

Company Directive

Policy Directive DSO7 Issue 1

DSO Network Operation

Summary

This directive sets requirements and roles for the DSO's processes to optimise use of the NGED Distribution System, including by dispatching distribution flexibility services and recommending changes to curtailment and running arrangements. It expands on the level 1 process DSO Network Operation that is established in Parent Directive DSO.

Author: Helen Sawdon and Stephen Quinn

Implementation Date: September 2026

Approved by



Cathy McClay
Managing Director of DSO

Date: 24/09/2026

Target Staff Group	DSO: DSO Operations, Flexibility Markets, System Planning, System Models & Data. DNO: Control Centre.
Impact of Change	Amber (minor update): standardises and develops existing processes.
Planned Assurance checks	To be reviewed as part of business assurance of DSO governance

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IMPLEMENTATION PLAN

Introduction

This directive sets requirements and roles for the DSO's processes to optimise use of the NGED Distribution System, including by dispatching distribution flexibility services and recommending changes to curtailment and running arrangements. It expands on the level 1 process DSO Network Operation that is established in Parent Directive DSO.

Main Changes

Policy Directive DSO7 is:

- Rewritten in process-orientated format that standardises processes.
- Updated with outputs from in-depth process mapping that captures de facto process and the addition of previously undocumented processes.

Impact of Changes

Target Staff Group	DSO: DSO Operations, Flexibility Markets, System Planning, System Models & Data. DNO: Control Centre.
Impact of Change	Amber (minor update): standardises and develops existing processes.

Implementation Actions

This directive will be implemented by Standard Techniques in the DSO7 series, which will have individual implementation actions tailored to their target audiences.

Implementation Timetable

This directive takes effect from the date of issue. Each level 2 process has an individual implementation plan; some of these include deferred implementation deadlines.

REVISION HISTORY

DOCUMENT REVISION & REVIEW TABLE			
Issue	Date	Comments	Author
1	24/09/2026	• Title changed to <i>DSO Network Operation</i> • Rewritten in process-orientated format • Addition of previously undocumented processes	Helen Sawdon and Stephen Quinn
0	08/07/2024	Initial issue of Policy Directive DSO7, titled <i>Distribution System Operations</i> .	Stephen Quinn and Joe Davey

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1.0 INTRODUCTION

1.1 Scope and Purpose

This directive expands upon the level 1 process¹ DSO Network Operation that is established in Parent Directive DSO. The DSO Network Operation process delivers the DSO Role *Network Operation* set by Ofgem as part of the DSO Incentive in RIIO-ED2.

The purpose of DSO Network Operation is to economically optimise use of the available electricity distribution **system** by:

- Developing sufficient operational network visibility to identify, **forecast** and manage **constraints**; and
- Creating and using efficient and transparent decision-making processes for the dispatch of flexibility services and the management of **curtailment**.

1.1.1 Context – Distribution Network & System Control

DSO Network Operation is part of **operational control**, alongside the DNO Control Centre's **operational control** processes. In turn, **operational control** is part of Distribution Network & System Control, alongside the DNO's **safety control** processes. These relationships are shown in Figure 1 below.

¹ The DSO's processes are documented in company directives in the DSO series. Parent Directive DSO establishes several level 1 processes. Each of these level 1 processes is detailed by a Policy Directive in the DSO series which breaks it down into level 2 processes. In turn, each level 2 process is detailed by a Standard Technique in the DSO series which breaks it down into level 3 processes.

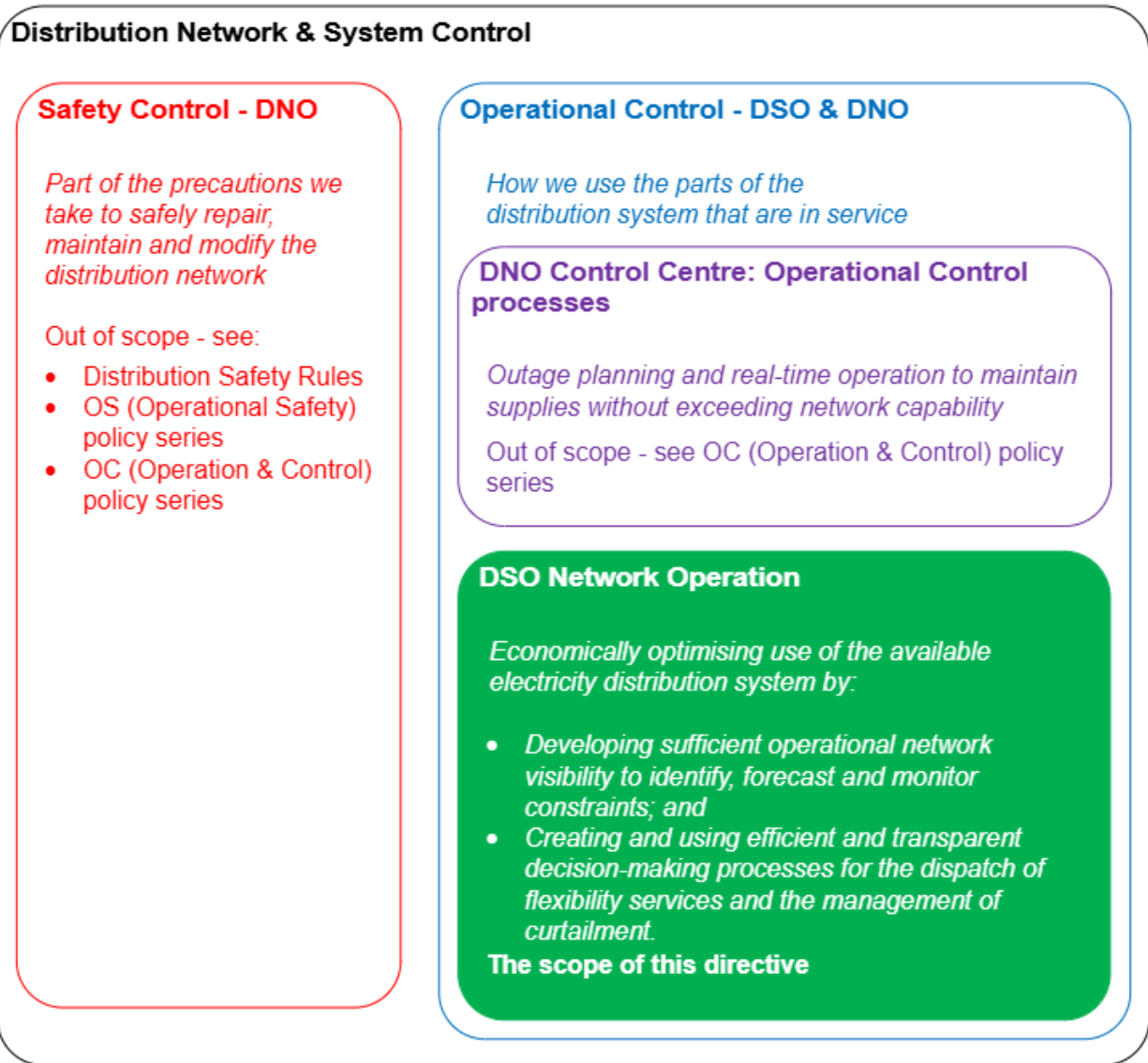


Figure 1: Euler diagram of distribution network & **system** control

The DNO Control Centre's **operational control** processes are outside of the scope of this directive. They are addressed in the OC (Operation & Control) series of policy.

The DNO's **safety control** processes are outside of the scope of this directive. They are addressed in:

- The Distribution Safety Rules
- The OS (Operational Safety) series of policy
- The OC (Operation & Control) series of policy

1.2 About the DSO

The Distribution System Operator (DSO) is a directorate within National Grid Electricity Distribution (NGED) that is responsible for:

- Core level 1 processes that deliver the DSO Roles set by Ofgem as part of the DSO Incentive in RIIO-ED2:
 1. Planning and Network Development
 2. [DSO] Network Operation
 3. [**Distribution flexibility services**] Market Development
- Supporting level 1 processes that enable delivery of the DSO Roles.

Further information about the DSO can be found in Parent Directive DSO.

1.2.1 About the DSO Operations Department

The DSO Operations department is responsible for the level 1 process DSO Network Operation. The department is made of two teams:

- The Energy Management Centre (EMC), a core operational team which does the component processes of DSO Network Operation day-to-day.
- DSO Operational Development Team (ODT), which develops and implements tools and processes for use within the department.

1.2.2 DSO Operations Objectives

Operational decision making is a fundamental element of DSO Operations' responsibility. It requires informed trade-offs to achieve the best whole-**system** outcomes while balancing DSO Operations' three key objectives, which are:

- Managing the security of supply for our network - make decisions that continue to reliably deliver the volume of electricity our customers need, when they need it, to power their homes and businesses.
- Minimising the cost of running our network - use **distribution flexibility services** to alter power flows or reconfigure the network to reduce the need for **reinforcement** and lower the overall cost of the distribution network.
- Maximising **system** access for all network users - maximising the volume of locally produced electricity generation, through the avoidance of **curtailment**.

1.3 Roles

The Head of DSO Operations is accountable for the level 1 process DSO Network Operation. They may approve the issue, amendment and withdrawal of Standard Techniques and Specifications in the DSO7 (DSO Network Operation) series to implement the requirements of this directive.

1.4 Interpretation

Where the term “should” is used in this directive it means the provision is a recommendation, which is normally followed. The term “may” is used to express permission. Where the term “shall” or “must” is used in this document it means the provision is mandatory, which must be followed.

Info: Explanatory information is given in blue-outlined boxes adjacent to some provisions of this directive. The explanatory information neither expresses permission nor sets mandatory requirements.

Technical terms shown in **bold** are defined in the DSO Glossary, available internally at <https://sharepoint.westernpower.co.uk/sites/wpd/dso/public/Lists/DSO%20Glossary>. An excerpt of relevant terms from the DSO Glossary is included here as appendix A.

References to processes and other proper nouns are shown in Title Case (i.e. the first letter of each word is capitalised).

1.5 Application

Several Standard Techniques that say how to meet the requirements of this Policy Directive have been issued in the DSO7 (*DSO Network Operation*) series, the remainder will be issued in due course.

If, once having read the relevant Standard Technique(s), you encounter any difficulty in applying this directive, please contact:

- The DSO Operations department with questions about subject matter and content. Their group inbox is nged.emc@nationalgrid.co.uk.
- The DSO Policy team with questions about editorial matters and issues to be addressed in a future revision. Their group inbox is nged.dsopolicy@nationalgrid.co.uk.

If the DSO Operations department and the DSO Policy team are unable to resolve your issue, the authoriser of this directive may approve a variation.

2.0 CONSTITUENT LEVEL 2 PROCESSES OF DSO NETWORK OPERATION

This directive subdivides the level 1 process DSO Network Operation into:

- Level 2 Process: Prepare Flexibility for Operation in section 3.0
- Level 2 Process: Operational Triage in section 4.0
- Level 2 Process: Curtailment & Running Arrangement Optimisation in section 5.0
- Level 2 Process: Short-Term Flexibility Requirement Identification in section 6.0
- Level 2 Process: Flexibility Selection & Dispatch in section 7.0
- Level 2 Process: DSO Operations Support in section 8.0

For each of these level 2 processes, the following are established:

- The purpose of the process
- How the process is triggered
- High-level requirements for the process, with references to further detail in Standard Techniques and/or Specifications.
- An implementation plan for the process

The relationship between these level 2 processes and other key processes and systems is shown in

Figure 2.

2.1 Supporting Systems

Doing these processes efficiently at scale with robust record keeping requires computer systems to store data and automate tasks. DSO Network Operation uses four key systems, described below.

2.1.1 Market Gateway

Info: The Market Gateway is National Grid DSO's **distribution flexibility service** trading platform. Its web interface allows **flexibility service providers** to self-serve for onboarding and lifecycle management, and to view and respond to **trade opportunities**. The Market Gateway is built by IT&D and by contractors.

The Head of Flexibility Markets is the business owner of this system, accountable for ensuring that its functionality and data meet business requirements.

Market Gateway and its data are used by the DSO Operations department in commercial interactions with **flexibility service providers**.

2.1.2 Dispatch Calculator

Info: The Dispatch Calculator is a tool built by National Grid DSO to assist dispatchers and engineers managing relevant data and making calculations and decisions when selecting **distribution flexibility services** for dispatch.

The Head of DSO Operations is the business owner of this system, accountable for ensuring that its functionality and data meet business requirements.

Dispatch Calculator is used in the Flexibility Selection & Dispatch process.

2.1.3 Dispatch & Settlement Platform

Info: The Dispatch & Settlement Platform is a tool primarily used to instruct **flexibility service providers** when National Grid DSO require services that they have been contracted to provide. It communicates dispatch instructions using an Application Programming Interface (API) and allows **flexibility service providers** to submit metering information used to create invoices. The Dispatch and Settlement Platform that NGED use is Flexible Power Portal.

The Head of DSO Operations is the business owner of this system, accountable for ensuring that its functionality and data meet business requirements.

Flexible Power Portal and its data are used by the DSO Operations department in technical interactions with **flexibility service providers**.

2.1.4 Switch-Level Analyser

Info: The Switch-Level Analyser is a computer program developed by National Grid DSO to help engineers assess **primary distribution** systems. Amongst other features, it automatically applies different arranged outages and fault outages to a **model** of the electricity **system** then runs load flow calculations to find **constraints**. It is used by several DSO and DNO teams for **system** planning, network design, and operational planning.

The Head of System Models & Data is the business owner of this system, accountable for ensuring that its functionality and data meet business requirements. Agreeing those business requirements is part of their level 2 process Provision of Electrical Software & Tools; their specification for the system will be set by the DSO3 (*Provision of System Models & Data*) series of policy.

The Switch-Level Analyser is used by the DSO Operations department for processes which are detailed in:

- Standard Technique DSO7BC: *Operational Triage – Curtailment & Running Arrangements*
- Standard Technique DSO7E: *Curtailment & Running Arrangement Optimisation*

2.2 Flowchart

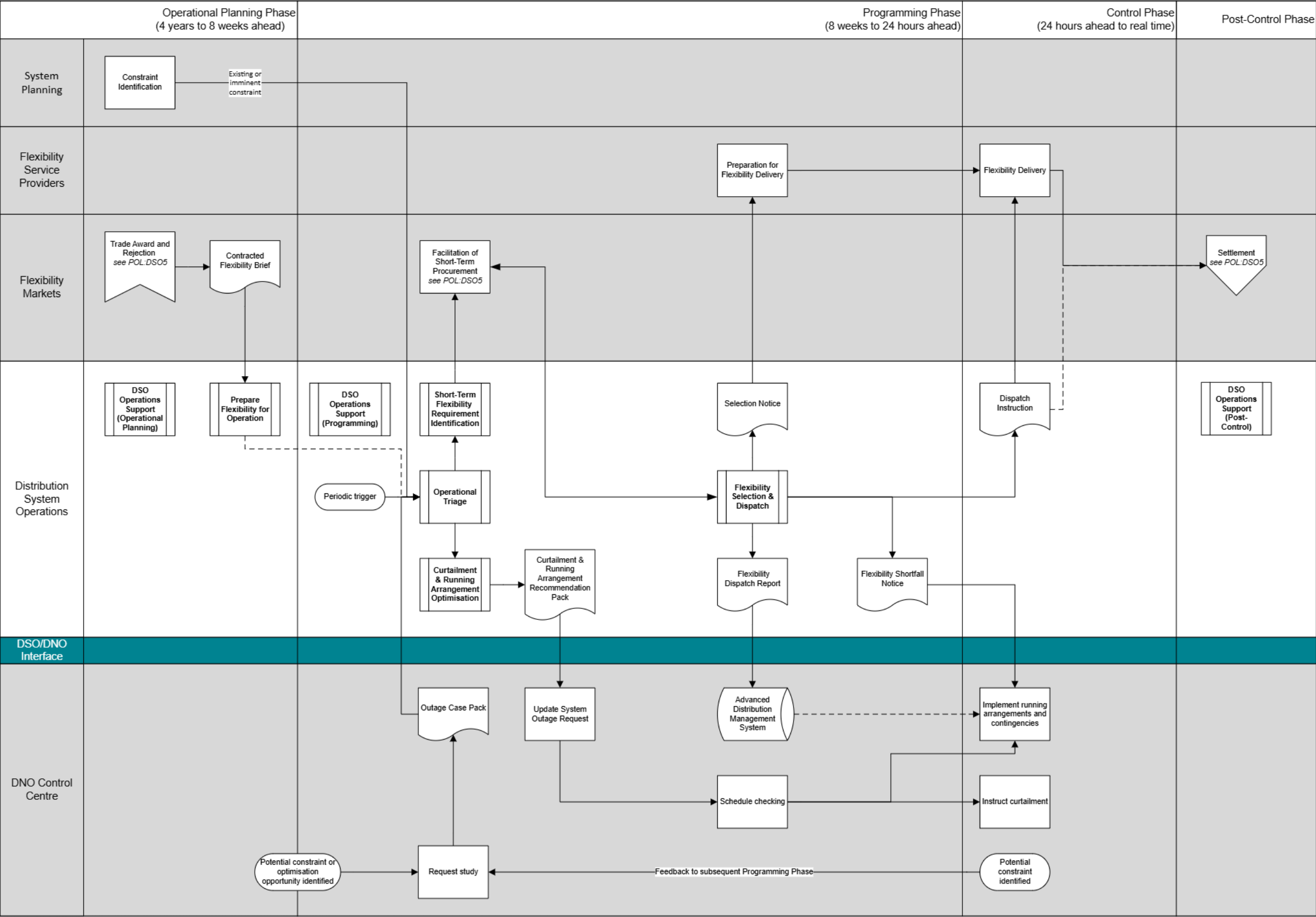


Figure 2: Component Level 2 processes of DSO Network Operation and their relationships to other processes across the operational timeline. Process flow is shown as solid lines, data flow is shown as dashed lines. The DSO Operations Support level 2 process brings together activities outside of the main process flows shown on the diagram; it is shown in multiple phases to represent the various timescales of those activities.

3.0 LEVEL 2 PROCESS: PREPARE FLEXIBILITY FOR OPERATION

3.1 Purpose

To bring information about a new or changed application of **distribution flexibility services** into DSO Operations' systems to enable their subsequent use.

3.2 Trigger

On receipt of a Contracted Flexibility Brief meeting the requirements of Policy Directive DSO5 (*Flexibility Market Development*) from the Flexibility Markets department.

3.3 Requirements

The Head of DSO Operations or their delegate:

1. Shall ensure that all relevant data from the Contracted Flexibility Brief is recorded in the Dispatch & Settlement Platform, including:

Info: The current Dispatch & Settlement Platform is the Flexible Power Portal. It refers to the record associated with a Contracted Flexibility Brief as a "zone" or "**constraint** management zone".

- a. For each **constraint** management zone:
 - i. A unique identifier
 - ii. A human-friendly name
- b. For each **asset** (or group thereof):
 - i. A unique identifier for the **asset(s)** that can be cross-referenced to **models** and records of the electricity distribution **system**.
 - ii. The contracted periods and volumes of **availability** and, if applicable, pre-contracted **utilisation**.
 - iii. How much it would cost to **utilise** for each contracted period of **availability**.
 - iv. What communications method(s) shall be used and how much notice shall be given when instructing **utilisation**.
 - v. Any operational limitations agreed with the **flexibility service provider**.

Info: Some **assets** have minimum or maximum durations that they can operate for.

- vi. Any other data that will subsequently be necessary for the level 2 process Settlement in Policy Directive DSO5.

2. Shall ensure that the Dispatch Calculator's database includes all relevant data from:

Info: The Dispatch Calculator is a system used in the level 2 process Flexibility Selection & Dispatch.

- a. The Contracted Flexibility Brief; and
- b. The prior assessment of network visibility made in accordance with requirement 2 (as of issue 0) of the level 2 process Outline Design (Distribution Flexibility Services) in Policy Directive DSO5.

Info: The process for assessing network visibility is set in Standard Technique DSO7ZO, *Flexibility Operability Checks*. The data it creates includes the identities of network analogues that will be used to calculate the impact of the **constraint** closer to real-time.

3. Shall coordinate with IT&D CNI team and DNO Control Centre to provide visibility of and key information about the Contracted Flexibility Brief in the Advanced Distribution Management System (ADMS).

3.3.1 Reference to detailed requirements

Further requirements for this level 2 process including step-by-step level 3 processes are set in Standard Technique DSO7A: *Prepare Flexibility for Operation*.

3.4 **Implementation Plan**

Requirement 3 (visibility in ADMS) shall be implemented by March 2027.

Info: The first phase of requirement 3 was implemented in July 2026. This is described in issue 0 of Standard Technique DSO7ZZ, *DSO Operations Support: Guide to Distribution Flexibility Service Reports for DNO Control Centres*.

The rest of this process standardises prior custom and practice, so shall be implemented from the date of issue.

4.0 LEVEL 2 PROCESS: OPERATIONAL TRIAGE

4.1 Purpose

To coordinate and trigger the subsequent DSO Network Operation processes based on technical and commercial **analysis**.

4.2 Trigger

This process shall be triggered:

1. Periodically for each Contracted Flexibility Brief during or shortly before the **programming phase**;
2. On receipt of a Constraint Brief describing an existing or imminent **constraint** from System Planning following the level 2 process Constraint Identification in Policy Directive DSO4. The Constraint Brief shall meet the requirements of Policy Directive DSO4;
3. On request from DNO staff planning and responding to outages who have identified a potential **constraint** or an opportunity to optimise **system** operation. The DNO staff shall provide sufficient information and data for the responsible EMC Engineer to meet the requirements below; and
4. Through proactive review of planned outages by the EMC.

4.3 Requirements

Once triggered, the responsible EMC Engineer:

1. Shall make a Short-Term Load Forecast (see outputs below) for the affected distribution **system** area over an appropriate **forecast** period.
2. Shall use electrical **analysis** techniques appropriate to the affected area of the electricity distribution **system** with the Short-Term Load Forecast to determine reasonably foreseeable **system** loading and behaviour during the **forecast** period. This shall be recorded as Short-Term Network Analysis Results.
3. Shall, if the Short-Term Network Analysis Results indicate that one or more unmitigated **constraints** can be reasonably expected to occur during the **forecast** period, trigger one or both of:
 - a. Curtailment & Running Arrangement Optimisation
 - b. Short-Term Flexibility Requirement Identification
4. Should, if the Short-Term Network Analysis Results indicate an opportunity to optimise **system** operation and so significantly reduce **curtailment**, customer interruptions or customer minutes lost (or the risk thereof) during the **forecast** period, trigger Curtailment & Running Arrangement Optimisation.
5. Shall make the Short-Term Load Forecast and the Short-Term Network **Analysis** Results available to any process that is subsequently triggered.
6. Shall, for triggers 2 and 3, notify whoever triggered the process of its outcome.

4.3.1 Reference to detailed requirements

Further requirements for this level 2 process including step-by-step level 3 processes are set in Standard Techniques:

- DSO7BC: *Operational Triage: Curtailment & Running Arrangements*; and
- DSO7BF: *Operational Triage: Distribution Flexibility Services*.

4.4 **Outputs**

4.4.1 Short-Term Load Forecast

This:

1. Shall be a **forecast** of demand and generation² behaviour.
2. Shall cover all demand and generation in the affected area of the electricity distribution **system**.
3. Shall be valid for at least the following **forecast** period:
 - a. If triggered for a planned outage, the expected duration of that planned outage; or
 - b. If triggered periodically, until the next periodic trigger.

4.4.2 Short-Term Network Analysis Results

This shall include:

1. A reference to the affected area of the electricity distribution **system**.
2. A reference to the Short-Term Load Forecast used.
3. Calculated circuit loading and, where applicable, bus voltages. Where applicable, these should be referenced to:
 - a. When they occur during the **forecast** period;
 - b. What, if any, planned outages or fault outages cause them to occur.

4.5 **Implementation Plan**

For trigger 1, the current implementation is documented in Standard Technique DSO7BF: *Operational Triage – Distribution Flexibility Services*. It is a minimum viable product which:

- Uses the long-term load **forecast** from the Contracted Flexibility Brief instead of creating and using a Short-Term Load Forecast.
- Uses electrical **analysis** techniques that are only appropriate to simple electrical **constraints**. This limitation is mitigated by Contracted Flexibility Briefs only being made for simple electrical **constraints**.

² Generation includes electricity storage

Info: Deciding whether a **constraint** is a 'simple electrical **constraint**' is a matter of engineering judgement. The typical characteristics are a clearly identifiable boundary with a capacity set by thermal ratings, where flows across the boundary are sensitive to changes in load from any and all customers on one side of the boundary, but not to changes in load on the other side of the boundary.

- Presumes that Short-Term Flexibility Requirement Identification will be triggered instead of Curtailment & Running Arrangement Optimisation in most cases.

For triggers 2 and 3, the current implementation is documented in Standard Technique DSO7BC, *Operational Triage – Curtailment & Running Arrangements*. It presumes that Curtailment & Running Arrangement Optimisation will be triggered instead of Short-Term Flexibility Requirement Identification in most cases.

Standard Techniques DSO7BF and DSO7BC standardise prior custom and practice, so shall be implemented from their respective dates of issue.

Trigger 4 is not yet implemented. The process should be comprehensively implemented for all triggers by March 2027, including closer integration in the response to the different triggers.

5.0 LEVEL 2 PROCESS: CURTAILMENT & RUNNING ARRANGEMENT OPTIMISATION

5.1 Purpose

To identify and recommend solutions to mitigate **constraints** and optimise **system** operation on NGED's distribution **system** in the **programming phase**.

Info: Although this process can be indirectly triggered by DNO Control Centre identifying a potential **constraint** in the **control phase**, DSO Operations is currently an "office hours" department, so would not be able to respond with a Curtailment & Running Arrangement Recommendation Pack in the same **control phase**.

5.2 Trigger

This process is triggered by the Operational Triage process above.

5.3 Requirements

The responsible EMC engineer:

1. Shall review the Short-Term Load Forecast and the Short-Term Network **Analysis Results**.
2. Shall, where the Short-Term Network Analysis Results include unmitigated **constraint(s)**:
 - a. Identify possible solutions to the **constraint(s)** that use one or more of:
 - i. Running arrangement changes;
 - ii. Increasing or decreasing **curtailment**;
 - iii. Rescheduling arranged outages.
 - b. Assess each possible solution by electrical **analysis** techniques appropriate to the affected area of the electricity distribution **system** to determine whether it mitigates the **constraint(s)**.
 - c. Select one solution (or combination of solutions) which mitigates the **constraint(s)** to recommend.
3. Shall, where there is an opportunity to optimise **system** operation to reduce **curtailment**, customer interruptions and/or customer minutes lost:
 - a. Identify possible optimisations that use one or more of:
 - i. Running arrangement changes;
 - ii. Increasing or decreasing **curtailment**;
 - iii. Rescheduling arranged outages.
 - b. Assess each possible optimisation by electrical **analysis** techniques appropriate to the affected area of the electricity distribution **system** to:

- i. Determine whether it achieves the intended reduction in **curtailment**, customer interruptions or customer minutes lost; and
 - ii. Ensure that it does not create or exacerbate **constraints**.
- c. If there is at least one optimisation which meets both criteria of requirement 3.b above, select one optimisation from those which meet both criteria to recommend.
- 4. Shall compile an Outage Recommendation Pack (see Outputs below) from the recommended solution and/or optimisation.
- 5. Shall send the Outage Recommendation Pack to DNO Control Centre and ask the DNO Control Centre to confirm whether they accept and will apply the recommendations.

5.3.1 Reference to detailed requirements

Further requirements for this level 2 process including step-by-step level 3 processes are set in Standard Technique DSO7E: *Curtailment & Running Arrangement Optimisation*.

5.4 **Outputs**

5.4.1 Curtailment & Running Arrangement Recommendation Pack

This shall include:

- 1. Where the Short-Term Network Analysis Results include unmitigated **constraint(s)**, the recommended solution.
- 2. Where there is a recommended optimisation, the recommended optimisation.
- 3. Where there is not a recommended optimisation, an explanation of why an optimisation is not recommended.
- 4. Assumptions and limitations of the electrical **analysis** used.
- 5. Reference to the Short-Term Load Forecast and the Short-Term Network Analysis Results.

5.5 **Implementation Plan**

This process standardises prior custom and practice, so shall be implemented from the date of issue.

6.0 LEVEL 2 PROCESS: SHORT-TERM FLEXIBILITY REQUIREMENT IDENTIFICATION

6.1 Purpose

To identify the need to procure **distribution flexibility services** in the **short-term market** and to trigger that procurement. This:

- Enables participants in the **short-term market** to compete against **availability** already procured in the **long-term market**; and
- Augments **availability** procured in the **long-term market** if it is insufficient to resolve the **constraint**.

Info: The level 2 process DSO5 Outline Design (Distribution Flexibility Services) in Policy Directive DSO5 permits proceeding with insufficient **availability** for a Constraint Brief if it can reasonably be expected that sufficient further **distribution flexibility services** can be procured closer to real time.

Info: **Availability** that has already been contracted might also be insufficient to resolve the **constraint**, due to the nature of the **constraint** changing or the estimated **utilisation** requirement increasing.

Info: **Constraints** that are identified during the operational phases would not typically have any **availability** contracted before this process.

6.2 Trigger

This process is triggered by the level 2 process Operational Triage. It shall be carried out in good time to permit the completion of subsequent processes up to and including Flexibility Selection & Dispatch.

6.3 Requirements

Once triggered, the responsible EMC Engineer:

1. Shall estimate the requirement for **utilisation** of **distribution flexibility services** over the duration of the Short-Term Load Forecast.
2. Shall use that requirement to calculate a Short-Term Trade Request (see Outputs below) and input it to the level 2 process Facilitation of Short-Term Procurement in Policy Directive DSO5.

Info: The level 2 process Facilitation of Short-Term Procurement in Policy Directive DSO5 is largely automated.

6.3.1 Reference to detailed requirements

Further requirements for this level 2 process including step-by-step level 3 processes are set in Standard Technique DSO7C: *Short-Term Flexibility Requirement Identification*.

6.4 Outputs

6.4.1 Short-Term Trade Request

The Short-Term Trade Request shall include:

1. Where on the electricity distribution **system** the **distribution flexibility services** are required.
2. The volume of **utilisation** required for each settlement period.

Info: All products in the **short-term market** are described as “**utilisation-only**”. This means that the timing and magnitude of **availability** is defined as being the same as **utilisation**. **Utilisation** is paid for; the **availability** price is zero.

3. The maximum acceptable cost, either aligned to the ceiling price used for **long-term trades** or a new cost-benefit **analysis**.

6.5 Implementation Plan

The current implementation is documented in Standard Technique DSO7C. It standardises prior custom and practice, so shall be implemented from its date of issue.

The current implementation is limited by Operational Triage using a long-term load **forecast** instead of making a Short-Term Load Forecast. The process should be comprehensively implemented by March 2027 alongside the comprehensive implementation of Operational Triage described in section 4.5 above.

7.0 LEVEL 2 PROCESS: FLEXIBILITY SELECTION & DISPATCH

7.1 Purpose

To select and then dispatch **distribution flexibility services** to:

- Mitigate **constraints**; and
- Build and maintain **market** resilience in **distribution flexibility services**.

7.2 Triggers

This process shall be triggered by the level 2 process Operational Triage, via the level 2 process Short-Term Flexibility Requirement Identification. It shall be carried out in good time to meet notice requirements in contracts with **flexibility service providers**.

Info: This process is currently triggered each working weekday for services that will be delivered in the **control phase** of the following day. To avoid weekend and bank holiday working, on Fridays the process is triggered for services that will be delivered in the **control phases** of all days up to and including the next working weekday. The process was previously triggered each Wednesday for services that would be delivered in the **control phases** of the following Monday through Sunday (inclusive); the associated Standard Technique DSO7D currently reflects the previous arrangement. It will be updated in due course following the DSO's change management processes.

This process shall not be triggered during the **control phase** without the agreement of the DNO Control Centre.

7.3 Requirements

For each Contracted Flexibility Brief, staff suitably authorised by the Head of DSO Operations:

1. Should, if this process does not promptly follow Operational Triage, refine and update the Short-Term Load Forecast and Short-Term Network Analysis Results.
2. Shall determine what **distribution flexibility services** need to be dispatched to resolve the **constraint(s)** in the Contracted Flexibility Brief by using:
 - a. The Short-Term Load Forecast;
 - b. The Short-Term Network Analysis Results; and
 - c. Where necessary, further electrical **analysis** by techniques appropriate to the affected area of the electricity distribution **system**.
3. Shall, where there are sufficient **distribution flexibility services** available, dispatch at least enough to resolve the **constraint(s)**.
4. Shall, where more **distribution flexibility services** are available than necessary, select from them by the following service selection principles:

- a. **Network capability**
- b. **Customer security**
- c. Value
- d. **Market** resilience

Info: Sometimes more **distribution flexibility services** than are technically necessary are dispatched to stimulate **market** liquidity.

5. If insufficient **distribution flexibility services** are available to be dispatched to resolve the **constraint(s)**, notify an engineer suitably authorised by the Head of DSO Operations, who shall:
 - a. Review the inputs and outputs of requirement 2;
 - b. Where beneficial, do more detailed electrical **analysis** to determine what **distribution flexibility services** are needed;
 - c. Dispatch **distribution flexibility services** in accordance with requirement 3; and
 - d. If there are still insufficient **distribution flexibility services** to resolve the **constraint(s)**, notify the DNO Control Centre by promptly sending a Flexibility Shortfall Notice (see Outputs below).
6. Shall notify the Flexibility Markets team with the results of service selection, so **flexibility service providers** can be given Selection Notices (see Outputs below). Where available, this shall be done via the Market Gateway.
7. Shall transpose dispatch schedules into the Dispatch & Settlement Platform to enable Dispatch Instructions (see Outputs below) and the subsequent Settlement process (see Policy Directive DSO5).
8. Shall publish the service selection results on the Connected Data Portal (CDP) within 30 days of making them.
9. Shall notify the DNO Control Centre of the outcome of this process by sending a Flexibility Dispatch Report (see Outputs below).

7.3.1 Reference to detailed requirements

Further requirements for this level 2 process including step-by-step level 3 processes are set in Standard Technique DSO7D: *Flexibility Selection & Dispatch*.

7.4 **Outputs**

7.4.1 Selection Notice

This shall:

1. Be sent or otherwise made available to the **flexibility service provider** before the **control phase**.

2. State for each **asset** the volume and timing of the required **distribution flexibility services**.
3. Clearly indicate whether:
 - a. The **flexibility service provider** must dispatch their **assets** based on the Selection Notice; or
 - b. The **flexibility service provider** will subsequently be sent a Dispatch Instruction if dispatch is required.

7.4.2 Dispatch Instruction

This shall:

1. Be sent to the **flexibility service provider** during the **control phase** 15 minutes before dispatch is required.
2. State for each **asset** the volume and timing of the required **distribution flexibility services**.

7.4.3 Flexibility Dispatch Report

This shall describe the nature and expected effect of the **distribution flexibility services** that have been dispatched. It should be provided via the ADMS system.

7.4.4 Flexibility Shortfall Notice

This shall describe the nature, potential consequences, and urgency of the shortfall in **distribution flexibility services**.

7.5 **Implementation Plan**

Requirement 9 (Flexibility Dispatch Report) shall be implemented by March 2027. This depends upon the implementation of Prepare Flexibility for Operation requirement 3 (visibility in ADMS).

The rest of this process standardises prior custom and practice, so shall be implemented from the date of issue.

8.0 LEVEL 2 PROCESS: DSO OPERATIONS SUPPORT

8.1 Purpose

This process brings together activities outside of the main process flows shown in

Figure 2 where the DSO Operations department:

- Shares technical expertise with other departments of the DSO and the DNO; and
- Liaises with other departments of the DSO, the DNO, and external parties.

8.2 Process Variants

The subsections below describe and set requirements for variants of the DSO Operations Support process done by DSO Operations. This section is not exhaustive; the Head of DSO Operations may set further requirements for DSO Operations Support in Standard Techniques in the DSO7 series.

8.2.1 Facilitating MW Dispatch

Info: MW Dispatch is a **dispatch** service from National Energy System Operator (NESO) to manage transmission **constraints** caused by real power capacity limits due to the rapidly increasing Distributed Energy Resource (DER) connections across the distribution **system**. It allows NESO to leverage existing Distributed Energy Resource Management Systems (DERMS) owned by DNOs to **dispatch** registered DERs in real-time to meet a predefined turn-to-zero instruction. MW Dispatch is designed to be a lightweight and lower cost alternative to the Balancing Mechanism (BM) for the relevant DERs to fulfil their Visibility & Commercial Control (V&C) obligations as per their connection agreements.

DSO Operations shall support the DNO Control Centre in meeting NGED's MW Dispatch responsibilities by:

1. Setting general and governance requirements.
2. Validating DER registration details provided by NESO.
3. Helping to develop operating procedures.

Further requirements for this variant of DSO Operations Support including the DSO's process for validating DER registration details are set in Standard Technique DSO7M, *MW Dispatch Service: General Requirements*. The DNO Control Centre's operating procedures for MW Dispatch are set in Standard Technique OC18A, *MW Dispatch Service: Operating Procedures*.

8.2.2 Distribution Flexibility Service Operability Checks

Policy Directive DSO5 (*Flexibility Market Development*) level 2 process Outline Design (Distribution Flexibility Services) requirement 2 (as of issue 0) says that:

For each Constraint Brief received by Flexibility Markets, they:

...

2. Shall consult DSO Operations to assess whether there is (or it is reasonably practicable to achieve) sufficient network visibility to **dispatch distribution flexibility services** to resolve the **constraint(s)**. DSO Operations may also raise wider issues regarding the operability of **distribution flexibility services** for the **constraint(s)**. If it is not reasonably practicable to achieve sufficient network visibility Flexibility Markets shall presume that **distribution flexibility services** cannot be expected to resolve the **constraint(s)**.

Info: Near-real-time visibility of **system** parameters such as voltages, power flows and network configuration is necessary for DSO Operations to decide whether and how much to **dispatch distribution flexibility services** to resolve a **constraint**.

For each Constraint Brief received from Flexibility Markets, DSO Operations shall:

1. Review available near-real-time visibility of **system** parameters.
2. Decide whether it is sufficient to inform the Flexibility Selection & Dispatch process.
3. Record any details that would be helpful in subsequently following the level 2 process Prepare Flexibility for Operation.
4. Notify Flexibility Markets of the outcome.

Further requirements for this variant of DSO Operations Support including step-by-step level 3 processes are set in Standard Technique DSO7ZO, *DSO Operations Support: Distribution Flexibility Service Operability Checks*.

8.2.3 Seasonal Operability Preparation

DSO Operations shall liaise with DSO System Planning, the DNO Control Centre, and other relevant departments to identify and mitigate **system** operation risks in the run up to each of:

1. The winter and intermediate cool seasons, particularly for demand-driven **constraints**
2. The intermediate warm and summer seasons, particularly for generation-driven **constraints**

8.2.4 Coordination with DNO Control Centre

DSO Operations shall, while following the principles of **functional separation** set in Policy Directive DSO1 (*Functional Separation of DSO from DNO*):

1. Regularly liaise with the DNO Control Centre.
2. Provide the DNO Control Centre with documentation explaining data shared by DSO Operations with control engineers, including the Flexibility Dispatch Report.

Info: An example of this documentation is Standard Technique DSO7ZZ, *DSO Operations Support: Guide to Distribution Flexibility Service Reports for DNO Control Centres*.

8.2.5 Post-Control Phase Review

In the **post-control phase**, DSO Operations shall promptly:

1. Collate and review data to assess the efficacy of:
 - a. Distribution flexibility services**
 - b. The level 2 process Curtailment & Running Arrangement Optimisation
2. Investigate any operational incidents involving any of:
 - a. Distribution flexibility services**
 - b. The level 2 process Curtailment & Running Arrangement Optimisation

This activity should be implemented by March 2027.

APPENDIX A: GLOSSARY

The following is an excerpt of the DSO Glossary, which is available internally at <https://sharepoint.westernpower.co.uk/sites/wpd/dso/public/Lists/DSO%20Glossary>.

Term	Definition
Analysis	(In electrotechnical contexts) Electrical calculations performed upon a Model
Availability	means that the flexibility service provider's asset is available to be utilised during this period
Asset	(In relation to distribution flexibility services) One or many Technical Resources, which can be controlled and dispatched by a flexibility service provider as a single entity for the purpose of provision of the distribution flexibility services , and measured by a single Flexibility Metering Arrangement
Constraint	Distribution constraint means any limit on the ability of the licensee's Distribution System, or any part of it, to transmit the power supplied onto the licensee's Distribution System to the location where the demand for that power is situated, such limit arising as a result of any one or more of: a. the need to not exceed the thermal rating of any asset forming part of the licensee's Distribution System; b. the need to maintain voltages on the licensee's Distribution System; and c. the need to maintain the transient and dynamic stability of electricity plant, equipment and systems directly or indirectly connected to the licensee's Distribution System and used by the licensee to operate the licensee's electricity distribution system in accordance with the Act, this licence, or any other requirement of law;
Control Phase	The period 0-24 hours inclusive ahead of real time operation. The Control Phase follows on from the programming phase and covers the period down to real time.
Curtailment	Curtailment means any action taken by the Company to restrict the flow of electricity at the Connection Point, except where that restriction is caused by: (a) an Interruption of the Customer's Supply
Customer Security	The requirement for Demand Security and Generation Security .
Demand Security	The ability to meet customer demand under Intact Network and outage conditions.

Term	Definition
Dispatch	The process through which the DNO informs a flexibility service provider of the required level of service within operational timescales.
Distribution Flexibility Service	A commercial agreement between the DSO and a flexibility service provider to change the electrical behaviour of one or more customers.
Flexibility Service Provider	an organisation intending to provide distribution flexibility services to NGED.
Forecast	A prediction of future events that, in the balance of probabilities, National Grid Electricity Distribution believes will occur.
Functional Separation	Having an electricity distribution licensee structured as a single business comprising both DSO and DNO roles, but with the DSO roles conducted by a dedicated DSO directorate within the business. The rest of the business retains the DNO roles together with shared functions. The DSO directorate, in consultation with the rest of the business, designs control measures to manage the risk that the interests of these two roles conflict with each other. The whole business applies these control measures.
Generation Security	The ability to accept customer export under Intact Network and outage conditions.
Long-term market	The market in which long-term trades are procured.
Long-term trade	A trade made in planning and design timescales or in the operational planning phase to procure distribution flexibility services. It typically: • Lasts several months; and • Is used to mitigate constraints found in the level 1 process Planning & Network Development.
Market	(In relation to distribution flexibility services) a structured commercial mechanism through which system operators procure distribution flexibility services from flexibility service providers to support network operations (such as managing network constraints).
Model	A representation of the topology, impedance, capabilities and inherent behaviours of an electrical system .

Term	Definition
Network Capability	Thermal, voltage and other technical limits, excluding frequency-related limits, within which the network must operate to prevent damage to plant and equipment and to prevent, so far as is reasonably practicable, danger.
Operational Control	Actions required to manage the flow of electricity within a system and across its interfaces with other systems, such that: • Network capability and system frequency integrity are maintained for ○ Prevailing network running arrangements and load, ○ Credible changes in network load, ○ Next credible fault; and • contractual and regulatory customer security and access rights obligations are met
Operational Planning Phase	The period from 8 weeks to 3 years inclusive ahead of real time operation.
Post-Control Phase	The period following real time operation.
Primary Distribution	The parts of the distribution system including and upstream of the switchgear on the lower voltage side of each Primary Substation.
Programming Phase	The period between the operational planning phase and the control phase . It starts at the 8 weeks ahead stage and finishes at 17:00 on the day ahead of real time.
Reinforcement	...assets installed that add capacity (network or fault level) to the existing shared use Distribution System .
Safety Control	Actions required to manage a system such that: • Safety from the inherent dangers of the system is achieved and maintained and • System access via approved procedures may be achieved.
Short-term market	The market in which short-term trades are procured.

Term	Definition
Short-term trade	A trade made in or shortly before the programming phase to procure distribution flexibility services. It typically: • Lasts days or weeks; and • Is used to: ○ Augment long-term trades; or ○ Mitigate a constraint found in the operational planning phase or the programming phase.
System	An electrical network running at various voltages.
Trade Opportunities	NGED's flexibility requirements, from which a flexibility service provider may tender a trade response
Utilisation	means dispatching the availability for a given period

APPENDIX B: SUPERSEDED DOCUMENTATION

This directive supersedes Policy Directive DSO7 issue 0 dated November 2023 (titled *Distribution System Operations*), which has now been withdrawn.

APPENDIX C: KEYWORDS

Curtailment, DSO, Distribution System Operator, Distribution System Operations, EMC, Energy Management Centre, Flexibility Services, Operational Control, Security of Supply