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Engineering Better Energy Solutions

Combined Heat and Power represents the simultaneous generation of usable heat and electricity in a single process whereby the heat by-product when the electricity is generated is recovered rather than wasted, and is then used to deliver space heating or to produce hot water. The heat can also be used with an absorption chiller to provide cooling.



Because it is possible to install CHP units close to the actual consumption point, distribution losses can also be minimised. This makes CHP even more energy-efficient and therefore helps to reduce both greenhouse-gas emissions and fuel costs. Related technology called Tri-Generation involves the simultaneous generation of the three primary energy requirements — heat, cooling and electricity — from one single fuel input. Here the heat from the CHP is used with an absorption chiller to produce cooling.

CHP offers substantial savings over separate heating and electricity systems. Due to the efficiency of CHP in utilising the heat that is available, customers get more energy from their fuel and save greatly on fuel costs. Typically, a well-engineered CHP unit can deliver savings in excess of 25% a year.

CHP can also eliminate the danger of electricity outages caused by storms, problems with power lines, under-capacity in the national grid, or indeed interrupted supply due to industrial action.

There are also considerable environmental benefits associated with CHP. Compared with traditional heat and power production, every 1kWh of energy produced by a CHP unit prevents 1,000g of carbon

dioxide a year being emitted to the atmosphere. CHP use also reduces the emission of sulphur and nitrogen oxides, which contribute to acid rain and acidification, and of course helps to preserve finite fossil fuel reserves.

Combined Energy Solutions (CESenergy) has a proven track record in the successful design, implementation and management of Combined Heat and Power (CHP) and Tri-Generation solutions. It is one of the industry leaders in the field and an associate company of Marren Engineering, a long-established company which specialises in the design, installation and maintenance of HVAC systems. Its commitment to the highest quality standards is further reinforced by its membership of the ICHPA and Cogen Europe. It is also partnered with Cogent Energy Australia and is SEI grant-approved.

CESenergy's in-house engineers use advanced CAD facilities to produce the most efficient and effective CHP solution for every project. Flexible, innovative and turnkey solutions are tailored to meet each application, be it commercial buildings, manufacturing, hospitals or hotels. All units are supported with a

proven and successful scheduled maintenance programme and on-going performance reviews.

CESenergy also offers a number of flexible finance solutions which ensure a seamless migration from existing energy arrangements to a grant-approved CHP system. Some installations can include a zero capital spend based on CESenergy's ESCO model.

CESenergy offers a complete turnkey solution for CHP and Tri-Generation solutions offering:—

- System Design;
- Finance Options;
- Engineering;
- Installation;
- Commissioning;
- Maintenance.

"With costs for both gas and electricity continuing to rise, SEI providing grants of up to 30% of the cost of CHP units between 50kWe and 1MWe, and the associated energy and carbon benefits, there has never been a better time to specify and install CHP", concludes Brendan Marren, General Manager, CESenergy.

Contact: Brendan Marren,
CESenergy.
Tel: 01 - 853 0290;
email:info@cesenergy.ie