

ABSTRACT OF THE DISCLOSURE

Provided is a combined cycle power generation system that allows the power generating efficiency to be improved by effectively utilizing the waste heat of a gas engine. The system comprises a gas engine (2) using BOG for fuel thereof, a first power generator (4) driven by the gas engine, a refrigerant turbine (3) using hydrocarbon mixed refrigerant for working fluid thereof, a second power generator (5) driven by the refrigerant turbine, a refrigerant heater (31) for heating the mixed refrigerant by using cooling liquid for cooling the engine as a heat source, a heat exchanger (11) for further heating the mixed refrigerant heated by the refrigerant heater by using exhaust gas of the engine as a heat source, and a condenser (22) for condensing the mixed refrigerant expelled from the refrigerant turbine.