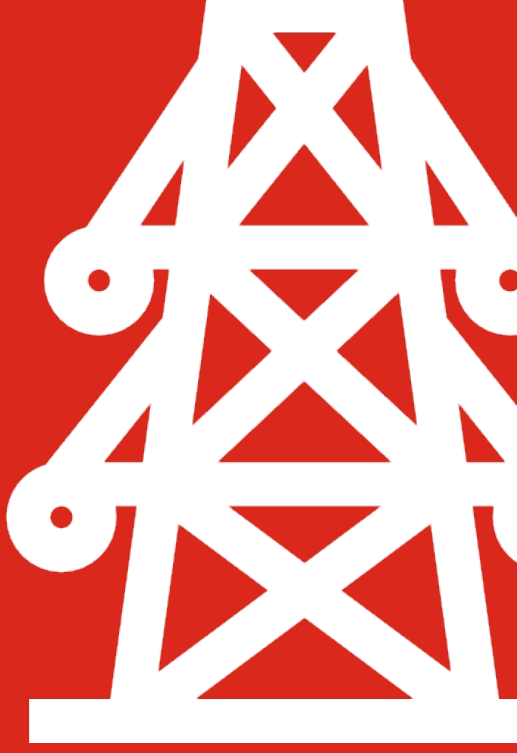


# DEMAND SIDE RESPONSE

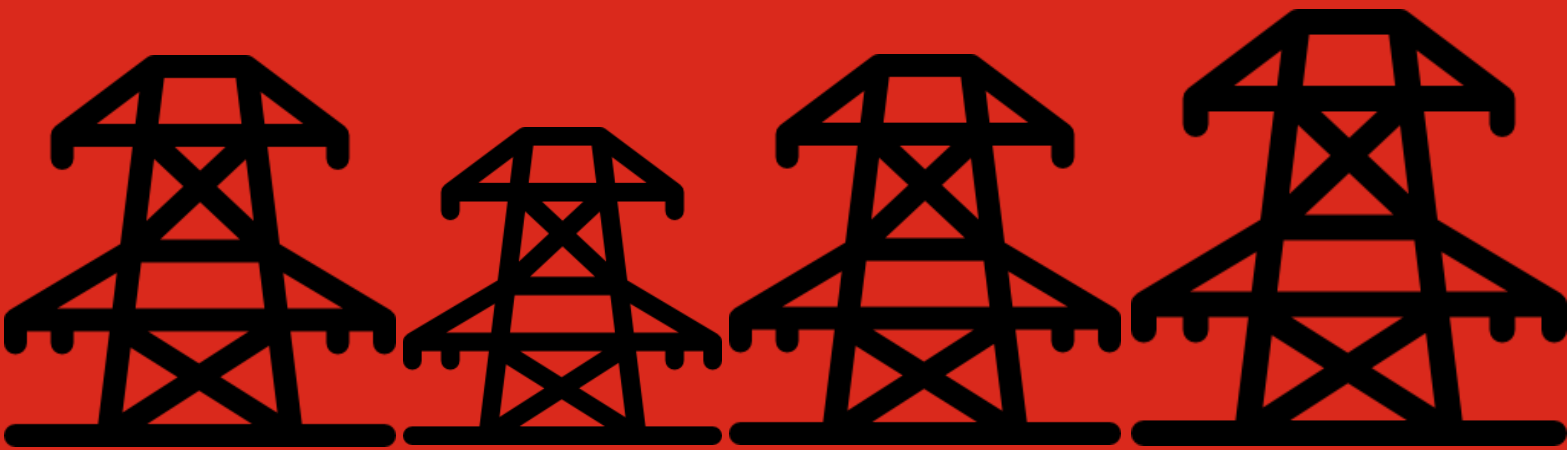


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# Introduction

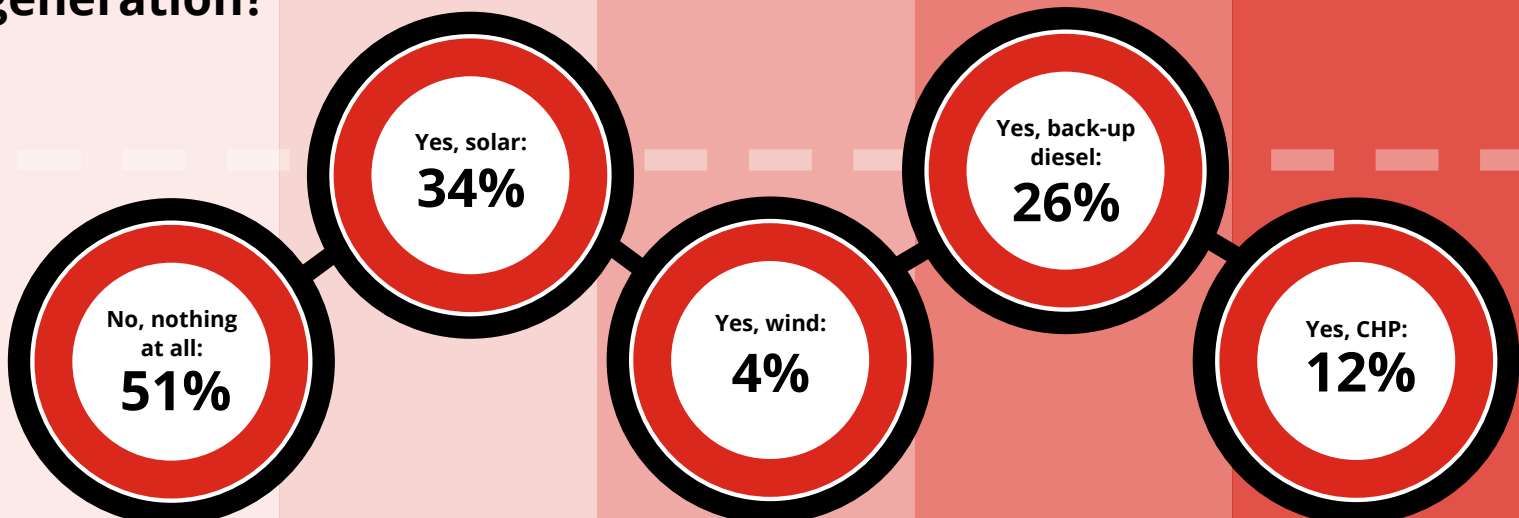
Does your peak electricity use happen at roughly the same point each day? Do you use most of your electricity around the time that everyone else does? Consider shifting your time of high usage to become smarter with your electricity consumption, saving you money at the same time.

Demand side response (DSR) pushes us to use energy intelligently. Essentially, DSR encourages customers to shift their electricity usage to off-peak times when there is not so much demand on the energy network. This helps to manage the volume of electricity needed from the grid at peak times, and also reduces the amount of surplus electricity stored during quieter periods. Holding extra pre-generated electricity throughout the day costs the UK taxpayer around £1 billion a year, so if more consumers can be encouraged to shift the majority of their energy usage to quieter times, less energy will be left spare. This not only drives down energy bills, saving consumers' money, but it means that fewer generators will be needed to meet the extra demand at peak times.



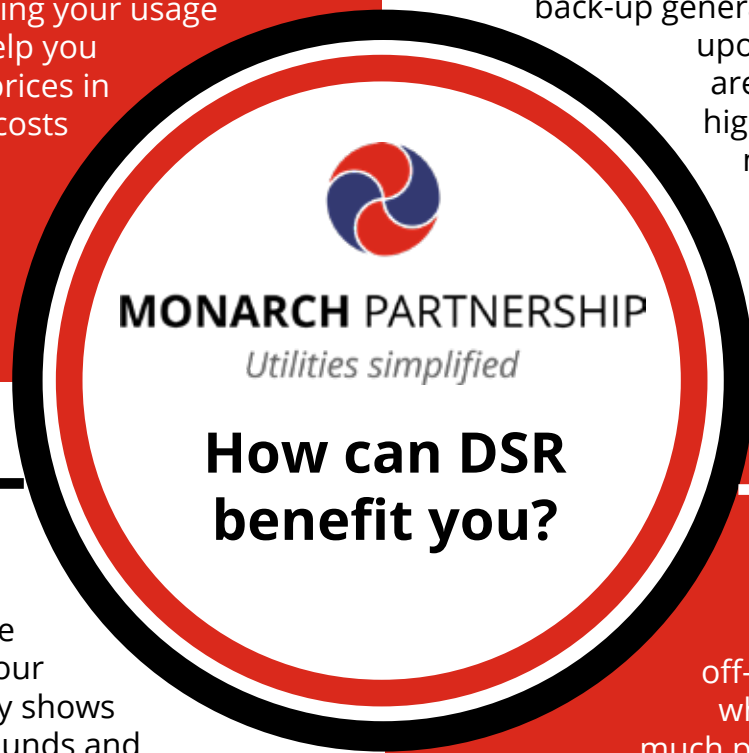
Does your organisation have any form of onsite generation?

Source: The Energyst's Demand Side Response 2017 report



Not only can you save money in the short-term, but being flexible and timing your usage to off-peak periods will help you battle increasing energy prices in the future, as the overall costs of electricity generation can be decreased. Some reports say the savings can be around £300 per megawatt hour.

If we stagger more of our energy use, fewer back-up generators will need to be called upon. Often, these generators are old and less efficient with higher carbon emissions than modern generators. By not using inefficient models, we can reduce carbon emissions and contribute to a greener planet.

**Efficient use**

DSR can also encourage you to become more energy efficient and aware of your consumption. If your smart meter device clearly shows your usage in terms of pounds and pence, you'll know exactly when you're using the most energy and can work out how to save money.

**Cheaper bills**

The UK taxpayer spends over £1 billion a year on storing surplus energy at off-peak times. This happens when the grid produces too much power, as it can be difficult to predict consumers' needs. Reducing the amount of energy being held until it's needed will make energy bills cheaper.

## We can turn an industry problem into a customer opportunity

Often, inefficient and outdated fossil fuel generators are used to meet the UK's surplus energy demands. This means that DSR can benefit the environment by avoiding the use of these, and instead utilising renewable generation methods to lower carbon emissions. Although the majority of electricity on the grid is not renewable, moving the UK towards DSR is a step in the right direction towards a totally renewable future. It's all about utilising our existing resources and "turning an industry problem into a customer opportunity".

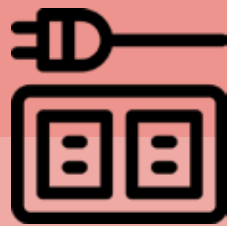
Wholesale electricity prices are highest at peak demand times, so by shifting some of the use to other times of the day, overall electricity prices will be lower. DSR is a sign

of our evolving electricity markets, where a greater importance is placed on smart use, instead of on the construction of new generators. To encourage DSR to become a widespread practice, customers receive financial incentives, and it's been estimated that annual savings from DSR could reach £8 billion in the UK. There's also no upfront cost for consumers so it's even easier to participate. It may not be as convenient to do your laundry in the night, or to change your daily routine to accommodate particular energy use patterns, so consumers need something to make it worth their while. It's a solution with multiple benefits for each party, as well as working towards the EU's Zero Carbon 2050 goal.

# How does DSR work?

DSR is facilitated by smart meters, which provide information on pricing, consumption, and show which times of the day you can save energy by shifting your usage patterns. This data can also be used by the grid to predict when people are going to be using more energy, and therefore when more needs to be generated to meet demands. Smart meters are a big part of manual demand side response, where users are either contacted through a message to their smart meter or texts to their phones, and asked to change their energy use if possible.

An example might be a prompt to turn down heating if the weather is warm which, in turn, saves the consumer money too. While there isn't a domestic DSR scheme yet, the Government aims to offer every home and small business a smart meter by 2020. This will mean that DSR can be rolled out across the country, furthering the positive impact of the scheme.



## But how many homes actually have smart meters?

As of the end of March 2018, there were 10.06 million smart meters operating across the UK. Over 10 million of these are in domestic properties, with the rest in businesses, so it's clear to see that the rollout is in full swing. Energy suppliers are tending to lean more towards installing electricity meters over gas meters, meaning that the respective smart meter figures were 5,599,600 and 4,189,900 for the end of March.

The smart meter rollout in the UK has involved two types of meters, SMETS1 and SMETS2 (SMETS stands for Smart Metering Equipment Technical Specifications). SMETS1 meters have been around for a number of years and were introduced more widely in 2011 at the start of the Foundation Stage in the government's

smart meter rollout. The main criticism of SMETS1 meters, however, is that if the consumer switches supplier, the meter then ceases its automatic reads and must be read manually. The version one meters are, for all intents and purposes, locked to one supplier. Some changes were made once this fault was discovered and at the end of 2017, SMETS2 meters began to be introduced instead. However, it was reported in early 2018 that in the three months since SMETS2 meters were first introduced, only 80 had actually been installed across the UK.

This raises questions as to whether or not consumers are actually engaged with the scheme, or whether energy suppliers aren't acting quickly enough in order to meet the 2020 target. What is clear, however, is that 1.3 million smart meters would need to be installed each month from now until December 2020 if Ofgem's target is to be met.



A large, lattice-structured electricity pylon stands prominently in the foreground, silhouetted against a vibrant sunset sky. The sky transitions from a deep blue at the top to a bright orange and red near the horizon. Several power lines stretch across the frame, converging towards the pylon. In the background, other smaller pylons and a residential building are visible under the same colorful sky.

We can provide **Demand Side Response** in the following areas:

- Frequency response
- Triad management
- Capacity market
- Short Term Operating Reserve (STOR)

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