

## TURBODEN CELEBRATES THE 300<sup>th</sup> ORC BIOMASS PLANT

With the sale of its 300<sup>th</sup> ORC\* biomass plant, Turboden confirms itself as a leader in the biomass market. From the first 300 kWe unit sold in Switzerland, to the latest 5 MWe plant sold in Turkey for AGT, Turboden gets ahead, developing flexible, cost-efficient and economically profitable solutions for its customers. A few highlights:

- **Larger sizes** (than in the past): up to 12 MWe in operation and even larger coming soon
- **Global presence**: 40 countries reached
- **Innovative approach**: implementation of **island mode operation** (providing electric power in areas where the electricity system is not stable) and the **direct heat exchange system** (avoiding the heat transfer media, which allows to reduce the investment cost and to improve the ORC performances)
- **Flexibility**: various types of biomass employed (sawmill residues, bark, olive pomace and pits, rice husks, etc. – find out more on our website), thanks to the collaboration with several proper technological boiler suppliers and the possibility to receive either thermal oil and/or saturated steam.

“In the years ahead” states **Paolo Bertuzzi – Managing Director and CEO at Turboden S.p.A.** “we have the ambition not only to maintain but also to increase our leadership in this Biomass CHP market, emphasizing the advantages of ORC solutions versus steam: no need of water for the cooling system and for the process, automatic operations, high efficiency also at partial load, and many others. Moreover, an innovative technological solution “Turboden Steam & Power” is entering in “commercial phase”: producing steam it will enlarge Turboden presence in the cogeneration market beyond the typical temperatures of 80 - 100 °C.

Turboden owes its success mainly to its customers’ loyalty: 90% of them maintain an after-sales contract in place and many of them are “returning clients”: as an example, the German customers Ziegler that has 3 Turboden ORC plants, and Rodeuth that recently inaugurated its third Turboden unit (3 MWe).

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**Turboden**, a Mitsubishi Heavy Industries company, is an Italian firm and a global leader in the design, manufacture and maintenance of Organic Rankine Cycle (ORC) systems, highly suitable for distributed power generation. ORC systems can generate electric and thermal power exploiting multiple sources, such as renewables (biomass, geothermal energy, solar energy), traditional fuels and waste heat from industrial processes, waste incinerators, engines or gas turbines. Turboden has more than 360 plants in 40 countries and offers turbogenerators up to 20 MWe. [www.turboden.com](http://www.turboden.com)

**\*Organic Rankine Cycle**: The Rankine Cycle is a thermodynamic cycle that converts heat into work. The heat is supplied to a closed loop, which typically uses water as working fluid. The Organic Rankine Cycle's principle is based on a turbogenerator working as a conventional steam turbine to transform thermal energy into mechanical energy and finally into electric energy through an electrical generator. Instead of generating steam from water, the ORC-system vaporizes an organic fluid, characterized by a molecular mass higher than that of water, which leads to a slower rotation of the turbine, lower pressures and no erosion of the metal parts and blades.