



DSR ‘all about making the right connections’

Mark Thomas and Steven Cook, founders of specialist consultancy G59 Professional Services, outline the challenge of connecting assets to the distribution network and solutions to help firms avoid cost, frustration and delays

Distribution network operators (DNOs) must ensure the integrity of their networks. They understandably take a cautious approach to allowing generators to connect and export power onto their infrastructure, which has to work for everybody, not just those looking to earn revenue from demand-side response programmes.

However in some areas, generation can help manage network issues and some DNOs are beginning to procure DSR to help balance their networks. That requirement may grow in the coming years, creating an opportunity for businesses with

flexible load or generation assets.

But in the meantime, a key challenge for any firm wishing to connect assets and export to the grid is clearing the first hurdle, the G59 paperwork.

What's a G59 agreement?

G59 is a standard that governs connections of generators that will run in parallel with the mains. It covers safety and other network issues that could arise from generators exporting to the grid including voltage rises, distortion, faults and other technical issues – and basically whether the network can handle extra load at that given location.

Businesses that wish to connect and export to the grid

have to fill in the form and send it to their DNO. If everything is in order, the DNO sends the applicant a connection offer (ie a price) within 65 working days.

It sounds straightforward, but the form requires a significant amount of technical information – and all of it must be correct.

The level of complexity is such that Mark Thomas and Steven Cook believe there is room for specialist firms concentrating on that aspect of DSR. The two formally launched G59 Professional Services at *The Energyst's* DSR Event in September, having already helped companies such as Marks & Spencer through the G59 process.

Sent to back of queue

“If you don't tick every box correctly, the DNO will send you to the back of the queue and stop the clock on your application,” says Thomas. “For a lot of people, because they are unfamiliar with the process, there is a risk that the clock times out, they have to reapply and they just give up.”

Cook agrees. “If you are not an engineer, you will have real difficulty.”

He says just knowing where to start and who to contact is not straightforward, and that the DNO ‘gatekeepers’ are not always helpful.

“So if you are not technically minded and don't know the



process, you can spend the first few months just working out what you have to do. You might be looking at 12 months before you know whether you can even go ahead.”

The DNO cost “can make or break” a DSR business case, adds Cook. “So it is key for the DNO to come back with the offer as quickly as possible and make that process as simple as possible.”

Advice for energy managers?

Given there are firms that can manage the G59 process, where should businesses start when it comes to demand-side response?

“First, understand what assets you have, what they can do and where their technical information is,” says Thomas. “At the moment, we tend to deal with diesel back-up generators, and are moving into batteries for G59 applications. So understand what you have onsite, whether or not it can only run in island mode, whether it has got short-term parallel capability or if it has long-term capability,” he says.

At that point, it is time to submit the application and find out what the DNO plans to charge.

“Don’t go any further on the project until you know what the DNO costs will be. Because that can kill it before it starts. It is on the critical path,” says Thomas.

“If you get a good price, you know you can do it. Then you have to work out your upgrade costs, what kind of revenues you are going to be able to stack – eg Stor, Triad, Capacity Mechanism, working with the DNO and supplier on imbalance and selling back into the day ahead market, etc.,” says Thomas. “You have to be able to model all of that to work out payback.”

Factors to include are revenue versus running costs of generation, whether it will be manned or unmanned, and the cost of any potential disruption to business.

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operational costs and business impacts that you must fully understand,” says Thomas.

“But at the end of the day, the DNO can just stop the scheme if, for example, there is a fault level issue. So you need to know that very quickly.”

How could DNOs improve?

Thomas believes DNOs have improved “across the board” in recent years, with better feedback and increased use of named individuals to help manage the application process. He says most DNOs now issue a quote within the timetable set by Ofgem, “though some still seem to hang on until the last day”.

However, he thinks DNOs could be more consistent around pricing for services, such as system analysis and provision of a protection engineer to witness the G59/3 test. “The range of pricing for the same service is extremely large. We could do with the regulator bringing some consistency to pricing,” says Thomas.

Similarly, National Grid Statement of Works pricing is inconsistent, says Thomas. Moreover, the need to complete a Statement of Works (SoW)

across Western Power Distribution’s networks has increased processing time.

Thomas believes a solution might be to simply allow WPD to pass applications under 1MW without consultation and not to charge for any SoW for applications under 1MW.

A nationwide map of connections capacity and constraints would be a huge help to businesses considering DSR – and save DNOs having to vet applications they are highly unlikely to accept. While WPD has recently produced a capacity map for its regions, Thomas says a red, amber, green system by postcode for G59/3 applications and export capability across GB would save clients time and money.

Invest in the networks

Although the network operators could make incremental improvements to their processes, Thomas believes there are unavoidable fundamentals that must be addressed around capacity issues.

“DNOs and National Grid have to bring forward investment cases to ensure we have a supply system fit for the 21st century and beyond,” he suggests. **te**

Seek professional help, reduce stress

G59 Professional Services was established to make the demand-side response journey as painless as possible for clients with existing and new generation assets. The company specialises in G59/3 applications, financial modelling, technical specifications and project management for blue chip companies, including Marks & Spencer. Its mission is to help organisations clear the first hurdle in providing DSR and ensure optimal returns. The company says interest in battery storage is also increasing exponentially - where many of the same challenges apply.

The G59/3 application governs connections and essentially allows businesses to participate in DSR or storage. Many firms have generation assets but are restricted in terms of the power they can push back onto the grid. Obtaining ‘long-term paralleling’ capability for those assets requires permission from the distribution network operator. If permission is granted, that enables businesses to:

- Participate in STOR, Capacity Mechanism, Triad management without any outage issues and maximise revenue through exporting any spill
- Obtain Power Purchase Agreements (PPAs) to generate further revenue from export spill

However, the G59/3 document is highly technical in nature and can be challenging for businesses to successfully navigate, which is why Mark Thomas and Steven Cook, both Chartered Electrical Engineers, founded G59 Professional Services. The company provides all associated technical services and can assist with: Independent financial modelling of projects; location recommendations based on DNO infrastructure databases, available network capacity and extensive contact network; specification writing and tender support; contestable import/export DNO works support and DSR and PPA contract support and recommendations.

See www.g59.uk for further details