

How managing your energy use could help you

We would all like to save money on our energy bills in an era of rising prices. If in future we are able to be more flexible with how and when we use electricity, we could help to save money across the electricity system and reduce the impact of these price rises. Over the coming years, new technology should make it easier for us to do this. However, the benefits rely on us understanding what it means to use our electricity flexibly (otherwise known as demand-side response), and how doing this could help us. This factsheet aims to answer some of these questions and to explain what Ofgem is doing to help consumers to benefit.

What is 'demand-side response'?

Electricity is delivered through a complex system of wires and cables that link every power station to every consumer (see figure 1). The electricity that is generated and delivered must always equal the amount of electricity being used by consumers. The system needs to be kept 'balanced' in this way at all times – by changing how much electricity each power station produces and by making sure there are enough cables to transport this electricity to consumers. This is a big challenge.

In some cases, businesses and households could also help to 'balance the system' by adjusting how much electricity they use at particular times. This is demand-side response. There are various ways in which consumers could benefit from providing this flexibility.

How could demand-side response help to save money?

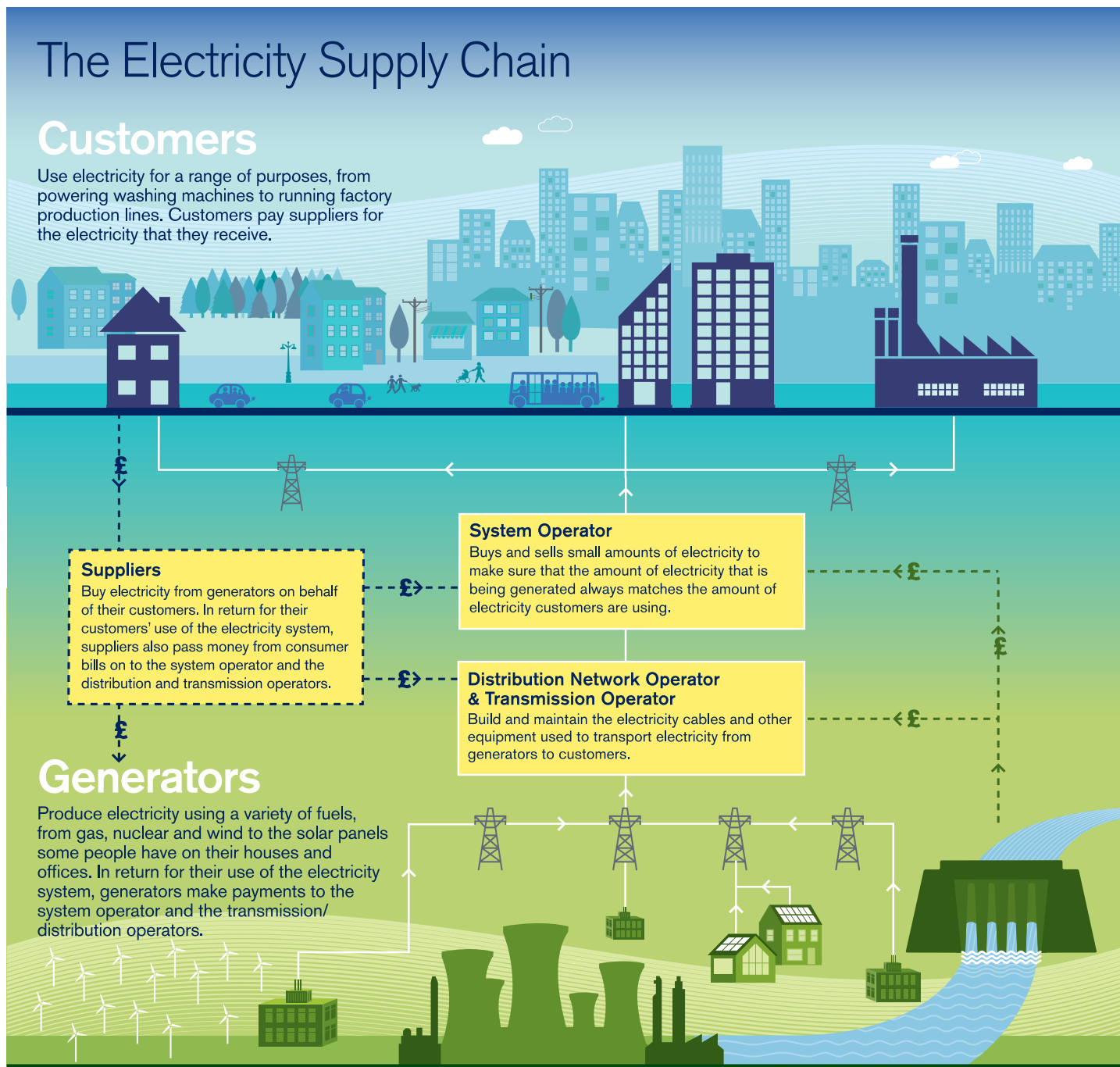
The true costs of generating and transporting electricity vary significantly over the day and across the year, whereas consumers' prices tend not to. For the wide range of us that have some flexibility over when we use electricity (changing when we turn on the dishwasher for instance), having more

information about when electricity is expensive and when it is cheap could help us to change when we use it and reduce the costs involved in the production, transport and management of electricity:

Some power stations generate electricity more cheaply than others. Often, when lots of people are using electricity, suppliers (or the system operator, described in figure 1) need to buy electricity from more expensive, less efficient power stations in order to make sure consumers have enough. If some of us could move some of our usage to cheaper times of day, we could avoid using these expensive power stations. If consumers were regularly willing to shift their usage away from these busy times, fewer power stations would need to be built overall. Doing these things could save us money.

It is not only the costs of generation that could be reduced. Around a fifth of each household energy bill goes to regulated companies called Distribution Network Operators and Transmission Operators (described in figure 1) which build and maintain cables and other equipment used to transport electricity around the country. They need to install larger, more expensive cables to account for those times when an abnormally large amount of electricity must be transported and to keep the lights on when a cable breaks. If some of us could reduce our electricity use at these times, then we could reduce the amount of money needed from consumer bills to fund these cables.

Figure 1: A simplified representation of the electricity supply chain



Why is demand-side response particularly important now?

The value of demand-side response is even greater in the context of our changing electricity system:

The electricity system is being upgraded. New power stations must be built to replace old ones that are due to close down, and as part of the transition to cleaner energy.

Meanwhile cables need to be built and upgraded to connect these power stations to homes and businesses. All of this will cost money, which we pay for through our energy bills. People willing to change their electricity use at certain times could reduce or delay the need to build these power stations and cables.

We are changing the way we generate. With the growth of renewable generation, the benefits of shifting electricity

use to different times of the day could become more significant. It tends to be harder to control the amount of electricity that renewable generators, such as wind-farms, produce at different times. If more of us knew when electricity was cheap, we could save money by taking full advantage of cheaper electricity available, for example on a windy day.

It could be easier to use electricity flexibly in the future. The Government has decided that householders and other small energy consumers should be given smart meters, which could help tell us at what times of day we could save money by shifting or reducing our energy use.

What is Ofgem doing and why?

We want to make sure that the rules and regulations which govern how electricity is purchased and delivered will allow consumers and other parties to draw as much benefit as they can from these opportunities. We are working to understand how the current rules and regulations might prevent consumers and others from taking part in and benefitting from demand-side response.

What are the challenges?

Consumers and other parties involved in the electricity supply chain often don't know the real costs of electricity at any one time. If rules and regulations could help to give each party a better understanding, then consumers could have more choice over how and when to provide flexibility and to whom. For instance, at the moment Distribution Network Operators can't easily tell consumers when the costs of transporting electricity are high. If they could, they may be able to offer consumers a payment in return for reduced electricity use at these times.

It is important that consumers always benefit from the flexibility they provide. In some cases we could get paid

directly for our flexibility, whilst in others we could benefit from the reduced costs of the electricity system as a whole.

Another challenge will be to understand how consumers' ability to shift or reduce electricity use can be shared across the electricity system. Whilst a range of parties may be able to pay consumers in return for shifts or reductions in energy use, this could create challenges for people, such as knowing whether they can provide this flexibility to more than one party at one time.

Many of the benefits we've discussed rely on consumers understanding what demand-side response is, and how it could help them. Some of us already take part by shifting some of our electricity use to benefit from cheaper prices at night-time. However, to many of us the idea of changing our patterns of energy use will be new, and could take time to get used to. Equally, if we do have a wider range of ways to benefit from consuming electricity flexibly, then we will face a new challenge to understand which of these different options is best for us, and which could help us to save money on our energy bills or offer us other valuable benefits.

Next steps

We are consulting to gather views on the challenges posed by the current rules and regulations which govern how electricity is purchased and delivered. You can find the consultation here: http://www.ofgem.gov.uk/Markets/sm/strategy/dsr/Documents1/20130430_Creating%20the%20right%20environment%20for%20demand-side%20response.pdf. We welcome responses by Friday 28 June 2013. Following this we intend to issue a response to consultation setting out any steps Ofgem needs to take to address the problems identified.

For public enquiries contact:

Consumer Affairs team

020 7901 7295

email: consumeraffairs@ofgem.gov.uk

For media enquiries contact:

Chris Lock, Senior Press Officer

020 7901 7225

email: chris.lock@ofgem.gov.uk