

Power Generation from Centrica Business Solutions

January 2019

The developers guide



centrica
Business Solutions

Power generation from Centrica Business Solutions

Power Generation from Centrica Business Solutions unites our experience as a significant operator and developer of gas generation assets, with our role as a leader in the construction of UK gas peaking assets.

We have a dedicated team of specialists and work closely with National Grid to ensure we are ahead of the market and able to provide plant capabilities that meet demand today – and in the future.

The world runs on power. As demand increases and new energy sources, such as renewables, feed into the mix, the stability of the grid is affected, creating challenges for grid operators who need to provide a stable supply.

These challenges also bring opportunities – investing in power generation with the capability to improve grid stability brings new revenue streams to traditional power generation projects. These power generation assets can participate in the capacity market and provide 'off the shelf' balancing services to support the grid – increasing value for investors. Value is created in many ways:

- Transform unused or surplus land or buildings into revenue
- Earn revenue by supporting the grid at peak times
- Maximise revenues through access to ancillary markets

Increasing instability

The last UK coal-fired station is planned for closure in 2025, to meet climate change targets. A reduction in large centralised power stations such as this de-stabilises the grid. This effect is compounded by the growth in renewable generation, which is intermittent, and more widely distributed.

The net effect is a need for more flexible generation. This can come from either management of supply (generation) or management of demand (via Demand Side Response – DSR) which are offered as complete solutions from Centrica Business Solutions.

The next evolution of power generation

Our approach

We have made it easy for you to choose particular services to compliment your capabilities by creating a modular approach, you can pick and choose the services that best suit your projects.

In control

Through our web based trading portal you can stay in control of your asset operation and optimisation. You can choose which ancillary services you wish to use, or which markets you wish to participate in and we'll do the rest.

Flexible gas supply

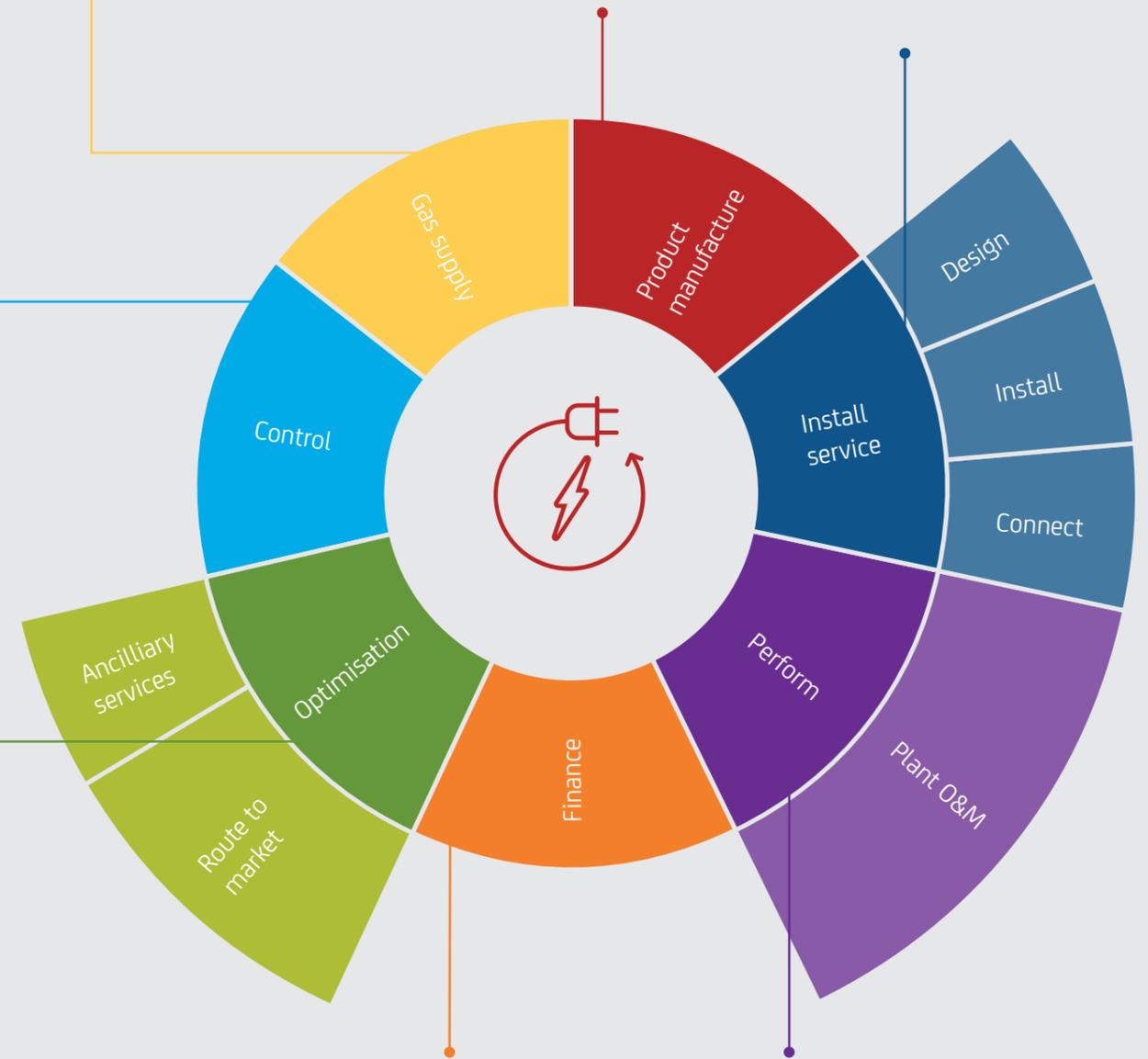
We have a range of flexible gas contracts to suit your risk profile.

World class technology

We are one of Europe's leading providers of gas power generation solutions. Offering medium and high speed engines to meet your project needs.

Advanced engineering

Our market leading engineering expertise will ensure an optimal design and installation. Our experience spans 30 years with 250MW constructed and installed in the UK.



Optimise generation value

Our route to market services include access to a range of markets to maximise value. We offer managed services into the STOR and Capacity ancillary markets and increasingly the Balancing Mechanism. Take advantage of our trading knowledge and expertise in the day-ahead and intraday markets to benefit from short term market volatility.

Access Centrica Business Solutions' balance sheet

We can provide flexible finance options to fund your project.

Experienced power generation Operation and Maintenance

Our engineering teams are highly experienced in ensuring peaking plant gas engines are well maintained and running at optimal performance to ensure maximum availability.

Delivering optimised power generation projects

There are several stages to implementing your Power Generation solution and we work closely with you at every stage. We offer a flexible approach so you can pick and choose from the options we provide to maximise your site operations.

Design

Our skilled design team assess every element of the project. We use the latest CAD and 3D modelling software to provide detailed designs and schematics of the proposed sites, providing different options to maximise availability and to ensure ease of running.

Manufacture

We offer a choice of medium-speed and high-speed engines to meet your project needs:

High-speed engines

Operating at 1500 rpm, they can generate between 1MW and 2.5MW of power. These high-speed engines run at an efficiency rate of 40–43%. In general, high-speed engines are containerised and have a simple modular design typically suited to spare land or disused factory units/warehousing. Containerised units are manufactured to the highest standards at our purpose built engineering facility in Manchester.

Medium-speed engines

Operating at between 500–750 rpm, they can generate between 5MW and 20MW, with a modular approach offering up to 50MW. The efficiency of these engines is typically 44–50%. Medium-speed engines are built into acoustic buildings and are a more bespoke solution, suitable for custom built operating sites or disused land.

Whichever type of unit you choose, the design is modular so that multiple engines may be sited together to meet the needed power output.

Installation

We have installed power generation sites ranging from a single 1MW unit all the way up to 50MW sites and we have the knowledge and experience to offer best value and maximise plant performance. We install our projects with minimal disruption to a fixed timeline outlined and agreed at the design stage.

Gas connection

We support you in all elements of connection, assisting with discussions with the network operators, ensuring gas mains are appropriately situated and checking that the quantity and the quality of the supply is suited to the proposed applications on the site. We also ensure everything is tested and commissioned in accordance with the delivery plan, making sure all elements are prepared for the day we turn the equipment on.

Operational performance

To maximise the performance of your power generation solution, our nationwide engineering team is available 7 days a week, 365 days a year. We also offer long-term remote asset monitoring, as well as scheduled and reactive maintenance regimes and unit overhauls.

Performance guarantees

Performance and efficiency guarantees are available to meet market standards.

Flexible finance options

We offer a range of flexible finance options to suit your needs:

- Capital purchase
- Minority Capital Investment
- Bankable Assurance supported by Centrica Business Solutions' Power Purchase Agreement
- Long-term service agreements



Optimising assets to maximise returns

Centrica Business Solutions can offer you a unique end-to-end optimisation service for your generation assets. Whilst offering the design and construction we can also unlock maximum value from your assets with managed access to grid balancing and ancillary markets.

Based on our vast experience of optimising gas generation assets over many years, we can offer our customers an optimised operational strategy that responds to market signals – meaning we can physically dispatch assets when market conditions are favourable or when required. We can also enable remote and automatic dispatch.

Accessing the energy markets with route to market services

We can provide you with a variety of route to market services through our experienced trading teams, and ensure your investment is set up to yield the maximum returns.

We manage 5GW of flexible assets. Our innovative proprietary 'Direct' software and 24/7 trading services desks means you have control over how and when your generation is optimised in the wholesale market. We use real-time modelling of market data and meteorological movements to optimise the trading of electricity generation.

Our experience can help you understand the different avenues available and model the various outcomes. With both availability and efficiency guaranteed as part of our engine offering, we can ensure you achieve the maximum from your investment.

Our trading teams can execute trades across a range of markets including day ahead and intraday to take advantage of increased price volatility to drive increased value. We provide access to forward markets which provides the opportunity for example to forward sell super peaks.

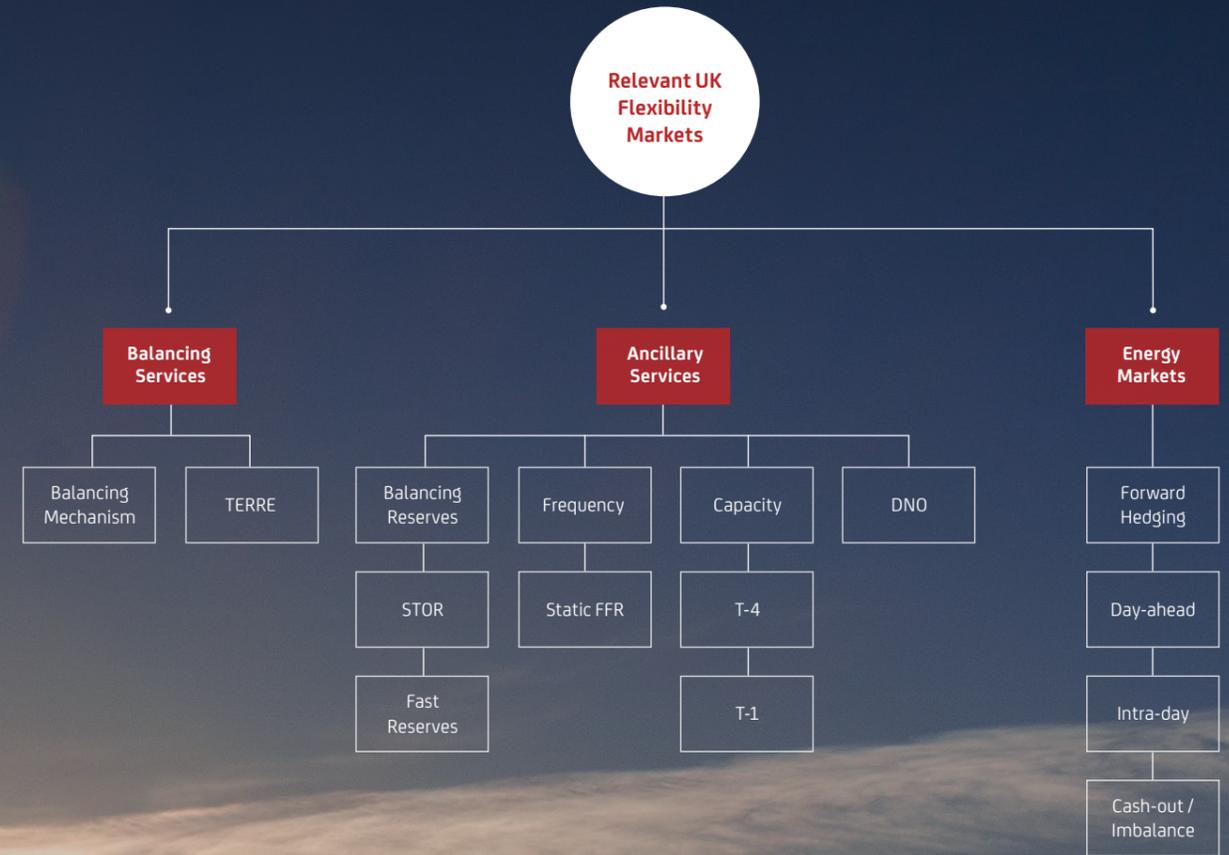
Ancillary services

Ancillary services cover the special needs of National Grid that are contracted over short terms, for example balancing and frequency response. These services help the grid to ensure a consistent offering to keep the nation's supply at the levels required.

We can help to determine the most appropriate routes to market, advise and assist with bidding into Capacity Market, STOR and other balancing services, such as participating in the balancing mechanism and in the Fast Reserve market. We also share our expertise to manage tendering and agreements with National Grid.

Gas supply

As the UK's largest commercial energy provider, we are uniquely positioned to deliver smart energy procurement strategies for your business across electricity and natural gas supply. Every organisation has a unique shape to their power and gas demands, so you need a supplier that's flexible in how they support your business. With commercial access to gas and electricity supply you can be comfortable in the knowledge that we have a range of fixed or flexible contracts to suit your cost and risk profile.



Power Generation in action

Challenge

The customer had a small brown field plot available for development and wanted to maximise return on the land.

Solution

To design and build a 16MW gas generation plant to fit the site and meet the technical challenges of onerous planning conditions. The plant is designed to send power to the grid when needed and at times of highest value.

Results

A fully operational state-of-the-art plant, delivered on time and on budget within the 12 months timeframe. High operational efficiency leading to higher than expected returns.

44%

electrical efficiency

12
MONTHS

completion

16MW

total capacity

Why Centrica Business Solutions

Centrica Business Solutions is at the forefront of changing how the world uses energy, and we are working with a range of organisations to realise their ambitions to drive changes in the energy market for the better.

No one knows energy better than we do and we're investing £700 million by 2020 in new energy technologies to make sure it stays that way. That, coupled with the scale of our operation, makes it possible for us to offer you a tried and tested approach to implementing Power Generation. As part of Centrica plc, we are the UK's largest supplier of non-domestic, or business, gas and electricity. With 537,000 small and medium business (SME) and 116,000 industrial and commercial (I&C) customers.

Our presence in the market speaks for itself:

- 250MW of Gas generation constructed and operational in the UK
- 8GW in power purchase agreements offering a route to market services
- Leading provider of Short Term Operating Reserve (STOR) to National Grid since 2011

- Leading provider of optimisation services giving operators easy access to all ancillary service markets

- 100% Consistent record in predicting TRIADS for assets in our managed service

- All plant designed to be dispatched via national grid STOR infrastructure

- 1–50MW Full range of gas generation to suit all size of projects

- Security of service delivered by the UK's largest energy supplier, managing complex energy strategies for our customers

- Physical energy markets and short-term market optimisation in intraday, day-ahead and ancillary markets to maximise value

- Enhanced financial energy markets and long-term risk management strategies using our pricing and structuring desks



To learn more about energy management solutions and corporate sustainability, visit centricabusinesssolutions.com

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