We have a number of solutions to reduce your operational costs and your greenhouse gas emissions.

Our CHP systems offer a secure and energy efficient method of generating electricity and heat from the same diesel or gas powered generating set to achieve a significant reduction in energy cost.

The electricity generated replaces or reduces the electricity bought from the electrical supply utility while the heat generated replaces or reduces the heat normally provided by your heating boiler.

**COMBINED HEAT & POWER (CHP)**

<table>
<thead>
<tr>
<th>DIESEL CHP</th>
<th>BIFUEL CHP</th>
<th>GAS CHP</th>
<th>GAS CHP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STANDARD DIESEL GENERATOR</strong></td>
<td><strong>BI-FUEL GENERATOR</strong></td>
<td><strong>STANDARD GAS GENERATOR</strong></td>
<td><strong>SPECIAL GAS GENERATOR</strong></td>
</tr>
<tr>
<td>STANDARD DIESEL GENERATOR RUNNING ON STANDARD DIESEL FUEL WITH A SET MOUNTED RADIATOR AND ENGINE DRIVEN COOLING FAN FITTED WITH AN EXHAUST HEAT RECOVERY SYSTEM</td>
<td>STANDARD DIESEL GENERATOR WITH A BI-FUEL UP-GRADE WHICH ALLOWS THE ENGINE TO RUN ON A DIESEL/GAS FUEL MIXTURE FITTED WITH AN EXHAUST HEAT RECOVERY SYSTEM</td>
<td>STANDARD GAS GENERATOR RUNNING ON GAS FUEL WITH A SET MOUNTED RADIATOR AND ENGINE DRIVEN COOLING FAN FITTED WITH AN EXHAUST HEAT RECOVERY SYSTEM</td>
<td>SPECIAL GAS GENERATOR RUNNING ON GAS FUEL FITTED WITH A COOLANT AND EXHAUST HEAT RECOVERY SYSTEM AND DUMP RADIATOR FOR INDEPENDENT OPERATION</td>
</tr>
<tr>
<td><strong>FUEL</strong> : 100% DIESEL</td>
<td><strong>FUEL</strong> : 30% DIESEL</td>
<td><strong>FUEL</strong> : 100% GAS</td>
<td><strong>FUEL</strong> : 100% GAS</td>
</tr>
<tr>
<td><strong>HEAT RECOVERY</strong> : 50%</td>
<td><strong>HEAT RECOVERY</strong> : 70% GAS</td>
<td><strong>HEAT RECOVERY</strong> : 50%</td>
<td><strong>HEAT RECOVERY</strong> : 90%</td>
</tr>
<tr>
<td><strong>SERVICE INTERVAL HOURS</strong> : 500</td>
<td><strong>SERVICE INTERVAL HOURS</strong> : 500</td>
<td><strong>SERVICE INTERVAL HOURS</strong> : 15000</td>
<td><strong>SERVICE INTERVAL HOURS</strong> : 90%</td>
</tr>
<tr>
<td><strong>CAPITAL COST</strong> : LOW</td>
<td><strong>CAPITAL COST</strong> : MEDIUM</td>
<td><strong>CAPITAL COST</strong> : MEDIUM</td>
<td><strong>CAPITAL COST</strong> : HIGH</td>
</tr>
<tr>
<td><strong>EXHAUST EMISSIONS</strong> : MEDIUM</td>
<td><strong>EXHAUST EMISSIONS</strong> : MEDIUM</td>
<td><strong>EXHAUST EMISSIONS</strong> : LOW</td>
<td><strong>EXHAUST EMISSIONS</strong> : MEDIUM</td>
</tr>
<tr>
<td><strong>RANGE</strong> : 30kVA - 2500kVA</td>
<td><strong>RANGE</strong> : 30kVA - 2500kVA</td>
<td><strong>RANGE</strong> : 240kVA - 1250kVA</td>
<td><strong>RANGE</strong> : 240kVA - 1250kVA</td>
</tr>
</tbody>
</table>

**NEW**

**ECO POWER**

**YOUR PARTNER IN CLEAN EFFICIENT HEAT & POWER**
**WHAT IS BI-FUEL**

BI-FUEL is the name given to a mixture of GAS (70%) and DIESEL (30%) when used in a conventional diesel engine. The diesel engine remains unchanged but gas is introduced into the air combustion system after the airfilter by means of a gas mixer. All the diesel engine parameters are kept within normal diesel limits when operated on BI-FUEL.

**BENEFITS**

- LOWER ENERGY COSTS
- LOWER OPERATING COST
- LOWER MAINTENANCE COST
- LOWER EXHAUST EMISSIONS

**RANGE**

<table>
<thead>
<tr>
<th>OUR ENTIRE STANDARD DIESEL GENERATOR RANGE CAN BE UP-GRADED WITH A BI-FUEL SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>RANGE : 30KVA - 2500KVA</td>
</tr>
</tbody>
</table>

**DIESEL ENGINE BI-FUEL UP-GRADE**

The BI-FUEL up-grade system consists of three major components:

- GAS MIXER
- GAS TRAIN
- CONTROL PANEL

**BI-FUEL CHP**

Our BI-FUEL CHP range (using diesel engines) is supplied with heat recovery on the engine exhaust and cooling systems. Because the engine is operating on a 70% gas mixture, the running costs and maintenance intervals approach that of a gas engine. Our BI-FUEL CHP range retains all the diesel engine advantages.

**ADVANTAGES**

- LOW COST
- SUPERIOR LOAD ACCEPTANCE
- SIMPLE TECHNOLOGY

**TECHNICAL DATA**

<table>
<thead>
<tr>
<th>FUEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>70% GAS</td>
</tr>
<tr>
<td>30% DIESEL</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HEAT RECOVERY SYSTEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXHAUST : YES</td>
</tr>
<tr>
<td>COOLANT : YES</td>
</tr>
</tbody>
</table>

**YOUR PARTNER IN CLEAN EFFICIENT HEAT & POWER**
COMBINED HEAT & POWER (CHP)

Our CHP systems can reduce your operational costs and your greenhouse gas emissions.

Our CHP systems offer a secure and energy efficient means of generating electricity and heat from the same Gas/Diesel/Bi-fuel powered generator set to achieve a significant reduction in energy costs.

The electricity generated replaces or reduces the electricity bought from the electrical supply utility while the heat generated replaces or reduces the heat normally provided by the heating boiler.

ENERGY EQUATION FOR STANDARD GENERATOR SHOWING RECOVERABLE HEAT AVAILABLE

RECOVERABLE HEAT

23% WASTE HEAT
JACKET WATER

5% WASTE HEAT
RADIATED

32% WASTE HEAT
EXHAUST

40% USEFUL POWER
ELECTRICITY

YOUR PARTNER IN CLEAN EFFICIENT HEAT & POWER
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HEATING SYSTEM RETURN HOT WATER

GENERATOR SET (WITH INTEGRAL RADIATOR)

HEATED WATER RETURNED TO BOILER

HEAT RECOVERY PACKAGE LEVEL 1
STANDARD: EXHAUST GAS HEAT EXCHANGER
OPTIONAL: JACKET WATER HEAT EXCHANGER
COMBINED HEAT & POWER (CHP)

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HEAT RECOVERY PACKAGE LEVEL 2
STANDARD: EXHAUST GAS HEAT EXCHANGER
STANDARD: JACKET WATER HEAT EXCHANGER

YOUR PARTNER IN CLEAN EFFICIENT HEAT & POWER
Our CHP systems can reduce your operational costs and your greenhouse gas emissions.

Our CHP systems offer a secure and energy efficient means of generating electricity and heat from the same Gas/Diesel/Bi-fuel powered generator set to achieve a significant reduction in energy costs.

The electricity generated replaces or reduces the electricity bought from the electrical supply utility while the heat generated replaces or reduces the heat normally provided by the heating boiler.

The heat generated by the CHP system can also provide chilled water using an absorption chiller.
Our CHP systems can reduce your operational costs and your greenhouse gas emissions

Our CHP systems offer a secure and energy efficient means of generating electricity and heat from the same Gas/Diesel/Bi-fuel powered generator set to achieve a significant reduction in energy costs.

The electricity generated replaces or reduces the electricity bought from the electrical supply utility while the heat generated replaces or reduces the heat normally provided by the heating boiler.

The CHP electrical output is paralleled with the Utility Supply by means of two motorised circuit breakers controlled by the CHP synchronising control panel.

**CHP ELECTRICAL INTERFACE**

**COMBINED HEAT & POWER (CHP)**

**HEATING SYSTEM RETURN HOT WATER**

**HEATED WATER RETURNED TO BOILER**

**PARALLELING SWITCHGEAR**

**GENERATOR**
OUR COMBINED HEAT & POWER (CHP) SYSTEMS OFFER A SECURE AND HIGHLY EFFICIENT METHOD OF GENERATING ELECTRICITY AND HEAT FROM THE SAME NATURAL GAS POWERED GENERATOR SET TO ACHIEVE A SIGNIFICANT REDUCTION IN ENERGY COSTS.

THE CHP GENERATES ELECTRICITY WHICH REPLACES OR REDUCES THE ELECTRICITY NORMALLY BOUGHT FROM YOUR UTILITY SUPPLIER.

THE CHP ALSO GENERATES HEAT WHICH REPLACES OR REDUCES THE HEAT PROVIDED BY YOUR BOILER.

THE GENERATED HEAT CAN ALSO PROVIDE CHILLED WATER USING AN ABSORPTION CHILLER.

CHP CAN PROVIDE REAL ECONOMIC COST BENEFITS AND AT THE SAME TIME PRESERVE THE ENVIRONMENT.

REDUCING ENERGY COSTS WHILE PRESERVING THE ENVIRONMENT.

YOUR PARTNER IN CLEAN EFFICIENT HEAT & POWER.