



# DISTRIBUTION SYSTEM OPERATOR LOAD SHEDDING PLAN

## Document Control

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	Communication plan for Voluntary Demand Reduction expanded to include both Emergency State and Alert State.	Section 5.1.1	

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## 1. Introduction

Demand control describes methods used to achieve Demand reduction and is provided for in the Grid Code (OC5) and the Distribution Code (DOC5). Demand control relates to provision made by the TSO and DSO in relation to reduction in Demand in the event of insufficient generation plant and/or transfers from external interconnection being available to meet Demand, or in the event of breakdown or operating problems such as in respect of system frequency, voltage levels or thermal overloads on any part of the transmission or Distribution System.

In the context of this plan, Demand control is understood to refer to either planned rota load shedding, emergency manual load shedding, or customer Demand reduction instructed by the TSO or the DSO, such as mandatory Demand curtailment. This plan does not include Demand reduction achieved by commercial arrangements e.g. dispatchable Demand customers.

Demand control may be carried out on the distribution and/or transmission systems for reasons of shortfall in generation or in the event of operating problems. Emergency manual load shedding may be carried out for reasons of an unforeseen or sudden shortfall in generation. In the event of a sustained period of shortfall of generation then planned rota load shedding may be used to share the available power among affected customers.

ESB Networks, as the Distribution System Operator (DSO), is required to implement Demand control measures promptly on instruction or request from EirGrid, Transmission System Operator (TSO), in order to safeguard the total system.

The objective of the Distribution System Operator Load Shedding Plan is to:

- Enable the DSO, following a request or an instruction of the TSO or otherwise in accordance with the Distribution Code to achieve the reduction in Demand that will either avoid or relieve operating problems on the Transmission System and / or the Distribution System.
- Ensure that load shedding is completed in a manner that does not unduly discriminate against or unduly prefer any one or group of Suppliers or their customers, whilst
  - taking into account operational and practical implications for the system of the approach to each different customer type; and
  - in accordance with the Distribution Code, setting an appropriate exemption policy and ensuring that customers exempt from load shedding per this policy maintain supplies for as long as possible.

- Ensure that hardship to customers is minimised and customers are treated equitably as far as reasonably practicable during load shedding.

This policy endeavours to reach a balance between these objectives and, having regard to the emergency nature of the situation which it is designed to address, it is key to achieving this balance that the policy allows for a pragmatic approach which will be workable in practice at short notice.

In this Policy, references to 'Customer' means a distribution connected customer.

## 2. Activation of Load Shedding Plan

The TSO, in accordance with OC5, will activate Demand control by advising the DSO of the power system status, i.e. System Alert Status (Amber Alert) or System Emergency Status (Red Alert). The DSO will mobilise the NDCC (National Distribution Control Centre) and Networks Emergency Response Group (NERG) on receipt of this information.

Detailed procedures underpinning the implementation of load shedding will be maintained by the TSO and the DSO as appropriate. This will include notice requirements, communication, and response protocols.

In the event of sudden loss of generation or other incidents on the power system leading to requirement for manual load shedding, the TSO from the NCC (National Control Centre) shall directly communicate the load shedding request or instruction to the NDCC (National Distribution Control Centre) in accordance with agreed procedures.

### 3. ESB Networks Organisation

ESB Networks' emergency management structure, the Networks Emergency Response Group (NERG), will be deployed to manage Demand control or load shedding activities as required.

#### 3.1 NERG (Networks Emergency Response Group)

In the period prior to a potential load shedding situation, and for the duration of load shedding, the NERG will be established in accordance with ESB Networks procedures. The following activities shall be undertaken:

- Liaise with the TSO.
- Customer Communication and Response.
- Critical Stakeholder and Media Communications.
- Provision of information across ESB Networks to support response, e.g. National Customer Contact Centre (NCCC), regional staff.
- Contingency planning.
- Regional delivery operational, and customer response.

#### 3.2 NDCC (National Distribution Control Centre)

The NDCC will undertake switching on the distribution network via SCADA (Supervisor Control and Data Acquisition) system for load shedding. NDCC will:

- Maintain plans for implementation of emergency manual load shedding, planned rota load shedding, customer Demand reduction, co-ordinating with the TSO on requirements. Plans will be established taking due regard for exempt customer policy, power system requirements, geographical dispersal, speed of implementation as far as reasonably practicable.
- Advise ESB Networks on the Distribution System status.
- When time allows, in the period prior to potential load shedding situation, review load shedding plans and implement preparatory remote operations as required and practicable.
- Respond promptly to TSO instruction or request to implement load shedding, and reconnection of load.

## 4. Guidelines for Demand Control

The TSO and DSO shall co-operate in forming load shedding procedures and plans, for both customer Demand reduction, emergency and planned rota load shedding. The TSO and DSO shall each maintain procedures such that Demand reduction can be exercised promptly when required.

The priority by which Customers are disconnected and Demand is curtailed is informed by the nature and timing of the response required to real-time System conditions. Mandatory demand curtailment (“**Mandatory Demand Curtailment**” or “**MDC**”) (as described in this Policy) will be prioritised over the disconnection of other Customers where practicable, where there is sufficient time for notice of at least 60 minutes to be provided to Customers affected by MDC. Where such notice cannot be provided, the DSO may be instructed by the TSO, or may deem it necessary, to proceed to emergency load shedding for other Customers. Should conditions be such that a sustained reduction in Demand is required, MDC may be rotated with the disconnection of other Customers.

### 4.1 Customer Demand Reduction

In the event a System Alert Status (Amber Alert) or a System Emergency Status (Red alert), the TSO may request or instruct the DSO that, Demand reduction be requested from connected Demand customers. The proposed approach to Demand reduction, as set out in more detail in following sections, may be summarised as follows:

- In such event, and where time permits, the DSO will request its Demand customers, to reduce Demand, i.e. a “**Customer Demand Reduction**” request will be issued. This is a request for voluntary Demand reduction in accordance with Section 5.1.1 of this Policy
- The DSO will endeavour to ensure continued supply to Priority Customers, to the extent practicable

While this policy sets out the intended approach, it is noted more generally that the DSO reserves the right to disconnect Demand customers to protect the electricity system, in accordance with their licence obligations and the requirements of the Grid Code and Distribution Code.

## 4.2 Mandatory Demand curtailment

In the event a System Emergency Status (Red Alert) or otherwise, the TSO may request or instruct the DSO that MDC be instructed to Demand customers connected at 110kV and above. The proposed approach to Demand curtailment, as set out in more detail in following sections, may be summarised as follows:

- The TSO may request or instruct the DSO to instigate customer Demand reduction and/or Mandatory Demand Curtailment.
- Where instructed by the TSO, or if otherwise deemed necessary by the DSO, the DSO shall proceed to issue a mandatory Demand Curtailment Instruction (“**MDC Instruction**”) to Demand Customers connected at 110kV and above requesting that they reduce a specified percentage of Demand, in accordance with Section 5.1.2 of this Policy. Customers shall be given a minimum period of 60 minutes to respond to the instruction.
- Customers that receive an MDC Instruction and who have not complied with that request within the applicable timeframe may be prioritised for disconnection (without notice) in advance of implementation of emergency load shedding or planned rota load shedding in accordance with Section 5.1.2. This approach furthers the objectives set out in the Distribution Code as this customer group will have the most significant impact on reduction of Demand, whilst at the same time minimising customer impact through reducing the number of affected customers and taking into account on-site generation.
- MDC will be prioritised over the disconnection of other Customers where practicable, i.e. where there is sufficient time for notice of at least 60 minutes to be provided to Customers affected by the MDC process. Where such notice cannot be provided, the DSO may be instructed by the TSO, or may deem it necessary, to proceed to emergency load shedding.
- The DSO will endeavour to ensure continued supply to Priority Customers, to the extent practicable (noting however that Demand Customers connected at 110kV and above are subject to the MDC process).

While this policy sets out the intended approach, it is noted more generally that the DSO reserves the right to disconnect Demand customers to protect the electricity system, in accordance with their licence obligations and the requirements of the Grid Code and Distribution Code.

### 4.3 Emergency Manual Load Shedding

Emergency manual load shedding may arise when there is a generation shortfall, and it is likely that there will be a system emergency state (red alert) issued by the TSO, as system conditions are such that there is a high risk of failure to meet system Demand and /or operational security limits. The TSO will request or instruct the DSO to implement emergency manual load shedding.

The DSO prepare load shedding plans in advance and in co-ordination with TSO. The load shedding plans are established with due regard for maintaining public safety and system operation requirements, e.g. Distribution System protection requirements, underfrequency and auto frequency restoration requirements, maintaining supply to customers per the exemption policy, prompt disconnection of Demand. The TSO have advised that capability of reducing Demand of up to 1,500MW from the Distribution System is required for emergency manual load shedding, (~25% of system peak Demand).

The DSO may prepare load shedding plans to cater for specific location issues in accordance with system requirements, such plans include the capability of reducing distribution Demand by approx. 100MW in specific locations.

Emergency manual load shedding plans involve prepared switching plans which on execution can result in a reduction in Demand promptly, typically in approximately 50MW blocks, until the required Demand reduction is reached.

The TSO will request or instruct the DSO when emergency manual load shedding is to be implemented, in accordance with agreed procedures. Following emergency and planned rota load shedding the TSO shall instruct or request the DSO when reconnection/restoration of Demand can take place.

### 4.4 Planned rota load shedding

Where there is adequate advance notice, at least 12 hours, of a requirement to complete manual Demand disconnection over a sustained period the TSO shall advise the DSO of the requirement, and planned rota load shedding shall be initiated.

Planned rota load shedding plans involve reduction in Demand carried out on a three-zone (A, B, C) / three-risk (high/ medium/low) basis. In as far as is practicable each zone is similar in size from Demand perspective. Planned rota load shedding includes 3,000MW at peak Demand approximately, each zone having approximately 1,000MW in so far as possible. Planned rota load shedding will take place in approximately 3 to 4-hour periods in accordance with the three-risk model (high/medium/low). However, this is subject to change based on specific circumstances. Customers and stakeholders will



be advised of planned rota load shedding plans through various communications channels throughout the period.

Planned rota load shedding plans on the Distribution System are prepared to reduce distribution connected Demand to a required level, and will exclude exempt customers, in accordance with this policy, who are not included in the load shedding plans where practicable and for as long as possible.

## 5. Communications Plan

ESB Networks will make every effort to notify customers in advance if possible, in the event of load shedding being required. However, depending on the emergency scenario advance notification may not always be possible.

The DSO and TSO will co-ordinate customer messaging with communication plans agreed in advance.

### 5.1 Customer Communications

#### 5.1.1 Customer Demand Reduction

On the occurrence of an Alert System Status (Amber Alert) or an Emergency System Status (Red Alert), the DSO shall, at the instruction of the TSO, or at the request of the TSO or otherwise, instigate Demand reduction from all, or any category of, Demand Customers by issuing a communication to such Customers requesting a reduction in Demand. This is a request for voluntary reduction of Demand and compliance with this request may reduce the need for measures such as emergency load shedding or planned rota load shedding.

Such Demand reduction requests will be issued where system conditions and time permit and where practicable, the DSO will endeavour to provide a minimum notice period of 60 minutes to relevant customers. However, as set out in Section 5.1.4, emergency load shedding may be implemented without notice.

#### 5.1.2 Mandatory Demand Curtailment Process - Customers at 110kV and above

Demand Customers connected at 110kV and above will be subject to the Mandatory Demand Curtailment Process.

In accordance with TSO policy, where System conditions allow, the TSO will provide early warning to Demand Customers connected at 110 kV and above that an instruction to reduce Demand may follow.

On the occurrence of an Emergency System Status (Red Alert), the DSO shall at the instruction of the TSO, or may at the request of the TSO or otherwise, instigate Mandatory Demand Curtailment from

Customers connected at 110kV and above, by issuing a communication to all such Customers. The TSO will issue such communication to TSO-connected customers.

The DSO process will be:

(Note: The TSO will implement MDC for transmission connected customers)

1. A Mandatory Demand Curtailment instruction (“**MDC Instruction**”) will be issued by the DSO to Customers connected at 110kV and above;
2. The MDC Instruction will include the reduction in Demand required, the time by when this reduction will be required, and the expected duration of the reduction.
3. A minimum notice period of 60 minutes will be provided for the Demand to be reduced.
4. The MDC Instruction will include a request for the Customer to confirm the Demand to be reduced by email to the DSO.

Where a Demand Customer provides Demand reduction as part of a Demand Side Unit (“DSU”), this reduction in Demand will contribute to Demand reduction required under the MDC Instruction based on data provided by the TSO. Where DSU participation is time-limited, this reduction will be required to be maintained for the duration of the MDC Instruction.

Mandatory Demand Curtailment Instructions will be issued in advance of emergency load shedding where system conditions and time permit.

**Where, to the knowledge or reasonable belief of the DSO, a Demand Customer of greater than 5MW, connected at 110kV or above has backup generation designed to maintain full continuity of supply to their facility in the event of a supply interruption, the following provisions will apply:**

- **Subject to Section 5.1.3, if a Customer does not to curtail Demand in accordance with the MDC Instruction, that Customer may be prioritised for disconnection by the DSO.**
- **Where such a Customer is prioritised for disconnection, the Customer may be disconnected without notice by the DSO. Where multiple Customers are prioritised for disconnection the DSO may sequence disconnection to reflect the level of non-adherence to curtailment instruction.**

Once the Transmission and Distribution Systems have been secured and conditions allow provisions for Demand reduction to be lifted, the DSO will issue a notice informing affected Customers that they can restore curtailed Demand. The DSO will restore supply to those Customers that have been disconnected.

### Failure of backup generators

The following provisions will apply where a Customer issued with an MDC Instruction experiences a significant failure of their backup generator(s):

- The Customer must contact the DSO as soon as possible at the contact details specified in the MDC Instruction to inform the DSO that there has been a significant failure of a backup generation plant and may be requested to provide evidence of such failure;
- The DSO will take into consideration such failure in determining the appropriate Demand reduction and / or disconnection actions required for the affected Demand Customer.

### 5.1.3 Emergency Manual Load Shedding

Emergency manual load shedding may arise when there is a sudden generation shortfall. Emergency load shedding means, Demand reduction is achieved through the prompt manual disconnection of Demand Customers. Where practicable and time permits, Customer communications will be issued to all Customers via multiple media channels in advance of implementation or as soon as possible on implementation of emergency manual load shedding. **However, no advance notice of such manual disconnection shall be required.**

The DSO will endeavour to ensure continued supply to Priority Customers (noting however that Demand Customers connected at 110kV and above are subject to the MDC Process).

### 5.1.4 Planned rota load shedding

Planned Rota load shedding zones will be communicated to customers as soon as practicable in advance of load shedding commencing, and sequence of load shedding can be provided daily or a number of days in advance should the duration of the emergency be extended.

### 5.1.5 Direct Customer and Stakeholder Contact

It may be necessary to contact customers and stakeholders directly, for example, operators of essential services, public representatives, vulnerable customers.

To meet these needs the following will apply:

- Specific contact arrangements may be put in place for stakeholders and priority customers.
- Vulnerable customers will receive proactive information via the customer contact centre daily where they are or are planned to be without supply due to load shedding.

## 5.2 Communications Channels

Multiple communications channels will be used, as follows:

- Traditional media (e.g. national and local radio and television, print media)
- Social Media
- ESB Networks Website
- PowerCheck website.
- ESB Networks National Customer Contact Centre
- Direct Customer and Stakeholder Contact

## 6. Exemption Policy

In the event that Demand control is required, necessitating Demand reduction as outlined in this plan, some categories of customer will be considered a higher priority (“**Priority Customers**”) and thus the DSO will endeavour to avoid load shedding (both **emergency** and **planned rota**) to Priority Customers during periods of Demand control.

The application of this exemption policy is subject to variation depending on the availability of generation and technical feasibility. The following general guidelines will apply:

- Protect public and staff safety.
- Protect the electricity system from damage or cascade tripping.
- Hardship to customers is minimised in so far as practicable
- All parties are treated equitably in so far as practicable.

In accordance with DOC5, exemptions on exercising Demand control may apply to vital and priority customers. These are such customers who provide / operate services which are essential to the maintenance of vital societal functions, health, safety, security, economic or social wellbeing of society. They are therefore classed as Priority Customers on the basis of the approval of CRU.

Classification as Priority Customer is not a guarantee of security of supply. The load shedding plan should make every effort to maintain supply to these customers where practicable and for as long as possible. However, in accordance with Distribution Code DPC4.4, supply security cannot be ensured for any customer. Depending on the circumstances, the DSO may have no option but to apply Demand control measures to Priority Customers, or may not be in a position to avoid or prevent loss of supply to such customers. Further, fault, planned maintenance and new works outages and other circumstances outside the DSO’s control can cause interruptions to supply. Accordingly, as with all Demand customers, Priority Customers should have their own appropriate business continuity plans in place.

The Strategic Emergency Management Guideline 3 - Critical Infrastructure Resilience (“SEM Guideline”) as published by the Department of Defence has been used as a guideline reference point, and the identification of exempt customers in this policy is predominantly based on the sectors and sub-sectors of National Infrastructure as set out in the SEM Guideline, having regard to the specific nature of the emergency and balancing this with the requirement that the policy must be capable of implementation and effective to reduce demand in an emergency situation.

Notwithstanding their status as Priority Customers, (i) Customers connected at 110kV (and which are not otherwise exempted) are subject to the MDC Process; and (ii) Priority Customers may be requested to implement voluntary load reduction in their facilities by the relevant System Operator.

Categories of Priority Customers are listed below:

- **Energy**
  - Gas Reception Terminals, Gas control sites, etc.
  - Licensed Network Operators.
  - Licensed Electricity Generators<sup>1</sup>.
- **Transport**
  - Major International Airports and associated control facilities
  - Railway operations with National or Regional service
  - Major Ports which have a national infrastructure significance.
- **Water**
  - Essential water and sewage installations of regional significance.
- **Health**
  - Major hospitals
  - Covid 19 Mass Vaccine Centres
- **National Security, Policing and Public Safety Infrastructure**
  - Emergency services of national or regional significance
  - Defence forces sites that provide civil protection support
  - Prison Service
- **Communications**
  - National Public Service broadcaster
- **Public Administration**
  - Central Government buildings
  - National Emergency Coordination Group Headquarters
- **Industry / Commercial**
  - Demand Customers connected at 110kV (**noting that such customers are subject to the MDC process;**

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<sup>1</sup> Generators with MEC >1MW

- Demand Customers connected at 38kV; and
- Demand Customers that have a dedicated distribution connection point at Medium Voltage

## Distribution Code and Connection Agreement

For the avoidance of doubt, this policy is provided for under and should be construed as part of the Distribution Code. Capitalised terms which are not defined in this Policy have the meaning set out in the Distribution Code. Where the Customer's Connection Agreement (including the applicable General Conditions) references the Distribution Code, that shall be deemed to include reference to this Policy.