INTEC Engineering GmbH Bruchsal and Ugurlular Denizli, a strategic partnership

In Turkey, there have been high feed-in tariffs for the generation of electricity from renewable energy production for several years. Initial discussions with our customer, the company Ugurlular Tekstil, took place in summer 2019 and led to an order in autumn 2020.

Ugurlular Tekstil is a privately owned family business based in Denizli, Turkey. The company produces and exports high-quality yarns for the apparel industry. In 2017, Ugurlular Energy began generating renewable energy via a solar plant with a peak electrical output of 18 MW. Further projects for environmentally friendly power generation through biogas and biomass have since been part of a new environmental strategy and are making a significant contribution to the ecological transformation in Turkey.

The newly founded company Ecogreen Energy has set itself the goal of producing a total of approx. 82 MW of green electricity by 2023. With the commissioning of INTEC Engineering GmbH for the planning and delivery of a highly efficient energy centre, Ecogreen Energy is a big step closer to its corporate goal.

The INTEC plant is scheduled to go into operation as early as the end of 2021.13.5 MW of electricity will be produced in a turbine from TGM Kanis in Nürnberg through the generation of high-pressure steam.The thermal power required for this is generated from the incineration of agricultural waste, chicken manure and pre-sorted waste. With a firing thermal capacity of 43 MW, superheated steam at 480°C and 55 bar is fed to the turbine. The plant operates at full load with an efficiency of approx. 92%.

An "INTEC moving grate" forms the heart of the plant. The innovative combustion technology leads to the lowest possible emissions even at "low" combustion temperatures of 850°C. The moving grate is mounted on low-wear rollers and is positively guided.

All wearing parts are screwable and can be replaced in a short time without time-consuming welding work. The grate bars are designed to overlap so that fuels with a fine grain size can also be used without any problems.The steam generator is designed according to the latest standards (EN 12952) and is equipped with a special protective coating (cladding) to prevent high-temperature corrosion in some areas.

Cleaning devices for the heating surfaces as well as downstream combustion air preheaters contribute to a high thermal efficiency and a long-term availability of the plant. A bag filter system with reactor and additive dosing ensures compliance with strict European emission limits and thus leads to acceptance by the population. The emissions are continuously monitored.

The fail-safe SIEMENS control system monitors and regulates the entire process fully automatically. All necessary process parameters are continuously recorded and evaluated. A WINCC visualisation system and the selected sensors and measurement technology enable virtually monitoring-free operation (72 h without supervision).Further tools allow remote access to the visualisation and control system of the plant, so that the customer can also be helped quickly from a distance in the event of any malfunctions. A multi-stage reaction turbine generates electricity in a synchronous generator, which is fed into the Turkish local grid.

INTEC energy centre13.5 MWe, Denizli