

Water-cooled condenser will remove as much heat as is available or required, then air-cooled condenser rejects the rest

Control Panel, PLC Communications Panel and interface Electronics

Air-cooled condenser and fan assembly (unit-mounted for small capacity modular assemblies)

Generator Module- capacity and voltage as required

Engine Module

Thermal Supply piping from HVAC Chiller Condenser Water- Operating water temperature is 125F or lower- Water as cool as 95F inlet and 85F outlet is OK.

Dom Hot Water from water-cooled condenser

Dom Water to water-cooled condenser

**For Larger Capacity Modules-**

Refrigerant Low Pressure Liquid Piping from condenser

Refrigerant Low Pressure Gas Piping to condenser

Electrical Feed from UPS- Voltage, Phase and Peak kW to match loads- sent to distribution panels

Air-cooled condenser inlet louver (small capacity modules only)

**Engine drives Generator via timing belt connection. Generator output feeds battery bank, battery bank feeds UPS system, UPS feeds appropriate voltage, phase and frequency to loads. As load power changes, battery bank supports excess load or stores excess output until generator can recover.**

# FreeLoader<sup>TM</sup> CHR

## Cooling Heat Rejection Powered Refrigerant Engine and Generator

- > **This system solves two totally independent problems and provides significantly lower operating cost because of it.**
- > Uses Thermal Energy in condenser water to operate refrigerant-based engine to drive generator AND **eliminates the need for cooling towers completely** (including water and chemical use).
- > System condenser outlet will provide for entering water to chillers as low as 50F to allow chillers to operate with **very high energy efficiency**.
- > **125F out, 45F back condenser water provides 0.8 kW/ton output power- chiller and condenser energy covered PLUS excess energy to building "grid".**
- > **Costs less than \$1,000 per NET kW.**
- > **100% CO2 and NOx savings.**