

T O M O R R O W I S C R E A T E D T O D A Y

Cogenerating boiler

Scientists and engineers have made significant advances in the field of alternative, clean energy technologies such as solar, wind and biofuels.

In spite of these advances, it is evident that fossil fuels will remain the most important source of thermal energy to industry for the foreseeable future.

For both economic and environmental reasons, it is therefore imperative that energy efficiency be maximised.

**COGENERATION 7 - 20 KW
 MODULE COGEGREEN**

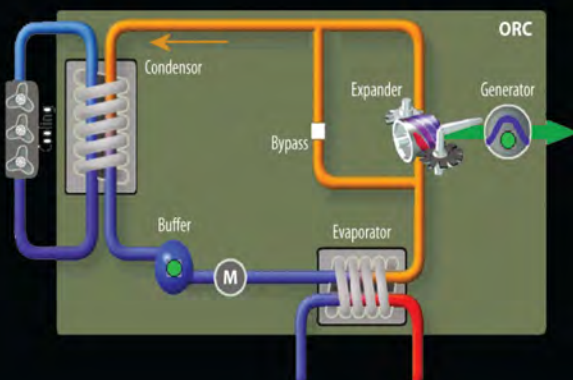
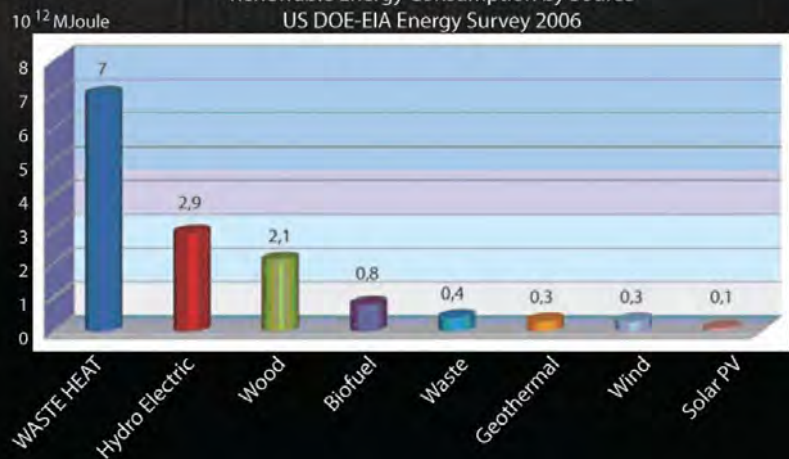


Powered by waste

Although there have been great advances in energy optimisation, it is still recognised that there is a significant loss of energy in the form of industrial waste heat. This loss is estimated to be significantly greater than the energy generated through all alternative energy sources together. (Source: US DOE/EIA Energy Survey 2006).

WES offers an effective and viable solution to recover and convert a part of this waste energy into electricity, which in turn is fed to the power grid, thereby reducing net emissions and fuel consumption, while offering the client an additional revenue opportunity.

Renewable Energy Consumption by Source
 US DOE-EIA Energy Survey 2006



Proven technology

The ORC technology or 'Organic Rankine Cycle', named after the Scottish engineer William John Macquorn Rankine, is similar to the cycle used to drive a conventional steam turbine in which water is heated to produce steam, which due to an increase in pressure causes the turbine to rotate.

The ORC cycle however replaces water with an Organic Fluid, which is able to vaporise at a lower temperature than water. This permits the use of waste heat as a 'Clean Fuel' for power generation.

TOMORROW IS CREATED TODAY

Ecological and financial advantage

WES ORC-Technology is able to recover and generate electrical energy from a broad range of thermal heat sources including: exhaust gasses from combustion systems and motors, industrial fluid streams and exothermic process etc.

The electrical energy produced may then be used to compensate the electrical energy consumed within the facility and or sold to the local grid.

Should the initial fuel source be considered renewable, under current European Legislation it is also possible to earn green certificates and or sell the electrical energy at a premium tariff with an obvious positive effect on the return on investment of your project.

WES ORC-Technology offers an opportunity to improve the global efficiency of your installation while reducing your carbon footprint, as the technology

generates zero emissions and represents no environmental disturbance.

It is therefore a discrete power supplier offering you immediate financial and significant environmental benefits.



ORC design

WES, due to its extensive engineering and industrial expertise as a systems manufacturer for industry, is able to offer the highest standard in ORC-Technology at an unequalled price per produced kWe.

WES has designed its ORC technology to operate using recovered waste heat in a temperature range of between 80°C and 150°C and for a power range of 5 to 500 kWe at 400 VAC.

The systems have been conceived to be capable of operation in battery thereby enabling greater energy recovery, partial load efficiency and redundancy in the event of maintenance.

Furthermore, the systems are preconfigured and fully tested in our production facilities.

Standard components

During design, WES has used standard components employed in the automotive and aerospace sector that have been optimized and improved through internal expertise and extensive research, in order to guarantee reliability, performance and client satisfaction.

In this regard, the heart of the ORC system is the Z-screw expander, which in turn is connected directly to the asynchronous generator. As a result expensive and potentially fragile components are avoided, such as fast rotating turbines and or transmission systems.

This guarantees the reliability of the ORC system and ensures low operational costs and a fast return on investment.

Extensive software control

The ORC unit and all related systems including the connection to the power grid are controlled via a robust and user-friendly software interface. This enables simple and highly autonomous operation of the plant in addition to real time monitoring of energy generation and other key parameters.

Safe ORC fluid

The ORC fluid used within the closed loop system is environmentally safe, inflammable and nontoxic. In the WES units, it can be used in a temperature range of between 80°C and 150°C.

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