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CASE STUDY

PRODUCT: RBR INDUSTRIAL EVAPORATOR COIL

APPLICATION: GAS TURBINE INLET AIR COOLING
W/DIRECT AMMONIA REFRIGERATION

(QTY) X MODEL: (24) X RBR-65.25x258-8R-5F-WR



Combustion turbines are widely used as prime movers in the **power generation** industry because of their relatively **clean** combustion characteristics, acceptable thermal cycle efficiencies, and **cost effectiveness**. The **power output** of a combustion turbine can be significantly **increased** on a high ambient temperature day by **cooling** the air to increase its density. One method used to cool the inlet combustion air is with **direct refrigeration** and cooling **coils**. Bringing the air temperature down to 45-50F using refrigerated cooling coils on a hot summer day can **increase** the **output** of the turbine by as much as **15-20%**.

Colmac was contacted by a large industrial refrigeration contractor to provide **turbine inlet air cooling coils** for (2) x **General Electric 7FA** combustion turbines. Each GE 7FA turbine produces approx. **160 MW** of electrical power. The cooling system uses **recirculated ammonia** supplied to a large bank of **Colmac RBR evaporator coils** integrated into each turbine **filter house**. Because of the liabilities associated with even a small ammonia leak, the **customer specified** evaporator coils constructed with **stainless steel tubes** designed to **ASME Pressure Vessel Code** requirements bearing the **ASME 'U' stamp**. **Colmac** engineers developed the design using **stainless steel tubes** and **ASME** construction to minimize any risk of leaks, and **aluminum fins** for **light weight** and **high heat transfer performance**.



Each turbine required **(12) cooling coils** with a combined cooling capacity of approx. **4,000 Tons** at design conditions. **Colmac** sales and engineering staff worked closely with the contractor, turbine OEM, and owner, to fabricate the coils to specifications and meet **tight delivery** requirements.