



UMURLU I, II
AYDIN, TURKEY

01 CLIENT BRIEF

Karadeniz Energy Group has been involved in power production since 1996, and is the world's leading operator of powerships, with a fleet summing up to 2.2 GW (2017). In order to develop their geothermal resource, located in Umurlu – Aydin area, they were looking for the best performing solution for their power plant.

02 THE SOLUTION

EXERGY tailored the entire process from design to supply of the two plants offering highest market performance, project commitment, flexibility and customer assistance.

With the constraint of supplying an air-cooled system, the highest performance has been achieved by providing a 2 pressure level cycle with 2 radial outflow turbines (high pressure and low pressure) coupled to a single double-ended generator. Considering the Turkish evolving market, EXERGY decided to start up a local company and was therefore able to provide the first Made in Turkey turbines that could guarantee a higher feed in tariff ensuring increased profitability to the client. EXERGY also established a highly skilled service team able to offer onsite maintenance and remote support.

03 THE RESULT

Thanks to the perfect combination of innovation and efficiency with the electricity produced the two plants could power up to 7000 households per year and save 15,000 tons of oil equivalent per year. The two units have been constructed in two consecutive phases and are now both fully operational.

CLIENT NAME

KARKEY (KARADENIZ GROUP)

PLANT NAME

UMURLU I, II

PLANT LOCATION

AYDIN AREA, TURKEY

DATE OF IMPLEMENTATION

2015 (PHASE I) 2016 (PHASE II)

PLANT SIZE (PER UNIT)

12 MWe

APPLICATION

GEOTHERMAL

MODEL USED

GEX1200

FLOW OF GEOTHERMAL STEAM/BRINE (PER UNIT)

25 t/h -975 t/h

PRESSURE OF GEOTHERMAL STEAM/BRINE

10 BAR

TEMPERATURE OF GEOTHERMAL STEAM/BRINE

145°C

TYPE OF FLUID

ISOPENTANE

ELECTRICAL GENERATION GROSS (PER UNIT)

12,000 kWe

EFFICIENCY GROSS

13.2 %

CONDENSING SYSTEM

AIR COOLED CONDENSER 18 °C

GENERATOR VOLTAGE

11 kV

INSTALLATION

OUTDOOR