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Dear Mr McMahon

OFGEM Call for evidence: Visibility of distributed generation connected to the GB distribution networks.

EDF is the UK's largest producer of low carbon electricity. We operate low carbon nuclear power stations and are building the first of a new generation of nuclear plants. We also have a large and growing portfolio of renewable generation, including onshore and offshore wind and solar generation, as well as coal and gas stations and energy storage. We have around five million electricity and gas customer accounts, including residential and business users.

EDF aims to help Britain achieve net zero by building a smarter energy future that will support delivery of net zero carbon emissions, including through digital innovations and new customer offerings that encourage the transition to low carbon electric transport and heating.

We believe that increasing the visibility of distributed generation is critical to the safe, secure and efficient operation of the GB power system.

Distributed generation on the system contributes a substantial proportion of the total GB generation, particularly at times of low demand, and continues to increase (e.g. on the afternoon of 13 September 2020, estimated total demand was around 30GW, of which 10GW was met by distributed generation). It is important for the efficient and secure operation of the system that the visibility of this plant to the operators is improved. This summer has reinforced the potential impacts with escalating costs to National Grid ESO in managing the system (e.g. RoCoF management cost is expected to more than double this year to more than £400M), the need for urgent industry code modifications (GC0143 - Last resort disconnection of Embedded Generation) and new targeted balancing products to ensure the whole system is secure.

Increased visibility of distributed generation will allow system operational risks to be more accurately assessed, which will then enable the costs of actions to secure the system to be optimised. The risk to the system from inadvertent tripping of distributed generators by loss of mains protection provides a clear example of where the assessment of risk could be improved.

It is probable that the programme to change the loss of mains relays would be making more progress if a comprehensive register of distributed generators, which included protection data, had been in place at the programme start to enable a targeted approach.

Along with visibility, the ability of the system operators to access balancing services and various ancillary services from the distributed generation is important. Regulatory and market enablers should to be addressed in this area as well.

It is encouraging that DCUSA modification DCP350 was approved in July 2020, requiring DNOs to create a register of plant larger than 1MW. The main aim of this modification was stated as to improve market transparency but the register will also provide system operability and resilience benefits. Clearly there needs to be confidence that the registers maintain comprehensive coverage of the plant on each DNO's system.

Our more detailed responses are set out in the attachment to this letter. I confirm that this letter and its attachment may be published on Ofgem's website.

Yours sincerely

Mark Cox
Head of Transmission & Market Arrangements,
Corporate Policy & Regulation

Attachment 1 – EDF Responses to Questions

1. DCUSA modification DCP350 will provide data on a number of characteristics for DG greater than 1MW. Are there additional characteristics for DG, such as real-time MW/MVAr output, load factors and protection settings, which would aid in the prevention of, live management, and recovery from loss of supply events?

The main aim of this modification was to improve market transparency but the register will also provide system operability and resilience benefits. Clearly there needs to be confidence that the registers maintain comprehensive coverage of the plant on each DNO's system.

Expansion of the DCP350 registers to include protection and fault ride through settings would provide additional benefits. Real-time data such as MW/MVAr output and load factors, as well as power available signals, could be significantly beneficial for the prevention, live management and recovery of any supply of loss events. This data will be increasingly important to ensure the reliability of black start processes where distributed generation would be used to support restoration.

2. What value will these additional characteristics provide to improving the planning, security and real time operation of the GB transmission and distribution systems?

Increased visibility of distributed generation will allow system operational risks to be more accurately assessed, which will then enable the costs of actions to secure the system to be optimised. Examples of this are the RoCoF management costs, which were around £200M last year and forecast to exceed £400M this year.

3. What value will the above characteristics provide to improving DSO function delivery by the DNOs or other stakeholders? DSO functions may include network management, flexibility procurement, and service conflict avoidance.

The DG data discussed above would be an important enabler for the DSO function delivery by the DNOs. Accurate information on the nature and technical parameters for the DG connected to the distribution network will provide significant localised benefits to the operation of the distribution network, the development of flexibility markets and improved management between ESO and DSOs of overall system.

4. At what temporal resolution (instantaneous, seconds, minutes etc.) would real time data on DG be valuable to improve the resilience of the GB electricity system in the prevention of, live management, and recovery from loss of supply events?

No response. Further assessment required.

5. What investment would be required for monitoring, collecting, storing and disseminating real time operational data associated with DG? Which party should be responsible for these investments? How does this vary, based on the size of visible DG at 1MW or 50kW?

We are not able to provide an assessment of the costs at this stage, but would estimate that at least £5k per site could be required for new equipment. Many sites would already be able to 10-minute average data real time, but not higher resolution without further investment. Maintenance and communications would be additional ongoing costs.

These are significant costs for smaller distributed generators to accommodate. However, if this provides a route to additional income from various forms of market participation, then this would be an incentive.

6. What are the credible technical, regulatory (industry codes, licences and governance) and legal barriers and costs associated with increasing the data collected, stored and shared regarding DG operations, and in obligating parties to do so?

This is an area that would require a comprehensive review. It is likely to affect, at least, both the Distribution and Grid Codes.