no additional gas/diesel system (nor vegetable-oil system) and supply is needed and, consequently, fuel change-over operations are rendered redundant”, says Laganà. He adds: “By Italian law, it is stipulated that if more than 5% of the fuel used is of ordinary fossil origin, then the plant can not be classified as a biomass/biofuel power plant.”

## **Challenges and customer benefits**

Walter Capponi, the Energy & Environment Division Manager explains: “We offer our customers the advantage of producing electrical power and heating/cooling power simultaneously through the use of renewable, biological fuel sources such as the oil palm, rapeseed and sunflowers. Through these sources, customers avoid using finite, subterranean, fossil-fuel resources, limit the greenhouse effect, reduce pollutant emissions, and make a quick financial return.”

According to Walter Brovia, the most challenging factors for Termoindustriale’s future, biofuel-business development

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are the short delivery times required by customers, the time authorities take to issue Green Certificates, engine and generator delivery times and, naturally, oil prices.

## **Green incentives - Green certificates**

In Italy an incentive programme of 'Green Certificates' established under the so-called Bersani Decree, ensure the producers of power based on renewable clean sources an income from the sale of the certificates on top of the price for the energy sold. From April 2006 the active time frame for the Green Certificates obtained were prolonged from a period of 8 years to 12 years.

## **About Termoinindustriale S.p.A**

TERMOINDUSTRIALE's experience in the plant engineering field began in 1964 with industrial assemblies, and has built up over the years. By the beginning of the 1980's simple assembly had developed into the designing and delivery of complete facilities, including turnkey solutions. Today it is represented by Certified Quality from design to installation, commissioning and start-up assistance, as well as maintenance – of the diverse project areas such as: Heating and refrigeration plants, co-generation plants, general and service fluid distribution systems, assembly of technological plant and stainless steel piping, industrial air conditioning plants, water fire extinguishing systems and sprinklers, MV/LV power transformer substations, power distribution and lighting, electronic and pneumatic instrumentation, and plant automation.

For the marine engine sales in Italy, (four-stroke medium-speed) the company Ranieri Tonissi S.p.A., Genoa, is representing MAN Diesel.

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## About MAN Diesel

MAN Diesel is the World's leading provider of large-bore diesel engines. The company designs two-stroke and four-stroke diesel engines, generating sets, turbochargers and CP propellers, for manufacture by MAN Diesel and its licensees. The engines have outputs ranging from 450 to 97,300 kW. MAN Diesel has approximately 6,400 employees, located in Germany, Denmark, the UK, France, the Czech Republic and China. The company's worldwide service organisation, MAN Diesel PrimeServ, consists of a network of own service centres, supported by authorised partners. MAN Diesel is a subsidiary of the German industrial group MAN AG, which is listed on the DAX stock index comprising the 30 largest companies in Germany.

## Images and graphics

1) *Termodustriale managers – from left:*

**Mr. Giacomo Viberti,**

*General Director*

**Mr. Walter Capponi,**

*Division Manager*

**Mr. Walter Brovia, President**



2) *3D exterior model showing the oil-storage tanks, the power house for three engines/generating sets with cooling towers and exhaust-gas after-treatment equipment*



3) *MAN Diesel Generating-set type 8L27/38 for 2.6-MW output under biofuel operation*



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