

# Demand Flexibility Service

## Requirements paper – Winter 2022/23

### Context

While our Base Case for winter 2022/23 assumes that capacity across all providers (generation, storage, interconnection etc.) is available in line with commitments secured under the Capacity Market, we have also modelled a scenario whereby the energy crisis in Europe results in electricity not being available to import into Great Britain from continental Europe.

This could be due to a combination of factors, including a shortage of gas in Europe (which in turn limits power generation in Europe) and / or generation unavailability (e.g., due to a high level of outages across the French nuclear fleet). We have also considered the scenario where there is a shortfall of gas available in Great Britain.

Given the scale of uncertainty and risks associated with the current geopolitical situation we have:

- contracted to retain approximately 2GW of coal fired generation that would otherwise have closed, and
- developed an innovative Demand Flexibility Service (DFS) to incentivise customers to reduce consumption at periods when margins are tight.

### What volume of demand flexibility are we looking for and when?

We will assess whether there is a need for DFS based on factors including the national demand forecast, generation profile, reserve requirements and levels of uncertainty. There are many variables impacting the need for additional flexibility beyond the forecast demand.

Our requirement for DFS is most likely during the **high demand periods of the day**. These are typically during the **evening period between 16:00 - 21:00**, but could also be over the morning peak.

These higher demand periods are more likely to occur on weekdays. Where there is a requirement, we anticipate that it will be for **1-3 hours** during peak demand periods.

We will assess and procure the service when a requirement is identified at day ahead. Our megawatt (MW) requirement for demand flexibility will vary day-to-day dependent on the demand and the generation profile.

Based on the modelling for the [Winter Outlook report](#), we expect the following requirements for winter 2022-23. The requirements listed here could be met by a combination of DFS and/or coal, based on our [order of actions](#).

### Base case

The base case assumes that capacity across all providers (generation, storage, interconnection etc.) is available in line with commitments secured under the Capacity Market.

Under these conditions, we might need DFS on **0 to 5 days** in winter 2022-23, with a typical requirement of around **1,000MW** (up to 1,500MW). We would not typically anticipate a requirement when demand is lower than 40GW but there may be circumstances whereby demand is above 40GW and demand flexibility is not required and vice versa.

### Scenario 1 – Reduced electricity imports from Europe

In this scenario we assume that we have no electricity interconnector imports from France, Belgium and the Netherlands (these are assumed to provide a de-rated capacity of 3.9GW in the Base Case). It is assumed that we import 1.2GW from Norway and export 0.4GW to Northern Ireland and Ireland.

Under these conditions, we might need DFS on **10-35 days** over winter 2022-23, with a typical requirement of around **2,000MW** (up to 5,500MW). With a ~5GW reduction in interconnector imports, we would not typically anticipate a requirement when demand is lower than 35GW, but there may be circumstances whereby demand is above 35GW and demand flexibility is not required and vice versa.

## Scenario 2 – Reduced electricity imports from Europe combined with insufficient available gas supply in Great Britain

In this scenario we assume the same assumptions as Scenario 1, but with an additional 10GW CCGTs unavailable for a two-week period in January.

Should this scenario happen, it may be necessary to initiate the planned, controlled and temporary rota load shedding scheme under the Electricity Supply Emergency Code (ESEC). In the unlikely event we were in this situation, it would mean that some customers could be without power for pre-defined periods during a day – generally this is assumed to be for 3 hour blocks. This would be necessary to ensure the overall security and integrity of the electricity system across Great Britain. All possible mitigating strategies would be deployed to minimise the disruption.

Under this gas shortage scenario, we might need DFS for an additional **10-14 days** during the two-week period, on top of scenario 1, with a typical requirement for DFS of around **3,500MW** (up to 12,000MW). With 10GW less CCGT availability, we would not anticipate a requirement when demand is lower than 25GW.

### Summary table

Scenario	Number of days with potential requirement	Volume (MW)
Base case	0-5 days	1,000MW (up to 1,500MW)
Scenario 1	10-35 days	2,000MW (up to 5,500MW)
Scenario 2	additional 10-14 days	3,500MW (up to 12,000MW)

*Table 1 – summary of potential DFS requirements*