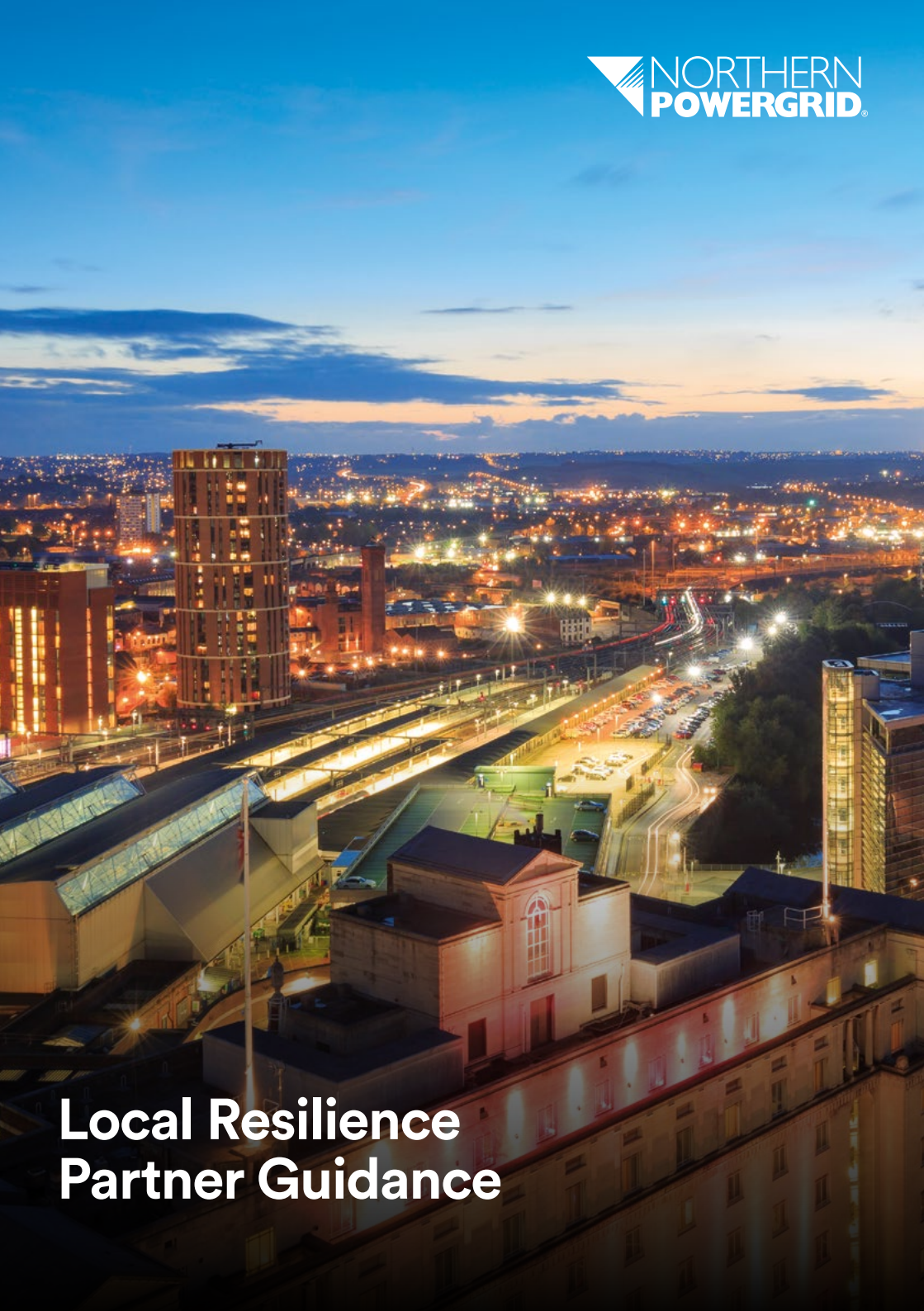


Local Resilience Partner Guidance

About us

Northern Powergrid is responsible for delivering electricity to over 8 million customers across 3.9 million businesses and homes.

We operate in the North East and Yorkshire and northern Lincolnshire. The Northern Powergrid network consists of more than 63,000 substations and some 60,000 miles of overhead power lines and underground cables.

As a distribution network operator (DNO), our role is to ensure safe, secure and cost-effective delivery of electricity to our customers.

Purpose and Scope

Northern Powergrid recognises its statutory duties for information sharing and cooperation as a Category 2 Responder under the Civil Contingencies Act (CCA) 2004.

We will also meet the commitments outlined in the Energy Network Association (ENA) guidance document for electricity network operator's interaction with multi-agency partners.

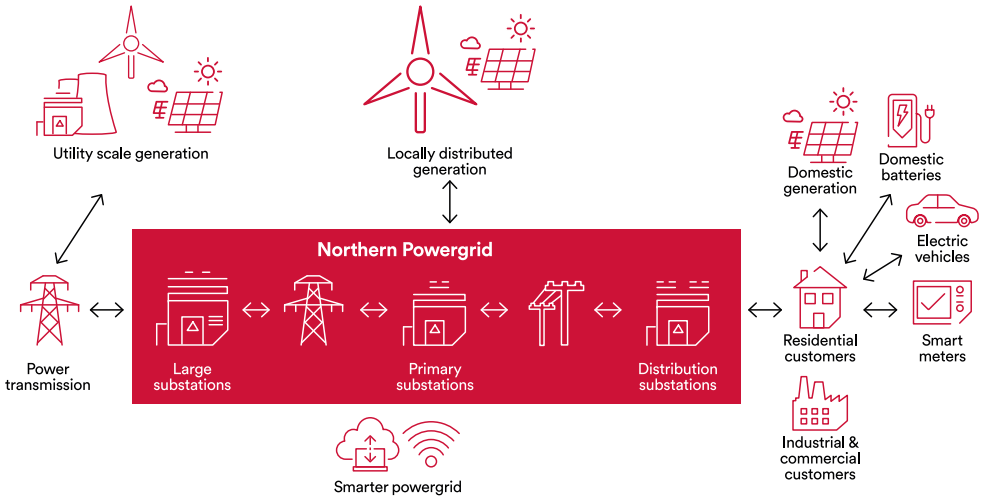
However, we want to do more and will strive as far as possible to assist local resilience partners in meeting their duties when planning for and responding to electricity related civil emergencies.

This document generally sets out the processes we will follow and the expectations that Local Resilience (LR) partners can have from Northern Powergrid.

We also have a range of advice published on our website for customers about how to prepare for a non CCA level power cut, what to do in a power cut and how to stay safe in an emergency.

The Electricity Industry

The electricity industry comprises different types of operators, licensed and regulated by OFGEM:



Electricity System Operator (NGESO)
The National Grid Electricity System Operator, NGESO, coordinates the operation of the national electricity network and ensures the balance of demand and generation to maintain system stability.

Generators
Generation is the production of electricity. Electricity is typically produced in power stations with various types of technology and fuel.

Transmission Network Operators (TNO)
National Grid Electricity Transmission owns and maintains the majority of the high-voltage electricity transmission network in England and Wales.

The network carries electricity from the generators via overhead lines and underground cables to substations where the voltage is lowered ready for distribution. There are other Transmission Network Operators in Scotland and offshore.

Distribution Network Operators (DNO and DSO)
Distribution is the transport of electricity at gradually reducing voltages from national grid supply points to final customers, both commercial and domestic.

Northern Powergrid holds the two licences for North-East and Yorkshire. Local network companies are increasingly taking advantage of efficiencies with smart technology and embedded generation with the resultant additional flexibility known as distribution system operation.

Independent Network Operators (IDNOs)
In some circumstances individual customers and more likely neighbourhoods will have their “last mile” electricity supply provided by an Independent Distribution Network Operator. If required, Northern Powergrid will endeavour to assist partners in identifying the relevant IDNO in an event.

Electricity Suppliers
Supply is the process of buying electricity in bulk and selling it on to the final customer. Suppliers pay for their electricity to be transported across the national grid and the local distribution network to their customers. Electricity Suppliers also use Meter Operator companies to manage the meters that measure the amount of electricity used.

Internal Installations
The customer or property owner is responsible for all work on the internal electrical installation, including the fuse box and/or main switch. Such work should only be carried out by a qualified electrician.

Emergency Planning Coordination

Meeting attendance and exercise support

We attend routine meetings of the 7 full Local Resilience Fora (LRFs) that cover our operational areas and maintain contacts with other DNOs where our operational areas extend into neighbouring LRF areas. The Single Points of Contact (SPoC) for the 7 full LRFs are available in the appendix to this document.

Given the number of LRFs we cover, we are unable to guarantee attendance at all routine multi-agency planning meetings but aim to attend more than current best practice recommends.

Our statutory licence requires us to operate consistently across our operational areas and we will therefore support all regional initiatives and are a member of the Cat 2 Yorkshire, Humber and the North East (YHNE) group.

We are also an integral part of the industry national emergency planning structure led by our Lead Government Department, the Department for Energy Security and Net Zero, and the Energy Networks Association, the ENA, to ensure coordinated planning and response to any national electricity emergency, covered by the Downstream Gas and Electricity Emergency Plan.

We will support LRF exercises with an electricity related element as far as possible both in planning and providing exercise material, such as maps of areas off supply, lists of affected addresses and typical response, customer support and restoration times. We will also endeavour to provide players and/or observers as this will give our SCG/TCG liaison team an opportunity to engage with partners outside an event.

We also take part in national exercises run by industry and central government.

Emergency Planning Information Sharing

Support for risk assessment and emergency plans

We support LR partners in assessing electricity related risks in conjunction with the National Risk Assessment and assist them in developing appropriate emergency response plans. We can offer presentations by subject matter experts as well as appropriate supporting material, particularly on a regional basis to maintain consistency and maximise use of resource. We will signpost partners to Northern Powergrid and industry information as needed.

We will share information where necessary to support multi-agency planning and exercising. We have a process in place for LR partners to access information on our vulnerable customers registered with us for Priority Services. The sensitive nature of the information requires us to use the government's secure on-line web-based platform Resilience Direct and request that LR partners sign an information sharing protocol.

Further details and access can be obtained from the emergency planning team whose details are provided in the appendix to this document.

Network Resilience

Although on average, electricity supply is available to customers 99% of the time, it is not possible to guarantee a continuous supply of electricity. Network resilience standards are set at a national level and specify the number of alternative circuits at varying levels of customer load.

Although the standards are complex, typically in the event of a single failure:

- equipment supplying tens of thousands of customers or more will be at least duplicated so that the duplicate circuit(s) will maintain supply
- equipment supplying several thousand customers will have an alternative which may take a few minutes to re-configure remotely or a few hours to re-configure on site
- equipment supplying a single customer up to several hundred properties will typically be single circuit and need to be repaired in order to achieve a permanent restoration, which may take many hours depending upon the level of work required Reconfiguring the network or physical repairs will typically restore supplies within 12 hours, although in some instances more complex or multiple repairs can take longer. Supplies will normally be restored within 24 hours, except in a major incident or very complex fault
- when a major incident or a very complex fault occurs, full supply restoration can take longer than 24 hours depending upon the volume of faults, weather, access and site conditions, plus the nature of the work with respect to the amount of damage or repairs required
- temporary mobile generation of varying size and capacity will be used wherever practical to maintain supply during a planned outage or restore supply during a fault, normally connected to the network but smaller units can be made available for single premises.

Customers who are more reliant on electricity, typically larger or more critical installations, may have additional connection resilience, although supply cannot be guaranteed in all circumstances.

We invest millions of pounds in maintaining and improving network resilience every year and further information on our investment plans is available on our website:

ed2plan.northernpowergrid.com

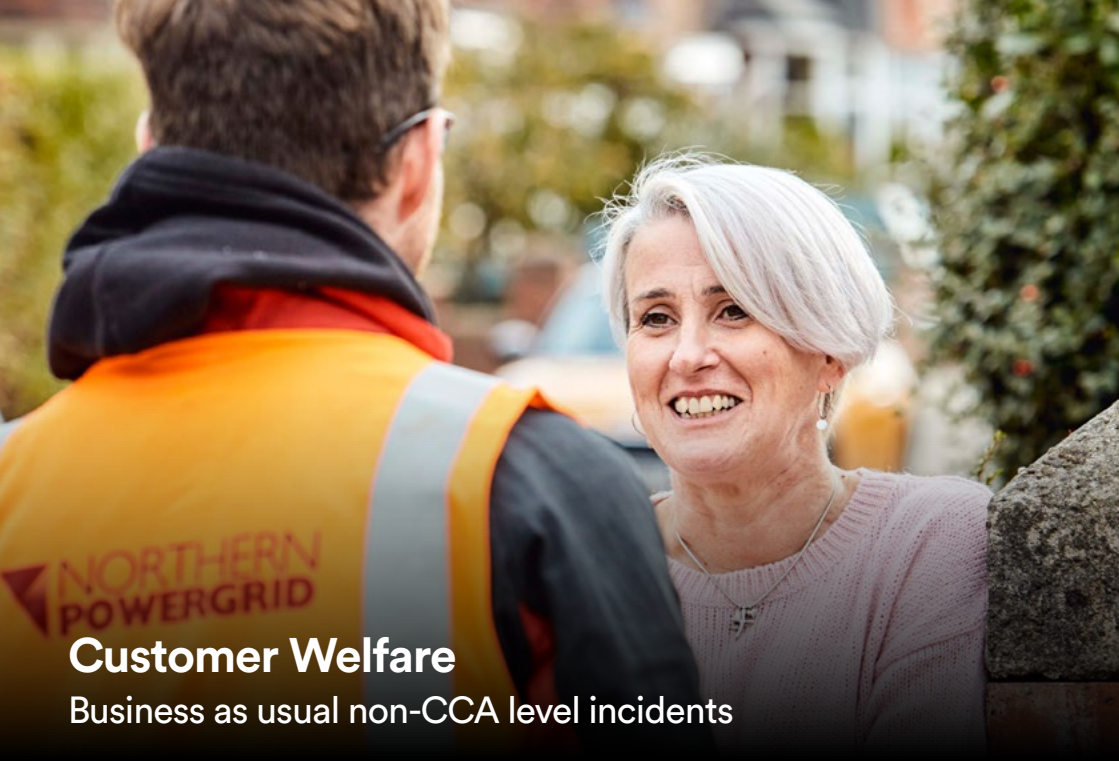
northernpowergrid.com/investments-in-your-area

Network Response

Business as usual non-CCA level incidents

We have 24/7 processes to enable a response to any incident affecting the network. This includes automatic monitoring of the wide area High Voltage distribution network from our Control Centres and our Customer Operations team and power cut map are available 24/7 to report power cuts.

- Parts of the network can be reconfigured remotely to restore supplies very quickly from the Control Centre and a full fault response service is available to ensure that field staff can be despatched to site where necessary.
- First line response teams can investigate, reconfigure or reset equipment as necessary and have round the clock access to repair teams fully equipped to carry out all temporary or permanent repairs in order to restore supplies.
- Although the restoration strategy will consider critical services and vulnerable customers, the most effective method of supply restoration and deployment of resource is usually to restore supplies to all customers as quickly as possible.
- Customers can monitor and report a power cut via our website using the power cut map and on-line reporting tool or via our 24/7 Contact Centre (who hold the same information as the website).
- They can receive notifications and updates via text messaging and social media with regular updates being sent via email (where we hold information).
- All options for the most effective supply restoration will be considered including the use of temporary repairs and the provision of mobile generators. The best option is often permanent repair or replacement to avoid the need for further supply interruptions later in the process and to enable physically work on site to be completed such as excavation and reinstatement of footpaths and highways.
- An additional number is available for the public to report dangerous occurrences where more detail is required.
- Automated messaging and contact logging systems are used in conjunction with call handling agents to maximise the number of customers receiving a response.
- LR partners can utilise the ex-directory numbers in the appendix to this document to report dangerous situations, request attendance alongside blue light services or for wider updates.



Customer Welfare

Business as usual non-CCA level incidents

We offer discretionary welfare support for long duration power cuts with a priority for vulnerable customers which includes:

- regular updates to keep customers as informed as possible
- on site support from our pro-active response team
- hot meals and/or drinks provision
- phone charging facilities
- a home visit from our partner, the British Red Cross, to provide one to one support and assistance
- alternative accommodation, if staying at home is unsafe.

Further details are available on our website at: **northernpowergrid.com/power-cuts-home**

Details of our support for vulnerable customers and the process to register for Priority Services can be found on our website at: **northernpowergrid.com/care**

Should LR partners wish to consider further support, they can access the full listing of our Priority Services Members list on Resilience Direct via the process identified in the information sharing section.

If during an individual long duration incident, customers require welfare support beyond what we have available, we may ask for single agency LR partner support, such as the opening of a community hub and in these non-CCA circumstances would normally reimburse any costs incurred.

Major Incident Response

All electricity network operators are required to have emergency plans under the terms of their statutory licence. We have robust and well-practised industry emergency plans in place to respond to any major incident affecting the local electricity distribution network.

We assess the risks and have trigger levels in place to escalate to an appropriate level of response. The plan includes the establishment of an internal operational (bronze), tactical (silver) and strategic (gold) structure and arrangements for coordination of all available staff including electricity industry mutual aid.

We operate a three-tier response process:

- a yellow, awareness stage where all front-line staff are forewarned of an anticipated event and standard response steps are taken including checking on call and duty shift rotas
- an amber, preparation stage where additional steps are taken as required based on the nature and severity of the event
- a red, response stage when the full major incident plan is activated.

It is important to note that our escalation stages are based on forecast network impacts and therefore do not exactly follow the severe weather warning/flood risk colour coding.

We follow a methodology common with other network operators when restoring customers during a severe weather event.

Although safety is the priority, we restore incidents with the highest number of customers affected first, in the most efficient way. This leads in general to higher voltage incidents being restored first and the lower voltage and single premise incidents being restored towards the end of an event.

Where achievable as many customers as possible are restored by reconfiguring the network before repair work.

This ensures the most efficient restoration profile is achieved for a severe weather event focussing on larger areas first.

Critical sites can be prioritised but must be balanced against all the other priorities that we encounter.

Major Incident Response

Severe Weather, including strong winds, lightning, snow, ice accretion, heatwaves and wildfires

The most common environmental threats to our network are wind storms, lightning, snow and ice accretion. Wind storms and ice accretion have the potential to cause widespread damage and often bring travel and access issues that can hamper repair efforts. Lightning damage can initially be disruptive, but unless sites cannot be accessed, most supplies are usually restored within 24 hours by network reconfiguration and repair, apart from in the more remote rural areas.

Heatwaves and wildfires are increasingly becoming severe enough to affect the distribution network and although recent impacts have been isolated, they have needed a major incident response.

As well as all public Severe Weather Warnings and messages, we receive a detailed contracted forecast from the Met Office enabling us to identify and escalate our response to severe weather.

Threats, including metal theft, cyber-attack and terrorism

We are actively involved in preparation and response planning at a national and local level for all types of threats which may affect the electricity distribution network, including steps to protect those elements of critical national infrastructure owned and operated by us. This information is sensitive but can be obtained where necessary from our emergency planning team.

Flooding

Overhead lines and underground cables are not normally affected by flooding, but substation and service apparatus within premises may be damaged if the water depth reaches critical levels. We contributed to the development of a national standard for substation flood resilience and most of our major substations identified as at risk have had flood defences installed.

We receive Environment Agency flood guidance and flood warnings, and we have a process in place to inspect and identify at risk apparatus and respond as necessary.

Safety is the prime concern, forming the basis of any decision making. The danger associated with electrical equipment being subject to flood water ingress must be balanced against the hazards created by power cuts.

Whilst every effort will be made to maintain electricity supplies, and to provide notice of any interruption, immediate disconnection may be necessary for safety reasons.

Isolated apparatus may supply premises not affected by flood water and although every effort will be made to restore supplies from alternate sources, it will be necessary to inspect, clean and possibly replace all the electrical equipment potentially damaged by flooding before we can restore supplies. This may take hours or days and cannot commence until flood waters have receded.

We may request LR partner assistance to enhance our own substation flood defences, typically military assistance for sand-bag defences for larger substations.

We may also request help in identifying premises that have been flooded to a depth that may have affected our electrical apparatus and we need to carry out remedial inspection, maintenance or replacement work.

However, we are not entitled to work on the customer's internal installation.

The customer would need to contact an approved electrical contractor for work on their installation if it is affected by flood water.

Detailed information is available in our flood advice leaflet on our website at: **northernpowergrid.com/sites/default/files/assets/1004.pdf**

LRF Engagement

Major incident and storm response

We recognise the importance of working closely with LR partners to minimise the impact of long duration power cuts on their residents, our customers. We have a specific role within our gold command structure to report on and coordinate with SCG/TCGs and LR partners as well as a deployment process for strategic and tactical liaison engineers for direct engagement.

We will share information and coordinate our response to major incidents, including storms via the process below:

- we will notify LR partners when we have indications, typically a weather forecast and warnings, of a risk to the electricity network likely to lead to an internal major incident, typically resulting in 5,000 or more properties being without supply for more than 12hrs, which prompts our move to an internal amber alert
- as part of our preparation actions for an internal major incident we will nominate a single point of contact per affected LRF area from amongst our team of SCG/TCG liaison engineers
- our liaison engineers will attend TCG/SCG and other multi-agency meetings as far as practical depending on number and location. We can support more online and regional meetings and have a limited number of senior staff to deploy if LR partners require it. We will as a minimum support the highest level of command in each active LRF area
- we will notify LR partners when an incident has occurred affecting the distribution network which may need a multi-agency response and we have declared an internal major incident
- when appropriate, we will use our storm impact prediction model to give LR partners an indication of the event customer impact duration and typical restoration profile to assist them in planning the response, although this is indicative only and should not be taken as an estimated restoration time for specific incidents or customers
- in support of our 24/7 information sharing arrangements via our Stakeholder map and details of our Priority Services Membership via Resilience Direct, during a major incident we will also issue on request:
  - hourly tabular reports of event related premises off supply by indicative LRF area
  - a full list of addresses of event related premises off supply, filterable by indicative LRF area, customer vulnerability and estimated time to restore where known.

LRF Engagement

Major incident and storm response

- As far as possible our SCG/TCG liaison engineers will:
  - provide regular updates to LR partners on progress in responding to the event based on our latest stakeholder communications
  - signpost LR partners to media, stakeholder and customer communications that can be used in part or full for warning and informing their residents. Where possible, our Communications teams will assist in coordinating messages with LR partners
  - signpost LR partners to information on our event specific discretionary welfare support which may include:
    - visits from customer ambassadors, customer service vehicles or our partners British Red Cross
    - winter warmer packs
    - financial support for or directly arranged hot meals for those off over 24hrs
    - financial support for or directly arranged alternative accommodation for those off over 48hrs
    - food vans.
  - coordinate support to LR partners who wish to open "community welfare hubs". Although most of our mobile generators will be deployed to temporary network restorations, we will make a small number of mobile generators of various sizes available for deployment via SCG/TCGs and will endeavour to supply a small number of customer ambassadors equipped with winter warmer packs that can provide an information point for customers, as well as food vans where appropriate. (LR partners should note that as we will have coordinated the deployment of our discretionary welfare support as far as possible, we are unlikely to reimburse partners for any additional support they may deploy themselves)
  - coordinate priority fault response via SCG/TCGs where possible for critical infrastructure and deployment of single premise mobile generators.

As a result of Storm Arwen in November 2021, Northern Powergrid established a charitable fund that can offer grants to support community projects offering local resilience to long duration power cuts. The independent fund can be contacted at: **thenorthernpowergridfoundation@northernpowergrid.com**

We will maintain our liaison with LR partners into the recovery phase but will gradually revert to business-as-usual processes and contacts once the power is restored to all event related customers.

National industry events

The electricity industry has coordinated plans to respond to any national incident. These include the Downstream Gas and Electricity Emergency Plan and the establishment of a Joint Response Team for government and industry. As the response is coordinated at a national level, all strategic and operational decisions are likely to be set nationally. Further details for emergency power cuts and a national power outage are provided below.

National Emergency Power Cuts

Emergency Power Cuts are very rare in Great Britain. They would only be used as a last resort if there was a major national energy shortage that could not be dealt with by a range of other measures.

If needed, the emergency procedures are designed to minimise the impact on customers as far as possible, by limiting power cuts to shorter periods in order to manage overall electricity demand. If an emergency power cut is implemented, customers in different areas would typically be without power for around three hours per day during the emergency.

We would be legally instructed by NGESO to disconnect power supplies using established procedures either with notice under the Electricity Supply Emergency Code (ESEC) or without under section OC6 of the Grid Code: **gov.uk/government/publications/electricity-supply-emergency-code**

nationalgrideso.com/industry-information/codes/grid-code-gc/grid-code-documents

The ESEC procedure sets out 'protected sites' which the government exempt from emergency planned power cuts. These are typically sites which are deemed to be critical national infrastructure, such as air traffic control centres and major hospital facilities with accident and emergency departments. Organisations which are not already aware of their protected status will need to apply to become 'protected' as this is not automatic. Details are set out in the ESEC.

Under the rules, it is important to note that residential customers, including those who are Priority Services Members and businesses which are not listed as 'protected' by the government, would not be exempt. In a no notice OC6 event, due to the need to operate quickly at a high level in the network it may not be possible to exclude all the protected sites such that their supplies may also be interrupted but with sufficient notice, sites will be protected.

Customer information/welfare

If emergency power cuts under the ESEC are needed customers will be able to find their rota block letter and what it means for them at **powercut105.com** by entering their postcode. The rota will only be published once emergency power cuts have been approved to take place. National media sources will also be updated.

Due to the number of customers affected, our ability to communicate directly with customers, stakeholders and LR partners by all channels available will depend upon us receiving sufficient advance notice. Due to the duration of power cuts our ability to deploy any site welfare will be limited.

LRF engagement

Our emergency planning team will share and signpost LR partners to information and presentations during any period of heightened risk and endeavour to answer specific partner questions. We will share the postcode – rota load block listing we provide to the **powercut105.com** website on request to assist LR partners who cover many sites. We will share any advance customer and stakeholder communications we issue during an event but this and formal notification will be dependent on the level of notice we receive from the System Operator and Lead Government Department.

Our SCG/TCG liaison engineers will attend tactical and strategic meetings on request but due to the national nature of the event there is no local ability to influence restoration priorities.

National industry events

National Power Outage

A National Power Outage or the total failure of the National Electricity Transmission System is a high impact, low probability event and has not happened in the UK. Electricity System Recovery, (previously known as Black Start) is the process used to recover from such an event. This process involves isolated power stations being started individually without an external power supply, and then being gradually reconnected to each other to re-energise the system. Other power stations will also be reconnected and enable power to be restored to homes and businesses.

NGESO ensures the procedures and apparatus to recover are available, including sufficient self-starting power stations and the plans to connect them together remotely via an independent, power resilient communications system between control rooms, power stations and major substations.

Northern Powergrid has a role to play in the recovery strategy, including when instructed to do so by NGESO restoring the local network and power supplies to our customers in a safe and stable manner.

We maintain power resilience in our control rooms, major substations and operational communications and control systems.

The coordination of the recovery process will be done nationally and we will support and provide updates through the industry command structures.

There is considerable government information available to LR partners, including likely impacts and the duration of the reasonable worst-case scenario and the sections below are intended to be consistent with that information.

Customer Information and welfare

Communications in the early stages of a national power outage are expected to be problematic and in accordance with the national plan industry communications will be led by the government and the system operator through power resilient channels such as FM radio, BBC Radio 2 and 4 as a minimum.

As power is restored and systems come back on-line, Northern Powergrid will use all available channels to communicate the nationally coordinated messages to customers and stakeholders.

Due to the size and scale of this event it is unlikely that any of our discretionary site welfare support will be available.

National industry events

LRF Engagement
Our engagement with LR partners can be split into 3 distinct phases. Each phase may last for different lengths of time in each LRF depending upon the restoration profile of the event. Our internal operational systems will only be available in our control rooms for this type of event such that we do not see the value of remote physical attendance at TCG/SCGs and would prefer to concentrate our liaison engineers in our 24/7 operations centres provided we have resilient communication with LR partners at all phases of response.

Phase 1

Total Power Loss/System unstable - approx Day 1 - 2
Possible Description - either a whole area is without power or isolated areas are being restored to enable the system to be re-energised. The system remains unstable and restored areas may be shut down again such that LR partners cannot rely on external power supplies.

LRF Coordination
- We will make/receive contact with/from nominated LR contacts and confirm that we are aware, that the restoration process is underway and highlight any issues that may delay the process.
- We assume TCGs/SCGs will be activated in suitable power loss resilient locations such that a battle rhythm for communication can be established between all 7 full LRFs that we cover, either via Airwave or Satellite phones. Contact details will be held separate to this document.

LRF Information Sharing
- Only verbal communication available.
- Confirm restoration process is underway to timescale.
- Share Lead Government Department updates, including customers restored by county to demonstrate progress.
- LR partners will be able to access industry messages via the media (BBC radio 2 and 4).

Phase 2

Partial to Full System Restoration/ System stable - approx Day 3 - 5
Possible Description – this phase will start when approximately half of customers are restored, the system is stable and a strategy is underway to restore all customers who can receive a supply.

LRF Coordination
- We assume normal TCG/SCG communication routes will be available.
- We will establish an SPoC for each LRF, who will arrange a battle rhythm for information sharing and attendance at TCG/SCGs as resources allow.
- We will have limited resource to assist with on-site welfare, temporary generation and influence over the restoration strategy but will work with LR partners to prioritise response as far as possible including the deployment and connection of a small number of mobile generators at the direction of the SCG/TCG.

LRF Information Sharing
- We will share periodic reports of customers off supply by county, indicative maps of areas restored/still off and full address lists of properties still off supply, when file size allows.
- If known from NGESO we will provide indications of expected restoration timescales in whatever format is most applicable.
- Once sufficient areas are restored our website will become available and be displaying the power cut map, customer and media event updates and information.
- We signpost LR partners to all industry customer/stakeholder/media updates.

National industry events

Phase 3
Power sharing/Emergency Power Cuts – approx Day 5 to 7 or more
Possible Description – all customers who can receive a supply now have power for some periods of the day.

Power sharing is required for up to a quarter of demand during morning and evening peaks and the ESEC has been activated with 3hr Emergency Power Cuts for all customers, excluding protected sites.

Small numbers of customers may still have no power if their circuits were extensively damaged during the event.

LRF Coordination
- We will maintain the SPoC for all 7 full LRFs we cover. We will continue to attend TCG/SCGs where resource allows.
- Given the 3hr duration, scale and rota format our ability to provide on-site welfare will be limited and there is no local ability to influence restoration priorities.
- We will maintain this level of engagement until the response structures are stood down.

LRF Information Sharing
- The SCG/TCG attendee will provide generic updates of the Emergency Power Cut process and situation as provided by our LGD/NGESO.
- LR Partners will be able to access all industry customer/stakeholder and media information, including rota details.
- We will provide generic impact information, although the rotas will most likely be based around the emergency power cuts process defined in the ESEC.

National industry events

Other events, including Road Fuel Disruption and Pandemic Flu

We have response plans prepared for and experience in dealing with other civil emergencies.

We work closely with our Lead Government Department and LR partners to mitigate the impact on the electricity distribution network as far as possible. Examples include:

- We hold emergency bunkered fuel to maintain our critical services for at least 10 days
- We have identified all of our staff who have the necessary skills to replace those normally involved in critical services who may be off sick during a flu pandemic
- We have plans to minimise farmland access and disinfect our vehicles involved in critical services in the event of an animal disease outbreak.

We will endeavour to support multi-agency command structures for events that do not directly affect the electricity network but as we will typically not be operating under an internal major incident our resources may be limited and we may need to restrict our attendance to online or regional meetings where multiple LRFs are affected.