Public

Demand Control Rotation Protocol Summary

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The Demand Control Rotation Protocol (DCRP) informs organisations within the electricity sector of the DCRP process, the communication procedures, and the actions they must take. This document is a summary of the industry protocol that will be used by Network Operators and the National Energy System Operator (NESO) when the DCRP is required to be implemented.

This summary is based on version 6.3 of the DCRP. This summary document will need to be updated, with every review of the DCRP or update to Grid Code OC6.9.

Defined terms used in this document can be found in the Grid Code Glossary and Definitions unless otherwise stated.

Introduction

Great Britain (GB) has a resilient energy system, underpinned by diverse sources of electricity generation. Due to the resilience of our energy system, it has not been necessary to use the electricity emergency measures included in this protocol for over forty years.

In an electricity supply emergency, demand control measures can be used to protect the electricity system. These measures reduce electricity demand across Great Britain in a fair and equitable manner. The demand control measures that form part of this protocol will not be used to handle day-to-day repair and recovery of parts of the transmission and distribution systems.

The Demand Control Rotation Protocol (DCRP) was created in 2023 to reflect recent, at that time, geopolitical changes in the global energy sector. It is allowed for under the obligations set out in Operation Code No. 6 (OC6) – Demand Control, which comes under the Grid Code. The objective of OC6 is to achieve the reduction in demand that will either avoid or relieve issues on the Transmission System, while being fair and equitable to consumers. The DCRP arrangements are described in OC6.9. The DCRP addresses short-term issues in order to prevent unplanned demand disconnections, such as via Low Frequency Demand Disconnection (LFDD) or, at the extreme, the total shutdown of the GB electricity system. This document outlines how the interchange of demand reduction under OC6 will be delivered, whilst ensuring protection (from the DCRP demand control measures) to Protected Sites.

Longer term rota disconnections can be achieved under the powers set out within the Energy Act 1976 or the Electricity Act 1989 using the Electricity Supply Emergency Code (ESEC).

DCRP is only applicable to operators of the Distribution Network, i.e. DNOs and iDNOs. Transmission Owners (TOs) across Great Britain have no formal role under DCRP.

Demand Reduction Tools

As outlined in OC6 of the Grid Code, NESO has access to a range of demand control tools to help manage the emergency situation of electricity supply shortfalls and maintain system security. These tools allow NESO to reduce demand at different timescales and levels of response, helping to manage supply-demand imbalance and reduce the risk of wider system disruption. The suite of tools available to NESO are as below:

- Manual Demand Control
- Demand Control Rotation Protocol (DCRP)
- Electricity Supply Emergency Code (ESEC)
- Low frequency Demand Disconnection (LFDD)

NESO also has market options including Capacity and Electricity Margins Notices (CMN and EMN). These, other market actions and network options will be exhausted prior to the use of demand control to try and address the imbalance and prevent impacts to the end user. Manual Demand Control can be used to instruct voltage reduction or demand disconnection, while DCRP and ESEC provide structured rota-based demand disconnection arrangements for forecast supply shortfalls. DCRP is designed to be more agile than ESEC and can be implemented with at least eight hours' notice, making it suitable for shorter-duration or time-specific shortages. Where a shortfall is expected to be prolonged, or cannot be managed through DCRP alone, ESEC may be considered subject to the necessary emergency arrangements. LFDD differs from these processes as it is an automatic, non-selective response that disconnects demand when system frequency reaches pre-defined low-frequency thresholds.

Table 1 below shows a high-level summary of these tools, as detailed in OC6.

For more information on ESEC arrangements, visit the ESEC site on gov.uk.

Table 1 – Comparison between Demand Control Rotation Protocol (DCRP), Electricity Supply Emergency Code (ESEC), Low Frequency Demand Disconnection (LFDD) and Manual Demand Control.

	Demand Control Rotation Protocol (DCRP)	**Electricity Supply Emergency Code (ESEC)**	**Automatic Low Frequency Demand Disconnection (LFDD)**	**Manual Demand Control**
Grid Code Reference	OC6.9	OC6.1.5	OC6.6	OC6.5
Convenor of process/code	NESO	DESNZ/Secretary of State	NESO/Network Operators	NESO
Purpose	To deal with **short-term** shortage of electricity supplies to meet demand from consumers. Provide **co-ordinated** strategy for limiting negative impacts to society & preventing an electricity system shutdown.	To deal with **longer-term** shortage of electricity supplies to meet demand from consumers. Provide **co-ordinated** strategy for limiting negative impacts to society & preventing an electricity system shutdown.	To limit the consequences of a major loss of electricity supplies or rapid increase in demand.	To deal with **short notice** events when there is a shortage in available electricity supplies to meet demand from consumers. Provide strategy for limiting negative impacts to society & preventing an electricity system shutdown.
Methods of Demand Reduction	1. **Planned Load Disconnection (excluding protected sites)** via up to 14 (circa five percent of demand) load blocks.	1. Public appeal to reduce usage & restrict usage of industrial & commercial premises. 2. Restrict usage of industrial & commercial premises. 3. **Planned Load Disconnection (excludes protected sites)**	Designed to automatically disconnect at least 60% (40% in Scotland) of the total transmission system demand in 9 stages at predefined low frequency points (48.8 -47.8Hz).	Voltage control, designed to reduce transmission system demand by reducing customer voltages. **Planned Load Disconnection (excluding protected sites**) via up to 4 (circa five percent of

		via 18 (circa five percent of demand) load blocks.		demand) load blocks that can be disconnected quickly.
Conditions for implementing Load Disconnection	1. Enhanced market and network options exhausted, generation or storage or interconnector shortage remains. 2. System Warning issued. NESO instructs DNOs to implement the required amount and duration of load disconnection in accordance with agreed plans.	1. NESO advise DESNZ of a requirement to use load disconnection for a **longer-term period**. 2. Invoked by Secretary of State (SoS) following obtaining an Order of Council. SoS directs NESO and DNOs to implement rota load disconnection in accordance with agreed plans.	1. Automatic low frequency relays are triggered by the falling frequency on the GB electricity system. NESO instructs DNOs when to restore disconnected demand.	1. Enhanced market and network options exhausted, generation or storage or interconnector shortage remains. 2. System Warning issued. NESO instructs DNOs when to disconnect and reconnect demand.

DCRP Process

The DCRP process enables a response to short-term, sudden impact events on the electricity network. An example of this where there is a shortfall in supply to meet forecasted demand, such as during a period of cold temperatures, combined with low wind. This would likely be an in-day response that will need to be enacted within 24 hours of a shortfall being identified. It will most likely be activated to manage an electricity supply shortfall during evening peak, where the situation cannot be effectively controlled using other demand control measures, e.g., voltage reduction. It can, however, be utilised to manage other short-term shortfalls in electricity supply. DCRP reduces demand through planned load disconnections, using a pre-prepared rota and plan. DCRP will only be utilised after enhanced market and network options have been exhausted.

A summary of the process can be seen in the diagram below.

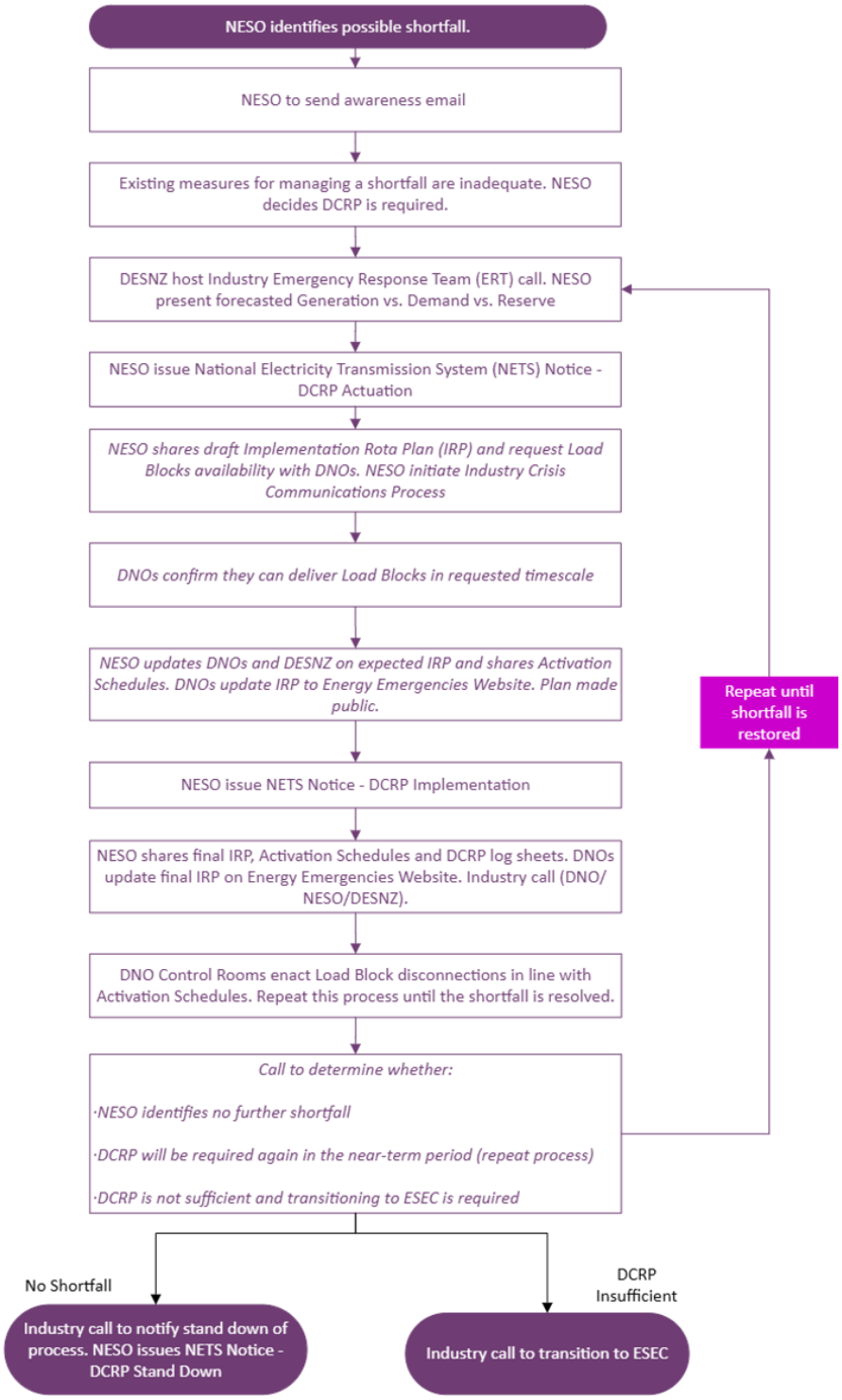

Figure 1 – Flowchart showing a summary of the DCRP Process. *Note: text in italics indicates that these steps are not included in Grid Code OC6 but are detailed in the full protocol*

Implementation Rota Plan

During the emergency NESO will create an Implementation Rota Plan (IRP), establishing a rota for disconnecting and reconnecting load blocks, that is adapted to the requirements of the emergency. Where practicable and necessary, the same level of rota disconnection will apply to all 14 DNO licence areas. The IRP utilises the same load blocks used by the ESEC other than R, S, T & U which are reserved as Fast Load Blocks[1] (to be used when there is a need to reduce demand on the transmission system and there is insufficient time to implement the DCRP). Load Blocks will be disconnected in alphabetic sequence (up to the letter Q[2]).

Stand Down Procedure

When NESO forecasts show that there are no further electricity supply shortages and the DCRP based demand disconnection is no longer required, NESO will inform DESNZ, Ofgem, and industry. NESO's decision to stop using DCRP will then be communicated to DNOs with a formal instruction, via a National Electricity Transmission System (NETS) Notice, for DNOs to revert to normal network configuration and operation (without demand disconnection). Once stood down, final load blocks used are to be recorded.

Alternatively, if DCRP arrangements are being transitioned to ESEC arrangements, this will be discussed in the Emergency Response Team (ERT) meeting. NESO will issue the appropriate NETS Notice to formally notify DNOs of the transition of arrangements.

Communications Plan

The Communications Plan for the DCRP will use existing communications procedures.

NESO will lead on all communications relating to a DCRP event. This will include hosting a national press conference and publishing information on its social media channels (including LinkedIn and X). All communications will be co-ordinated with the Energy Networks Association (ENA) and will utilise the www.powercut105.com website.

[1] Fast load blocks can be disconnected by the DNO at very short notice in accordance with OC6.5.4 and this allows NESO to call upon this service whilst the DCRP is being implemented. This retains the ability to use fast load blocks during an emergency if one was to concurrently occur during a DCRP event.

[2] Load Blocks use letters in the range 'A' to 'E', 'G', ' 'H', 'J' to 'N' or 'P or Q'