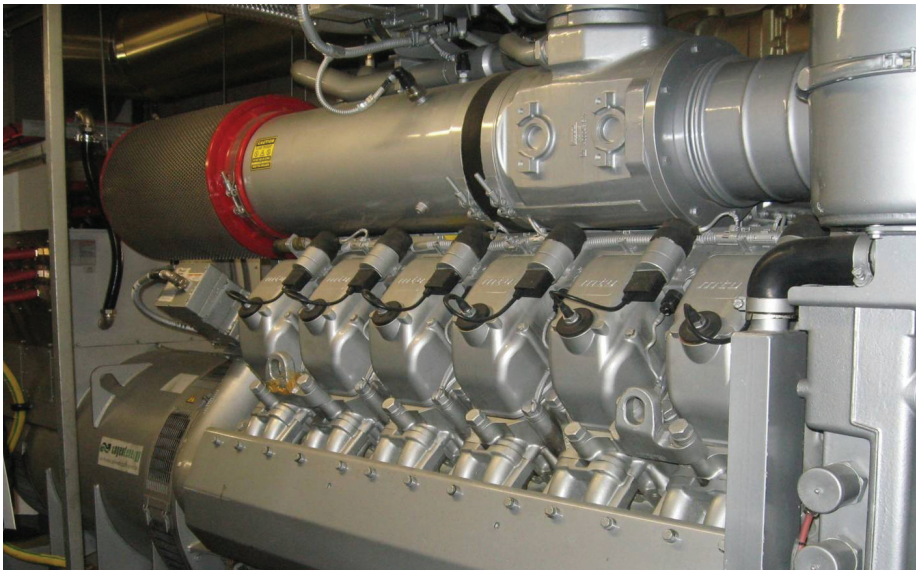
Facts

Green Infrastructure

CITY OF SYDNEY 2030

What is Trigeneration and how does it work?

Trigeneration engines run on natural or renewable gases and produce low-carbon electricity, heating and air-conditioning for clusters of surrounding buildings.



They comprise an engine, about the size of a shipping container, which runs on natural gas and produces electricity and captures the heat produced by engine to make hot water. The hot water is circulated to surrounding buildings by network of underground pipes.

A second piece of equipment, called an absorption chiller, is located in each connected building, which converts the hot water into chilled water for use in air-conditioning units.

Trigeneration systems are more than twice as energy efficient as coal-fired power station plants because they use the waste heat from electricity production to both heat and cool buildings.

About 90 per cent of the City's electricity currently comes from coal fired power plants that are responsible for 80 per cent of its greenhouse gas emissions.

They can reduce greenhouse gas pollution by 40 to 60 per cent for connected buildings compared to coal-fired power.

The local aspect of the trigeneration system is also very important. Nearly half your electricity bill pays for transporting electricity, through the State-wide grid of poles and wires, from country regions like the Hunter Valley to Sydney. These "network charges" are set to rise to 60 per cent of your bill over the next two years.

The City's trigeneration network could save up to $1.5 billion slated for new coal-fired power stations and upgrades to the electricity grid that would mean savings for all NSW households and businesses.

Trigeneration is used widely around the world, but the benefits are only just beginning to be recognised in Australia.