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Dispel the DSR myths

The importance of having a robust, reliable Demand Side Response (DSR) mechanism to fill in for failing power stations has never been clearer. *Dr Alastair Martin* explains

It was as long ago as November 2015 when the need for a reliable DSM mechanism past was brought into sharp focus. National Grid issued its first NISM – Notification of Inadequate System Margin – in almost four years, caused by multiple power plant failures across the UK. Without DSR to provide additional capacity at times like this, there is little doubt we would be seeing much more frequent NISM warnings and, at times, brownouts or even blackouts in some parts of the country.

DSR is a major growth area within the energy market. When delivered responsibly, it is an efficient and intelligent use of existing resources to secure supplies and reduce the country's CO2 output.

At Flexitricity we make use of existing flexible energy resources from our network of connected companies – including datacentres, refrigerated warehouses, offices, hospitals and factories – as a means of providing excess capacity without requiring to build new assets. These resources include electricity-consuming processes which can be turned down for short periods, emergency standby generators at critical sites, combined heat and power (CHP) providers and small hydro sites.

In return, these businesses and organisations can tap into new revenue streams, reduce CO2 emissions and improve security of supply.

Awareness of DSR is growing; however, there is still a great deal of misunderstanding surrounding participation and practice. When first engaging in DSR, customers need realism and persistence. To find a suitable aggregator, they should ask difficult questions about their track record, their experience of working with similar customers and how they will protect their core business physically and commercially.

Demand side response can be an efficient and intelligent use of existing resources

DSR has become a hot topic

When Flexitricity started out, demand-side response (DSR) was unknown. Now, with the birth of the Capacity Market, and National Grid's recent pronouncement that DSR could provide 30-50 per cent of its balancing needs, DSR has quickly become a hot topic. But attention brings confusion.

Here we explore five common myths surrounding DSR:

Myth one: DSR is easy. This one comes in several guises, such as "it's free money" and "you don't have to do anything". It's true that some DSR can be commercialised with minimal expenditure. It's also perfectly feasible for DSR companies to pay for controls upgrades. But most site managers aren't interested in external funding, so capex is not the point.

The key is management time and the resulting opportunity cost. While the energy manager is busy appraising a DSR proposal, discussing flexibility with Operations, or considering payback with finance, some other energy project isn't getting done.

With experience, genuinely viable DSR opportunities begin to stand out. But the experience must come from both sides: DSR provider and energy user. There is no DSR without collaboration.

Myth two: it's all about demand peaks. Since Flexitricity was born 13 years ago, there has never been an energy shortfall at peak. Crises have happened, however. Tilbury power station caught fire during a morning pick-up in February 2012.

That's not to say that DSR doesn't get activated at peaks. Triad management – the classic peak reduction opportunity – is now so lucrative that Ofgem is trying to constrain it.

Myth three: DSR is all diesel. In fact, flexible load and CHP are making better returns from DSR than diesel. That's because market conditions are rewarding low delivery cost more than consistent availability.

Cold stores, for example, modulate their electricity consumption to take advantage of prices. During the most expensive periods of the day, flexible plant is already off – leaving nothing more for National Grid. But at other times, a cold store can shut down very cheaply if requested. CHP follows a similar pattern – the day job must be done, but during idle periods CHP can deliver reserve energy cheaply and often.

Myth four: you can only do one thing at a time. This one is partly true. No resource can provide frequency response and STOR at the same time. Different resources on the same site could do that, but each resource needs to commit to what it's providing at any time. Sometimes the commitment is made months ahead; in other cases, an hour will do. But overlapping is usually prohibited.

There are two exceptions. The first is that sites consume electricity for a purpose, and they will keep doing that whatever they are doing in DSR. Core business must be protected and it's for the DSR provider to resolve any conflicts. The way to do that is through a large, diverse portfolio, continuous monitoring and active management.

The second is the government's Capacity Market (CM), which was explicitly designed to overlap with everything else a resource might want to do. This makes economic sense – if one resource can do two things, then the consumer doesn't have to pay for two resources.

Myth five: it's about technology. Automation, security and speed are very important, as are aggregation methods, flexibility in communications, and defensive engineering. However, none of those will help if the site itself simply isn't right for DSR. Thorough appraisal and careful implementation are vital – DSR without engineering is like a car without steering. ■