

Minded to position on the major supply interruption at Dartford Creek in July 2009

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Target audience: Network companies, customers, customers' representatives and other interested stakeholders.

Overview: Ofgem has put in place an Interruptions Incentive Scheme (IIS) to incentivise distribution network businesses to reduce the number, duration and impact of supply interruptions. In some cases, interruptions in supply are outside the businesses' control and can occur despite the company having taken appropriate mitigating actions. In these cases, the company can apply to Ofgem to have its interruptions performance adjusted to reflect the fact that an exceptional event has occurred. Ofgem must then decide whether the company should be penalised for interruptions associated with the event.

A fire at EDF Energy Networks (LPN) plc's (EDFE) Dartford Creek Cable Bridge on 20 July 2009 caused a major supply failure on its network which resulted in major supply interruptions to customers. Following this, EDFE submitted a claim to Ofgem for this to be considered as an exceptional event under the IIS. We are consulting on our minded to position following EDFE's claim.

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Context

Ofgem's principal objective is to protect the interests of existing and future consumers. We do this by promoting effective competition wherever appropriate and by regulating where necessary. Electricity distribution businesses (DNOs) are natural monopolies and are consequently subject to price controls by Ofgem which limit the amount of revenue they can collect from their customers. Ofgem is also concerned to ensure that customers receive a good quality of service in return for their distribution use of system payments.

To incentivise the DNOs to deliver a good quality of service, we have put in place various incentives, one of which is the Interruptions Incentive Scheme. This encourages the DNOs to reduce the number, duration and impact of supply interruptions by exposing them to rewards and penalties for interruptions performance against a set target.

Some interruptions in supply are outside the company's control and can occur despite the company having taken appropriate mitigating actions. In these cases, the company can apply to Ofgem to have its interruptions performance adjusted to reflect the fact that an exceptional event has occurred.

A fire at EDF Energy Networks (LPN) plc's (EDFE) Dartford Creek Cable Bridge on 20 July 2009 caused a major supply failure on its network which resulted in major supply interruptions to customers in the surrounding area over several days. Following this, EDFE submitted a claim to Ofgem for this to be considered as an exceptional event.

Ofgem has considered this application and has reached a minded to position that no adjustment should be made to EDFE's performance for this event, and it should be exposed to penalties associated with the event. We are consulting on our position and would welcome any further evidence and views ahead of providing EDFE with a formal response to its application. **The consultation will close on 7 July 2010.**

Associated Documents

- [Special Condition C2 of EDFE electricity distribution licence - Calculation of charge restriction adjustment arising from performance in respect of quality of service of the Electricity Distribution Licence \(Licence condition as at 31 March 10\).](#)
- [Statutory Instrument \(SI\) 2005 No.1019 - The Electricity \(Standards of Performance\) Regulation 2005.](#)
- [Ofgem's Audits of Electricity Distribution Network Operators' Interruption Reporting for 2007/8, 2008/9 and 2009/10 & Audits of Electricity](#)

[Distribution Networks Operators' One-off Exceptional Events Claims for 2008/9 and 2009/10 - Terms of Reference for Consultants.](#)

- [BPI Ltd \(the Appointed Examiner\) Exceptional Events Report - EDF Energy \(LPN\) plc - fire damage to 132kV and pilot cable at Dartford Creek Cable Bridge - 20 July 2009 \(Final Version 2.0\), report dated 6 May 2010.](#)

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Summary

There are 14 major electricity distribution networks in Great Britain, each operated by a licensed company referred to as a Distribution Network Operator (DNO). The 14 DNOs are natural monopolies and Ofgem's role is to protect the interests of customers by controlling the revenue the DNOs can collect through a price control. We also want to ensure that customers receive a good quality of service in return for the payments they make to DNOs. For this reason, we have put in place an Interruptions Incentive Scheme (IIS) to incentivise DNOs to reduce the number, duration and impact of supply interruptions. We set interruption targets for the DNOs and they are rewarded or penalised annually depending on how they perform against them.

Some interruptions in supply are entirely outside the DNO's control and can occur despite the company having taken appropriate mitigating actions. In these cases, the DNO can apply to Ofgem to have its interruptions performance adjusted to reflect the fact that an exceptional event has occurred. If the Authority grants the application, it can adjust the DNO's performance for part or all of the impact of the event.

The DNOs also have to comply with a Statutory Instrument, a legal obligation, for their standards of performance to the customer. Where they fail to meet any of the standards they may have to compensate the customer concerned. Customers may experience an interruption because of a failure in, or damage to, the DNO's network. In this case, the standards require DNOs to restore customers' electricity supply within prescribed timescales. Where the DNO does not meet the prescribed timescales the customer can make a claim to the DNO for a standards of performance payment.

The arrangements require the DNO to interpret the Statutory Instrument for standards of performance and to assess whether it is required to make a payment to the customer. However, if customers are dissatisfied they can raise the matter with the DNO and ultimately the matter can be brought to Ofgem for determination. Further information on this procedure is set out on the [Ofgem](#) website.

A fire at EDF Energy Network (LPN) plc's (EDFE) Dartford Creek Cable Bridge on 20 July 2009 caused a major supply failure on the network which resulted in interruptions to 94,000 customers in the surrounding area over several days. Following this EDFE submitted a claim to Ofgem for this to be considered as an exceptional event under the IIS.

Ofgem's Appointed Examiner found that the event did not meet the full criteria for exemptions and recommends that no adjustment is made to EDFE's performance for this event. EDFE contests this finding.

Having considered the evidence put forward by EDFE, the Appointed Examiner, and other information, we are not minded to make any adjustment to EDFE's

performance for this event. As a result, EDFE will be penalised under the IIS for interruptions associated with the Dartford event. We estimate that this will result in a £2m penalty on EDFE under the IIS.

We agree with EDFE that the event was outside its control and exceeded the threshold for customer interruptions and customer minutes lost. We also agree that EDFE took appropriate steps following the event to limit the number of customers interrupted and to restore customers' supplies quickly and efficiently. However, we think that EDFE did not take sufficient actions prior to the event to reduce the risk of it occurring. The Dartford Creek cable bridge is a strategically important part of EDFE's network - any major failure on this part of the network will have a very high impact on electricity supply to customers in the LPN network area and also to some customers in the adjacent SPN area. We think that risk assessment exercises should have flagged this to EDFE and that it is reasonable to expect EDFE to have had a robust strategy for ensuring resilience on this part of its network, not least because EDFE experienced a similar incident at a cable bridge in Barking in 2004. As a minimum we think that EDFE should have had a higher frequency of maintenance inspections and a higher level of security than was in place at Dartford Creek at the time of the fire.

We have considered the option of balancing EDFE's strong performance after the event against the weaknesses prior to the event occurring. However, we think adjusting customer minutes lost further would undermine the purpose of the incentive to encourage DNOs to take appropriate actions both before and after the event. As such, we are minded to allow no adjustments to be made with regard to customer interruptions and minutes lost.

Ofgem is seeking views on its minded to position, particularly whether our approach is proportionate and whether it is reasonable for us to expect EDFE to have had better security measures in place at Dartford Creek. We would like to establish the approach taken by other DNOs for the security of similar installations and to gather any further evidence or information that should be considered before the Authority gives its direction. The consultation closes on **7 July 2010** and we would anticipate publishing the final decision at the beginning of August 2010.

This consultation is specifically about the treatment of the Dartford exceptional event under the IIS. We are not consulting on whether EDFE should or should not make payments under the standards of performance to individual customers affected by this incident. However, in making its decision on whether it is required to pay out under guaranteed standards, we would expect EDFE to have regard to the Authority's decision on the treatment of the event under the IIS. Similarly, the decisions we make on EDFE's application for exemption under the IIS are therefore likely to have a strong bearing on our position relating to any standard of performance disputes regarding the Dartford incident.

1. Quality of Service

Chapter Summary

This chapter sets out the Interruptions Incentive Scheme (IIS), why we have it and how it works. We explain exceptional events and how interruptions associated with exceptional events are treated under the scheme.

It also describes the legal framework and powers of the Authority with regard to the IIS.

This chapter also gives background on the Statutory Instrument for Standards of Performance (Guaranteed Standards of Performance).

Interruptions Incentive Scheme

1.1. Ofgem is responsible for administering the IIS which forms part of the licences of the electricity distribution network operators (DNOs), such as EDFE. The IIS sets targets for performance to encourage DNOs to improve the level of interruptions to consumers. The IIS was introduced as part of the price control arrangements in 2002 and subsequently updated in 2005 and 2010. The scheme recognises that the number and duration of supply interruptions are a key element of the quality of service provided by DNOs and that they can manage their level of performance in a number of ways. For example, they may invest in replacing assets which have seen a large number of faults. Alternatively they may invest in equipment which changes the configuration of supplies when a fault arises so that customers only experience a momentary loss of supply. They may manage their operations so that supplies are restored more quickly when an interruption occurs.

1.2. The IIS provides DNOs with annual rewards and penalties depending on each DNO's performance against its targets. We set separate targets for the number of customers interrupted per 100 customers (CI) and the number of customer minutes lost per customer (CML).

1.3. We set the CI and CML targets for each DNO for the period 2005 to 2010 as part of the fourth price control review (DPCR4). We also set incentive rates for each of the DNOs. These are used to calculate the rewards or penalties based on the DNO's actual performance (after appropriate adjustments for accuracy and exceptional events) against its targets. These rewards or penalties have a direct effect on the DNO's revenue and, ultimately, their profit. The IIS provides a direct financial incentive to manage supply interruptions. For example, up to 2008 in the DPCR4

period, DNOs that performed well under IIS earned up to 78 basis points¹ and those that performed badly lost as much as 31 basis points on their earnings under the regulatory arrangements, against a baseline return on capital of 750 basis points.

1.4. The IIS also recognises that some events that lead to large number of interruptions may be outside the direct control of the DNO, although they may take action to mitigate their impact. Exceptional events may include major storms that cause physical damage to the network or other events outside the control of the DNO.

Legal Framework and Powers

1.5. The IIS is contained in Special Condition C2 (Calculation of charge restriction adjustments arising from performance in respect of quality of service²) of the Electricity Distribution Licence. Special Condition C2 sets out the Authority's powers to both adjust allowed revenues in line with performance under the incentive and to take account of severe weather or other exceptional events.

1.6. The licence sets out the procedure the Authority must follow in the case of exceptional events (other than severe weather) which have affected the performance of a licensee in achieving the targets for quality of service. This is the so-called "one-off" exceptional events category. The procedure is summarised in the next paragraphs.

1.7. First, a licensee must notify the Authority of the occurrence of the event within 14 days of the date upon which it considers that such an effect has ceased or within 14 days of the end of the relevant year (whichever is the earlier).

1.8. A licensee must demonstrate that the event meets the 'exceptionality requirements', which are the following:

- The occurrence of the event other than severe weather (e.g. incident on a transmission network or other connected network, or from terrorism or vandalism);
- That the event is outside its control;
- That the event is a consequence of an external cause; and

1 A conventional description of return on capital where 1% = 100 basis points.

2 Paragraph 13, Annex C and Annex D to Special Condition C2 of EDFE (LPN's) electricity distribution licence - Calculation of charge restriction adjustment arising from performance in respect of quality of service of the Electricity Distribution Licence.

- That the event has led to interruptions which exceed a threshold set out in the licence.

1.9. The thresholds refer to performance in respect of the number of customers interrupted per 100 customers (CI) and the number of customer minutes lost per customer (CML). The current relevant thresholds for EDFE (LPN) are 1.1 (CI) and 0.9 (CML).

1.10. An independent Examiner is appointed by the Authority to audit and report on the main facts of the event and its effect. The audit is made up of a two stage process. Following this the Appointed Examiner will advise and recommend on the appropriate adjustments to the reported information.

- Part 1 - It audits the main facts and evidence relating to the event; and
- Part 2 - It assesses whether the licensee took all appropriate actions to prevent the event and to mitigate the impact.

1.11. For this purpose, the Authority has a standard accepted Terms of Reference (ToR)³, which sets out the scope of work expected from the Appointed Examiner. The ToR has been developed in discussion with the industry and used since 2002.

1.12. Following the Appointed Examiner's report, the licensee has to provide such further information as the Authority may require.

1.13. Finally, the Authority must decide on whether the event meets the exceptionality requirements. For this purpose, the Authority must have regard to whether the licensee has met the following criteria for mitigating actions⁴:

- That the licensee's actions (or lack of actions) were not contributory factors to the occurrence of the event; and
- That the licensee took all appropriate steps within its power to limit the number of customers interrupted by the event, and to restore customers' supplies quickly and efficiently, having due regard to safety and other legal obligations.

³ See "Audits of Electricity Distribution Network Operators' Interruption Reporting for 2007/8, 2008/9 and 2009/10 & Audits of Electricity Distribution Networks Operators' One-off Exceptional Events Claims for 2008/9 and 2009/10 - Terms of Reference for Consultants".

⁴ Annex C & D to Special Condition C2 of EDFE (LPN's) electricity distribution licence - Calculation of charge restriction adjustment arising from performance in respect of quality of service of the Electricity Distribution Licence.

1.14. If the Authority concludes that the licensee has taken appropriate mitigating actions both before and after the event, it may give notice that all or part of the impact above the threshold should be excluded from the incentive scheme.

Guaranteed Standards of Performance Regulations

1.15. Regulation 5 of the Electricity (Standards of Performance) Regulations 2005⁵ requires DNOs to pay compensation to customers for supply interruptions when they fail to restore customers' supplies within appropriate timescales.

1.16. The amounts that may be paid are £50 for domestic customers and £100 for non-domestic customers, on receipt of a valid claim for an initial loss of supply of 18 hours, and subsequent payment of £25 for every successive 12 hours without supply. For a claim to be valid the customer must submit their claim to the DNO within three months of supply being restored. In respect of the Dartford incident, this period closed on 23 October 2009. Claims for multiple interruptions under Regulation 9⁶ must be made within three months of the end of the regulatory year, i.e. by no later than the 30 June 2010.

1.17. There are circumstances in which DNOs may be exempt from these standards, and where failure to meet the standards would not require the company to make payments to the customer. These circumstances are set out in Regulation 5.

1.18. It is for the DNO to interpret and apply the standards and exemptions appropriately. If customers are dissatisfied with the DNO's decision they have a right to dispute through the DNO's complaints procedure and to the [Energy Ombudsman](#). If the dispute is not resolved it can be referred to the Authority for determination. Guidance on how customers can make a claim/complaint can be found on the [Ofgem](#) website.

1.19. We are not consulting on EDFE's approach to standards of performance for the Dartford incident. However, the Authority would expect EDFE to have regard to the Authority's decision on the treatment of the event under the IIS. If there are unresolved standards of performance disputes relating to Dartford following this customers should follow the guidance on the [Ofgem](#) website. Ultimately claims can be brought to Ofgem for determination. We would have to consider, among other factors, the extent to which this event was outside EDFE's control and whether it

5 Statutory Instrument (SI) 2005 No.1019 - The Electricity (Standards of Performance) Regulations 2005.

6 The Electricity (Standards of Performance) Regulations 2005 - Regulation 9 - Supply restoration: Multiple Interruptions - where the supply to a customer's premises that is directly connected to a DNO's distribution system is interrupted for four periods, each of not less than three hours, during a relevant year.

took all reasonable steps to prevent the incident. The evidence set out in the Appointed Examiner's report for the IIS scheme is likely to have a strong bearing on our position relating to standard of performance disputes regarding the Dartford incident.

1.20. Determining standards of performance disputes involves Ofgem looking at specific circumstances of individual customers, or groups of customers that have experienced the same or similar circumstances. This differs from the determination of the IIS claim, which is taken at a higher level. In reviewing individual cases we would have to consider the specific wording of the Statutory Instrument and the exemptions that are contained within it. Interested parties are advised to read the Statutory Instrument, a link to which is provided in the previous section of this document.

1.21. The rest of this consultation document has been structured to allow the target audience to understand how Ofgem arrived at its minded to position and to solicit further information and views.

- Chapter 2 - The Event - This sets out the background leading to up to, during and after the event. This takes into account EDFE's Statement of Fact in support of its claim, the Appointed Examiner's Report and EDFE's concerns following the receipt of the draft Appointed Examiner's Report. Ofgem would welcome any further evidence that may exist relating to the incident or to EDFE's claim and the approaches that other DNOs take regarding the security of similar installations. It also sets out a review of other "one-off" exceptional events that have taken place during DPCR4.
- Chapter 3 - The Authority's minded to decision - This states the Authority's minded to Decision is not to make an adjustment to EDFE's performance under the IIS for this event. Ofgem would welcome views on this minded to decision. **The consultation will close on 7 July 2010.** Following due consideration the licence requires us to issue a draft decision to EDFE and give them 14 days notice to make representation. We will then consider any representation and aim to make our final decision and issue our direction publicly at the beginning of August 2010.

2. The Event

Chapter Summary

This chapter gives the background leading up to, during and following the event and EDFE's Statement of Fact and the Appointed Examiner's report.

Question 1: What approach do other DNOs take regarding the security of similar installations? This should include the physical security, inspection regimes, risk assessments and action DNOs have taken following the EDFE Barking incident and subsequent Examiner's report in 2004 or other incidents of a similar nature.

Background

2.1. The Dartford Creek Cable Bridge and its associated cables were commissioned in 1958-59 by the then Central Electricity Generating Board (CEGB) as the main outfeeds from the nearby Littlebrook Grid Substation to the distribution network in the surrounding area. The bridge spans the River Daret between the riverside industrial estate in the north and the residential area of Kenwyn Road in the south. The bridge is now owned and maintained by EDFE.

2.2. On Monday 20 July 2009 a fire irreparably damaged the four 132kV cables and pilot cables at the Dartford Creek Cable Bridge which materially and adversely affected reported performance for the EDFE (LPN) licensed area for the reporting year 2009-10. At the time of the event the cables formed the main outfeeds from EDFE's Littlebrook Grid Substation into both its LPN and its Southern Power Network (SPN) licensed areas⁷. The incident had a major impact on the supplies to customers fed from these networks.

2.3. EDFE began continuous emergency repair work immediately it was given access to the site by the Kent Police, who had initially declared it a 'crime scene' under its processes for dealing with a critical incident.

⁷ The EDF Energy plc Networks Branch incorporates three licensed areas (DNOs) - EDF Energy Networks (LPN) plc which covers the London area (LPN); EDF Energy Networks (SPN) plc which covers the Southeast area (SPN); EDF Energy Networks (EPN) plc which covers East Anglia and the North London area (EPN).

2.4. The loss of these main outfeeds severely restricted EDFE's ability to restore supplies and it had to invoke rota connections⁸ to provide limited supplies to approximately 34,000 customers until the first 132kV circuit was restored on Thursday 23 July 2009. A further 5,000 customers were without supply throughout the duration of the event. In total 77,543 of EDFE's customers' supplies were interrupted in its LPN licensed area. Additionally, approximately 17,000 of EDFE's customers' supplies were also interrupted in its SPN licensed area.

2.5. In order to restore supplies as quickly and efficiently as possible, EDFE carried out cross-jointing⁹ on its 11kV network. EDFE also installed a temporary 132kV connection at its Dartford B Grid Substation in readiness for the restoration of the first 132kV infeed.

2.6. EDFE submitted an exceptional event claim as the event exceeded the relevant threshold amounts for both CI and CML for EDFE during the 2009-10 performance year.

2.7. If we make no adjustment to EDFE's performance for this event, they stand to lose around £2m of allowed revenue through the IIS. This would have an effect of reducing EDFE's Return on Regulatory Equity (RORE)¹⁰ by approximately 39 basis points against an overall baseline return of 750 basis points. For the EDFE group the reduction in RORE would be approximately 12 basis points.

2.8. EDFE invoked an exemption from making formal payments under the guaranteed standards of performance. It instead offered an ex gratia payment of £50 for customers without supply for 24 hours or longer.

2.9. Following the event Ofgem appointed the Examiner (British Power International Limited) to audit the submission made by EDFE under the "one-off" exceptional event mechanism. The standard Terms of Reference (ToR)¹¹ were applied, with Section 2.2 of the ToR applying to the audit of "one-off" exceptional events for 2008-09 and 2009-10.

8 A programme of planned, sequential supply reconnections/disconnections to achieve a reduction in total supply demand in a certain area.

9 Reconfiguring the network by switching, restoring supply by providing cable connections from healthy parts of the network to those off supply. This would involve jointing new cables between the healthy and affected parts.

10 RORE is a measure that provides an indication of the financial return achieved by the licensees which can be compared to the cost of equity originally allowed in the price control settlement.

11 Ofgem's Audits of Electricity Distribution Network Operators' Interruption Reporting for 2007/8, 2008/9 and 2009/10 & Audits of Electricity Distribution Networks Operators' One-off Exceptional Events Claims for 2008/9 and 2009/10 - Terms of Reference for Consultants.

EDFE Statement of Fact

2.10. EDFE submitted its Statement of Fact¹² to support its formal request for the one-off major event affecting Dartford on the 20 July 2009 to be treated as an exceptional event. In summary, the report set the following:

- 77,000 customers were interrupted on EDFE's LPN network and 17,000 on their SPN network;
- The cause was a fire on the Dartford Creek Cable Bridge crossing supporting EDFE's 132kV cables; and
- The investigation concluded that the fire was deliberate and caused by unknown third parties.

2.11. The report details the sequence of events from 12:26 on 20 July 2009, where a series of 132kV circuit failures occurred over a 48 minute period at Littlebrook 132kV substation, until 09:00 onwards on the 23rd July 2009, when EDFE started the disconnection of temporary generators.

2.12. The EDFE report states the following:

- That the general operational strategy was to restore as many customer supplies as quickly and as safely as possible, for as long as possible. Therefore some customers were restored via network alternatives (11kV & 33kV), others via rota connection, many were re-connected via temporary generation, and some moved from one method of restoration to another as the restoration developed.
- Throughout the incident, the EDF Energy Customer Service team worked with the Local Authorities to identify vulnerable customers and, where known, provided support which included the provision of a temporary generator where practical and the dispatch of the British Red Cross.
- Press statements and media interviews on both TV and radio continued throughout the course of the incident.
- Approximately 340 people from EDFE and their contractors were involved in responding to the incident, including 240 who carried out extensive emergency repairs and installing generators.

12 Appendix D to BPI Ltd (the Appointed Examiner) Exceptional Events Report - EDF Energy (LPN) - fire damage to 132kV and pilot cable at Dartford Creek Cable Bridge - 20 July 2009 (Final) dated 6 May 2010.

Appointed Examiner's Role and Report

2.13. The ToR for the Appointed Examiner for auditing and reviewing exceptional events has been developed with the industry since 2002. A standard ToR has been used successfully in previous events. The key objectives of an exceptional event audit are to:

- Determine whether the event should be considered for exclusion;
- Verify the impact of an event in terms of incidents, CIs and CMLs;
- Determine whether the event exceeded either or both of the thresholds set out in the table in Appendix 1 to the ToR;
- Where an event exceeds one or both of the thresholds, assess whether the DNO took all appropriate steps to prevent the event and to mitigate the impact; and
- Where appropriate, provide an audit opinion on the appropriate numerical adjustments to the DNO's reported information so that they are not unfairly penalised in the incentive scheme due to an exceptional event taking into account whether the DNO took appropriate mitigating actions.

2.14. The Appointed Examiner submitted their final report to the Authority on 6 May 2010¹³.

Eligibility of the event

2.15. The Appointed Examiner's final report concluded that the occurrence passed the precondition of eligibility, that the occurrence of the event was outside the control of EDFE and was as a consequence of an external cause and that the event led to interruptions in excess of the relevant threshold. The Appointed Examiner also considered that following the event EDFE took appropriate steps to limit the number of customers interrupted and to restore customers' supplies as quickly as possible. However, it concluded that EDFE's performance fell short in preventing the incident from occurring and that it therefore failed to demonstrate full mitigation measures. The Appointed Examiner therefore considered that EDFE's claim was not justified and is "minded to recommend" to Ofgem that none of the amount of CI and none of the amount of CML above the threshold values should be excluded from EDFE's performance for the reporting year 2009-10.

13 BPI Ltd (the Appointed Examiner) Exceptional Events Report - EDF Energy (LPN) - fire damage to 132kV and pilot cable at Dartford Creek Cable Bridge - 20 July 2009 (Final Version 2.0) dated 6 May 2010.

2.16. The nature of the incident has led to enquiries outside of EDFE and these have taken time to complete. The Appointed Examiner has visited EDFE to audit the claim against part 1 of the "one-off" exceptional events process.

2.17. Whilst the Appointed Examiner cannot say with surety what caused the event given the lack of fault history or oil pressure problems on either of the 132kV cables and pilot cables at the Dartford Creek Cable Bridge, the Appointed Examiner considers the incident was not due to an internal cause and it was therefore caused by a factor external to EDFE (LPN). The Appointed Examiner concurred with the Kent Police that third party interference by person or persons unknown caused the incident and that the actual cause of the fire cannot be determined with surety. From the discovery of hand tools at the scene and the broken hasp it could be concluded that the fire could have been caused by would-be thieves.

Impact on CI and CML

2.18. The Appointed Examiner found that the event contributed more than the relevant threshold amounts to CI and CML. The relevant threshold amounts and exceptionality test results are shown in Table 2.1 below:

Table 2.1: Summary of exceptionality test results

Test	Threshold	Claimed number	Audited number	Pass/Fail	Amount above threshold
CI exceptionality	1.10	3.48	3.48	Pass	2.38
CML exceptionality	0.90	68.00	68.00	Pass	67.10

2.19. The claim was therefore deemed to be eligible for adjustment and the Appointed Examiner proceeded to part 2 of the "one-off" exceptional events process, assessing EDFE's performance in mitigating the impact of the event upon its customers.

DNO steps to mitigate impact

2.20. As per the ToR, the Examiner has advised on whether EDFE's actions (or lack of actions) were contributory factors to the occurrence of the event. The Appointed Examiner has considered the following:

2.21. In reviewing EDFE's performance in preventing the Dartford incident, the Appointed Examiner has considered what more EDFE could have done to ensure that its equipment at Dartford Creek Cable Bridge was safeguarded from the effects of interference and what actions it had taken to detect and then remedy any such interference.

2.22. There has been an ongoing debate regarding EDFE's security and inspection regime for its Dartford Creek Cable Bridge and the extent to which measures were in place that would have mitigated the risk of such an incident occurring. The Appointed Examiner's assessment is that it was reasonable to expect more of a DNO in these circumstances.

2.23. In reaching a conclusion the Appointed Examiner is mindful of the discussions that took place during the audit of a fire at an EDFE cable bridge in Barking that occurred on 23 May 2004 and the concerns noted in that report regarding the inspection regime and security arrangements at the time¹⁴. The concluding paragraph of the summary from the Barking audit reads:

"Although the Appointed Examiner considers that EDF Energy responded well to the event in restoring the supplies, there is a concern about whether all reasonable practicable steps to prevent this failure had been taken. The Appointed Examiner notes that since the incident LPN has reduced the inspection period to 6 months and improved the security of the site. However, the Appointed Examiner is not convinced from the evidence presented to date that these types of measures to detect and prevent vandalism and unauthorised access to this site should not have been taken from the outset".

2.24. The Appointed Examiner considered that EDFE should have taken account of the comments in the exceptional event report concerning the fire at EDFE's Barking Cable Bridge, where EDFE's security and inspection arrangements were called into question.

2.25. When the Appointed Examiner questioned what EDFE had done since the incident at Barking to ensure that all its installations of this kind are secured against third-party interference, EDFE responded that:

"The installations in these two incidences are different in construction, with the cable in the Barking incident being installed within a road bridge and the cables in the Dartford incident within a purpose built Cable Bridge. The level of inspection is determined by risk assessment following routine inspection for all installations and the Dartford site was not identified as a high risk site."

2.26. The Appointed Examiner considered that, following the Barking incident, it was reasonable to expect EDFE to have been be proactive in securing its cable bridges and other assets that support major parts of its distribution system. The Examiner considers that EDFE should have introduced a more frequent inspection regime at

14 Ofgem - E7 Stage 2 Report - LPN May '04 v2.0.doc - BPI and Mott Macdonald, 29 March 2005.

the Dartford Creek Cable Bridge than annually, in line with the regime applied for major substations.

2.27. The Appointed Examiner considered that EDFE should have carried out a rigorous risk assessment of all its cable bridges and similar installations at that time since there is much anecdotal evidence to suggest that they are vulnerable to the effects of third party interference.

2.28. At the Dartford Creek Cable Bridge site the Appointed Examiner considers that incidents of vandalism and theft are relatively commonplace and the police statement regarding the incident at Dartford Creek indicates that graffiti was present inside the enclosures of both bridge piers.

2.29. The Appointed Examiner considers that, in addition to the physical/security risk, a more rigorous risk assessment would have included assessing the risk to EDFE's distribution network and the security of supplies to its customers in the event that third party interference led to the loss of all four 132kV cables. This is particularly so as the footpath alongside the northern bridge pier is a walk promoted by Kent County Council and therefore readily accessible to the general public whilst being obscured from the view of anyone not in its immediate vicinity.

2.30. The Appointed Examiner identified that site inspection reports are screened by EDFE's engineering personnel, but the associated risk assessment process does not appear to take account of the strategic importance of the assets and the effect the loss of those assets would have upon its distribution network and its customers.

2.31. In line with the ToR, the Appointed Examiner has also advised on whether EDFE took all appropriate steps within its power:

- to limit the number of customers interrupted by the event; and
- to restore customers' supplies quickly and efficiently, having due regard to safety and other legal obligations.

2.32. The Appointed Examiner considers that EDFE's personnel responded well and worked tirelessly in effecting repairs, and to restore supplies, whilst keeping its customers advised of its progress throughout the event.

Appropriate numerical adjustments

2.33. In arriving at a recommended adjustment the Appointed Examiner has considered at length all information and material factors from a variety of sources, including the Kent Police Force.

2.34. In accordance with the requirements of the ToR, the Appointed Examiner for the Dartford incident concludes that EDFE's performance fell short in preventing the incident from occurring and that it has therefore failed to demonstrate full mitigation

measures. Taking into account all the factors of this case the Appointed Examiner recommends to Ofgem that no adjustment is made to EDFE LPN's 2009-10 reported distribution system performance figures as shown in the Table 2.2 below:

Table 2.2 Appointed Examiner's recommended adjustment

	Audited number	Number above the threshold	Recommended adjustment
CI	3.48	2.38	0.00
CML	68.00	67.10	0.00

2.35. The Appointed Examiner's detailed justification for this recommendation is shown at Appendix 4, this sets out the following:

- Security and inspections of the Dartford Creek Cable Bridge;
- The cause of the fire;
- EDFE's response; and
- EDFE's failings.

EDFE's Concerns

2.36. Following receipt of the draft Examiner's report¹⁵ EDFE wrote to Ofgem¹⁶ stating that they believed that the report fell significantly short of providing a robust justification for the recommendation made. In particular, they do not believe that vague assertions to the effect that EDFE had not done all it could have done in any way meets the evidential test demanded by the relevant licence condition. They believe that in order to demonstrate that EDFE's actions (or lack of actions) were contributory factors to the occurrence of the event and impact on customers it is necessary to state explicitly what those actions would have been and the preventative and mitigating effects that they should have had. They believe the Appointed Examiner failed to do this and the draft report therefore provides no basis for Ofgem to deny EDFE's application for the full adjustment to performance to remove the impact of this exceptional event.

15 BPI Ltd (the Appointed Examiner) Draft Exceptional Events Report - EDF Energy (LPN) - fire damage to 132kV and pilot cable at Dartford Creek Cable Bridge - 20 July 2009 (draft) dated 25 January 2010.

16 EDFE Networks letter to Ofgem dated 9 February 2010

2.37. EDFE has also raised concerns to the Appointed Examiner¹⁷ that they misdirected themselves by answering a question the ToR did not pose, where it concluded that "EDFE had not done all it could reasonably have been expected to do in its stewardship of its assets at its Dartford Creek Cable Bridge and that it therefore failed to demonstrate full mitigation measures".

2.38. EDFE also believe that the Appointed Examiner's draft report provided no basis for the conclusion that EDFE LPN's actions or omissions were in any way contributory to the event which occurred, nor that alleged deficiencies in EDFE LPN's stewardship of the assets were in any way contributory to the event.

2.39. The Appointed Examiner addressed EDFE's comments in Appendix E to the Examiner's final report. A summary of EDFE's comments and the Appointed Examiner's responses is set out below:

Comment 1: *EDFE strongly disagree with the recommendations of the draft report and it does not consider that it allows any conclusion to be drawn that its actions (or lack of actions) were contributory factors to the occurrence of the exceptional event.*

Response 1: The Appointed Examiner states the ToR makes it plain that it is required to draw "key conclusions on the DNO's performance in preventing the event from occurring", and is thus required to examine which proactive measures a DNO has taken.

Comment 2: *EDFE believe there is no suggestion in the draft report that they did not take all appropriate steps to mitigate the impact of the exceptional event.*

Response 2: The Appointed Examiner recognises the efforts of EDFE's personnel in managing the incident. It recognises that EDFE took appropriate steps after the event. It is prior to the event that they had concerns.

Comment 3: *EDFE believe the Appointed Examiner misdirected itself by answering a question that the ToR did not pose.*

Response 3: The Appointed Examiner's response is that its remit is wide ranging and requires an examination of all relevant aspects of the claim as laid out in the ToR. They point out that since being appointed as Ofgem's auditors some years ago they have followed this approach consistently; it has been accepted by all DNOs whose claims have been audited, including EDFE, with the methodology tried and tested. The Appointed Examiner does not agree with EDFE's assertion that the

¹⁷ EDFE Networks letter to BPI Ltd dated 9 February 2010

breadth of the draft report means it is outwith the ToR for the audit of exceptional event claims.

Comment 4: *EDFE believe the draft report provides no basis to conclude that their actions or omissions were in anyway contributory to the event, nor that alleged deficiencies in their stewardship of their assets was in any way contributory to the event.*

Response 4: The Appointed Examiner does not accept this interpretation, with the evidence presented by EDFE concentrating on reactive measures. They believe that not all the range of reasonable measures was taken that might have been taken to mitigate the risk of this and similar incidents.

Comment 5: *EDFE believe the Appointed Examiner does not contradict EDFE's representative's assertion that considerable force would have been needed to achieve the damage.*

Response 5: The Appointed Examiner accepts this, but points out the damage was still vandalism however much force may have been used.

Comment 6: *EDFE believe that the Appointed Examiner makes no attempt to assess the credibility of, and the weight to be attached to, a local witness' evidence.*

Response 6: The Appointed Examiner points out that an EDFE representative accompanied the lead auditor and had the opportunity to question the local witness directly. They believe that reasonable steps were taken to obtain evidence and build up a balanced view of what occurred.

Comment 7: *EDFE believe there are inconsistencies between the evidence of the local witness and the PCSO¹⁸ and question whether it safe to make conclusions based on the local witness' evidence. They also highlight the evidence of the Kent Police, who have on record the local witness reporting concerns about the security of the southern pier, but have no reported damage to the northern pier.*

Response 7: The Appointed Examiner does not accept the two views are necessarily contradictory or inconsistent - the occasions the local witness reports and the people involved might well be different from those experienced by the PCSO. The PCSO did not start his beat of the area until 2007 and the local witness' observations started before that time. The Appointed Examiner has requested EDFE to provide inspection reports prior to those of 2007 but at the time of preparing the draft report these had not been provided.

18 Police Community Support Officer (PCSO).

Comment 8: *EDFE believe that there was no need to take any further security or surveillance measures other than fitting a substantial lock on the doors at both the southern and northern ends. They believe the Appointed Examiner's draft report provides no explanation as to why inspections should increase to a frequency of six monthly, nor do they explain how a failure to carry out increased inspections could have contributed to the event.*

Response 8: The Appointed Examiner points out that EDFE itself elected to increase the frequency of inspections at its Barking Cable Bridge. The Appointed Examiner takes this as evidence that EDFE, along with others in the sector sees the value of these proactive/preventative measures as contributing to the security of its assets. The Appointed Examiner would have taken such proactive measures into consideration when coming to its conclusion following the Dartford Creek Cable Bridge incident.

Comment 9: *EDFE believe the Appointed Examiner's draft report makes no attempt to explain what further steps they might reasonably taken had it undertaken a "rigorous" risk assessment, or how the failure to do so contributed to the occurrence of the event.*

Response 9: The Appointed Examiner believes EDFE's lack of a rigorous risk assessment is part of what they see as a lack of activity which may have prevented the event occurring.

Comment 10: *EDFE believe the draft report does not attempt to address the re-routing of some or all of the cables and the cost benefit analysis associated with this. And there is no basis for concluding that a more "rigorous" risk assessment would have led to any different outcome. Nor did the Appointed Examiner explain how alternative methods could have prevented the event, nor how the failure to take such measures contributed to it.*

Response 10: The Appointed Examiner pointed out that funding (cost benefit analysis) is a matter for the DNO and Ofgem. It does not accept that a more rigorous risk assessment would have been irrelevant. The Appointed Examiner believes if EDFE had been more proactive at its other cable bridges (where arguably the Dartford installation is more vital than at Barking) they would have taken this into consideration. The Appointed Examiner further pointed out that it is not for them to recommend a range of measures.

Comment 11: *EDFE believe that the draft report does not attempt to assess the extent its failure to take appropriate measures could have contributed to the event. And that it provides no basis for deciding that Ofgem should make no allowance at all for the consequences.*

Response 11: The Appointed Examiner considers that EDFE had opportunities to take proactive preventative measures following the event at Barking in 2004 and again following the event at Dartford in 2007¹⁹. They also pointed out that Kent Police had said graffiti was present within the confines of the cable enclosures at both bridges which should have alerted EDFE.

Comment 12: *EDFE believe that although the then Appointed Examiner recommended an increased frequency of inspection when reporting on the Barking exceptional event in May 2004, it did not suggest that any further measures might be justified or expected.*

Response 12: The Appointed Examiner points out that it was EDFE's decision to increase the frequency of inspections at Barking. And its actions following the Barking event would suggest that EDFE learnt little from the then Appointed Examiner's audit and commentary, and appears to see no need to take any action regarding its other cable bridges. The Appointed Examiner believes this adds to the evidence that EDFE's focus is maybe on reacting to incidents.

Comment 13: *EDFE considers the Appointed Examiner's draft report to be flawed fundamentally and rejects its conclusions and recommendation and invites the Appointed Examiner to reconsider the draft report as EDFE concludes that its conduct was not in any way contributory to the occurrence of the exceptional event.*

Response 13: The Appointed Examiner does not accept that the report is fundamentally flawed. The Appointed Examiner does not accept that they have been misdirected or have taken too broad a perspective on the ToR. The Appointed Examiner does not believe the methodology adopted in collecting and weighing evidence, and engaging EDFE throughout the process, has been inappropriate. The Appointed Examiner does not believe it is unreasonable to reflect on what lessons might have been learned from earlier incidents or the experience of others. Arriving at an assessment in a complex situation requires a careful weighing of evidence which the Appointed Examiner believe they have attempted to do dispassionately. The Appointed Examiner accepts that EDFE may disagree with the conclusions but believe to simply dismiss the report as 'flawed fundamentally' is unhelpful.

Previous one-off exceptional events

2.40. To enable the Authority to be objective in its assessment we have reviewed and considered previous Appointed Examiner's reports for one-off exceptional events

¹⁹ EDFE's records show that the inspection of its Dartford Creek Cable Bridge carried out on 2 December 2007 found that the access door at the northern bridge pier had been vandalised and open to the general public. This was repaired and a high security lock was applied as per EDFE's risk assessment manual.

since the start of the price control in 2005. There have been 17 such events in previous years. A full list of these reports can be found at Appendix 5. To allow us to set out a proportional and consistent approach we have reviewed all 17 events. We consider that two of the events are relevant to the Dartford event. The first event is an example where the Appointed Examiner recommended disallowing part of the DNO's claim because of inadequacies in the mitigating actions prior to the event. The Authority rejected the DNO's claim after further consideration of the evidence. The second event has some similarities with the Dartford event and is being presented for that reason. In that case the Authority's decision was in line with the Appointed Examiner's recommendations. A summary of this review is set out below.

Southern Electric Power Distribution plc (SSE (Southern)) - October 2005

2.41. This event occurred on 24 October 2005 with the sequential loss of three grid transformers at Hunston and Chichester resulting from separate causes at near coincident times on SSE (Southern) network area. The event lasted for five hours and interrupted 79,289 customers' supplies.

2.42. The Appointed Examiner considered that the Chichester event was caused by three different contributory causes, at least one of which was outside SSE's reasonable control. This was an external factor. Without this external factor, the other two factors, partly within the control of SSE could have been rectified without interruption to customer supplies.

2.43. SSE submitted an exceptional event claim as the event exceeded the relevant threshold amounts for both CI and CML for SSE during the 2005-06 reporting year. The Appointed Examiner considered that the event partially met the criteria of an exceptional event with factors that were both within and outside the control of SSE.

2.44. The Appointed Examiner for the Chichester event recommended that the claim was partially justified. The Authority disagreed with these findings and rejected SSE's claim. We considered that the event did not meet the criterion (a) in Annex C of Special Condition C2 and it was inappropriate to make any adjustment. Had the first transformer been successfully returned to service either or both of the other two incidents could have occurred without any interruption to customers' supplies. The Appointed Examiner's report attributed the loss of the first transformer to "inappropriate application and/or maintenance of a fault throwing switch" and placed accountability for this incident with SSE. Whilst it was appropriate for DNOs to decide what practices should be followed in terms of maintenance and operation of their equipment, the Authority stated that DNOs should bear the consequences of such decisions.

Central Networks West (CN West) - July 2006

2.45. The second example occurred on the 30 July 2006. Unknown intruder(s) caused a fire and physical damage to cables at CN West's two cable bridges in the Nechells district of Birmingham. The event lasted for almost three days. The two bridges are referred to as the higher-level and lower-level bridges. The two bridges

were situated in the grounds of CN West's operational site occupied by a distribution substation. The site has an access gate which was secured with a hardened-hasp security lock. Access to the lower-level bridge was through solid doors that were also secured with hardened-clasp security locks. The upper-level cable bridge supports were surrounded by anti-climb concrete castings.

2.46. The unknown intruder(s) gained access to the site by deliberately cutting through the locking bolts and security locks to gain access. In the case of the higher-level bridge, the intruder(s) damaged an 11kV cable, which tripped the circuit and was considered to be the start of the event. In the case of the lower-level bridge, the intruder(s) set a fire that irreparably damaged 26 11kV cables, nine pilot cables and one low voltage cable.

2.47. During the event, 56 of CN West's 11kV circuits were interrupted and supplies to 41,840 customers were affected. CN West was delayed accessing the site by the Police for two days, which hampered their ability to restore supply.

2.48. CN West submitted an exceptional event claim as the event exceeded the relevant threshold amounts for both CI and CML for CN West during the 2006-07 performance year. The Appointed Examiner considered that the event met the criteria of both Annex C and D of Special Condition C2. In particular, it concluded that CN West had taken all reasonable steps to safeguard its cables and cable bridges in the Nechell's district.

2.49. The Authority agreed with the recommendations of the Appointed Examiner and found that CN West's actions (or lack of actions) were not contributory factors to the occurrence of the event and it took all appropriate steps within its power to limit the number of customers interrupted by the event and to restore supplies quickly and efficiently. The Authority accepted CN West's claim and adjusted their performance claim to exclude the customer interruptions in excess of the threshold.

2.50. The Authority was aware that there was no previous history of damage to, or attack on the Nechells site apart from graffiti at the perimeter of the site. The site had physical barriers of the secured gate, secured doors and the anti-climb walls to deter everyone except (probably) the most determined intruder. Due to the lower voltage at the Nechell's site of 11kV, it would be considered easier for CN West to manage the impact of the event and gave them greater options to restore supply, compared with 132kV at Dartford. Less than half the number of customers were affected than at Dartford and because of the greater options for restoration at 11kV they were interrupted for a shorter period despite the restrictions on access to the site lasting for a much longer period. This meant that the site was of lower criticality than Dartford.

3. The Authority's reasoning and minded to position

Chapter Summary

This chapter sets out the Authority's reasoning and minded to position on EDFE's claim for the Dartford incident to be treated as an exceptional event under the IIS.

Question 1: Do you think the Authority's minded to decision is proportionate given the facts in this case and the measures EDFE took pre and post the event?

Question 2: Do you think it is reasonable for the Authority to expect EDFE to have had better security arrangements in place than it did at Dartford Creek at the time of the fire and do you agree this is a relevant consideration for the Authority in reaching its decision?

Question 3: What additional factors and evidence, if any, do you think we should take into account before reaching a final decision on this matter?

The Authority's reasoning

The Authority's view on Dartford

3.1. The Authority agrees with EDFE that the event was outside its control and exceeded the threshold for customer interruptions and customer minutes lost. We also agree that EDFE took appropriate steps following the event to limit the number of customers interrupted and to restore customers' supplies quickly and efficiently. However, we consider that EDFE did not take sufficient actions prior to the event to reduce the risk of it occurring. Considering the circumstances, EDFE should have taken strong measures of prevention. The Dartford Creek cable bridge is a strategically important part of EDFE's network - any major failure on this part of the network will have a very high impact on electricity supply to customers in the LPN network area and also to some customers in the adjacent SPN area. We consider that risk assessment exercises should have flagged this to EDFE and that it is reasonable to expect EDFE to have had a robust strategy for ensuring resilience on this part of its network - especially because EDFE experienced a similar incident in 2004. As a minimum, we think that EDFE should have had a higher frequency of maintenance inspections and a higher level of security than was in place at Dartford Creek at the time of the fire.

3.2. The Authority has balanced EDFE's performance after the event against the weaknesses prior to the event occurring. That is, in coming to its minded to position the Authority has considered EDFE's approach to the security of the Dartford Creek Cable Bridge and their reaction following the event. Also, in reviewing EDFE's approach the Authority has considered their reaction to previous incidents (both at

the Dartford site and other incidents), the physical security and the risk they have attached to the site. The Authority is satisfied that EDFE reacted well following the event, as we would expect from any other DNO. Nonetheless, given the importance of the site and the history of previous interference, we are minded to allow no adjustments to be made with regard to customer interruptions and customer minutes lost given the weaknesses in the mitigating actions prior to the event. Adjusting customer minutes lost would undermine the purpose of the IIS to encourage DNOs to take appropriate and proportional actions both before and after the event.

Exceptionality criteria for Dartford

3.3. The Authority is satisfied that all the steps of the procedure set up in paragraph 13 of Special Condition C2 have been fulfilled and therefore EDFE has made a valid claim for an exceptional event which the Authority must review.

3.4. EDFE considers that it has been affected by an external event other than severe weather. It has notified the Authority within the prescribed period and an external Appointed Examiner has reported on the event and its effect. EDFE has also provided further information requested by the Appointed Examiner.

3.5. The Authority must now decide on whether the event satisfies the exceptionality requirements defined in Annex C of Special Condition C2 and on whether all or part of the impact of the external event should be excluded from EDFE's performance in the relevant year.

3.6. To reach its decision, the Authority must first be satisfied that the event meets the 'exceptionality requirements' set out in Annex C of Special Condition C2.

3.7. The Authority agrees that the event was outside the control of the licensee (paragraph (a) of Annex C of Special Condition C2).

3.8. The evidence clearly established that the event was a consequence of an external cause other than severe weather (paragraph (a) of Annex C of Special Condition C2). It was likely caused by vandalism by third parties.

3.9. Finally, the Authority agrees with the Appointed Examiner's report that the event contributes more than the relevant thresholds detailed in Annex C in a three month period (paragraph (b) of Annex C of Special Condition C2).

3.10. Since the event meets the exceptionality requirements, it is now a matter for the Authority to make a decision on whether all or part of the impact of the external event should or should not be excluded from the relevant year's performance of the licensee. For this purpose, Special Condition C2 requires the Authority to have regard to the criteria for mitigating actions set out in Annex D.

3.11. Annex D sets out two cumulative criteria: (a) the licensee's actions or lack of actions should not have contributed to the occurrence of the event, and (b) that the

licensee should have taken all appropriate steps within its power to limit the number of customers interrupted by the event and to restore supplies quickly and efficiently.

3.12. The first group of mitigating actions is 'retrospective'. The Authority must look carefully to whether the actions or lack of actions taken by the licensee were contributory factors to its occurrence.

3.13. The second group of mitigating actions, as indicated in paragraph (b) of Annex D, are 'prospective' – the licensee must have taken all appropriate ex post measures (i.e. following the occurrence of the event) to make the damage to consumers as low as possible by limiting the number of customers interrupted and restoring supplies quickly and efficiently, having due regard to safety and other legal obligations.

Mitigating actions prior to the event

3.14. The principles that guide the Authority's interpretation are proportionality and practicability. Whilst it cannot be expected that the DNO's actions could have prevented all damage caused by external events such as vandalism, which are by their nature uncertain, it is reasonable to anticipate that DNOs will adopt all reasonable, proportionate and effective actions to reduce the likelihood of their occurrence. There is a need to balance the likelihood of the occurrence of the risk and the impact which would occur, on the one hand, and the means necessary to avoid it, on the other.

3.15. EDFE has continued to carry out annual inspections to the Dartford Creek Cable Bridge site following the Barking incident. However, we consider that the site should have been recognised as being "vulnerable" at least in the aftermath of the Barking event in 2004. As the Appointed Examiner pointed out, there were clear external signs of the vulnerability, such as the presence of graffiti inside the cable enclosures at the Dartford site. Also, EDFE's site inspection report of December 2007 informed that the access door at the northern bridge pier at Dartford Creek had been vandalised. Therefore, whatever the probability of occurrence, it was foreseeable (in the sense of likelihood) that a third party may have tried and possibly succeeded in getting into the site and vandalising the cable.

3.16. More importantly, the licensee should have foreseen that the eventual impact or "quantum" of the event (if it materialises) would be high. Notwithstanding the uncertainty that, by definition, characterises exceptional events, their foreseeable effects need to be carefully considered. In this case, it is clear that there were a large number of customers supplied via the Dartford Creek Cable Bridge, and that any problem affecting the cables may have had severe consequences. The asset in question has a strategic value that seems to have been played down by EDFE.

3.17. On the other hand, the means necessary to avoid the risk may refer to monetary costs, time or any other costs. The main claim that EDFE has made in this regard is that some of the options it could have taken (such as re-routing) are extremely costly. However, EDFE has not demonstrated that prior to the event they carried out a sufficiently effective risk assessment and cost-benefit analysis

regarding this site. EDFE has made no attempt to communicate to the Authority its willingness to explore a re-routing solution and, more importantly, there were a number of other measures that may have contributed to preventing the damage - beyond the mere fitting of a bigger security lock and annual inspections to the site.

3.18. It is worth considering what steps EDFE could have taken to better prevent the site in Dartford being vandalised. EDFE should have taken at least the following actions:

- Taken account of the comments in the exceptional event report concerning the fire at EDFE's cable bridge at Barking in May 2004 and have been proactive in securing its cable bridges and equivalent sites that support major parts of its distribution system.
- EDFE should have introduced a more frequent inspection regime than annually, in line with those of its major substations. At least it would have been expected that EDFE carry out inspections every six months, in line with those introduced at its Barking cable bridge.
- EDFE should have carried out a rigorous risk assessment of all its cable bridges and similar installations following the Barking incident, and reached a conclusion on which of them are vulnerable to third party interference. The assessment should have included the risk to EDFE's distribution network and the security of supplies to its customers in the event that third party interference led to the loss of all four 132kV cables.
- EDFE should have included notices in the site. There were no notices on the Dartford Creek Cable Bridge, in sharp contrast to EDFE's substations, which carry statutory 'Danger to Life' notices and an emergency contact number.

3.19. There are several examples where DNOs, including EDFE have taken steps to prevent the re-occurrence of an incident, thereby improving the security of supplies to their customers. The Appointed Examiner's report points out:

- Following an incident²⁰ where mist and fog adversely affected polymeric insulators at a Grid substation, the DNO concerned instigated an annual shutdown / insulator cleaning/greasing programme to prevent a reoccurrence.
- *Western Power Distribution (South West) Event 3 October 2005* - Following the loss of a complete bus bar due to an incident caused by a bird one DNO undertook a survey of all its outdoor switchgear and is installing bus bar protection equipment at its substations, including equipping bus-section circuit breakers with protection equipment.

20 Western Power Distribution (South West) event October 2002 (pre-DPCR4).

- *Southern Electric Power Distribution Event 7 September 2008* - Following the loss of a complete busbar due to an incident caused by a squirrel one DNO undertook a survey of all its outdoor switchgear and is installing auto-reclose equipment at its substations.

3.20. We recognise that whilst it might be possible to protect a site from damage caused by interference such as birds or squirrels, it may not be possible to take preventive measures to remove the risk of third-party interference, such as vandalism or theft, entirely. However, as can be seen from the examples above, we would expect evidence from DNO's that they have taken stock of the risks following an incident and taken proactive and proportionate preventive measures to mitigate the reoccurrence of this risk on their assets. We consider that EDFE appear to have not taken these measures in respect of the Dartford Cable Bridge from the time of the December 2007 incident of vandalism to the event in July 2009.

3.21. In reaching our conclusions we have considered the similarities and differences with the event at Nechells on CN West's network in 2006 and other one-off exceptional events. The CN West and Dartford events both impacted a large number of customers and were a likely result of vandalism causing fires at cable bridges. However, the criticality of the Nechells site was significantly less due to greater opportunities for restoration at 11kV. Further there was not the same history of external interference at the site and there was greater security in place. CN West had not experienced a previous serious event such as the one EDFE experienced in Barking, where the Appointed Examiner had made recommendations for improvement. Given the relevance of these differences, we consider that it was reasonable to expect EDFE to take sufficient steps to safeguard their site and mitigate the chances of damage by third parties.

3.22. We have considered all the circumstances surrounding this event and weighed the likelihood of the event and its probable impact against the means necessary to reduce or avoid it occurring. This assessment leads us to the conclusion that EDFE did not take all the positive preventive actions it is reasonable to expect a DNO to take to mitigate the occurrence of the event.

3.23. Within the meaning of the Special Condition C2, EDFE's lack of actions was a serious contributory factor to the occurrence of the event, whose consequence was the interruption of the supply of a large number of customers.

Mitigating actions after the event

3.24. The second group of mitigating actions are 'prospective' – the DNO must have taken all appropriate measures after the event to make the impact on customers as low as possible by limiting the number of customers interrupted and restoring supplies quickly and efficiently having due regard to safety and other legal obligations. In its Statement of Fact, EDFE notes that its 'general operational strategy' was focused on restoring as many customer supplies as quickly and as safely as possible, for as long as possible.

3.25. The Authority considers that EDFE took all appropriate steps within its power to limit the overall number of customers interrupted by the event and after the event the overall impact in terms of customer minutes lost, having due regard to safety and other legal obligations. The Authority recognises the efforts of EDFE personnel to restore supply following the incident. The Authority also recognises that since the event EDFE has discussed the security of the site with the Kent Police and local authorities, has installed closed-circuit television cameras and reinforced the locking arrangement of the two access doors.

Overall assessment

3.26. The Authority considered the reasonable possibility of excluding all or part of the CI and CML impact as per paragraph 13 of Special Condition C2. The Authority considered whether the actions of EDFE following the event should be balanced against their lack of action before the event. As previously stated the Authority recognises the efforts of EDFE and its general operational strategy to restore as many customer supplies as quickly and as safely as possible. This is a reaction we would expect from any DNO.

3.27. The Authority considers that EDFE did not take sufficient preventative action prior to the incident, despite the recommendations following the Barking incident and the incident of vandalism at the Dartford site in December 2007. EDFE did not carry out a sufficiently effective risk assessment for its other cable bridge locations following this and in failing to do so up to the time the Dartford incident, EDFE have implicitly accepted a certain level of risk.

3.28. The Authority was informed by EDFE that it has taken the following actions since the incident:

- Verified its list of network cables bridge pinch-points;
- Updated its understanding of potential customer impacts at these locations;
- Continued with its maintenance inspections in accordance with its policy and maintenance plan; and
- Temporarily increased security at the Dartford site including CCTV and a security guard.

3.29. All of these, with the possible exception of the security guard, are reasonable and proportionate actions which it would have been appropriate to have taken before the incident.

3.30. The Authority also notes that despite the fact EDFE consider it an expensive alternative, the Appointed Examiner's report states that EDFE is considering a major re-routing of two of the 132kV circuits that cross the Dartford Creek, so as to remove the possibility of a recurrence of this incident (paragraph 1.41 of the Examiner's Report).

3.31. The Authority considered making a partial adjustment to EDFE's losses performance to account for the actions EDFE took after the event to mitigate its impact. However, we think this could undermine the principles of the IIS. The company's performance after the event is already reflected in reduced customer minutes lost in the incentive scheme. The IIS was introduced to influence behaviour to minimise interruptions to supply and this required both proactive and reactive measures with incentives to reward and penalise. Adjusting customer minutes lost would undermine the purpose of the incentive to encourage DNOs to take appropriate actions both before and after the event. As such we are minded to allow no adjustments to be made with regard to customer interruptions and minutes lost in respect of the Dartford event.

3.32. In summary, the Authority has had regard to the mitigating actions that EDFE adopted and considers that it adopted appropriate measures after the event but took insufficient steps to prevent its occurrence. There is insufficient evidence to conclude that EDFE has met the criteria for mitigating actions. We think it is reasonable to expect that EDFE would have taken stronger, appropriate measures to prevent the failure – particularly considering the foreseeable possibility that such an event would put a very large number of customers at risk.

The Authority's minded to position

3.33. The Authority has considered EDFE's Statement of Fact, the Appointed Examiner's report and other relevant information and circumstances (such as EDFE's concerns). The Authority concludes that the event was a consequence of an external cause and contributed more than the relevant threshold amount to CI and CML. However, it cannot be considered that EDFE has met the criteria for mitigating actions.

3.34. The Authority is minded to give notice to EDFE indicating that its claim is not justified and that none of the amount of CI and none of the amount of CML in excess of the relevant threshold amount from the start of the event until its effect had ceased shall be excluded from the relevant year's performance of EDFE.

3.35. We will review all responses sent to us by the deadline of **7 July 2010**. Following due consideration the licence requires us to issue a draft decision to EDFE and give them 14 days notice to make representation. We will then consider any representation and aim to make our final decision and issue our direction publicly at the beginning of August 2010. Customers with queries not relating to this consultation document should contact EDFE which is equipped to handle queries on this matter.

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Appendices

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Appendix 1 - Consultation Response and Questions

1.1. Ofgem would like to hear the views of interested parties in relation to any of the issues set out in this document.

1.2. We would especially welcome responses to the specific questions which we have set out at the beginning of each chapter heading and which are replicated below.

1.3. Responses should be received by **7 July 2010** and should be sent to:

- Mick Watson
- Costs & Outputs, Local Grids
- Ofgem, 9 Millbank, London, SW1P 3GE
- Tel: 020 7901 1854
- Email: dartford@ofgem.gov.uk

1.4. Unless marked confidential, all responses will be published by placing them in Ofgem's library and on its website www.ofgem.gov.uk. Respondents may request that their response is kept confidential. Ofgem shall respect this request, subject to any obligations to disclose information, for example, under the Freedom of Information Act 2000 or the Environmental Information Regulations 2004.

1.5. Respondents who wish to have their responses remain confidential should clearly mark the document/s to that effect and include the reasons for confidentiality. It would be helpful if responses could be submitted both electronically and in writing. Respondents are asked to put any confidential material in the appendices to their responses.

1.6. Next steps: Having considered the responses to this consultation, Ofgem intends to give its decision on whether the EDFE claim is justified or not. Any questions on this document should, in the first instance, be directed to:

- Mick Watson
- Costs & Outputs, Local Grids
- Ofgem, 9 Millbank, London, SW1P 3GE
- Tel: 020 7901 1854
- Email: dartford@ofgem.gov.uk

CHAPTER: Two

Question 1: What approach do other DNOs take regarding the security of similar installations? This should include the physical security, inspection regimes, risk assessments and action DNOs have taken following the EDFE Barking incident and subsequent Examiner's report in 2004 or other incidents of a similar nature.

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CHAPTER: Three

Question 1: Do you think the Authority's minded to decision is proportionate given the facts in this case and the measures EDFE took pre and post the event?

Question 2: Do you think it is reasonable for the Authority to expect EDFE to have had better security arrangements in place than it did at Dartford Creek at the time of the fire and do you agree this is a relevant consideration for the Authority in reaching its decision?

Question 3: What additional factors and evidence, if any, do you think we should take into account before reaching a final decision on this matter?

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Appendix 2 – The Authority's Powers and Duties

1.1. Ofgem is the Office of Gas and Electricity Markets which supports the Gas and Electricity Markets Authority ("the Authority"), the regulator of the gas and electricity industries in Great Britain. This appendix summarises the primary powers and duties of the Authority. It is not comprehensive and is not a substitute to reference to the relevant legal instruments (including, but not limited to, those referred to below).

1.2. The Authority's powers and duties are largely provided for in statute (such as the Gas Act 1986, the Electricity Act 1989, the Utilities Act 2000, the Competition Act 1998, the Enterprise Act 2002 and the Energy Acts of 2004, 2008 and 2010²¹) as well as arising from directly effective European Community legislation.

1.3. References to the Gas Act and the Electricity Act in this appendix are to Part 1 of those Acts.²² Duties and functions relating to gas are set out in the Gas Act and those relating to electricity are set out in the Electricity Act. This appendix must be read accordingly.²³

1.4. The Authority's principal objective is to protect the interests of existing and future consumers in relation to gas conveyed through pipes and electricity conveyed by distribution or transmission systems. The interests of such consumers are their interests taken as a whole, including their interests in the reduction of greenhouse gases and in the security of the supply of gas and electricity to them.

1.5. The Authority is generally required to carry out its functions in the manner it considers is best calculated to further the principal objective, wherever appropriate by promoting effective competition between persons engaged in, or commercial activities connected with,

- the shipping, transportation or supply of gas conveyed through pipes;
- the generation, transmission, distribution or supply of electricity;
- the provision or use of electricity interconnectors.

1.6. Before deciding to carry out its functions in a particular manner with a view to promoting competition, the Authority will have to consider the extent to which the interests of consumers would be protected by that manner of carrying out those

21 The relevant parts of the Energy Act 2010 reflected below come into effect from 8 June 2010.

22 Entitled "Gas Supply" and "Electricity Supply" respectively.

23 However, in exercising a function under the Electricity Act the Authority may have regard to the interests of consumers in relation to gas conveyed through pipes and vice versa in the case of it exercising a function under the Gas Act.

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functions and whether there is any other manner (whether or not it would promote competition) in which the Authority could carry out those functions which would better protect those interests.

1.7. In performing these duties, the Authority must have regard to:

- the need to secure that, so far as it is economical to meet them, all reasonable demands in Great Britain for gas conveyed through pipes are met;
- the need to secure that all reasonable demands for electricity are met;
- the need to secure that licence holders are able to finance the activities which are the subject of obligations on them²⁴; and
- the need to contribute to the achievement of sustainable development.

1.8. In performing these duties, the Authority must have regard to the interests of individuals who are disabled or chronically sick, of pensionable age, with low incomes, or residing in rural areas.²⁵

1.9. Subject to the above, the Authority is required to carry out the functions referred to in the manner which it considers is best calculated to:

- promote efficiency and economy on the part of those licensed²⁶ under the relevant Act and the efficient use of gas conveyed through pipes and electricity conveyed by distribution systems or transmission systems;
- protect the public from dangers arising from the conveyance of gas through pipes or the use of gas conveyed through pipes and from the generation, transmission, distribution or supply of electricity; and
- secure a diverse and viable long-term energy supply,
- and shall, in carrying out those functions, have regard to the effect on the environment.

1.10. In carrying out these functions the Authority must also have regard to:

- the principles under which regulatory activities should be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed and any other principles that appear to it to represent the best regulatory practice; and
 - certain statutory guidance on social and environmental matters issued by the Secretary of State.
-

24 Under the Gas Act and the Utilities Act, in the case of Gas Act functions, or the Electricity Act, the Utilities Act and certain parts of the Energy Acts in the case of Electricity Act functions.

25 The Authority may have regard to other descriptions of consumers.

26 Or persons authorised by exemptions to carry on any activity.

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1.11. The Authority may, in carrying out a function under the Gas Act and the Electricity Act, have regard to any interests of consumers in relation to communications services and electronic communications apparatus or to water or sewerage services (within the meaning of the Water Industry Act 1991), which are affected by the carrying out of that function.

1.12. The Authority has powers under the Competition Act to investigate suspected anti-competitive activity and take action for breaches of the prohibitions in the legislation in respect of the gas and electricity sectors in Great Britain and is a designated National Competition Authority under the EC Modernisation Regulation²⁷ and therefore part of the European Competition Network. The Authority also has concurrent powers with the Office of Fair Trading in respect of market investigation references to the Competition Commission.

²⁷ Council Regulation (EC) 1/2003.

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Appendix 3 - Feedback Questionnaire

1.1. Ofgem considers that consultation is at the heart of good policy development. We are keen to consider any comments or complaints about the manner in which this consultation has been conducted. In any case we would be keen to get your answers to the following questions:

1. Do you have any comments about the overall process, which was adopted for this consultation?
2. Do you have any comments about the overall tone and content of the report?
3. Was the report easy to read and understand, could it have been better written?
4. To what extent did the report's conclusions provide a balanced view?
5. To what extent did the report make reasoned recommendations for improvement?
6. Please add any further comments?

1.2. Please send your comments to:

Andrew MacFaul
Consultation Co-ordinator
Ofgem
9 Millbank
London
SW1P 3GE
andrew.macfaul@ofgem.gov.uk

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Appendix 4 – The Appointed Examiner's detailed justification

Security and inspections of the Dartford Creek Cable Bridge

1.1. EDFE has stated that its Dartford Bridge installation at the time of the event met with its security standards with access secured by an operational lock and steel doors.

1.2. EDFE's recent records show that the inspection of its Dartford Creek Cable Bridge had been carried out in accordance with its risk assessment manual. The inspection report for 2 December 2007 shows the finding of the vandalised door as "far end open, panic bar broken (reported by phone)" and that for 8 November 2008 clearly shows "both ends of Cable Bridge secure".

1.3. The Appointed Examiner asked for the records of its site inspection reports for its Dartford Creek Cable Bridge prior to that of 2 December 2007 from EDFE, but at the time of submitting the report this information had not been received.

1.4. The Appointed Examiner also requested evidence of what action it had taken in regard to the Appointed Examiner's comments regarding the audit of the incident at Barking in May 2004 from EDFE, but again at the time of submitting the report this information had not been received.

The cause of the fire

1.5. Based on the lack of fault history or oil pressure problems on either the 132kV cables or the pilot cables at the cable bridge, the Appointed Examiner considers that the incident was not due to an internal cause and that it was therefore caused by a factor external to EDFE (LPN).

1.6. The Appointed Examiner has considerable experience of working within the electricity supply industry and of the investigation of incidents where electrical equipment has suffered damage. The Appointed Examiner concurs with the Kent Police that third party interference by person or persons unknown caused the incident and that the actual cause of the fire cannot be determined with surety.

1.7. Examination of EDFE's SCADA alarms shows that the number 3 132kV circuit tripped at the same time as the alarms were received which indicated that the pilot cables associated with all four 132kV cables became faulty at that time.

1.8. From the discovery of the hand tools at the scene and the broken hasp it could be concluded that the fire could have been caused by would-be thieves creating an electrical arc when attempting to cut into the number 3 132kV cable, thereby igniting

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the insulating oil. However, the concurrent tripping of the number 3 circuit and the four faulty pilots would mean that at least two persons were involved and simultaneously interfered with the cables.

1.9. The electrical flash from damaging a 132kV circuit in such a confined space would almost certainly have resulted in personal injury or death. The Appointed Examiner has discussed this possibility with the Kent Police but, as shown in their statement, extensive enquiries have failed to discover the medical treatment for any such outcome.

1.10. Furthermore, an examination of EDFE's SCADA alarms shows that it was not until 13:07 that the first low oil pressure alarm was received (from the number 4 circuit), indicating that an incipient electrical problem within the number 3 132kV cable is unlikely to have caused the incident.

1.11. Given the above, the Appointed Examiner concludes that the fire was most likely started when persons unknown set light to inflammable material at the base of the vertical cableway and that this in turn caught the outer sheathing of the various cables alight. The perpetrators would have realised the seriousness of the situation and made good their escape before the fire became self sustaining as per the Appointed Examiner's hypothesis below.

1.12. The natural draught of the chimney effect of the enclosure would have created an ever increasing intensity of fire that resulted in the rupturing of the inner sheath of the number 3 132kV cable and simultaneous damage to the pilot cables. The rupturing of the inner sheath of the number 3 circuit would have led to the release and ignition of the cable oil within it.

1.13. Once alight, the pressurised oil system of the number 3 132kV cable and the natural draught of the 'chimney' would sustain the fire. It is likely that the fire would further intensify, resulting in the inferno that damaged everything within the cableway at the northern bridge pier and at the northern end of the bridge decking.

EDFE's response

1.14. Once the incident had occurred, the Appointed Examiner considers that EDFE's personnel did all they could to restore supplies as expeditiously as possible, given that switched alternatives were severely limited.

1.15. The Appointed Examiner consider that EDFE's repair teams worked well in restoring the number 1 132kV circuit by the morning of Thursday 23 July 2009 as the amount of work involved is considerable and the conditions under which this took place was far from ideal.

1.16. The Appointed Examiner is satisfied that EDFE's distribution network affected by this incident complies with the requirements of Security of Supply Standard P2/6.

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1.17. The Appointed Examiner is pleased that EDFE is undertaking a thorough review of the security arrangements of its various installations in concert with the appropriate authorities.

EDFE's failings

1.18. However, in reaching a judgement on a recommendation in this case, the Appointed Examiner has considered whether or not EDFE could have reasonably taken any different course or courses of action that would have improved the detection of, and better prevented, illegal access to its Dartford Creek Cable Bridge and prevented the subsequent incident.

1.19. The information contained within the statement from the Kent Police indicates that graffiti was present inside the cable enclosures at both bridge piers and the Appointed Examiner considers that this should have alerted EDFE that its security arrangements were inadequate.

1.20. The Appointed Examiner has met with a local resident who stated that she did her best to ensure that the instances of lack of security she found at both bridge piers of the cable bridge were reported to the correct authorities.

1.21. Whilst the lack of ownership notices may have prevented this information being passed to EDFE, its own site inspections should have recorded the presence of graffiti inside the cable enclosures and this information should have alerted EDFE to the need to be more proactive in safeguarding its assets at its Dartford Creek Cable Bridge.

1.22. The local PCSO has stated that, "in the early spring of 2008" he had found the access door at the southern bridge pier had been "partly opened from the inside, the door itself having a fire exit bar style of opening". The lock was intact so, upon him closing the door it was again secure.

1.23. Given that EDFE had fitted high security locks to the outside of both access doors in December 2007 and that these were found intact in November 2008, the Appointed Examiner questions how the southern access door came to be opened from the inside in early spring 2008.

1.24. To have opened the access door at the southern bridge pier from the inside, a person would have had to get to the top of, and to descend, the steel access ladder situated within the metal cable enclosure.

1.25. The construction of the bridge piers and the steel cable enclosure does not provide any means for a person to scale them, leading to the conclusion that access was gained via the access ladder at the northern bridge pier, across the bridge decking and down the access ladder at the southern bridge pier. The Appointed Examiner accepts that this can be dismissed as surmise but it points to the differences between the local resident and the PCSO's information.

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1.26. As recorded in report into the fire at EDFE's Cable Bridge at Barking in May 2004, the Appointed Examiner was not persuaded that EDFE's risk assessment process was sufficiently robust or rigorous in situations that might reasonably be expected and as obtained at the Barking Cable Bridge.

1.27. In the case of the Dartford Creek Cable Bridge, the Appointed Examiner records his concern in this regard and concludes that EDFE's risk assessment process does not appear to be fit for purpose in this respect, particularly in the case of Dartford Creek where the loss of the sections of electrical network was more critical than that at Barking.

1.28. Whilst the completed site inspection reports are screened by EDFE's engineering personnel, the associated risk assessment process does not appear to take into account the strategic importance of the assets and the effect the loss of those assets would have upon its distribution network and its customers.

1.29. Substations excepted, where the importance of the assets is usually obvious to a reasonably knowledgeable person by virtue of the voltage(s) concerned, the Appointed Examiner considers that EDFE seems to place an over-reliance upon the site inspection/site security reports from its other installations. For example inspections of its cable bridges which are carried out by an operative that may generally have insufficient knowledge of the criticality of the assets and the major importance they have to EDFE's distribution system.

1.30. EDFE's distribution substations are generally inspected on an annual basis as are its assets at its Dartford Creek Cable Bridge.

1.31. EDFE's 132kV substations are inspected more often and the significance of the assets at the Dartford Creek Cable Bridge might therefore rest in an operative's mind as being the same as those of a distribution substation and not that of something more 'major'.

1.32. In instances such as this, where a large number of customers' supplies are interrupted, the Appointed Examiner considers that good practice is for a DNO to carry-out a thorough internal investigation into the incident.

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Appendix 5 - Previous one-off exceptional events since 2005

Reporting year	DNO/Date of Event	Cause	No. of Customers Interrupted	Duration of Event	CI claimed above the threshold	CML claimed above the threshold	Examiner's Recommendation	Ofgem's Decision
2005-06	SSE Southern - 13 April 2005	Busbar outage caused by debris dropped on 33kV busbars	69,768	3-4 mins	1.58	-	Full adjustment	Full adjustment
2005-06	CE NEDL - 30 June 2005	Lightning	32,619	13 days	0.52	-	Full adjustment	Full adjustment
2005-06	EDFE SPN - 25 August 2005	Lightning	57,896	8-29 mins	1.42	-	Full adjustment	Full adjustment
2005-06	WPD S West - 3 October 2005	Flashover of circuit breaker bushing caused by bird	29,840	6-37 mins	0.29	-	Full adjustment	Full adjustment
2005-06	SSE Southern - 24 October 2005	Sequential disconnection of three grid transformers – different causes	79,289	2 hrs 56 mins	1.92	2.87	Partial adjustment	No adjustment
2005-06	SSE Southern - 15 November 2005	Double circuit 132kV line fault caused by fire under line	72,571	7 mins - 7 hrs	1.68	11.90	Full adjustment	Full adjustment
2005-06	EDFE LPN - 18 February	Cable fire	41,449	40 mins	0.79	-	Full adjustment	Full adjustment

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	2006							
2006-07	United Utilities - 18 May 2006	Third party damage to two 33kV oil filled cable circuits.	12,863	16 hrs 40 mins *	-	0.38	Full adjustment	Full adjustment
2006-07	CE NEDL - 2 June 2006	Loss of supply to Benton Square and Seaton Burn substations following protection pilot cable damage	29,603	4 mins	0.31	-	Full adjustment	Full adjustment
2006-07	WPD S West - 16 June 2006	Seabird created a flashover of 33kV switchgear	38,334	10 mins	0.88	-	Full adjustment	Full adjustment
2006-07	CN West - 30 July 2006	Fire and Physical Damage to Cables due to unknown intruder(s)	41,840	3 days	0.63	4.57	Full adjustment	Full adjustment
2007-08	EDFE SPN - 28 April 2007	Earthquake	49,563	2 hrs 13 mins	1.04	1.31	Full adjustment	Full adjustment
2007-08	SP Manweb - 15 June 2007	33kV Circuit Breaker – failure to trip	57,224	1 hr - 2 hrs 17 mins	2.18	1.69	No adjustment	No adjustment
2007-08	WPD S West - 19 June 2007	Lightning damaged 33kV Circuit Breaker	40,415	2 hrs 17 mins	0.99	-	Full adjustment	Full adjustment
2007-08	CN West - 20 July 2007	Flood Damage	78,751	1-12 hrs	2.14	9.55	Full adjustment	Full adjustment
2007-08	WPD S West - 22 February	Windborne material damaging 33kV Switchgear	27,375	12-42 mins	0.12	-	Full adjustment	Full adjustment

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	2008							
2008-09	SSE Southern - 7 September 2008	Squirrel created a flashover of 33kV Switchgear	50,897	12 mins	0.85	-	Full adjustment	Full adjustment