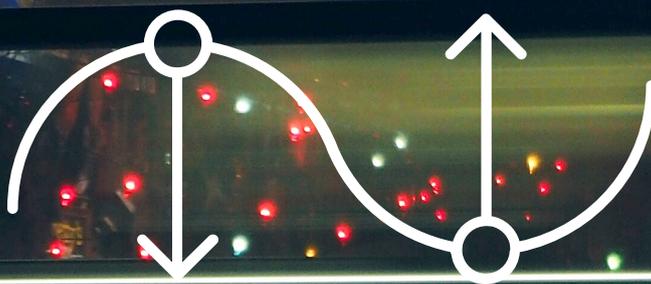


The journey to Demand Side Response

Unlocking value from your energy consumption

Product series
September 2017



The Power of Demand Side Response (DSR)



Powering Performance

DSR will help you improve operational efficiency and optimise energy usage, while supporting the grid to balance properly and function effectively



Powering the Future

DSR can help you unlock new revenue streams to fund innovation and power your business development



Powering Resilience

DSR will help you take control of your energy, lower the risk of business disruption and ensure continuity of your operations

Breaking with tradition

The energy landscape is changing. Traditional methods of generating, managing and consuming power are becoming too inflexible to meet the requirements of large energy users. The trilemma of competing forces around security, affordability and sustainability mean companies are actively seeking innovative ways of using energy.

The so called 4th Industrial Revolution is driving a comprehensive digitisation of how industries operate. This is transforming the energy economy – and bringing new risks and new opportunities. By partnering with Centrica Business Solutions,

you can benefit from new energy technologies that provide a flexible range of DSR services. These not only save money and earn new revenues, but also provide data that can give you new insights on asset performance, energy consumption and process optimisation.

DSR from Centrica Business Solutions puts the power of power into your hands. It gives you control of how your energy is generated, visibility over how your energy is used, improved site resilience and even the opportunity to generate revenue from your energy assets.



What is DSR?

DSR services are relied upon by the electricity grid operator to ensure they can balance supply and demand at all times. The growth in renewable generation and the need to reduce carbon emissions are driving demand for DSR. It is already a vital aspect in maintaining grid stability, relieving network constraints and enabling establishment of local energy markets. Centrica Business Solutions can help

organisations optimise DSR strategies according to business needs and operational capabilities. Some DSR services earn revenue from reducing or increasing demand, or shifting it in real-time. Some initiatives require significant on-site generation and storage equipment, others do not. Each provides a source of revenue and the opportunity to gain valuable data about the performance of connected assets.



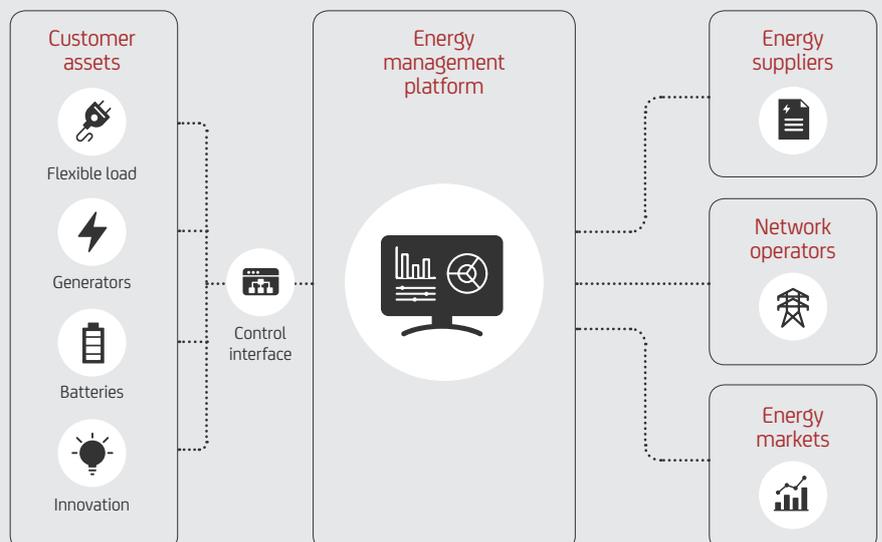
Powering DSR – the energy management platform

At the heart of Centrica's DSR solutions is our energy management platform. This can act as a Virtual Power Plant (VPP) to allow us to aggregate many different energy resources and manage them flexibly to allow participation in the wholesale power markets and helps keep the grid balanced using ancillary services.



Centrica's energy management platform monitors your energy consumption in real time and also monitors second-by-second demand on the grid helping to keep it balanced.

Just as importantly, by connecting your energy-using assets to this energy management platform, we can monitor your energy usage in real time so that you can respond to events extremely rapidly – by reducing power consumption when the grid needs you to, for example, or selling surplus power back to the grid to provide a useful added source of income.



What can DSR do for your business?

There are many DSR services. It is not an ‘all or nothing’ undertaking – most organisations evolve and grow their approach and level of sophistication over time.



Monitor usage to reduce costs

Some DSR services enable you to reduce your energy bills by reducing consumption when the Distribution Use of System (DUoS) charges are at their highest. It's also possible for organisations with onsite battery storage technology to use stored power to cut grid consumption during expensive Red Band periods.

We use our energy market experience and analytic capabilities to warn you in advance when the winter Triad events are likely to happen. These three critical half-hour periods are when the grid experiences its highest peak demand and are used to assess your site's overall consumption. By turning assets down or off, or switching to any on-site generation assets (such as generators, Combined Heat and power (CHP) and batteries) at these times, you can reduce your site consumption assessment and thereby minimise your Transmission Network Use of System charges.

Other forms of DSR enable significant revenue to be generated 24/7 whilst monitoring asset power consumption.



Create value

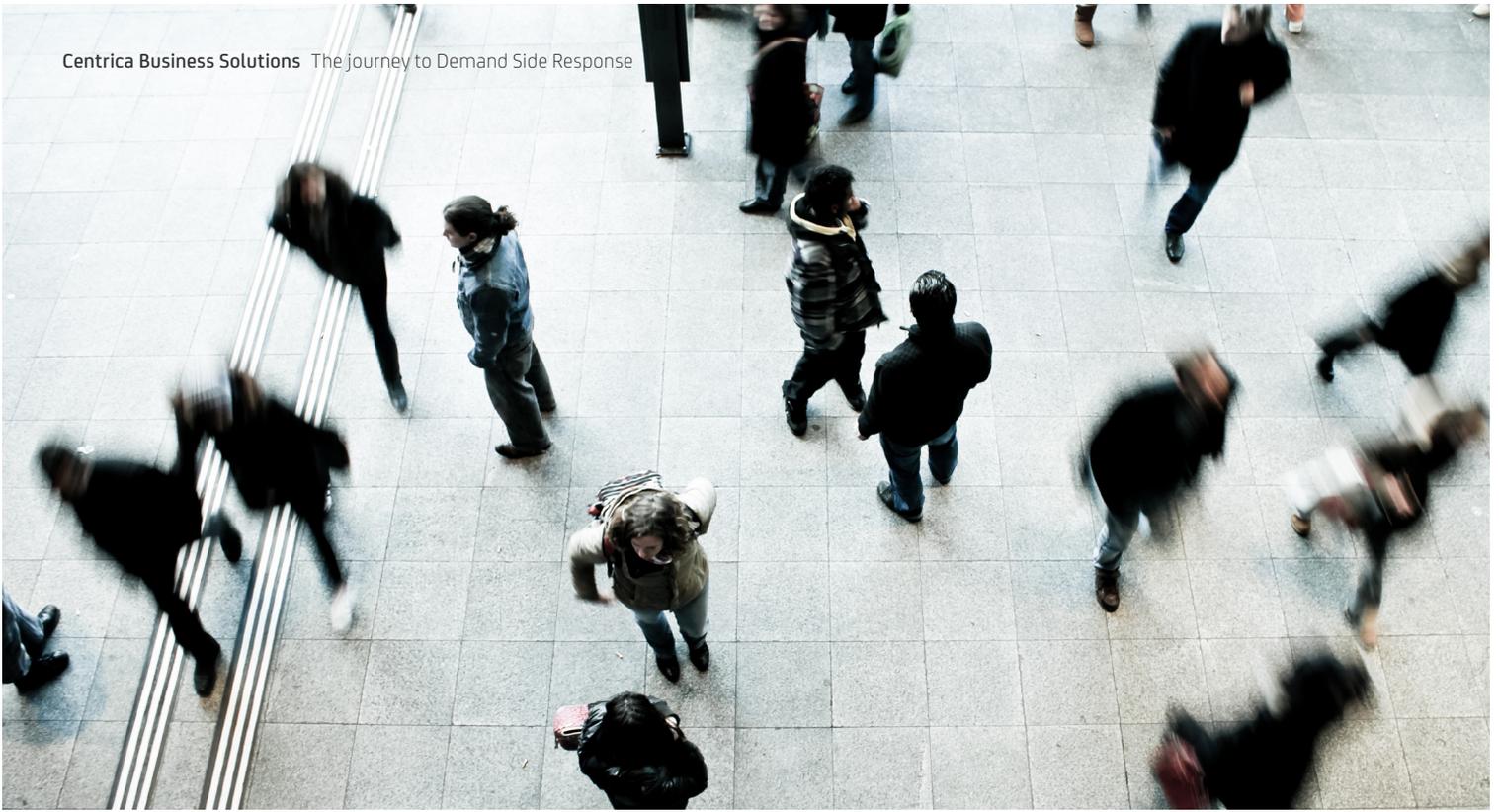
DSR provides a number of revenue options, depending on how we connect and contract with you to the various energy markets.

And if you generate more energy than you need, you can export your surplus electricity to the grid, creating an extra revenue stream for your business.



Improve resilience

DSR starts with a detailed site audit involving all of your energy-generating assets which can highlight operational issues and generally increase your site's resilience. The process of DSR involves ongoing monitoring and maintenance of equipment, which then makes sure your operations remain at their optimum running performance – increasing your business resilience too.



Different options to save costs and create value



Frequency Response

Flexible power users can earn revenue by agreeing to adjust consumption in real time to keep the grid operating within specified parameters and can be well paid for this service.



Reserve Services

The grid often needs assistance when actual demand grows more quickly than forecast. By either reducing your consumption or feeding power back into the grid, you can earn revenue as part of helping keep supply and demand in balance.



Peak Demand Management

The three highest demand half-hour peak times throughout the year are called Triad events, and organisations can save significant cost by rapidly reducing their energy consumption during these times. Our expert team has a high success rate of predicting when these and other types of events will happen in advance – helping you prepare.



Demand turn up

You can earn revenue by actually increasing consumption, which helps the grid when variable energy sources, such as solar or wind, have produced surplus power.



Capacity market

The real-time connectivity that DSR gives creates opportunities for you to leverage Centrica's energy market expertise and generate significant value by participating in the capacity markets.

DSR in five simple steps

Adapting the energy infrastructure of your organisation to work with DSR may seem like a complex undertaking, which is why we've simplified the whole process for you.

1. Site assessment

There are many flavours of DSR. We start by focussing on understanding your organisation's operations and what the specific opportunities could be for you. We carry out a detailed site audit to assess the readiness of your existing site, focusing in particular on energy assets and energy-dependent processes.

We use our energy insights solution, Panoramic Power, to gain granular information (down to individual device level) and then use our cloud based analytics platform to look for improvements and additional technologies to help you maximise the value of DSR.

2. Recommendations

We develop an individually-tailored DSR solution in collaboration with you – one that will maximise the value of your assets while ensuring your continued confidence in how your business operates.

This can include a phased approach – so that your 'journey to DSR' is done at a pace that works for your business.

3. Equipment installed

All required equipment is installed by our experienced experts with no impact to the ongoing running of your site. Uniquely, Centrica Business Solutions provides flexible financing options which can allow you to avoid any upfront capital expenditure. As an important side benefit, the preparatory work for DSR typically identifies a number of points to be improved for site resiliency.

4. Activate revenue streams

To begin generating revenue for your organisation from DSR we connect your assets to our energy management platform and the grid through a control panel and a communications link installed on-site. This allows us to communicate with and remotely control your assets to make DSR happen seamlessly and unobtrusively. Through our energy management platform, we monitor grid status and your consumption in real-time, enabling you to respond rapidly to help balance supply and demand as and when required. We work closely with you throughout this process and we can adjust the phased implementation as DSR gets up and running.

5. DSR equipment maintenance

We provide 24/7 monitoring of all DSR equipment from our energy management platform as part of your contract, as well as direct access to our energy experts and ensure all equipment is appropriately maintained and updated throughout the life of the contract.

Want to know more?

Demand side response is generating new opportunities across all types of industry. Find out how we can help you power new levels of performance today.

centricabusinesssolutions.com

centrica
Business Solutions