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December 2013 storms review – impact on electricity distribution customers

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Overview:

Over Christmas 2013 Great Britain was hit by a series of severe storms. The Department of Energy and Climate Change's review of the weather for this period suggests that December 2013 was the most stormy December on record for more than 40 years and was one of the most windy months for the UK since January 1993. These storms caused extensive damage to parts of the local electricity network. As a result, over two million customers lost their power supply at some point. Nearly one million consumers experienced a power cut greater than three minutes, and almost 16,000 customers were left without electricity for more than 48 hours.

We are extremely concerned given the level of disruption and distress that was caused by these storms and the subsequent disruption to supply.

This report sets out the facts of the storm, our initial assessment of the preparedness of the network operators ahead of the storms and how well they responded to events. We want to make sure that lessons are learnt from this incident so that the impact on customers of future events of this nature is kept to a minimum. This report highlights our views and specifies the actions we will take.

Context

Ofgem's principal objective in carrying out its functions is to protect the interests of current and future energy consumers – this includes in relation to customers receiving a reliable supply of electricity. In accordance with this objective, we regulate the companies that own and maintain the local electricity networks. These are known as Distribution Network Operators (DNOs).

Consumers fund the activities of DNOs through their energy bill and we set the maximum allowed revenues that DNOs can recover from customers through price control arrangements. This revenue should enable the DNOs to provide a safe and secure network and have the operational ability to deal with disruption caused by severe weather.

To ensure that customers get a good deal, we link the revenue a DNO can earn to performance against a range of network reliability targets. DNOs that perform poorly are penalised, those who perform well are rewarded. This approach has seen the reliability of the electricity distribution network in GB improve by around 30 per cent since 2002, when the DNOs were first incentivised under a specific scheme to minimise interruptions.

Over Christmas 2013 GB was hit by a succession of severe storms that caused extensive damage to the electricity distribution networks. As a result of the bad weather, nearly one million people lost their power supply for longer than three minutes. Although most had their power restored reasonably quickly, many thousands were cut off for several days.

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Executive Summary

Over Christmas 2013, GB was hit by a succession of severe storms. Strong winds and heavy rain caused extensive damage to the electricity distribution networks. In total over two million customers lost their power supply.

For most, the interruptions were momentary and supply was automatically restored within three minutes. However, nearly one million people experienced a longer interruption, ranging from three minutes to over five days. This caused considerable distress and disruption to many consumers over an important holiday period.

In early January we launched a review into the DNOs' preparedness for, and response to, the December storms. We want to understand whether everything that should have been done was done to minimise the impact on customers. We want to use this incident to highlight best practice and assess whether changes are required to current arrangements. When events of this nature occur in the future we want to make sure that the impact on customers is kept to a minimum.

Based on our review to date and the facts we have included in this report, we remain concerned about a number of aspects of the performance of some DNOs during the storms. We will:

- Investigate Scottish and Southern Energy's (SSE) and UK Power Network's (UKPN) performance to identify whether there were significant external factors affecting these DNOs compared with others. Specifically we want to understand why it took these DNOs longer to restore supply than others. We will consider whether this was due to factors outside their control, or whether resourcing levels and/or company specific procedures impacted on response times. In addition we will further review DNO communications as initial reports highlight different levels of customer satisfaction across the DNOs;
- Review the levels of payments made to customers under the Guaranteed Standards of Performance[1] (Guaranteed Standards). In particular we will consider whether we should increase payments to customers who are off-supply for an extended period of time. We will consult at the end of March 2014 on increasing payments for customers; and
- Require the industry to review the processes that they use to manage and deal with severe weather events to improve the service provided to consumers. We expect DNOs to report to us by 1 May 2014 with their findings.

We plan to conclude our investigation and report in July 2014. As part of our investigation we will consider whether there is evidence to suggest that any of the DNOs breached the obligations of its electricity distribution licence or other

[1] Statutory Instrument (SI) 2010 No.698 - The Electricity (Standards of Performance) Regulations 2010. (http://www.legislation.gov.uk/uksi/2010/698/pdfs/uksi_20100698_en.pdf)

regulatory requirements. We will consider any such evidence against our criteria for commencing enforcement cases. Enforcement action could result in the Authority imposing a financial penalty.

It is important that we recognise the efforts of the operational staff in all the DNOs who worked tirelessly over Christmas to restore supplies to nearly one million people. This was achieved with no fatalities or serious injury to members of the public or DNO employees.

Our proposed next steps are as a result of the following findings:

- Although all regions of the country were affected by the weather, some were worse hit than others, in particular the southern areas of England. As a result customers on the southern networks of Scottish and Southern Energy (SSES) and UK Power Networks (UKPN - SPN) were most likely to experience an interruption to supply.
- It is clear that the speed of response to faults varied across DNO regions. Some DNOs, including Northern Powergrid and Western Power Distribution (WPD), were able to restore supply to nearly all customers within 24 hours. Some customers in UKPN's and SSE's southern licence areas were waiting considerably longer for their power to return.
- The customer experience also varied across the regions. Customers that lose power may try to contact their network to report the power cut and find out what has happened and when they will get their power back. This contact is also critical as it may be the first knowledge a DNO has that a fault has occurred on its network. In all of WPD's four licence areas, customers were able to speak to a telephone advisor almost immediately. However, in SSE's and UKPN's areas many customers could not get through on the numbers advertised, and some that did had to wait over an hour to speak to an advisor. This created additional stress and frustration.
- Where customers are interrupted for extended periods following severe weather events they can claim mandated levels of payments from the DNOs as part of Guaranteed Standards. Following the interruptions over Christmas, it has been estimated by DNOs that in total £2 million of payments under the Guaranteed Standards could be claimed. DNOs can also make additional ex-gratia payments to its customers - UKPN and SSE, have committed to paying an additional £7.5 million.

1. Background

Chapter Summary

This chapter gives the background to the GB electricity distribution network and the measures in place to protect customers when their supplies are interrupted.

Electricity distribution networks

1.1. To distribute electricity from the point of generation to the point of use requires a network of wires, pylons and substations. The GB electricity distribution network is made up of 14 licensed distribution network operators (DNOs) which are owned by six separate companies.

1.2. Consumers pay for DNOs to operate and maintain the electricity distribution network through their electricity bill. This is called the transportation charge. Electricity distribution transportation charges make up around £90, or 16 per cent, of an average customer's annual electricity bill[2].

Figure 1.1: Map of DNOs in Great Britain

1. Western Power Distribution: West Midlands (WMID)
2. Western Power Distribution: East Midlands (EMID)
3. Electricity North West Limited (ENWL)
4. Northern Powergrid (Northeast) Ltd (NPgN)
5. Northern Powergrid (Yorkshire) plc (NPgY)
6. Western Power Distribution: South Wales (SWALES)
7. Western Power Distribution: South West (SWEST)
8. UK Power Networks: London Power Networks (LPN)
9. UK Power Networks: South East Power Networks (SPN)
10. UK Power Networks: Eastern Power Networks (EPN)
11. Scottish Power Distribution Ltd (SPD)
12. Scottish Power Manweb plc (SPMW)
13. Scottish & Southern Energy: Scottish Hydro Electric Power Distribution (SHEPD)
14. Scottish & Southern Energy: Southern Electric Power Distribution (SEPD)

1.3. The revenue a DNO can recover through the transportation charge is set during the electricity distribution price control (DPCR5), which is the price control that is in place between

[2] Updated Household Energy Bills Explained Factsheet Number 98 dated 16 January 2013

2010-2015. The allowed revenue is scaled to reflect the costs that are forecast as being necessary to run the network over the five year period.

1.4. When a company outperforms the allowances set as part of the price control (spends more or less than originally forecast), the under or overspend is shared between DNOs and customers.

1.5. We also have in place incentives to reward (or penalise) DNOs depending on how they perform against targets that relate to the number and duration of interruptions. As part of this incentive there are exemptions for exceptional incidents, such as severe weather events. However, whilst a DNO may not be penalised for an increase in interruptions during severe weather, neither can they recover any additional costs incurred in managing these events (other than the impact this may have on its overall level of expenditure and the subsequent sharing of any overspend with customers).

1.6. Consumers pay for DNOs to provide a reliable and secure network that is resilient to bad weather. However this cannot be assured at all times. Severe weather, such as strong winds and heavy rain, can sometimes cause damage to the electricity distribution network (eg due to trees falling on power lines or flooding of substations).

1.7. Historically, each DNO experiences on average one severe weather event per year, where the number of network faults significantly increases due to the very poor weather.

1.8. In these events, it is each DNO's responsibility to repair damage to its network and restore power to consumers as quickly as possible. We expect all DNOs to have systems and processes in place to be prepared for, and respond to, severe weather events. This includes ensuring it can communicate effectively with consumers about when power will be restored.

Regulatory framework

1.9. To protect customer interests and to encourage DNOs to act in the right way, our regulatory framework includes various standards and incentives.

1.10. These mechanisms are in place for the whole of the price control period and drive the DNOs to deliver the service customers expect.

Safety

1.11. DNOs are expected to comply with safety requirements set out in legislation and enforced by Health and Safety Executive.

Interruptions Incentive Scheme

1.12. DNOs are encouraged to improve reliability of the network under the Interruptions Incentive scheme (IIS). The IIS financially rewards or penalises DNOs depending on performance against targets for the number and duration of interruptions.

1.13. We recognise that some interruptions in supply are outside a DNO's control and can occur despite the DNO having taken appropriate mitigating actions. In these cases, the DNO can apply to us to have its interruptions performance adjusted to reflect the fact that an exceptional event has occurred.

1.14. In general this approach has been successful and since the introduction of the IIS in 2002, there has been approximately a 30 per cent reduction in the number of power cuts and a 27 per cent reduction in the duration of power cuts.

Guaranteed Standards

1.15. The Guaranteed Standards specify minimum levels of service expected of DNOs. If a DNO fails to meet these Standards, the affected customer may be entitled to a payment.

1.16. The Standards cover a range of activities - including restoring supply during an unplanned interruption and notice periods for planned interruptions. The amounts paid vary depending on the activity involved. In some cases DNOs will only be able to make a payment once they are informed by a customer that they have not met the Standard.

1.17. The current minimum Standards and payment levels are set out in Appendix 1.

1.18. The conditions set out in the Standards are the minimum levels of service that is expected; a DNO may decide to increase the payment levels or make a payment for a supply interruption that does not reach the minimum thresholds.

Safety and Security of Supplies Enquiry Service

1.19. All DNOs are required to provide customers with a telephone service (the Safety and Security of Supplies Enquiry Service) to receive reports of power cuts and offer information about when supply will be restored.

1.20. These customer calls provide DNOs with valuable information about where supply interruptions have occurred and how many people are off-supply.

Broad Measure of Customer Service

1.21. The Broad Measure of Customer Service is designed to drive improvements in customer service and stakeholder engagement. The incentive has three elements; a Customer Satisfaction Survey, a Complaints Metric and a Stakeholder Engagement Incentive.

1.22. As part of the Customer Satisfaction Survey, we interview approximately 25,000 customers each year, about the quality of the service provided by DNOs during unplanned supply interruptions (eg the ease of contacting the DNO and the quality of information provided). DNOs are financially rewarded or penalised based on consumers' overall satisfaction with the service they received.

1.23. The Stakeholder Engagement incentive encourages DNOs to engage with stakeholders to inform how they run their business. A DNO can receive a financial reward, based on how well it performs. Performance is assessed by an independent panel of stakeholder engagement experts.

Priority Service

1.24. Due to the essential nature of the service it provides, a DNO needs to be able to identify and, where appropriate, meet the requirements of consumers in vulnerable situations.

1.25. DNOs have a licence condition to maintain a Priority Service Register (PSR). This condition is in place to ensure DNOs provide necessary support to consumers that may be especially vulnerable in supply interruption (eg those that are medically dependent on electricity). During an interruption, DNOs are obliged to provide information, advice and help to PSR customers.

2. December 2013 Storms

Chapter Summary

This chapter gives the background leading up to, during and following the severe weather event.

The Christmas storms

2.1. During December 2013, all parts of GB experienced unusually heavy rain and strong winds. The first major storm of the month hit Scotland and northern England on 5 December and 6 December. Then there was a period of relatively quieter weather.

2.2. This was followed by another storm bringing strong winds and heavy rain from 23 to 28 December. During this period, all of the country experienced bad weather. However, southern England and Wales in particular had unusually bad weather, with frequent gusts of 60 – 70 mph and 60 to 70 mm of rain in the high ground of southern England. This weather was forecast as early as 18 December.

The damage to the network

2.3. The storms between 23-28 December 2013 resulted in extensive damage across the electricity distribution network.

2.4. Over 6,900 faults occurred on the DNOs' network. These faults affected all parts of the distribution network, from large 132kV pylons to local low-voltage (LV) wires.

2.5. The damage to the distribution network was largely due to fallen trees and the wind blowing debris on to overhead lines. Flooding caused minimal damage to the network.

The impact to consumers

2.6. In total over 2.3 million customers were interrupted. The DNOs have systems in place that can automatically resolve interruptions and these enabled 1.3 million customers to have their power restored in less than three minutes. The focus of this

report is on the 919,089 customers that were interrupted for more than three minutes[3], where further work was required to restore supplies.

2.7. Table 2.1 sets out the number of customers interrupted and faults that were repaired during the period 23 to 28 December 2013.

Table 2.1 – Customer interruptions and faults, 23-28 December 2013[4]

Company	DNO	Faults repaired	Customers off supply	Maximum restoration time (hours)	Faults repaired per hour	Customers restored per hour
ENWL	ENWL	297	46,879	63.37	5	740
NPg	NPGN	242	48,937	31.98	8	1,530
	NPGY	245	19,403	22.40	11	866
WPD	WMID	380	34,962	14.62	26	2,392
	EMID	296	18,248	11.82	25	1,544
	SWALES	284	23,207	16.45	17	1,411
	SWEST	756	57,695	24.32	31	2,373
UKPN	LPN	212	14,070	29.76	7	473
	SPN	1,066	230,859	154.00	7	1,499
	EPN	811	88,002	77.00	11	1,143
SP	SPD	411	24,829	48.53	8	512
	SPMW	502	48,087	65.00	8	740
SSE	SSEH	315	35,437	108.43	3	327
	SSES	1,091	228,474	127.00	9	1,799
	Total	**6,908**	**919,089**	**154.0**		

2.8. In Appendices 2 to 7, based on information provided by the DNOs, we set out a summary of the impact of the storm. This includes the impact of the weather, the number of customers affected, DNO performance in responding to customer calls and availability of staff.

2.9. We have received notifications from seven DNOs (SWEST, EPN, SPN, SPD, SPMW, SSEH and SSES) classifying the Christmas period as a severe weather event, indicating that the number of faults were at least eight times greater than the daily average number of faults at higher voltages. Table 2.2 details the total number of severe weather exceptional event claims received from all DNOs annually since 2006.

[3] Under the Regulatory Instructions and Guidance, an interruption is classed as a loss of supply lasting longer than three minutes.

[4] The data relating to customers interruptions and faults are based on information provided by the DNO following an information request dated 27 January 2014. Information provided by the DNOs is subject to change following end of year reporting and audit.

Table 2.2 – Severe Weather Exceptional Claims from all DNOs

All DNOs	Severe Weather Exceptional Event Claims Submitted	Claims resulting in no adjustment	Per cent claims resulting in no adjustment
2006-07	50	5	10%
2007-08	23	7	30%
2008-09	14	3	21%
2009-10	16	0	0%
2010-11	9	4	44%
2011-12	22	2	9%
2012-13	20	0	0%
Overall	**154**	**21**	**14%**

3. How well prepared were the DNOs for the December 2013 storms?

Chapter Summary

This chapter highlights our view about how well prepared the DNOs were for the Christmas storms.

Storm preparation work

3.1. Much of the DNO infrastructure is above ground and therefore exposed to the weather. Whilst there is an unavoidable risk that severe weather can disrupt the network, we expect DNOs to undertake the work necessary to minimise this risk.

Tree cutting

3.2. The DNOs have in place programmes to maintain trees to a safe distance from overhead line networks. The standards for this are set out in the Electricity Safety, Quality and Continuity Regulations 2002 (ESQCR). All DNOs, apart from one, have stated that they are on schedule in their tree cutting programmes. UKPN EPN was behind in their programme, but considers it had no material impact on the number of interruptions.

Flood protection

3.3. The DNOs have been funded to install flood defences to limit or eliminate the risk of flood damage to a substation. During the Christmas storms minimal interruptions were caused by flooding.

Weather forecasts

3.4. The DNOs receive regular weather forecasts from various providers.[5] This gives a DNO an early indication of potential severe weather that may impact its network and the opportunity to make the appropriate preparations.

3.5. Due to the unpredictable nature of the weather, forecasts sometimes differ slightly between forecast providers. Weather forecasts can also change over time as

[5] Main providers are the Met Office and MeteoGroup.

the likelihood or severe weather becomes more, or less, probable. Forecasting wind speed is particularly challenging, due to the unpredictable nature of low pressure systems.

Overall availability of staff

3.6. We have looked at the overall number of staff DNOs had available to restore supplies during the period 23 to 28 December 2013. This includes both maintenance staff to restore supply and other staff that could be used to answer calls from members of the public.

DNO staff

3.7. All DNOs operate a system where they have a level of staffing available on duty and as stand-by to react to major interruptions.

Contractors

3.8. DNOs can also call on contractors who can provide support during major interruptions. However, many of these contractors may not necessarily live in the DNO area (or even in GB) and may have been unavailable over the Christmas period.

NEWSAC

3.9. During severe weather events the DNOs have an agreement called NEWSAC[6]. Under NEWSAC DNOs share resources with each other to aid the restoration of supplies. For example, if storms hit one specific DNO area, then the DNO affected can ask other DNOs to provide assistance to restore suppliers quicker.

3.10. During the early stages of the events, DNOs were only prepared to share a small amount of resources through NEWSAC. This was largely down to the widespread impact of the severe weather across GB and the affect this might have on each DNO's own network.

Overall members of staff available

3.11. The four worst affected DNOs (by number of customers interrupted and faults) were WPD SWEST, UKPN SPN, UKPN EPN and SSES. They had on average 687, 252, 439 and 328 staff available respectively[7]. This included direct employees on duty (or on standby), contractors and staff from other DNOs under the NEWSAC arrangements.

[6] North East South West Area Consortium
[7] This average is based on the period that the DNOs customers were without supply.

4. How well did the DNOs respond to the Christmas storms?

Chapter Summary

This chapter highlights our view about how well the DNOs responded to the Christmas storms

Restoring electricity supply

4.1. As highlighted in Chapter 1, between 23 and 28 December 2013 nearly one million customers incurred a supply interruption for more than three minutes.

4.2. Over 95 per cent of customers supplies[8] were restored within 24 hours. Eight DNOs[9] managed to restore nearly all customers within this time. Some DNOs experienced less severe weather conditions than others, with the DNOs in the south the worst hit.

4.3. Approximately 16,000 households suffered lengthy cuts of over 48 hours and almost all of these are customers of SPN and SSES.[10] Over 500 households were without supply for over five days. A more detailed breakdown of time taken to restore customers who were off supply for longer than three minutes is shown in Tables 4.1 and 4.2.

[8] Customers interrupted for more than three minutes.
[9] NPGN, NPGY, WMID, EMID, SWALES, SWEST, LPN and SSEH.
[10] ENWL (22 customers), NPg (2), EPN (26), SP (98) and SSEH (4) also had customers without supply for more than 48 hours.

Table 4.1: Customer restoration times (total customers restored)[11]

	Number of customers restored within								
DNO	1 Hour	6 Hours	12 hours	1 Day	2 Days	3 Days	4 Days	5 Days	5 Days+
ENWL	21,705	19,152	2,846	2,170	984	22	-	-	-
NPGN	33,659	13,060	2,020	183	14	1	-	-	-
NPGY	14,185	4,655	499	63	0	1	-	-	-
WMID	23,315	10,637	913	97	-	-	-	-	-
EMID	14,852	2,824	572	-	-	-	-	-	-
SWALES	16,873	5,979	354	1	-	-	-	-	-
SWEST	27,135	24,853	4,684	1,010	13	-	-	-	-
LPN	6,576	6,888	490	113	3	-	-	-	-
SPN	122,221	32,758	23,603	27,553	15,089	4,888	2,820	1,454	473
EPN	50,340	30,131	5,473	1,690	341	13	6	0	7
SPD	8,572	12,639	1,977	776	486	19	-	-	-
SPMW	26,571	12,049	3,721	4,383	1,392	79	-	-	-
SSEH	17,800	14,052	3,127	446	8	1	0	3	-
SSES	76,624	66,107	16,771	53,469	9,588	3,230	2,054	543	88
Total	**460,428**	**255,784**	**67,050**	**91,954**	**27,918**	**8,254**	**4,880**	**2,000**	**568**

Table 4.2: Customer restoration profiles (per cent customers restored)[12]

	Customers restored within								
DNO	1 Hour	6 Hours	12 Hours	1 Day	2 Days	3 Days	4 Days	5 Days	5 Days+
ENWL	46.3	87.2	93.2	97.9	100.0	100.0	100.0	100.0	100.0
NPGN	68.8	95.5	99.6	100.0	100.0	100.0	100.0	100.0	100.0
NPGY	73.1	97.1	99.7	100.0	100.0	100.0	100.0	100.0	100.0
WMID	66.7	97.1	99.7	100.0	100.0	100.0	100.0	100.0	100.0
EMID	81.4	96.9	100.0	100.0	100.0	100.0	100.0	100.0	100.0
SWALES	72.7	98.5	100.0	100.0	100.0	100.0	100.0	100.0	100.0
SWEST	47.0	90.1	98.2	100.0	100.0	100.0	100.0	100.0	100.0
LPN	46.7	95.7	99.2	100.0	100.0	100.0	100.0	100.0	100.0
SPN	52.9	67.1	77.4	89.3	95.8	97.9	99.2	99.8	100.0
EPN	57.2	91.4	97.7	99.6	100.0	100.0	100.0	100.0	100.0
SPD	35.0	86.7	94.8	97.9	99.9	100.0	100.0	100.0	100.0
SPMW	55.1	80.1	87.9	96.9	99.8	100.0	100.0	100.0	100.0
SSEH	50.2	89.9	98.7	100.0	100.0	100.0	100.0	100.0	100.0
SSES	33.5	62.5	69.8	93.2	97.4	98.8	99.7	100.0	100.0
Average	**50.1**	**77.9**	**85.2**	**95.3**	**98.3**	**99.2**	**99.7**	**99.9**	**100.0**

[11] Green cells indicate all customers have been restored
[12] Cells may show 100 per cent due to rounding; green cells indicate all customers have been restored

4.4. The DNOs have estimated that the additional costs associated with the Christmas storms will be £39 million. Appendix 8 sets out the estimated costs by company, including payments that could be made to customers and additional costs for staff, equipment and handling customer enquiries.

Handling customer enquiries

4.5. During the severe weather event some DNOs experienced a high volume of calls to emergency telephone numbers from members of the public. On Christmas Eve alone both UKPN and SSE received over 100,000 calls from members of the public. Across the industry, the number of calls received, between 23 and 28 December, was 175 per cent higher than the monthly average during the rest of the year.

4.6. Despite the high number of calls, some DNOs managed to answer calls almost immediately. For example, WPD answered calls on average in less than two seconds and no customers were waiting longer than five minutes.

4.7. However, customers in some other DNO areas - UKPN and SSE in particular – had to wait considerably longer to speak to an advisor. For example, 550 UKPN customers and 386 SSE customers had to wait over an hour before their call was answered by an advisor, with some having to wait several hours for their call to be answered.

4.8. Due to the long waiting times, approximately 1 in 5 callers in UKPN and SSE regions gave up rather than continuing to wait to speak to an advisor (in WPD's area the number of abandoned calls was less than 1 in 100). It is likely that many of these opted to call back the DNO, thereby adding to the pressure on its telephone systems.

4.9. In addition to the emergency telephone number, DNOs used alternative communication channels to proactively update customers and wider stakeholders with live fault reporting information. For example, most DNOs published information on websites, engaged with consumers on social media (eg twitter) and sent text messages to consumers to update them on when their supply would be restored.

Customer Service

4.10. Through our ongoing Customer Satisfaction Survey we interviewed customers about the service provided by the DNOs during the storms. The Customer Satisfaction Survey scores and comments indicated variations in performance between the DNOs (although the small sample size for this period means it is inadvisable to draw firm conclusions on the relative levels of satisfaction for this incident versus the norm). Some customers were critical about the quality of the customer service that they received and, across GB, customers identified three key areas for improvement:

- the amount of communication provided during the interruption

- the ease of contacting the DNO, and
- the usefulness and accuracy of information provided.

Vulnerable Consumers

4.11. During the storm event, DNOs proactively contacted PSR customers to update them about what was happening and when their power would be restored. Several DNOs also worked with external stakeholders, such as local authorities and the British Red Cross, to provide additional support to customers in vulnerable situations (eg arranging for generators to be sent to vulnerable households, distributing warm meals and blankets and providing some consumers with alternative hotel accommodation).

Payments under the Guaranteed Standards

4.12. The DNOs have estimated that nearly 26,000 customers could be entitled to claim a total of £2 million in payments under Guaranteed Standards. SSE and UKPN are expected to make 67 and 26 per cent of these payments respectively. It is recognised that these DNOs have been proactive in writing to as many customers affected as possible to inform them of their entitlement to claim. All affected customers have three months from when their supply was restored to make a claim.

4.13. During and in the aftermath of the event most of the DNOs made a commitment to make ex-gratia payments over and above the Guaranteed Standards. They estimate this could result in payments of up to £7.5 million, with UKPN (£4.1 million) and SSE (£3.4 million) committing to make the majority of this.

Safety

4.14. When dealing with any event it is essential that the DNOs comply with any safety standards that are in place to protect both employees and members of the public. We are not aware of any electricity related fatalities or serious injuries occurring during the period of the severe weather event.

5. Next steps

Chapter Summary

This chapter gives our conclusions following the severe weather event. It sets out how we expect the DNOs to respond, areas that we should lead on and areas that we consider require further investigation.

5.1. The storms of Christmas 2013 were exceptional in their severity and impact on the network. We must firstly recognise the tireless efforts of the operational staff across all DNOs in restoring supplies to nearly one million customers. That this was achieved with no fatalities or serious injury to members of the public or DNO employees is testament to their dedication and professionalism.

5.2. Despite these endeavours, many people were left without power for long periods and many experienced difficulty trying to contact their DNO. The difference in performance across DNOs raises an important question on whether some were prepared and managed the restoration better than others and were therefore able to restore service in much faster time.

5.3. We understand that there is not a simple answer to this question. We do however expect DNOs to undertake a comprehensive review of procedures to manage these events. Where the current approach has proved to be insufficient we want action to be taken so that customers are not left exposed to this level of disruption again.

5.4. Each DNO must take the responsibility for its own arrangements but, we think it is vital that DNOs approach this review collectively to identify best practice.

5.5. As a minimum this review should consider the following -

- Operational readiness
    - **Pre-event readiness**: eg maintenance, tree cutting.
    - **Weather forecasting:** what systems are in place? How is the potential impact on the network assessed? What is the procedure for deciding how and when a DNO should implement contingency plans in anticipation of severe weather?
    - **Resourcing:** what level of resource - linesman, scouts, engineers, technicians - is required to manage incidents? How does the DNO ensure that the required resource is available? How is resource deployment managed to ensure best use is made of available staff? What is in place to

ensure all available staff have access to equipment and training to support incident management?
- **NEWSAC:** What changes can be made to the NEWSAC arrangements to ensure that as an industry the impact of severe events on GB customers is minimised?

- Communicating with customers, including:

  - **Planning:** What contingency plans are in place to respond to an increase in calls during severe weather? What level of call centre staff is required? What telephone system is required to manage peak demand?
  - **Communications channels:** What use is made of alternative communication channels (eg social media, SMS, website etc.) to relay messages to the public? How is this co-ordinated into the contingency plans during a severe weather event?
  - **Messaging:** When are customers advised on their estimated time of restoration? How is this updated if events change?
  - **Priority services customers:** What arrangements are in place to ensure that customers that may be especially vulnerable during an interruption are identified? What additional assistance is provided to these customers? How is this co-ordinated?
  - **Guaranteed standards payments (including ex-gratia payments):** Identify a proactive and customer friendly approach for providing customers with information on their eligibility for, and where appropriate the means for claiming payments following interruptions.

5.6. Each DNO should report back to us on the above by no later than 1 May 2014 with their findings, recommendations and the changes that they have made.

5.7. The Energy Select Committee have already raised concerns that there is not a single telephone contact number for electricity customers to use during an emergency. The DNOs and the Energy Network Association (ENA) have already indicated that they will address this and produce an implementation plan which is agreed with DECC.

5.8. We have already proposed changes that will take effect from the start of the next price control, RIIO-ED1, in 2015. These should increase the incentive on DNOs to ensure they plan for and manage this type of incident appropriately. More detail is provided in the relevant RIIO-ED1 decision documents.[13]

5.9. For RIIO-ED1 we have increased the overall amount of incentive available to DNOs depending on the level of satisfaction of customers that contact them during

[13] https://www.ofgem.gov.uk/publications-and-updates/strategy-decision-riio-ed1-overview

an emergency. As part of this arrangement, DNOs will be additionally penalised every time a customer is unable to make contact with the DNO during a supply interruption.

5.10. Additionally, we will now review the proposed survey arrangements to ensure that the sample selected for interview reflects the profile of when calls are received.

5.11. For RIIO-ED1, we have encouraged all DNOs to improve the quality of the PSR data, build better relationships with external stakeholders and embed consumer vulnerability strategy in its systems and processes.

5.12. We have increased the level of financial reward available to DNOs for its stakeholder engagement activities. This should incentivise them to maximise the role they can play in addressing consumer vulnerability. This incentive should focus the DNO's attention on how best to deploy its resource and engage with local communities during a major incident.

5.13. We are also undertaking a review of both DNO and supplier PSR obligations, to ensure that customers in vulnerable situations receive the support that they need. This review will consider the services that must be provided by DNOs during a power cut. We intend to consult and gather views on our proposals shortly.

5.14. For RIIO-ED1, we are making a number of changes to the Guaranteed Standards. For example, under the normal weather standard we are reducing the threshold from 18 hours to 12 hours. We are also uplifting payment levels to account for inflation, and have rounded payment levels to the nearest £5 for clarity. In addition, we have also introduced a requirement for DNOs to make automatic payments under the Guaranteed Standards to PSR customers.

5.15. We recognise that in the aftermath of the storms, some DNOs have voluntarily offered additional payments to the worst affected customers on its network. However, the Guaranteed Standards are intended to influence the behaviour of all DNOs so that during severe weather, supplies are restored as quickly as possible and inconvenience kept to a minimum. In light of the length of time taken to reconnect some customers during this incident, we will review these standards and where necessary make changes to increase the level of payments. We will consult on our proposals by the end of March 2014 which will inform any changes to the Statutory Instrument.

5.16. We also consider that the reporting of severe weather events to both us and to DECC needs to be improved and made more consistent. We have already engaged with the ENA on how this can be taken forward to improve information provided by the DNOs.

What further investigation will we carry out?

5.17. The level of disruption caused by the Christmas storms raises questions as to how some DNOs planned for and responded to this type of event.

5.18. It is clear that customers of UKPN and SSE were impacted the most during the storms. These DNOs had the largest number of faults on their networks and consequently the most number of customers' off-supply. This may be reflective of the severity of the weather conditions they both faced, coupled with the geographic characteristics of the regions they serve.

5.19. Our preliminary assessment of the DNOs' responses to the weather forecasts suggests that some DNOs adopted a more cautious approach than others. Whilst WPD started preparing for the impact of this event from 18 December, others did not start preparing for a storm event until as late as 22 December. This may have had a significant impact on how well DNOs were able to respond to the storms. In the next stage of our investigation we will consider these factors further and also whether other factors, such as the network infrastructure, impacted on performance.

5.20. What is also plain is that it took longer to restore supply to customers in SPN and SSES networks than for customers served by other DNOs. Similarly, it was much harder for customers to contact SSE and UKPN for information than it was for customers to contact other DNOs. We also note that the level of resource – for both restoring supplies and dealing with customer enquiries – differed across the DNOs.

5.21. We will investigate SSE and UKPN to identify whether there were differences in their performance compared with other DNOs. Specifically we want to understand why it took these DNOs longer to restore supply than others, whether this was due to factors outside their control, or whether resourcing levels and/or company specific procedures and incident management impacted on response times. In addition we will further review DNO communications as initial reports highlight different levels of customer satisfaction across the DNOs.

5.22. Our investigation will look at the plans each DNO had in place to manage this event and how effectively these were deployed. Ultimately though we need to be satisfied that each DNO did all that they should to manage this type of incident properly.

5.23. We will conclude our investigation and report in July 2014. Our investigation will include consideration of whether there is evidence to suggest that any DNO failed to meet the requirements of its licence or other regulatory requirement. We will consider the strength of any such evidence and our criteria for commencing enforcement actions as set out in Chapter 3 of our Enforcement Guidelines.[14] Any enforcement action taken could result in the Authority imposing a penalty on the relevant licensee.

[14] https://www.ofgem.gov.uk/ofgem-publications/37567/enforcement-guidelines-2012.pdf

6. Appendices

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Appendix 1 – Guaranteed Standards

1.1. The levels of performance that an individual customer can expect from their DNO are known as Guaranteed Standards. There are a number of standards in place covering a range of scenarios, including interruptions under normal weather conditions, severe weather conditions, and the timeliness of communication of a planned interruption.

1.2. For RIIO-ED1, we consulted on updating the Guaranteed Standards based on performance experienced to date. Feedback from a range of stakeholders supported a move from an 18 hour standard (ie a customer has to be off supply for 18 continuous hours under normal weather conditions to be eligible for a payment) to a 12 hour standard. In addition, there was support for updating the payment levels for inflation to account for the longer price control period, as well as rounding the payments to the nearest £5.

1.3. Table A1.1 sets out a number of the Guaranteed Standards that are in place, along with the payment levels that are in place for the current price control, as well as those amendments that will be made for RIIO-ED1. This table was published as part of the Reliability and Safety Supplementary Annex to the Strategy Decision for the RIIO-ED1 electricity distribution price control.[15] Please note that some of the changes for RIIO-ED1 may be amended following our upcoming consultation on Guaranteed Standards.

[15] https://www.ofgem.gov.uk/ofgem-publications/47073/riioed1decreliabilitysafety.pdf

Table A1.1: Guaranteed Standards payment levels

Reporting code	Service	RIIO-ED1 Guaranteed standards payments	DPCR5 Guaranteed standards payments
EGS1	Responding to failure of distributor's fuse (Regulation 12)	£30 for domestic and non-domestic customers	£22 for domestic and non- domestic customers
EGS2	Supply restoration - normal conditions (Regulation 5)	£75 for domestic customers, £150 for non domestic customers, £35 for each further 12 hours	£54 for domestic customers and £108 for non-domestic customers, plus £27 for each further 12 hours
EGS2A	Supply restoration: multiple interruptions (Regulation 11)	£75 for domestic and non-domestic customers	£54 for domestic and non- domestic customers
EGS2B	Supply restoration - normal conditions (5,000 or more premises interrupted) (Regulation 6)	£75 for domestic customers, £150 for non domestic customers, £35 for each further 12 hours up at a cap of £300	£54 for domestic customers and £108 for non-domestic customers, plus £27 for each further 12 hours up to a cap of £216 per customer
EGS2C	Supply restoration – rota disconnections (Regulation 8)	£75 for domestic customers, £150 for non domestic customers	£54 for domestic customers and £108 for non-domestic customers
EGS4	Notice of planned interruption to supply (Regulation 14)	£30 for domestic customers, £60 for non domestic customers	£22 for domestic and £44 for non-domestic customers
EGS5	Investigation of voltage complaints (Regulation 15)	£30 for domestic and non-domestic customers	£22 for domestic and non- domestic customers
EGS8	Making and keeping appointments (Regulation 19)	£30 for domestic and non-domestic customers	£22 for domestic and non- domestic customers
EGS9	Payments owed under the standards (Regulation 21)	£30 for domestic and non-domestic customers	£22 for domestic and non- domestic customers
EGS11 (EGS11A, EGS11B and EGS11C)	Supply restoration: severe weather conditions (Regulation 7)	£35 for domestic and non domestic customers, plus £35 for each further 12 hours up to a cap of £300 per customer	£27 for domestic and non domestic customers, plus £27 for each further 12 hours up to a cap of £216 per customer

Appendix 2 – Electricity North West Summary

1.1. Electricity North West (ENWL) suffered periods of poor weather occurring from 23 December 2013 to 28 December 2013. During this time, a total of 297 faults occurred on its network across all voltages, affecting 46,879 customers. The main impact of the weather occurred on 27 December, when a total of 130 faults occurred (90 of which occurred at HV and EHV).

1.2. The forecasts that ENWL received for this period indicated that the worst weather would occur on 24 December; however this turned out to be relatively quiet until later in the day.

1.3. Over the whole of December, the impact of the weather was broadly in line with the historical average; the number of incidents in this period was comparable with the average number of incidents for this period for each of the previous five years. However, the number of incidents between 23 and 28 December was significantly higher than average and the impact of these incidents was substantially higher than average. ENWL saw an 80 per cent increase in the number of faults at HV, with a 55 per cent increase in the customer interruptions (CIs) experienced over this period, and a 156 per cent increase in customer minutes lost (CMLs). During the severe weather events of 26 and 27 December, ENWL indicated that it had approximately 100 HV faults in a 24 hour period (the threshold for an exceptional event for ENWL is 49 faults at HV and above for a Category 1 Event, and 80 faults at HV and above for a Category 2 Event).

1.4. The faults that occurred on 27 December interrupted 28,295 customers. The majority of these (27,919 or 98.7 per cent) were interrupted due to faults occurring at HV, with the remainder occurring due to faults at LV.

1.5. Over the course of the period from 23 to 28 December, ENWL restored 46.3 per cent of customers interrupted within one hour, 93.2 per cent within 12 hours, and 97.9 per cent within one day of being interrupted. Further breakdown of these values can be seen in Table A2.1.

1.6. The longest interruption experienced by a customer during this time was 63.37 hours (2 days and 15 hours); this was due to access restrictions.

Table A2.1: ENWL Fault restoration and customers affected[16]

ENWL				Cumulative customers restored within					
	Customers off >3 mins	Customers interrupted by short interruptions (<3 mins)	Faults repaired	1 Hour	6 Hours	12 hours	1 Day	2 Days	Maximum restoration time (Hours)
ENWL	46,879	50,148	297	21,705	40,857	43,703	45,873	46,857	63.37
				46.3%	87.2%	93.2%	97.9%	99.95%	

1.7. During this time, ENWL received a total of 10,499 calls to its contact centre. Of these calls, less than one per cent were unsuccessful, with the remaining calls being answered by a combination of agents and automated messages. Table A2.2 gives further breakdown of the telephony performance during this time.

Table A2.2: ENWL Telephony performance

ENWL	Total Calls Taken	Average time to answer by an agent (seconds)	Total Unsuccessful Calls	Unsuccessful call %
ENWL	10,499	3.0	77	0.7

1.8. During this period, ENWL had a number of staff available across its organisation. Like the number of faults, there were two main peaks in the resourcing numbers, with a notable increase in contractors occurring on 27 December, coinciding with the highest number of faults on its network. A further breakdown of these numbers can be seen in Table A2.3.

[16] Note that restoration percentages are for customers who were off supply for longer than three minutes, who constitute a Customer Interruption under the Regulatory Instructions and Guidance.

Table A2.3: ENWL Staffing numbers

ENWL	Staff Availability					
	23/12/2013	24/12/2013	25/12/2013	26/12/2013	27/12/2013	28/12/2013
DNO Linesmen	67	68	28	17	54	42
DNO Technicians	249	231	87	62	148	85
DNO Engineers	144	124	35	35	97	58
Contractors working	-	-	-	-	-	22
Contractors on standby	-	-	-	-	90	78
NEWSAC working	-	-	-	-	-	-
NEWSAC on standby	-	-	-	-	-	-
Total	460	423	150	114	389	285
Contact Centre Staff	40	36	30	32	37	31

Appendix 3 – Northern Powergrid Summary

1.1. Northern Powergrid (NPg) was subjected to heavy rainfall and strong winds from 23 to 27 December across both of its licence areas. During this period, the worst weather was concentrated mainly in the south and the west of GB.

1.2. During this time, NPg suffered a total of 487 faults across both its licence areas (242 in NPGN and 245 in NPGY). These faults affected a total of 68,340 customers. Like ENWL, the main impact of these storms occurred around 27 December; in the NPGY region, a large number of faults also occurred on 23 and 24 December, affecting around 8,000 customers.

1.3. The forecasts received for this time indicated that heavy rainfall would occur across the network areas up to 30 December, with some gusts reaching 65-70 mph. The risk of heavy rain between 23 and 28 December was forecast to be low, with the highest level of risk between 24 and 27 December. 27 December was also predicted to have high winds, gusting around 70 mph.

1.4. In reality, there was heavy rainfall from 23 December to 27 December, with mean wind speeds varying from 38 to 45 mph over these dates. Wind gusts varied between 50 and 69 mph.

1.5. This weather resulted in a number of faults at HV across both network areas, but larger numbers of LV faults. The fault numbers reflect the weather patterns, occurring in greatest numbers around 23 and 27 December. Although there were relatively few HV faults, they affected far greater numbers of customers than the faults at LV. In the NPGN licence area, there was a notable increase in customers affected on 27 December, with just over 18,000 customers interrupted. In the NPGY licence area, the number of customers affected was higher throughout this time, with two main peaks mirroring the fault numbers.

1.6. Although these numbers appear high, NPg has indicated that the level of disturbance on 27 December was challenging but not unusual. However it also noted that the CML impact over the period 23 December to 3 January was the second highest experienced over the equivalent period for the past 7 years, and the CI impact was the highest experienced.

1.7. Faults on 27 December affected 24,747 customers across both licence areas. The vast majority of these (23,190 or 93.7 per cent) were interrupted due to faults occurring at HV or EHV, with the remainder of the faults occurring on the LV network.

1.8. Over the course of the period from 23 to 28 December, across both its licence areas, NPg restored 70.0 per cent of customers interrupted within one hour, 99.6 per

cent within 12 hours, and 99.9 per cent within one day of being interrupted. Further breakdown of these values can be seen in Table A3.1.

1.9. The longest interruption experienced by a customer during this time was 31.98 hours (1 days, 7 hours and 59 minutes) in NPGN, and 22.40 hours (22 hours and 24 minutes) in NPGY[17].

Table A3.1: NPg Fault restoration and customers affected[18]

				Cumulative customers restored within					
	Customers off >3 mins	Customers interrupted by short interruptions (<3 mins)	Faults repaired	1 Hour	6 Hours	12 hours	1 Day	2 Days	Maximum restoration time (Hours)
NPGN	48,937	28,838	242	33,659	46,719	48,739	48,922	48,936	31.98
				68.8%	95.5%	99.6%	100.0%	100.0%	
NPGY	19,403	26,721	245	14,185	18,840	19,339	19,402	19,402	22.40
				73.1%	97.1%	99.7%	100.0%	100.0%	

1.10. During this time, NPg received a total of 7,983 calls to its contact centre. Of these calls, less than three per cent were unsuccessful, with the remaining calls being answered by a combination of agents and automated messages. Table A3.2 gives further breakdown of the telephony performance during this time.

Table A3.2: NPg Telephony performance

	Total Calls Taken	Average time to answer by an agent (seconds)	Total Unsuccessful Calls	Unsuccessful call %
NPGN	4,920	19.0	164	3.3%
NPGY	3,063	10.0	70	2.3%

1.11. During this period, NPg had a number of staff available across its organisation, both those working and those on standby. The staffing numbers broadly reflect the times at which the impact of the weather on the network was greatest; more staff

[17] In both licence areas there were occurrences of faults which lasted longer than this time. In these cases, the customer was content for the restoration not to be prioritised. The longest duration faults were 49.57 hours in NPGN (2 days, 1 hour and 34 minutes) and 48.40 hours in NPGY (2 days and 24 minutes).

[18] Note that restoration percentages are for customers who were off supply for longer than three minutes, who constitute a Customer Interruption under the Regulatory Instructions and Guidance.

were working on 24 December than any other day. A further breakdown of these numbers can be seen in Table A3.3.

Table A3.3: NPg Staffing numbers[19]

NPg	Staff Availability					
	23/12/2013	24/12/2013	25/12/2013	26/12/2013	27/12/2013	28/12/2013
DNO Linesmen[20]	446	458	301	304	437	296
DNO Technicians	62	60	57	58	56	52
DNO Engineers	230	215	134	134	184	133
Contractors working	192	189	34	34	83	74
Contractors on standby	61	85	80	87	39	51
NEWSAC working[21]	-	-	-	17	17	30
NEWSAC on standby	-	-	-	-	-	-
Total	991	1,007	606	634	816	636
Contact Centre Staff	63	53	38	44	54	33

[19] Values for NPg are provided as a group since they only have one contact centre.
[20] Including craftsmen.
[21] These values are shown as positive, but represent staff they sent to other DNOs and were therefore not working in the NPg areas.

Appendix 4 – Western Power Distribution Summary

1.1. Western Power Distribution (WPD) was subjected to gale force winds and heavy rainfall throughout the period from 23 to the 28 December. As a result of this weather, the Environment Agency issued a number of flood warnings and flood alerts, many of which were located within the WPD licence areas.

1.2. During this time, WPD suffered a total of 1,716 faults (756 in SWEST, 284 in SWALES, 296 in EMID, and 380 in WMID), which affected a total of 134,112 customers. Fault numbers were generally high throughout the period, with two main peaks occurring around 23 December and 27 December. For the SWEST licence area, 23 and 24 December was noticeably higher than the rest of this period and WPD's other licence areas. Faults on these dates impacted around 47,000 customers in the SWEST region alone.

1.3. The forecasts received by WPD for this time indicated that gale-force winds and flooding was likely to occur throughout the 23 and 24 December, with stormy winds and rainfall likely throughout the wider period. Wind gusts were expected to exceed 60 mph in many areas, with the potential to reach 80 mph in certain locations.

1.4. The forecasts proved accurate for this period, with the wind speeds remaining high throughout the first half of the Christmas period. In addition, a second wave of gales affected these licence areas, with gusts of 89 mph recorded. This restricted access in some areas due to fallen trees and/or flooding. As noted earlier, the Environment Agency had 3 flood warnings and 39 flood alerts in place in the South West area for 28 December.

1.5. The impact of the weather was concentrated mainly on the HV and LV networks, with occasional faults occurring on the EHV or 132kV networks. The largest number of faults occurred on the LV network (around 74 per cent of all faults during this time), but the majority of customers impacted by this poor weather resulted from faults on the HV network (around 85 per cent). A small number of faults (17) also occurred at EHV and 132kV, contributing to around two per cent of the total customers affected.

1.6. WPD noted that these weather events represented two of the most severe storms of the last 20 years. On 23 December the SWEST region had the busiest 24-hour period they had recorded to date.

1.7. Faults on 23 December affected 61,906 customers, 90.6 per cent of which were affected by faults at the HV level. By comparison, faults on WPD's network on 27 December affected 29,837 customers, 80.8 per cent of which were affected by faults at HV level.

1.8. Throughout the period from 23 December to 28 December, WPD restored 61.3 per cent of customers within one hour of being interrupted, 99.2 per cent within 12 hours, and 100 per cent within one day of being interrupted. Further breakdown of these values can be seen in Table A4.1.

1.9. The longest interruption experienced by a customer during this time was 14.62 hours (14 hours and 37 minutes) in WMID, 11.82 hours (11 hours and 49 minutes) in EMID, 16.45 (16 hours and 27 minutes) in SWALES, and 24.32 hours (1 day and 19 minutes) in SWEST.

Table A4.1: WPD Fault restoration and customers affected[22]

				Cumulative customers restored within					
	Customers off >3 mins	Customers interrupted by short interruptions (<3 mins)	Faults repaired	1 Hour	6 Hours	12 hours	1 Day	2 Days	Maximum restoration time (Hours)
WMID	34,962	40,772	380	23,315	33,952	34,865	34,962	34,962	14.62
				66.7%	97.1%	99.7%	100.0%	100.0%	
EMID	18,248	24,719	296	14,852	17,676	18,248	18,248	18,248	11.82
				81.4%	96.9%	100.0%	100.0%	100.0%	
SWALES	23,207	111,106	284	16,873	22,852	23,206	23,207	23,207	16.45
				72.7%	98.5%	100.0%	100.0%	100.0%	
SWEST	57,695	140,536	756	27,135	51,988	56,672	57,682	57,695	24.32
				47.0%	90.1%	98.2%	100.0%	100.0%	

1.10. During this time, WPD received a total of 24,551 calls to its contact centre. Of these calls, less than one per cent were unsuccessful, with the remaining calls being answered by a combination of agents and automated messages. Table A4.2 gives further breakdown of the telephony performance during this time.

Table A4.2: WPD Telephony performance

WPD	Total Calls Taken	Average time to answer by an agent (seconds)	Total Unsuccessful Calls	Unsuccessful call %
WMID	3,471	2.2	21	0.6%
EMID	4,558	1.2	33	0.7%
SWALES	3,638	1.4	27	0.7%
SWEST	12,884	1.5	84	0.7%

[22] Note that restoration percentages are for customers who were off supply for longer than three minutes, who constitute a Customer Interruption under the Regulatory Instructions and Guidance.

1.11. WPD had a number of staff available across its network areas during this time. Across all its licence areas, the number of staff available was greatest at the beginning of this period, with another rise in numbers occurring around 27 December as the second phase of the stormy weather occurred. Tables A4.3 to A4.6 give a more detailed breakdown of resourcing during this time.

Table A4.3: WPD WMID Staffing numbers

WMID	Staff Availability					
	23/12/2013	24/12/2013	25/12/2013	26/12/2013	27/12/2013	28/12/2013
DNO Linesmen	342	325	102	96	258	137
DNO Technicians	234	225	59	68	178	85
DNO Engineers	89	98	30	27	73	38
Contractors working	16	-	-	-	16	12
Contractors on standby	7	4	4	10	6	4
NEWSAC working	-	-	-	-	-	-
NEWSAC on standby	-	-	-	-	-	-
Total	688	652	195	201	531	276
Contact Centre Staff	32	29	18	20	32	14

Table A4.4: WPD EMID Staffing numbers

EMID	Staff Availability					
	23/12/2013	24/12/2013	25/12/2013	26/12/2013	27/12/2013	28/12/2013
DNO Linesmen	271	261	86	99	204	76
DNO Technicians	259	225	84	79	185	70
DNO Engineers	98	89	24	26	65	32
Contractors working	34	33	13	13	17	-
Contractors on standby	2	9	7	9	8	6
NEWSAC working	-	-	-	-	-	-
NEWSAC on standby	-	-	-	-	-	-
Total	664	617	214	226	479	184
Contact Centre Staff	32	29	18	20	32	14

Table A4.5: WPD SWALES Staffing numbers

SWALES	Staff Availability					
	23/12/2013	24/12/2013	25/12/2013	26/12/2013	27/12/2013	28/12/2013
DNO Linesmen	431	321	118	136	254	66
DNO Technicians	173	141	40	57	138	43
DNO Engineers	164	131	53	62	111	39
Contractors working	36	26	-	11	16	-
Contractors on standby	-	-	-	-	-	-
NEWSAC working	-	-	-	-	-	-
NEWSAC on standby	-	-	-	-	-	-
Total	804	619	211	266	519	148
Contact Centre Staff	85	54	40	36	42	26

Table A4.6: WPD SWEST Staffing numbers

SWEST	Staff Availability					
	23/12/2013	24/12/2013	25/12/2013	26/12/2013	27/12/2013	28/12/2013
DNO Linesmen	372	436	194	233	281	105
DNO Technicians	188	197	100	103	134	72
DNO Engineers	96	83	32	34	61	21
Contractors working	-	2	-	-	-	-
Contractors on standby	-	-	-	-	-	-
NEWSAC working	-	-	-	-	-	-
NEWSAC on standby	-	-	-	-	-	-
Total	656	718	326	370	476	198
Contact Centre Staff	-	-	-	-	-	-

Appendix 5 – UK Power Networks Summary

1.1. UK Power Networks (UKPN) received an active frontal system which spread across its licence areas, bringing heavy rain and very strong winds from 23 December onwards. Coastal regions were subjected to severe gales and UKPN's network areas as a whole experienced strong winds.

1.2. During this time, UKPN suffered a total of 2,089 faults (212 in LPN, 1,066 in SPN, and 811 in EPN), which affected a total of 332,931 customers. Fault numbers were generally high throughout the period, with two main peaks occurring around 24 December and 27 December. This was true for all three licence areas but was most noticeable in SPN and EPN.

1.3. The forecasts received on 21 December contained an amber weather warning for the SPN licence area, and a yellow warning for the EPN area for 23 December. The following day, this was amended to account for the forecast 70-80 mph winds in SPN; this was applied to both licence areas on 23 December.

1.4. UKPN considered that the forecasts were widely inaccurate for this period, as the networks received an active frontal system which spread west from 23 December. This brought heavy rain and very strong winds, with 20-30 millimetres of rain recorded in 12 hours across the networks. Wind speeds were consistently gusting above 50 mph, with coastal areas recording gusts of 60-70 mph. The rain and strong winds gradually cleared to the east, but gusts around 30-40 mph were still recorded across UKPN's networks.

1.5. The impact of the weather was concentrated mainly on the HV and LV networks, with small numbers of faults occurring on the EHV and 132kV networks. The largest number of faults occurred on the LV network (around 74 per cent of all faults during this time). The majority of customers impacted by this poor weather resulted from faults on the HV network (around 72 per cent). Faults on the EHV and 132kV networks accounted for around 21 per cent of customers interrupted during this time.

1.6. UKPN have indicated that, in comparison with the October 2013 storm, this period was the worst experienced since 2007. It was noted that although the maximum gust wind speeds it experienced over Christmas was comparable with those experienced in October, it was the length of time over which they appeared (together with soft ground conditions) that had the greatest impact. For comparison, in the October storms there were wind speeds of greater than 40 mph for around six hours; in December, wind speeds of greater than 40 mph were recorded for over 12 hours.

1.7. Fault numbers were greatest on 23 and 24 December, with a total of 1,414 faults occurring across all three licence areas. Of these, around 54 per cent occurred

on the SPN network, and around 30 per cent of all the faults on this date occurred at HV. Faults on these dates affected 289,364 customers, around 71 per cent of which were affected by faults at the HV level. By comparison, faults on 27 December affected a total of 17,591 customers, 86 per cent of which were off supply due to faults on the HV network.

1.8. Throughout the period from 23 December to 28 December, UKPN restored 53.8 per cent of customers within one hour of being interrupted, 83.6 per cent within 12 hours, and 92.5 per cent within one day of being interrupted. Further breakdown of these values can be seen in Table A5.1.

1.9. The longest interruption experienced by a customer during this time was 29.76 hours (1 day and 5 hours) in LPN, 154 hours[23] (6 days and 10 hours) in SPN, and 77 hours (3 days and 5 hours) in EPN[24].

Table A5.1: UKPN Fault restoration and customers affected[25]

				Cumulative customers restored within					
	Customers off >3 mins	Customers interrupted by short interruptions (<3 mins)	Faults repaired	1 Hour	6 Hours	12 hours	1 Day	2 Days	Maximum restoration time (Hours)
LPN	14,070	3,926	212	6,576	13,464	13,954	14,067	14,070	29.76
				46.7%	95.7%	99.2%	100.0%	100.0%	
SPN	230,859	140,656	1,066	122,221	154,979	178,582	206,135	221,224	154
				52.9%	67.1%	77.4%	89.3%	95.8%	
EPN	88,002	168,402	811	50,340	80,471	85,944	87,634	87,975	77
				57.2%	91.4%	97.7%	99.6%	100.0%	

1.10. During this time, UKPN received a total of 168,515 calls to its contact centre. Of these calls, around 24 per cent were unsuccessful, with the remaining calls being answered by a combination of agents and automated messages. Table A5.2 gives further breakdown of the telephony performance during this time.

[23] There was an incident of customers being off supply for longer than this time. Correspondence with UKPN indicates this was not storm related and access issues prevented earlier restoration of supplies. This incident lasted for 175 hours (7 days and 7 hours).
[24] There was an incident of customers being off supply for longer than this time. Correspondence with UKPN indicates that although this was storm related, the premises were unoccupied during this time and therefore has not been included here. This incident lasted for 307 hours (12 days and 19 hours).
[25] Note that restoration percentages are for customers who were off supply for longer than three minutes, who constitute a Customer Interruption under the Regulatory Instructions and Guidance.

Table A5.2: UKPN Telephony performance

UKPN	Total Calls Taken	Average time to answer by an agent (seconds)	Total Unsuccessful Calls	Unsuccessful call %
LPN	9,326	247.8	2,679	28.7%
SPN	128,174	259.0	29,685	23.2%
EPN	31,015	257.4	8,222	26.5%

1.11. As was the case for other DNOs, the availability of staff during this period reflects the weather patterns, with the highest number of staff working and on standby occurring around 24 December and 27 December. This breakdown is given in Tables A5.3 to A5.5.

Table A5.3: UKPN LPN Staffing numbers

LPN	**Staff Availability**					
	23/12/2013	24/12/2013	25/12/2013	26/12/2013	27/12/2013	28/12/2013
DNO Linesmen	-	-	-	-	-	-
DNO Technicians	16	16	16	16	16	16
DNO Engineers	113	113	15	15	94	21
Contractors working	12	12	-	-	6	-
Contractors on standby	8	8	-	-	2	-
NEWSAC working	-	-	-	-	-	-
NEWSAC on standby	-	-	-	-	-	-
Total	149	149	31	31	118	37
Contact Centre Staff	67	115	103	91	65	41

Table A5.4: UKPN SPN Staffing numbers

SPN	Staff Availability					
	23/12/2013	24/12/2013	25/12/2013	26/12/2013	27/12/2013	28/12/2013
DNO Linesmen	135	121	109	130	135	144
DNO Technicians	-	-	-	-	-	-
DNO Engineers	60	83	75	96	85	82
Contractors working	3	11	11	49	60	61
Contractors on standby	3	5	7	9	-	-
NEWSAC working	-	-	-	-	19	21
NEWSAC on standby	-	-	-	-	-	-
Total	201	220	202	284	299	308
Contact Centre Staff	67	115	103	91	65	41

Table A5.5: UKPN EPN Staffing numbers

EPN	Staff Availability					
	23/12/2013	24/12/2013	25/12/2013	26/12/2013	27/12/2013	28/12/2013
DNO Linesmen	254	241	176	73	135	57
DNO Technicians	-	-	-	-	-	-
DNO Engineers	207	201	154	64	133	45
Contractors working	10	14	6	-	-	-
Contractors on standby	21	23	9	2	25	20
NEWSAC working	-	-	-	-	-	-
NEWSAC on standby	-	-	-	-	-	-
Total	492	479	345	139	293	122
Contact Centre Staff	67	115	103	91	65	41

Appendix 6 – Scottish Power Summary

1.1. Scottish Power (SP) was subjected to heavy rainfall from 23 to 27 December across both its licence areas, with the highest wind speed of all DNOs (109 mph) recorded in the SPMW licence area on 27 December.

1.2. During this time, SP suffered a total of 913 faults across both its licence areas (411 in SPD and 502 in SPMW). These faults affected a total of 72,916 customers. Like other DNOs, these storms affected both its licence areas in two main phases: 23 and 24 December, and 26 and 27 December.

1.3. The forecasts SP received for this time indicated that both its network areas would be subjected to heavy rain and high winds. The forecasts indicated that there was a 90 per cent probability of gusts of up to 90 mph on the SPMW network area around 27 December.

1.4. In reality, SP was subjected to high winds and heavy rain throughout the Christmas period. Wind gusts of 80 to 85 mph were noted in both licence areas around 23 and 24 December. For 26 and 27 December, the high winds were accompanied by heavy rain. As noted, a gust of 109 mph was recorded in the SPMW licence area on 27 December; at the same time, the SPD licence area experienced gusts of around 80 mph. Similar to UKPN, SP noted that the impact of these storms was not just due to the severity of the wind, but also the duration of the storm – storm conditions lasted for around 18 hours before wind speeds were seen to drop below 60 mph.

1.5. As with other DNOs, the LV networks experienced a larger number of faults at LV than other voltages throughout the Christmas period; one exception to this was the occurrence of over 90 faults at HV on 27 December in SPD (on this day only 73 LV faults occurred). The fault numbers again reflect the weather patterns, occurring in greatest numbers around 24 and 27 December.

1.6. The majority of customer interruptions were due to faults at HV: around 75 per cent of the 72,916 customers affected between 23 and 28 December were interrupted due to HV faults. In the SPMW licence area there were 23 faults at EHV and 132kV between 26 and 28 December, which interrupted 13,988 customers.

1.7. SP noted that, in its SPD area, the conditions experienced on 26 and 27 December were similar to the storms of January 2012 and December 1998. These Christmas storms brought persistent and dangerous winds (which prevented safe climbing of poles) as well as flooding and salt accretion, to an extent not previously experienced.

1.8. Over the course of the period from 23 to 28 December, across both its licence areas, SP restored 48.4 per cent of customers interrupted within one hour, 90.2 per cent within 12 hours, and 97.3 per cent within one day of being interrupted. Further breakdown of these values can be seen in Table A6.1.

1.9. The longest interruption experienced by a customer during this time was 48.53 hours (2 days and 32 minutes) in SPD, and 65 hours (2 days and 17 hours) in SPMW.

Table A6.1: SP Fault restoration and customers affected[26]

				Cumulative customers restored within					
	Customers off >3 mins	Customers interrupted by short interruptions (<3 mins)	Faults repaired	1 Hour	6 Hours	12 hours	1 Day	2 Days	Maximum restoration time (Hours)
SPD	24,829	26,651	411	8,572	21,211	23,188	23,964	24,450	48.53
				35.0%	86.7%	94.8%	97.9%	99.9%	
SPMW	48,087	110,980	502	26,571	38,620	42,341	46,724	48,116	65.0
				55.1%	80.1%	87.9%	96.9%	99.8%	

1.10. During this time, SP received a total of 24,896 calls to its contact centre. Of these calls, around nine per cent were unsuccessful, with the remaining calls being answered by a combination of agents and automated messages. Table A6.2 gives further breakdown of the telephony performance during this time.

Table A6.2: SP Telephony performance

SP	Total Calls Taken	Average time to answer by an agent (seconds)	Total unsuccessful Calls	Unsuccessful call %
SPD	12,283	73.5	906	7.4%
SPMW	12,613	68.1	1,274	10.1%

1.11. In terms of the resources available, the staffing levels followed a similar pattern to the number of faults that occurred across both network areas, with the highest number of staff working and/or on standby occurring on 27 December. The number of contact centre staff available was highest before Christmas, with a similar level seen on 27 December. A further breakdown is given in Tables A6.3 and A6.4.

[26] Note that restoration percentages are for customers who were off supply for longer than three minutes, who constitute a Customer Interruption under the Regulatory Instructions and Guidance.

Table A6.3: SPD Staffing numbers

SPD	Staff Availability					
	23/12/2013	24/12/2013	25/12/2013	26/12/2013	27/12/2013	28/12/2013
DNO Linesmen	62	74	23	22	71	63
DNO Technicians	153	165	62	47	116	75
DNO Engineers	89	83	34	47	102	96
Contractors working	12	12	13	6	112	116
Contractors on standby	66	66	48	63	57	62
NEWSAC working	-	-	-	-	-	-
NEWSAC on standby	-	-	-	-	-	-
Total	382	400	180	185	458	412
Contact Centre Staff	98	95	48	56	82	66

Table A6.3: SPMW Staffing numbers

SPMW	Staff Availability					
	23/12/2013	24/12/2013	25/12/2013	26/12/2013	27/12/2013	28/12/2013
DNO Linesmen	137	152	83	78	144	118
DNO Technicians	141	142	39	41	110	89
DNO Engineers	189	183	138	139	196	156
Contractors working	-	-	-	-	86	92
Contractors on standby	79	80	70	80	78	78
NEWSAC working	-	-	-	-	-	-
NEWSAC on standby	-	-	-	-	-	-
Total	546	557	330	338	614	533
Contact Centre Staff	96	93	47	52	72	57

Appendix 7 – Scottish and Southern Energy Summary

1.1. Scottish and Southern Energy (SSE) experienced high winds and prolonged heavy rainfall throughout the Christmas 2013 period. The heavy rainfall resulted in saturated ground and flooding.

1.2. During this time, SSE suffered a total of 1,406 faults across both its licence areas (315 in SSEH and 1,091 in SSES). These faults affected a total of 263,911 customers. These storms had different effects in its two licence areas: in SSEH, there were two main spikes, as seen elsewhere, on 24 and 27 December; in SSES the number of customers affected was highest on 23 December and gradually decreased over time, with a slight resurgence occurring on 27 December.

1.3. The forecasts received for this period indicated that strong winds and heavy rain would affect both licence areas from 23 December onwards, with wind speeds reaching between 60 and 70 mph. The forecasts indicated these conditions would abate over the next day, staying generally calm but windy until 28 December, at which point wind gusts would reach 45 to 50 mph.

1.4. The strong winds and heavy rain arrived as forecast. This resulted in saturated ground and widespread flooding across SSE's networks; SSE have noted that this caused some access issues. A number of sites in the Thames Valley region (of the SSES licence area) received more than 65 mm of rainfall on 23 December. In addition, a 92 mph wind gust was recorded at the Needles, on the Isle of Wight.

1.5. This weather resulted in a large number of faults across both licence areas, particularly in the SSES area. In SSEH, the faults were fairly evenly distributed across HV and LV, with some greater EHV fault numbers occurring on 23 and 27 December. In SSES there were generally a greater number of faults at LV, except on 23 December when there were more HV faults than LV, and the largest number of EHV faults was also recorded. Over the whole period, HV faults accounted for 33 per cent of the 1,406 faults which occurred over both networks.

1.6. The majority of customers interrupted were interrupted due to faults at HV: around 58 per cent of the 263,911 customers affected between 23 and 28 December were interrupted due to HV faults. In the SSES licence area, a total of 88,362 customers were interrupted due to faults on the EHV network.

1.7. The number of faults and customers interrupted reflected the impact of the weather in each location, with the largest number of faults and customers interrupted occurring on 23 December with another peak occurring on 27 December. SSE noted that the large number of faults and the damage that occurred on its networks had not been seen since 1987.

1.8. Over the course of the period from 23 to 28 December, across both its licence areas, SSE restored 35.8 per cent of customers interrupted within one hour, 73.7 per cent within 12 hours, and 94.1 per cent within one day of being interrupted. Further breakdown of these values can be seen in Table A7.1.

1.9. The longest interruption experienced by a customer during this time was 108.43 hours (4 days and 12 hours) in SSEH, and 127 hours (5 days and 7 hours and 12 minutes) in SSES[27].

Table A7.1: SSE Fault restoration and customers affected[28]

				Cumulative customers restored within					
	Customers off >3 mins	Customers interrupted by short interruptions (<3 mins)	Faults repaired	1 Hour	6 Hours	12 hours	1 Day	2 Days	Maximum restoration time (Hours)
SSEH	35,437	105,608	315	17,800	31,852	34,979	35,425	35,433	108.43
				50.2%	89.9%	98.7%	99.97%	99.99%	
SSES	228,474	406,772	1,091	76,624	142,731	159,502	212,971	222,559	127
				33.5%	62.5%	69.8%	93.2%	97.4%	

1.10. During this time, SSE received a total of 195,511 calls to its contact centre. Of these calls, around 17 per cent were unsuccessful, with the remaining calls being answered by a combination of agents and automated messages. Table A7.2 gives further breakdown of the telephony performance during this time.

Table A7.2: SSE Telephony performance

SSE	Total Calls Taken	Average time to answer by an agent (seconds)	Total unsuccessful Calls	Unsuccessful call %
SSEH	10,580	37.8	2,157	20.4%
SSES	184,931	435.8	31,201	16.9%

1.11. Staffing numbers remained high throughout the period for SSE, with at least 400 staff working or on standby from 23 December to 28 December. Contact centre staff were concentrated in the SSES region during this time, and the use of

[27] In the SSES there was one customer who agreed to delay restoration due to remedial repairs being more important than their immediate restoration. This customer was off for 145.73 hours (6 days and 1 hour). In the SSEH region, the customers off for 108 hours had also agreed to delay their restoration for the same reasons outlined here.

[28] Note that restoration percentages are for customers who were off supply for longer than three minutes, who constitute a Customer Interruption under the Regulatory Instructions and Guidance.

contractors was greater here than in the SSEH region. A further breakdown of this can be seen in Tables A7.3 and A7.4.

Table A7.3: SSEH Staffing numbers

SSEH	Staff Availability					
	23/12/2013	24/12/2013	25/12/2013	26/12/2013	27/12/2013	28/12/2013
DNO Linesmen	167	281	109	54	47	27
DNO Technicians	130	177	82	40	36	20
DNO Engineers	-	-	-	-	-	-
Contractors working	37	30	-	-	20	-
Contractors on standby	-	-	8	8	-	-
NEWSAC working	-	-	-	-	-	-
NEWSAC on standby	-	-	-	-	-	-
Total	334	488	199	102	103	47
Contact Centre Staff	-	-	-	-	-	-

Table A7.4: SSES Staffing numbers

SSES	Staff Availability					
	23/12/2013	24/12/2013	25/12/2013	26/12/2013	27/12/2013	28/12/2013
DNO Linesmen	158	126	94	123	113	161
DNO Technicians	197	136	108	115	166	116
DNO Engineers	-	-	-	-	-	-
Contractors working	6	68	34	97	62	86
Contractors on standby	-	-	-	-	-	-
NEWSAC working	-	-	-	-	-	-
NEWSAC on standby	-	-	-	-	-	-
Total	361	330	236	335	341	363
Contact Centre Staff	48	58	32	34	46	38

Appendix 8 – Additional costs incurred

1.1. As set out in Chapter 1, these storms had a financial impact on the DNOs. This was caused by a number of factors including the cost of bringing in staff (both from within the company and externally), the cost of gaining access to faults and carrying out repairs to the network, and any payments made to customers. These costs are broken down in Table A8.1; it is important to note that these costs are provisional at this point.

Table A8.1: Additional costs due to the Christmas Storms

DNO	Total incremental costs by company (£m)	Total incremental costs by DNO (£m)	% due to Staffing costs (own staff)	% due to Staffing costs (contract/NEWSAC staff)	% due to equipment	% due to GS payments
ENWL	0.57	0.57	32	48	4	15
NPGN	1.67	0.82	28	51	17	1
NPGY		0.84	38	40	17	0
WMID	2.86	0.60	84	7	7	0
EMID		1.04	54	41	4	0
SWALES		0.53	48	44	4	0
SWEST		0.69	88	0	7	0
LPN	17.94	0.11	0	0	0	100
SPN		14.29	49	7	0	28
EPN		3.54	63	7	0	16
SPD	2.01	0.92	23	53	7	3
SPMW		1.10	24	46	10	1
SSEH	14.28	5.22	9	27	29	19
SSES		9.06	6	11	20	40
GB	**39.32**	**39.32**				

1.2. As Table A8.1 highlights, the amount and proportion of payments that are due to be made under the Guaranteed Standards varies by DNO. This amount is comprised of a combination of payments made to date, and forecasts of the payments that the DNO will make in relation to this period. A further breakdown of the Guaranteed Standards payments is given in Table A8.2.

Table A8.2: Guaranteed Standards payments relating to the Christmas Storms

DNO	Total number of claims expected	Total number of payments expected	Mandatory payments under GS	Ex-Gratia payments	Total value of payments made
	Number	Number	£m	£m	£m
ENWL	821	805	0.005	0.078	0.083
NPGN	-	60	-	0.004	0.004
NPGY	-	-	-	-	-
WMID	-	-	-	-	-
EMID	-	-	-	-	-
SWALES	-	-	-	-	-
SWEST	-	-	-	-	-
LPN	224	589	0.001	0.109	0.110
SPN	23,674	28,413	0.496	3.460	3.955
EPN	3,383	5,761	0.012	0.550	0.562
SPD	14	875	0.028	0.008	0.036
SPMW	50	269	0.011	0.004	0.014
SSEH	9,050	14,333	0.660	0.397	1.057
SSES	9,042	41,164	0.652	2.980	3.632
Total	**45,491**	**102,489**	**1.967**	**7.591**	**9.558**