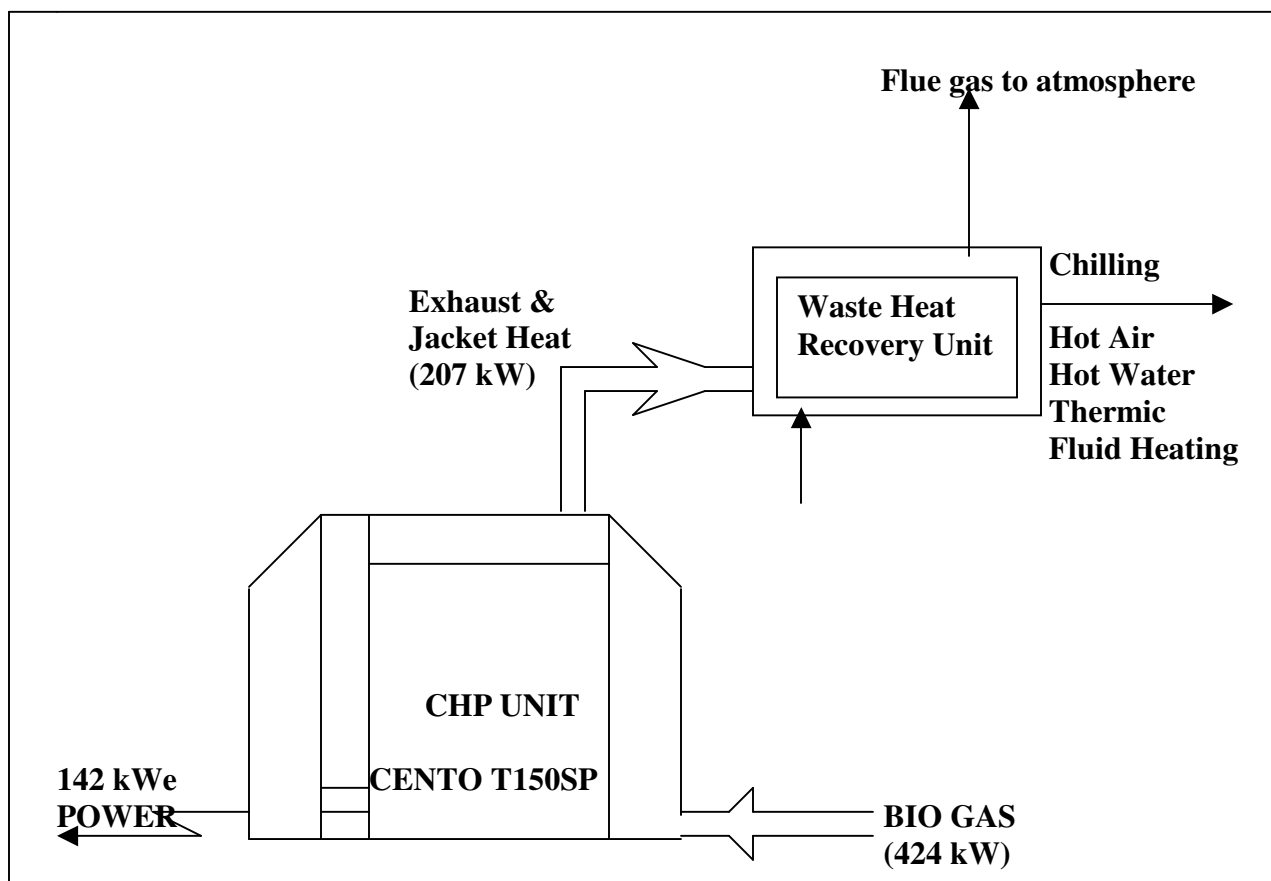


BIOGAS (CHP) BASED CO-GENERATION SYSTEMS

As **Biogas** is available at your plant, we can install a **Biogas engine** that will generate electricity and heat, normally called as **CHP (combine heat & power) unit**. The heat output will be utilized for supplementing your boiler feed water, chilling, hot air, & thermic fluid heating using a suitable heat exchanger, thereby reducing the equivalent amount of fuel, which otherwise are required to effect these applications.

Technical & Heat Utilization Details for a typical Biogas fired C H P module



Biogas Engine Specifications:

- 1) Type of Gas Engine: **Cento T150 SP BIO**
- 2) Electrical output: **142 kW**
- 3) Heat Output: **207 kW**
- 4) Gas consumption at 100% of output: **424 kW**
- 5) Per unit Cost: **0.30 Rs/kW** (Service & Maintenance Costs)

Utilities met:

1) Hot water:

Inlet temperature: 30⁰C

Outlet temperature: 90⁰C

Quantity of hot water available from Cento T150 SP BIO: **2967kg/hr**

Option for heat utilization: Chilling

Quantity of chilling available from Cento T150 SP BIO: **41.4 TR**

Note: Heating of thermic fluid or air can also be carried out using the heat of the C H P unit.

Thus if the heat of the C H P unit is utilized to 100%, the electricity cost per kW can be as low as 0.30 Rs/kW (Service & Maintenance Cost)

Economic Analysis

Power Generation	=	142KW
Fuel Consumption	=	424 kW
Power savings	=	RS/- 52 Lacs.
Gas Cost	=	Service and maintenance cost

Heat Savings

Hot water for boiler (207 kW primary heat)	=	RS 10.5 Lacs
Net Savings	=	Rs/- 58.67 Lacs
Payback period	=	Less Than two year.