

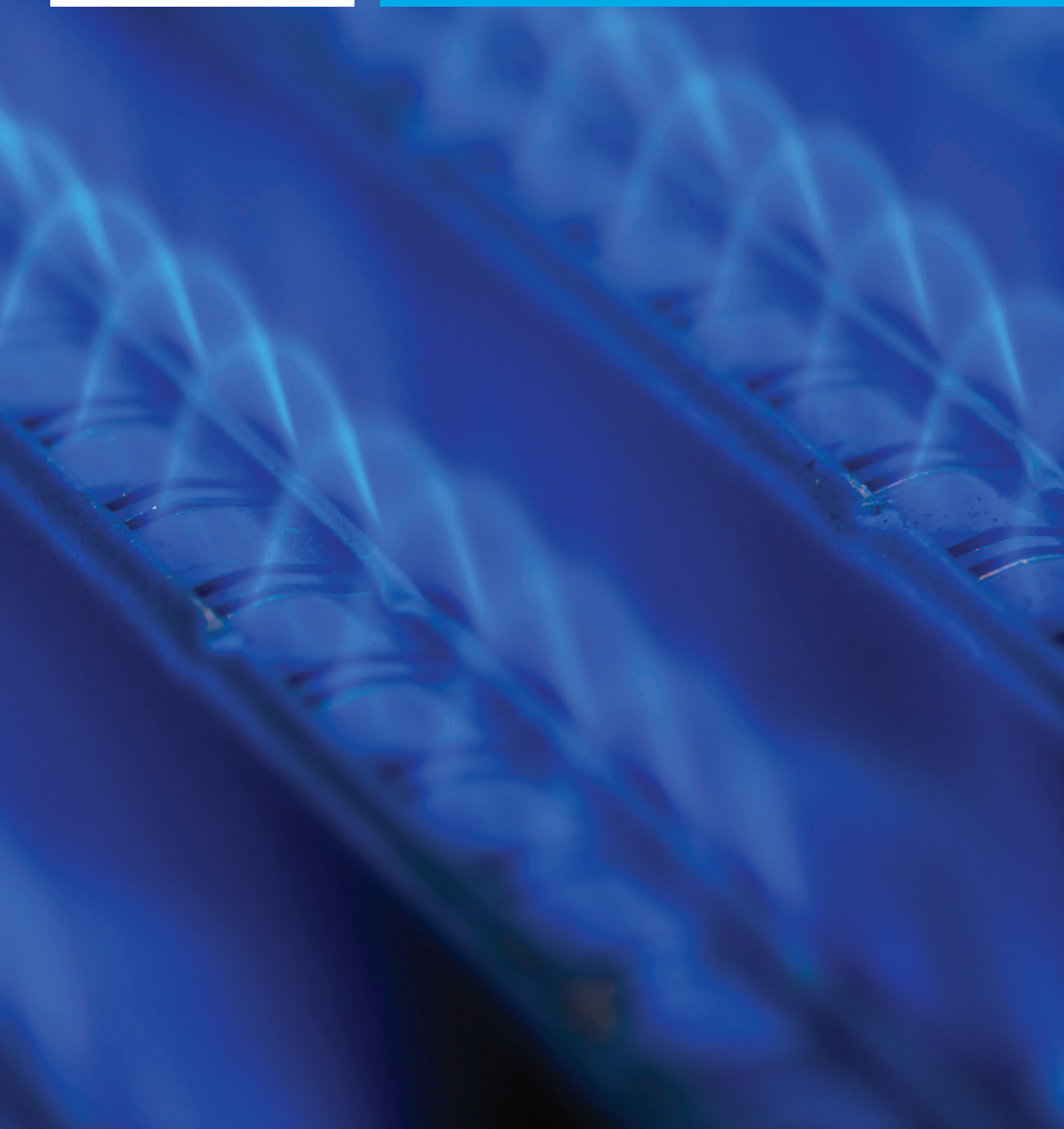
Clarke Energy

Engineer - Install - Maintain



Distributor & Service Provider
Gas Engines

Natural Gas



Natural Gas

Clarke Energy is the authorised distributor and service partner for GE Energy's gas engine division in a growing number of countries across the world. In addition to providing high-efficiency, reliable gas engines we combine this with the expertise and resources to deliver unbeatable product support.

Whether your requirement is for the supply of a single gas engine generator or a complete turnkey power generation facility, we can meet that need. Our ability to add value by offering an end-to-end service, from initial proposal to offering a reliable long-term maintenance, has led to us becoming a multi-national company with operations in ten countries across the globe. Our company prides itself on integrity, delivering only the highest quality products whilst providing a reliable accountable localised service.

Benefits of working with Clarke Energy

Clarke Energy provides flexible solutions for your gas generation projects. Our services range from the supply of a gas engine generator, through to the complete turnkey installation of a gas powered generation facility. Clarke Energy has a dedicated, top-quality team of sales, engineering, project management, commissioning and maintenance staff to meet your needs. We also offer long-term maintenance contracts backed up by a strong balance sheet, giving peace of mind with respect to the long-term performance of your GE gas generation equipment.

Flour Mills, Lagos, Nigeria, 11 x JMS620



Natural Gas

Natural gas is an abundant, clean low-carbon fossil fuel that can be readily utilised for the production of electricity. The high efficiency of the GE Jenbacher gas engine is well suited to the provision of reliable decentralised electricity utilising natural gas as a fuel.

Natural gas originates from plant and animal matter which decomposed millions of years ago and is now located in reservoirs under the Earth's surface. Natural gas is primarily comprised of methane with other gases in smaller proportions.

The concentration of gases contributing to climate change is increased by human activities, particularly by the utilisation of fossil fuels in industrial processes and agriculture. The utilisation of natural gas in gas engines is characterised by the lowest carbon dioxide emission levels of all fossil fuels. Due to the fact natural gas is low in carbon, but has a high hydrogen content, natural gas has the most favourable carbon dioxide balance. The combustion of natural gas produces around 40-50% less carbon dioxide than when coal is burned to produce the same amount of energy. Notably it also has low emissions of sulphur dioxide (SO₂), oxides of nitrogen (NO_x) and particulate matter.

As a fuel, natural gas is set to become a significant source of power in the coming years. Natural gas is projected to become the most significant fossil energy medium in the next fifty years.

In countries where the national grid is unreliable and supplies of natural gas are abundant, gas engines provide an excellent source of reliable island mode power.

Benefits

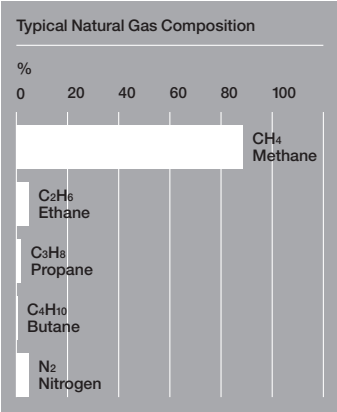
- Reliable production of electricity at high efficiency
- Financial benefits compared to separate purchase of electricity and heating fuel
- Flexible and can be used to provide heating, cooling and clean carbon dioxide
- Cleanest fossil fuel with lowest relative carbon emissions

Preston Hospital, UK, 1 x JMS616



Methane Number	Application	Our Competence
<p>The methane number provides an indication of the knock tendency of the fuel. It is a product of the different constituent gases within the natural gas, particularly the proportions of methane, ethane, propane and butane.</p> <p>Methane, which has high knock resistance, is given an index value of 100. Hydrogen, which burns quickly relative to methane, has low knock resistance and is given the index value of 0. If a gas mixture has a methane number of 80, its knock resistance is equivalent to that of a gas comprised of 80% methane and 20% hydrogen. There are gas constituents which have a higher methane number than 100 therefore it is also possible for a gas composite to have a higher methane number than 100.</p> <p>Understanding the methane number of the natural gas fuel is an important factor when determining the appropriate engine version to select.</p>	<p>Natural gas generators can be configured in a number of ways. In addition to the production of electricity, generators can also provide heating as hot water or steam, cooling water and clean carbon dioxide.</p> <ul style="list-style-type: none">— Cogeneration or combined heat and power (CHP)— Trigeneration of combined heat, power and cooling (CCHP)— Greenhouse cogeneration / CHP with carbon dioxide recovery— Quadgeneration or CCHP with carbon dioxide recovery— Island mode operation –power production isolated from the electricity grid <p>Natural gas generation relies upon a well-developed and stable natural gas supply.</p>	<p>Clarke Energy has extensive experience in the engineering, installation and maintenance of natural gas generation facilities.</p> <p>The GE Jenbacher gas engine is known for having the highest levels of electrical efficiency on the market. When coupled with a contractual maintenance agreement with Clarke Energy, it will give peace of mind to the customer that they will achieve the highest levels of availability and have constant returns on their investment.</p>

Deepak Nitrite Limited, Nandesari, Gujarat, India, 2 x JMS420



If you would like to find out more about natural gas based power, please contact your local Clarke Energy office.

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