Low emissions through patented LEANOX™ lean combustion.
Wide range of power and heat outputs
90 percent overall efficiencies (electrical and thermal)
Electrical efficiencies up to 48 percent
Advantages:
- GE's cogeneration plants have numerous advantages.
- Electrical efficiencies up to 48 percent
- Overall efficiencies (electrical and thermal) up to 90 percent
- Wide range of power and heat outputs
- Low emissions through patented LEANOX™ lean combustion
- Compact design for a small footprint
- Fuel flexibility to use natural gas, biogas, landfill gas, coal mine gas or coke gas
- Excellent operational safety and availability
- Significant cost savings in areas with moderate to high power prices

Key data:
A cogeneration plant with 1,000 kWel and 1,250 kWth meets the following heating demands:
- Heat distribution: approximately 115,000 square feet of residential area
- Hospital: approximately 150 beds
- Building supply: approximately 110,000 square feet of usable area

Our competence:
The efficient energy generation of combined heat and power is increasingly attractive in an era of growing energy use and costs, along with heightened awareness of climate change. Our innovative Jenbacher cogeneration plants place GE among the world's technological leaders in CHP, and more than 9,000 of GE's cogeneration plants have been delivered around the world. Their overall electrical output is approximately 12,000 MW. They annually produce more than 50 million MWh of electricity and heat. This amount of energy can power about 3.6 million US homes and heat about 5 million US households. The deployed fleet also reduces CO₂ by trillion tons – the amount of emissions from about 480,000 US cars per year.

Natural gas-driven Jenbacher engines for combined heat and power systems were designed as an alternative to products because of their tremendous cost effectiveness, efficiency and drastically reduced emissions. Cogeneration is the combination of strategic and imaginative that GE has applied to innovative technologies that have delivered proven economic and environmental protection benefits.

Further information about gas engines from GE Power & Water:

GE Power & Water

 Generating power and heat, where you need it

Cogeneration with Jenbacher gas engines from GE.
Combined heat and power (CHP) systems simultaneously generate power and heat. CHP energy conversion saves up to 40 percent of primary energy compared to the separate generation of power and heat, and reduces emissions of sulfur dioxide (SO2), nitrogen oxide (NOx) and carbon dioxide (CO2). Cogeneration plants also limit nitrogen oxide and sulfur dioxide emissions.

### Environmental advantages

#### Fuel savings and emission reductions

<table>
<thead>
<tr>
<th>Energy Input</th>
<th>Separate Power and Heat</th>
<th>Combined Power and Heat</th>
<th>Combined Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>179%</td>
<td>129%</td>
<td>244%</td>
<td>10%</td>
</tr>
</tbody>
</table>

#### Energy losses

- **Energy Input:** 129%
- **El. Grid:** 45%
- **Decentralized Cogen (Nat. Gas):** 10%

#### Cost-saving fuel flexibility

GE’s cogeneration plants also can run on various organic and special gases from agricultural mining, waste management, and other initiatives. Since the energy potential of these gases will otherwise be wasted and/or removed at great cost, the application makes cogeneration that much more economically attractive for traditional power production.

### Case in point

- **Commercial and industrial potential**
  - Administrative and other public buildings
  - Data centers
  - Food and beverage industry facilities
  - Amusement parks
  - Airports
  - Hospitals
  - Residential and commercial buildings

- **Environmental advantages**
  - Cogeneration on-site is an excellent solution for sites with fluctuating heating and cooling requirements.
  - During natural or manmade disasters, CHP systems can support critical facilities operations when local or regional electric grids fail.
  - CHP also carries one of the lowest costs for emissions control. It can be used in different ways: In addition, CHP allows you to declare your energy security.

- **Cost-saving fuel flexibility**
  - CHP systems also limit nitrogen oxide and sulfur dioxide emissions.

- **Sulfur dioxide (SO2) emissions, and produces much less CO2. Cogeneration plants also limit nitrogen oxide (NOx) emission.**

- **Natural gas also is better for the environment than other fossil fuels because it burns nearly particulate-free, generates no sulfur dioxide (SO2) emissions, and производит много меньше CO2. Генераторы парогазовой турбины также ограничивают выбросы оксида азота (NOx).**

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### Energy efficiency

- **Geothermal:** 89%
- **Energy Input:** 179%

### Power availability

- **Critical facilities operations when local or regional electric grids fail.**
- **Avoiding power failure costs:**
  - CHP also comes one of the lowest cost for emissions control.

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