

**November 2001**

**Development of Multiple  
Interruption and other standards  
for electricity distribution**

**Initial Proposals**

## Summary

Ofgem, through the Information and Incentives Project (IIP) that was initiated in 1999, is incentivising distribution companies to improve the quality of supplies that they deliver to consumers. In common with earlier measures of company performance, this is being done by focussing on the average quality of supply performance. In addition to this, it was considered that action was needed to address the concerns of the worst served consumers and that average performance should not be improved at the expense of this group. The 1999 price control proposals therefore included a requirement for Overall and Guaranteed Standards to be introduced from April 2002 to address multiple interruptions.

Ofgem set out its Initial Thoughts on the development of Multiple Interruption Standards in a consultation document published in August 2001. Responses have been received from all licensed electricity distributors and from a range of consumer, and other interests. There is widespread support for the approach that was suggested in the consultation paper. This approach employs different definitions and administrative arrangements for the Overall and the Guaranteed Standards:

- This document sets out proposals that the Overall Standard will be closely aligned with reporting requirements that are being specified under IIP. The Overall Standard will specify that, taking all consumers served by one distribution company as a group, they should experience interruptions (of more than 3 minutes duration) from no more than 5 incidents during any year. From information provided by companies and advice from Ofgem's consultants, EA Technology, it is clear that it would be unrealistic to require the same level of achievement against the standard from all licensed companies. It is therefore proposed that the required performance should be set at 99% of consumers for one company, 98% for nine companies and 96% for the remaining four companies. In the short term Ofgem consider that emphasis should be placed on establishing reliable measurement and reporting arrangements for this standard. Publication of each company's performance should provide an incentive for companies to improve their position in the performance table. Once experience has been gained, Ofgem plans to refine these requirements with the ultimate aim of setting a standard that calls for 99% achievement by all companies.

- There is also broad support for the suggestion that the Guaranteed Standard should be based on the number of interruptions of more than 3 hours duration experienced by consumers. Responses from consumers and one supply company support the view that the standard should be set to allow no more than 3 such interruptions in a year. (Consumers experiencing more than this number of interruptions would be entitled to compensation payments.) Companies are concerned about the impact from their likely failure rates, both on their finances and on their reputation, should the standard be set at that level.
- From analysis carried out by EA Technology, it is clear that companies are unlikely to be able to eliminate all failures against a Guaranteed Standard, unless the standard is set at a very undemanding level. This matches conclusions reached from technical, economic and statistical considerations. This leads to a view that an efficient company will have a modest shortfall against any Multiple Interruption Guaranteed Standard set at a level that seems reasonable to consumers (i.e. one that provides a safety-net for the worst-served customers). Ofgem therefore propose to set the standard at a level that is meaningful to consumers but to treat administration and compensation payments for a Multiple Interruption Guaranteed Standard, up to the level that an efficient company should incur, as allowed expenditure for price control purposes. Ofgem propose to set the standard at 3 x 3-hour allowed interruptions for all companies (i.e. compensation will be payable if consumers experience 4 or more interruptions of more than 3 hours duration).
- Consultation responses have generally accepted that, because of limitations in company recording systems, it will be necessary for consumers to initiate claims for compensation under this standard. Companies will be expected to be proactive in making consumers aware of this. The rules for exclusions also need to be few, and readily understood by consumers. Consequently, we propose that only interruptions due to pre-arranged outages, widespread transmission and generation failures, and exceptional and unforeseen events designated as such by Ofgem, should be excluded under this standard. Also, for simplicity, the standard will be based on a fixed April – March year.
- It is considered that the compensation payment should be set at a level of £50. With such a standard, compensation costs for an efficient company with 2 million consumers, assuming 50% of eligible consumers make claims, are expected to be

less than £55,000 pa. It is Ofgem's intention to review the operation of the Multiple Interruption Standards at the time of the next price control in order to make any adjustments necessary and enhance their effectiveness in the light of experience.

The Initial Thoughts document also sought views on the need for two other Overall Standards:

- Consultation responses support the view that a Telephone Response Standard would unnecessarily duplicate arrangements under IIP. Ofgem supports this view and proposes not to pursue a Telephone Response Overall Standard.
- There is a widespread view that a modified Overall Standard 1a (% of consumers restored within 3 hours) would do little to supplement other measurements and incentives that have been added since OS1a was introduced. OS1a has been shown to provide perverse incentives so Ofgem proposes that it should be discontinued.

These two decisions also provide a small step towards achieving Ofgem's objective of minimising the administrative burden on regulated companies.

This document provides further details on all these proposals, sets out the supporting information that has been used to develop them, and seeks further views from interested parties, prior to final decisions being made.

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# 1. Introduction

## *Background*

- 1.1 On 7 August 2001 Ofgem published a consultation document<sup>1</sup> that set out some “Initial Thoughts” on the development of Multiple Interruption performance standards in electricity distribution. Under the current Distribution Price Control, such standards, specifying a maximum number of interruptions that consumers ought to experience, are to be introduced from 1 April 2002. There is a requirement for an Overall Standard that would apply to companies’ overall performance in minimising the number of multiple interruptions on their networks, and a Guaranteed Standard that would provide for compensation payments to consumers who experience more than a specified number of interruptions per year. The proposed standards are intended to protect the interests of the “worst served” consumers who might not benefit sufficiently from incentives on average performance that are being introduced under the IIP project.
- 1.2 The consultation document also sought views on two other changes in the Overall Standards that were called for in the price control proposals. These were:
- Introduce a new Overall Standard covering telephone response times.
  - In view of concerns that Overall Standard 1a (% of interruptions restored within 3 hours) gives perverse incentives, consider other ways of seeking improvements in this performance area.

The document pointed out that quality of telephone response is to be monitored under the Information and Incentives Project (IIP). A separate Overall Standard on telephone response might not therefore be necessary. It was suggested that OS1a should either be modified, so that it is not so perverse, or discontinued, as IIP will incentivise companies to restore supplies as quickly as possible.

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<sup>1</sup> Development of multiple interruption and other standards for electricity distribution, Initial Thoughts: Ofgem, August 2001.

### ***Purpose of this document***

#### 1.3 This document

- Provides a summary of responses received following publication of the Initial Thoughts consultation paper, together with further comments from Ofgem on various aspects of Multiple Interruptions addressed in the responses (Chapter 2).
- Sets out some of the major issues in setting Multiple Interruption Standards that have been considered by Ofgem. The impact of possible standards and how difficulties might be overcome are discussed in Chapter 3
- Provides Initial Proposals for Multiple Interruption Guaranteed and Overall Standards (Chapter 4).
- Provides Initial Proposals relating to overall standards on Telephone Response and Supply Restoration within 3 hours (OS1a) , (Chapter 5)

It is intended to provide a basis for consultation with interested parties prior to decisions being taken on new standards, and on changes to the existing Overall Standard 1a.

### ***Next steps***

- 1.4 Ofgem would like to receive responses to these proposals from all those with an interest in interruption and telephone response standards. Comments should be received by 7 December 2001 and should be sent to:

John Benson  
Ofgem  
9 Millbank  
London SW1P 3GE  
Email: [john.benson@ofgem.gov.uk](mailto:john.benson@ofgem.gov.uk)

Fax: 0207 901 7075

Tel: 0207 901 7361

- 1.5 Where possible, it would be helpful if responses could also be sent in electronic form. Unless marked as confidential all responses will be published, by placing them in the Ofgem library. Any questions on this document, or on the Multiple Interruption Project should, in the first instance, be directed to John Benson.
- 1.6 It is important that responses to this consultation document are received by 7 December as it will be necessary to publish the subsequent decisions, along with Draft Regulations and Overall Standards, by mid January 2002. This is necessary in order to allow time for consultation, approval and enactment of the regulations for implementation from 1 April 2002.

## 2. Consultation Responses

### *Level of response to consultation*

2.1 Formal responses to the consultation have been received from:

- All 11 companies with Distribution Licences in Great Britain
- An electricity supply company (British Gas Trading)
- Two equipment suppliers (BCN Data Systems and Kelman)
- A consultant in energy regulation and renewables (Wisenergy)
- A professor of Electrical and Electronic Engineering, based on his experience as a rural residential consumer (Professor B J Cory)
- A group of consumers in Northumberland who have experience of Multiple Interruptions

2.2 In addition informal comments have been received from:

- a) The Institution of Electrical Engineers. They drew attention to the DTI consultation on regulations to replace the Electricity Supply Regulations. They also considered that the European standard for electricity supply, tolerances and breakdowns, EN 50150, would not be an adequate basis for Multiple Interruption Standards.
- b) The Health and Safety Executive. They commented on pressure to carry out live work, on new technology bringing health and safety problems, and the absence of any reference to safety in the consultation document and supporting EA Technology report.
- c) A consumer in the South East, Mr Don Perry, writing to his local newspaper about a series of power failures in his neighbourhood, urged other consumers to respond to Ofgem's Initial Thoughts consultation document. Ofgem and energywatch have subsequently received letters from several consumers complaining about frequent multiple

interruptions that they have experienced, and calling for action to reduce failures and provide adequate compensation.

- 2.3 Responses from 11 companies that hold distribution licences are summarised in Appendix A and referred to in the following paragraphs. Points raised in responses from other organisations and individuals are included directly in the following paragraphs. Also included are brief Ofgem comments on the points raised.

### ***General Views on Multiple Interruption Standards***

- 2.4 Comments from consumers following publication of the Initial Thoughts document (para. 2.2 c) reflect the level of dissatisfaction among the “worst served” consumers that led to the requirement for Multiple Interruption Standards being incorporated in the current Distribution Price Control.
- 2.5 A Supply company (British Gas Trading) believes that distribution companies should be incentivised to provide an appropriate level of service to all consumers. This should be regardless of where they live, which company serves them, what historical or current issues have influenced the network by which they are supplied, or the cause of the loss of supply.
- 2.6 While supporting Ofgem’s initial view on the form a Multiple Interruption Guaranteed standard should take, Professor Cory suggested that thought should be given to incentivising against very short interruptions, typically of around 15 seconds, which cause considerable irritation. Wisenergy has also commented that this type of interruption can also be extremely disruptive for small and medium enterprises (SMEs). However, BGT consider that interruptions of less than 3 minutes should be excluded in calculating an overall standard.
- 2.7 The Northumberland Group, no doubt reflecting their unsatisfactory experiences, strongly believe that there is a need for agreed service levels, that can be used as a basis for incentivising companies to raise their level of performance. With regard to the suggestion that allowance should be made for factors that distribution companies inherited on privatisation, they consider that

these were bought, rather than inherited, and that it is an untenable position for companies to claim that they were unaware of problems at the time of purchase.

- 2.8 The two equipment suppliers who responded to the Initial Thoughts consultation pointed out that they are able to provide equipment that will help distribution companies comply with the requirements of the proposed standards. One of these suppliers has equipment to provide notification to distribution network operators that circuits have been de-energised or that individual consumers have lost supply. It is understood that this technology can be used to monitor and record minutes lost by LV circuit or at individual consumer level. The other equipment supplier has products that are designed to improve performance of LV fused cables, 11kV overhead lines and 11kV urban cables.
- 2.9 Distribution companies generally support the concept of Multiple Interruption Standards, though some have questioned whether there is a need for an Overall Standard. However, the companies have reservations about many practical issues concerning the operation of these standards and the likely level of penalty and compensation payments that they might incur. These are considered in detail in the following sections of this consultation document.
- 2.10 Ofgem comment on general views:

Although it is accepted that very short interruptions (i.e. less than 3 minutes) can cause irritation and inconvenience, there would be a number of difficulties in incentivising a reduction in such interruptions. In the 1999 Distribution Price Control proposals it was stated that "Standards for transient interruptions would not be introduced at this review"<sup>2</sup>. However companies were required to have facilities in place by April 2001 to count and report on transient interruptions. Performance in this area is to be monitored as part of the IIP project.

Ideally, Multiple Interruption Standards should specify simple uniform standards that can be easily understood by consumers. Consequently careful thought needs to be given to how this can be achieved, while at the same time being cognisant of how possible standards might impact

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<sup>2</sup> Review of Public Electricity Suppliers 1998 to 2000: Distribution Price Control Review, Final Proposals, Ofgem Dec 1999 para 4.18

on individual companies. Different aspects of how this aim might be realised are considered in more detail in later sections of this consultation document.

### ***Views on Multiple interruption Overall Standard***

- 2.11 In paragraph 4.2 of the consultation document views were sought on a number of questions. The questions are set out below along with a summary of the responses, some additional points raised, and further Ofgem comment.

**Question 1 asked: Is it satisfactory for definitions and arrangements for the Multiple Interruption Overall Standard to be closely allied to those for IIP or should they be more closely related to what might be practicable for the Multiple Interruption Guaranteed Standard?**

- 2.12 All the distribution companies considered that the Multiple Interruption Overall Standards should be closely aligned with the IIP definitions and requirements. British Gas Trading (BGT) shared this view. Other responses did not include any specific comments on this question.
- 2.13 Ofgem Comment: There appears to be broad support for aligning the Overall Standard with IIP requirements.

**Question 2 asked: If they are to be aligned to IIP arrangements what additional definitions and data collection arrangements will be needed to supplement those in place for IIP. What would be a satisfactory maximum number of interruptions for such a standard?**

- 2.14 Several companies stated that no additional definitions would be required and one said that it would not need any additional data collection mechanisms. Others expressed concern about the challenging timetable for any necessary system changes. One company says some preparation can be done in advance while others say that development should wait until definitions and arrangements have been finalised. Another states that that they have no robust reporting mechanism to analyse recent years performance and advocates progressive tightening of targets as data is captured. BGT point out that companies have been improving their data systems to meet IIP requirements, but

did not indicate how they should be enhanced for use with Multiple Interruption Standards.

2.15 One company has said that the standard should be set at 5 as proposed in the price control, while another favoured 5 but with a target of 97% rather than the 99% suggested in the price control proposals. Several others point out that the choice of level depends on what interruptions are to be excluded and on the required achievement level against the standard.

2.16 Ofgem comments: It appears that information on customers affected by interruptions that is collected for IIP purposes should be adequate for the purposes of a Multiple Interruption Overall standard, except that it will be necessary to identify which phase or part of a circuit is affected for some LV faults. Companies have different data systems but will have been aware of the broad requirement since the price control proposals were published in December 1999. The number of interruptions at which the standard should be set is considered in more detail later in this consultation document.

**Question 3 asked: If it is considered that the Overall Standard should be more closely linked to a Guaranteed Standard how should opposing pressures be reconciled? Companies will favour restrictive definitions, many exclusions, and a high number of allowed interruptions in order to limit their administrative and financial burden, while customer concerns and views on adequate compensation will be reflected in opposing views. What definitions and exclusions should be adopted? How should performance be audited?**

2.17 One company pointed out that the Guaranteed Standard needs to be easily understood by consumers while the Overall Standard can be more complex. Another considers that different definitions and arrangements are the best way of reconciling opposing pressures. The Northumberland group considered that a forum in which consumer representatives took part would be a way of reconciling opposing pressures. No consultee explicitly advocated aligning the overall and guaranteed standards.

2.18 Ofgem comment: There appears to be widespread agreement that the Overall Standards and Guaranteed Standards should not be, and need not be, closely linked.

**Question 4 asked: Depending on the definitions adopted, should there be different Overall Standards for different companies and for different parts of a company's territory?**

- 2.19 Several companies think that the Overall standards should reflect the circumstances of each company. One company advocates a common maximum number of interruptions, different service levels for different companies, but a uniform service level for all parts of a company's territory. One company considers that the same standard should be set across all companies. BGT favour uniform standards across all companies. Wisenergy said that it was not clear that a customer oriented standard should vary by distribution company, but if it was to be useful it would probably have to vary, and this should be by geography, customer density etc. The Northumberland Group consider that if different standards are adopted this should be only temporary until standards can be brought into line with the rest of the country.
- 2.20 Ofgem comment Although the principle of a uniform national Overall Standard is attractive it may be necessary, and more practicable, to have different standards for each company. The nature of an Overall Standard is such that a single standard will be appropriate for each company rather than have different standards in different parts of a company's territory. This is considered in more detail in later sections of this consultation document.

**Additional points raised:**

- 2.21 Responses have included a number of additional points in relation to the Overall Standard:
- a) Two companies questioned whether there is any need to have a Multiple Interruption Overall Standard. One pointed out that IIP provides an incentive to reduce overall interruptions while the Guaranteed Standard will protect worst served customers. The other considers that if an Overall Standard is introduced it should only be for the short term, with IIP providing long term protection.

Ofgem comment: Although IIP provides an overall incentive to reduce the average number of interruptions it does not focus on a company's overall performance in serving its worse served consumers, i.e. those who experience multiple lengthy interruptions.

- b) Another company said they accepted that an Overall Standard was appropriate but questioned the justification for a Guaranteed Standard.

Ofgem comment: Guaranteed Standards provide compensation to individual consumers. Overall Standards only provide a means to penalise a company for failure to conduct its business in a manner likely to achieve the required standards.

- c) Funding is a concern, especially regarding possible duplication of penalties with IIP, the Multiple Interruption Guaranteed Standard and the existing GS2 (restore within 18 hours) standard.

Ofgem comment: Recent IIP consultation documents have stated that Ofgem will ensure that companies do not suffer an inappropriate duplication of penalties.

- d) One company has said that the implementation date of April 2002 is unacceptable and it should be delayed until the next price control. Another has said it supports the introduction of workable arrangements in April 2002, with further improvements for consideration at the next price control.

Ofgem comment: Introduction of Multiple Interruption Standards in April 2002 is a feature of the current price control. All parties have been aware of this now for almost two years.

- e) One company has said that it will not be possible to target investment to improve performance as, in any year, only 12 % of troublesome circuits are consistently bad performers. It would be better in their view to base performance on a rolling 5-year average.

Ofgem comment: This is an interesting point. However, additional targeted investment may not be the only route to improved performance.

### ***Views on Multiple Interruption Guaranteed Standards***

2.22 In paragraph 4.3 of the consultation document views were sought on a number of questions. These questions and a summary of the responses from consultees are set out below, together with further Ofgem comment.

#### **Question 5 asked: Would a 3-hour definition for interruptions and a maximum of three such interruptions adequately reflect a level of service at which compensation should become payable?**

- 2.23 BGT consider that after 3 hours of an interruption to supply “consumers’ personal activities will begin to be affected and residual heat in most rooms will be diminished”. They consider that “If the standard is to be set at three hours, then 3 interruptions seems appropriate”. Professor Cory states that in his experience “it seems to take 90 minutes these days for crews to get out for re-switching in rural areas”, so more than 2 hours of interruption should qualify for payment. He suggests a standard of 3 interruptions of more than 2 hours. The Northumberland Group consider that the standard should be no more than 2 interruptions of no more than 2 hours.
- 2.24 With only one exception, distribution companies support a 3-hour definition for the Guaranteed Standard. Several have indicate strong support, one calling it a “pragmatic” solution and another commenting on the consistency this provides with the industry network design standard (P2/5). One company however expressed concern that a 3-hour definition might not be acceptable to consumers. The one exception is London Power Networks (LPN) who advocate use of a 3-minute definition, in order to be consistent with IIP, with a threshold number of events set to reflect each company’s circumstances.
- 2.25 Most companies have concerns about their likely performance against the Guaranteed Standard if it is set at 3 x 3-hour interruptions. They are concerned about the financial impact and the effect on their reputation if they have a large number of failures against the standard. One company considers a 3-interruption standard would “mitigate against pro-active management of multiple

interruptions". By this they mean that if only 3 interruptions are allowed, it will be difficult to monitor the number of interruptions that groups of consumers have experienced and then take pre-emptive action in critical locations to ensure that the standard is not breached.

2.26 Two companies considered that interruptions from a single incident should be amalgamated, while two took the opposite view. Another said they should be regarded as separate incidents providing they were separated by a minimum of 3 hours. BGT also requested "clarification on how long the power needs to be back on supply before it is deemed that 'restoration' has occurred".

2.27 Most companies considered that the standard should be set at a higher number of interruptions than 3. Numbers of 4, 5, 6, and '9 or 10' being suggested by different companies. Others suggested delaying introduction of the standard or setting a very undemanding standard that could be tightened in subsequent years as experience was developed and more data became available. One said it will be able to improve its performance when the foot and mouth crisis is over. Another referred to the "ought to be achieved" requirements for the standards, as set out in the Electricity Act. This, in their view, meant that the standard should be set at a level such that it would be possible for companies to satisfy the standard in all cases. One company suggested that the standard be set at 6x3 hour interruption to match the 18 hour GS1 restoration standard. Another said 5 interruptions would "match the price control proposal".

2.28 Ofgem comments:

There is very broad consensus that the Multiple interruption Guaranteed Standard should be based on interruptions of 3 hours or more duration. Compared with a 3-minute interruption, an interruption of 3 hours is a rarer and more distinguishable event making tracking and claiming by consumers much simpler. Several such interruptions also merit a more significant level of compensation than if the standard was to be based on interruptions of much shorter duration.

It is understood that LPN have a different view because it normally takes them more than 3 hours to restore supply after LV faults. Because of their particular circumstances, and the approach they adopt to fault location and

restoration of supplies, typical restoration times are around 4 hours. This applies even in cases where the fault proves to be transient in nature, as their policy is to rearrange the network before restoring supplies in order to assist in tracking down such faults.

If a 2 hour standard was introduced, as suggested by some consumers, there would be a mismatch with the design standard (P2/5). Clearly, consistent arrangements will need to be developed for situations where supplies are briefly restored and then re-interrupted.

How particular numbers of interruptions would impact on companies is a complex issue that is considered in more detail in Section 3 of this consultation document.

A “pro-active” approach to the management of multiple interruptions, as described above, would be most effective if the standard allows a large number of interruptions of more than 3 hours duration, so that there is plenty of opportunity for the company to take remedial action. A large number, however, is unlikely to be acceptable to consumers. While this point is noted, it does seem to be a rather perverse argument for setting the standard at a large number of interruptions. There are other ways of improving performance, such as improving system design, system operation, and fault management. Also, it is not clear how feasible it might be, part way through any one year, to swiftly target effective action to localities where there is already a high likelihood of the standard being breached.

If faults from a single incident were to be amalgamated, consumers would have no way of knowing which interruptions fell into this category. This would create difficulties as it will be necessary for consumers to make a claim when the standard has not been achieved.

Many qualifying interruptions will be for more than the minimum 3-hour duration. Consequently it does not seem to be logical to use a “6 x3 = 18hours” calculation to justify a particular number of interruptions for the standard.

The price control Final Proposals suggested 5 interruptions for the Overall Standard but did not specify a number of interruptions for the

Guaranteed Standard. With this current proposal to adopt a 3-hour (rather than 1-minute or 3 –minute) definition for the Guaranteed Standard, a lower number of interruptions would appear to be appropriate, if it is to be consistent with the requirements of the Overall Standard.

**Question 6 asked: What exclusions should apply for such a standard? Would it be reasonable to exclude transmission and generation failures but include all other causes of failure?**

- 2.29 BGT consider that pre-planned interruptions can be excluded from the standard, as consumers are generally able to make arrangements to minimise the inconvenience, but all other outages should be included. They believe that companies should be encouraged to increase the safety, security and robustness of their networks. Professor Cory considered that transmission and generation failures should be included, as he presumed that distribution utilities would be able to obtain compensation from transmission and generation companies.
- 2.30 The Northumberland Group consider that pre-arranged outages for maintenance purposes are ultimately in the interest of everyone and interruptions due to failures of the National Grid Company's transmission system should also be excluded. They are very much against allowing weather exclusions in a general and unmonitored fashion. Objective criteria would be needed for any exclusion and in the longer term it should be the responsibility of distribution companies to make their networks as weather resistant as possible.
- 2.31 Wisenergy considers that "exceptional weather " is frequently claimed as an excuse for poor performance, and if allowed should only be for events to which the Meteorological Office ascribe a return probability of less frequent than 25 years. It favours the inclusion of pre-planned interruptions in order to encourage the use of alternative supplies. It questioned whether there was any evidence of problems arising from embedded generation and considers that any likelihood of interruptions from failure of a single embedded generator should decrease as embedded generation proliferates.
- 2.32 The HSE consider that inclusion of pre-arranged outages might encourage the use of live working in situations where work could be carried out more safely with a pre-arranged interruption.

- 2.33 All but one of the distribution companies favour exclusion of pre-arranged outages (The other company has not commented directly on exclusions for Guaranteed Standards).
- 2.34 Seven companies believe that transmission and generation failures should be excluded. One company considers that the threshold should be set high enough so that transmission and generation failures can be included while another considers that either approach would work. Another said only interruptions whose cause could be recognised by consumers (i.e. pre-arranged and severe weather) should be excluded and those due to causes such as transmission failure should be included.
- 2.35 Eight companies believe interruptions resulting from severe weather should be excluded. One of these companies simply said that the exclusions in the existing Electricity (Standards of Performance) Regulations should apply. Two companies said that vandalism and malicious damage should be excluded, though another commented that such outages could normally be restored in less than 3 hours. Other companies have said it should be made clear that failure of a consumer's main fuse would be excluded, as they are covered by the existing GS1 Guaranteed Standard.
- 2.36 Several companies pointed out that there would be a need to exclude extreme and unforeseen events. This could involve interruptions from widespread flooding, terrorist attack, or something like a foot and mouth epidemic having a significant cumulative effect. Because of difficulties in defining the unexpected one company said that Ofgem should have the power to introduce exclusions in the event of extreme circumstances.

Ofgem comments:

On balance the arguments favour excluding pre-arranged interruptions. It is a requirement of the Electricity Supply Regulations 1988 and an exclusion in the Electricity (Standards of Performance Regulations) 2001, regulation 7, that consumers are notified at least 2 days in advance of pre-arranged interruptions. It is not unreasonable therefore to expect that consumers will be in a position to differentiate this cause of supply loss. Modifying the required standard to reflect the average incidence of pre-arranged outages (the approach being adopted for

IIP) would not be effective as pre-arranged outages tend to be concentrated in particular localities, especially when reinforcement and refurbishment of networks is taking place.

Most respondents favour excluding transmission failures. Others though have suggested that the threshold for the standard should be set high enough to allow inclusion of transmission failures without producing high compensation costs. The difficulty with that approach is that these types of interruptions have historically arisen very infrequently and it is unusual for them to last more than 3 hours. Consequently, in most years, such a Guaranteed Standard would be relatively ineffective, as a means of compensating the worst served consumers. It can be argued that in such cases, consumers will generally be aware that all consumers in a wide area have been affected by such an interruption, not just the "worst served" communities and they should therefore be excluded. On the other hand, Ofgem has some concerns that this may not be the case for all consumers.

In the longer term it might be possible to devise a pass-through of compensation costs to the transmission companies. For the present the main alternatives appear to be:

<u>Approach</u>	<u>Comment</u>
Distribution companies carry additional cost of compensation resulting from transmission failures	Historically a very infrequent event. Distribution companies do have some scope for influencing the number and duration of interruptions resulting from transmission system failures
Raise maximum number of interruptions allowed under the standard by one interruption to make an allowance for transmission failures	Makes standard much less effective in most years, when consumers will not experience an interruption of more than 3 hours due to transmission failure. When such an event occurs compensation costs will be very much higher than in a normal year.
Exclude interruptions resulting from transmission failures	This could result in disputed claims, as some consumers might not be aware of the cause of the interruption or accept that exclusion was justified. It would not give distribution companies an incentive to work with the transmission company to minimise the number and duration of such interruptions.

There are disadvantages with each of these approaches. A possible solution to this difficulty would be to exclude only interruptions resulting from widespread transmission system failures (i.e. those causing loss of supply from more than one exit point from the transmission system). Interruptions of more than 3 hours resulting from loss of supply at a single exit point from the transmission system would count as interruptions for the purposes of Guaranteed Standard. It is considered that distribution companies should be able to influence the number and duration of such outages by careful attention to outage planning, preparation of contingency plans and restoration switching from unaffected adjacent exit point substations. Interruptions from loss of supply to a single transmission system exit point would have much less impact on a company's annual compensation costs than those resulting from more widespread interruptions.

It would seem appropriate to treat interruptions resulting from failures of generation connected to the transmission system, as though they are failures of the transmission system. However, several companies have expressed concerns about the possibility that they may have to compensate consumers for multiple interruptions when these have been caused by failures of embedded generation. It has recently been argued<sup>3</sup> that, although the current network design standard (P2/5) specifies the contribution to security that could be credited to embedded generation, there is no legal obligation on distribution companies to give credit for this to embedded generators. If there is no formal agreement for an embedded generator to assist with system security, and if the generator is not being rewarded for doing so, then it appears that the responsibility should remain with the distribution company. The commercial arrangements for embedded generators are currently under review<sup>4</sup>. While such installations are currently few in number, they are expected to increase in future years. It is therefore proposed that there should not be any special provision for interruptions resulting from embedded generation failures, but that the position should be kept under review.

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<sup>3</sup> Security: can embedded generation contribute?, R Allen & G Strbac, Power Engineering Journal, IEE, October 2001

<sup>4</sup> Embedded generation: price controls, incentives and connection charges, A preliminary consultation document, Ofgem September, 2001

Exceptional weather is difficult to define and in Ofgem's experience it is doubtful that many consumers would accept such an exclusion as justified. Some companies have argued that because such exclusions apply for the existing GS 2 standard (restoration within 18 hours) it should also apply in this case. However, those arrangements have been the source of much consumer dissatisfaction, and have often led to ex-gratia payments being made to appease consumer dissatisfaction. One respondent commented that it would be perverse not to give compensation for incidents for which (from the consumer's point of view) it was most needed.

It seems likely that the effect of an exceptional storm will have a less severe impact on multiple interruption performance than on other measures of performance, such as average customer minutes lost and average customer interruptions. This is because not all consumers who suffer an interruption due to severe weather will, as a consequence, experience a failure of the multiple interruption standard. Some will not reach the qualifying number of interruptions for the year, others will go beyond it anyway, while some interruptions during exceptional weather will be excluded under the double jeopardy provisions ((because they last longer than 18 hours, and hence already qualify for payment under GS 2).

Ofgem therefore believes that there should be no exclusion in the Multiple Interruption Guaranteed Standard for severe weather. However, a case does appear to have been made for arrangements for Ofgem to allow exclusions for other circumstances that are unexpected and truly exceptional. While it may be difficult to specify criteria for such exceptional circumstances, in general it would be for circumstances which were significantly more extreme than the normal design and operational standards are designed to satisfy. For example, if there were widespread circuit outages due to terrorism or unforeseen operational difficulties due to a need to contain some sort of medical epidemic.

**Question 7 asked: Would £50 be a satisfactory level of compensation in such circumstances? What would be the likely financial impact on companies?**

- 2.37 BGT agree that customers should be compensated £50 for 3 x 3-hour interruptions but suggest that compensation could be lower for the first year to

allow companies to make improvements before full incentives come into force. Professor Cory's view is that "£50 seems about right", perhaps to increase with RPI. Wisenergy considers a £50 penalty to be "useful" but that there should be some further incentive on companies after the standard has been exceeded. It sees no reason why penalties should be capped at the level of annual use of system revenue expected from a given consumer (as suggested by several companies in their responses to the questionnaire that was issued prior to publication of Ofgem Initial Thoughts document of August 2001).

2.38 For a variety of reasons all the companies consider £50 to be too high. The potential total cost of compensation is a major consideration for them. One refers to "regulatory shock" while several argue that compensation should be related to the annual use of system revenue from the individual consumer. Others appear to accept the rationale of using figures from the 1996 UMIST study (quoted in the Initial Thoughts paper) but question how the proposed level of compensation has been calculated. Some argue that compensation should be similar to other GS compensation payments. Companies generally advocate a payment of £20 or £25.

2.39 Ofgem comment:

Guaranteed standards payments are intended to provide compensation to customers. Consequently, while Ofgem is mindful of the cost to companies, the level of payment, while requiring an element of judgement, should be linked to the negative value to customers of the multiple interruptions they have experienced.

Although the UMIST study indicates a cost to consumers of approximately £4 for a 3 hour interruption it is most unlikely that the interruptions that a consumer experienced in order to qualify would be of just 3 hours duration. Such interruptions often require repairs to be carried out on damaged equipment and the average duration for such work would be more than 3 hours, possibly around 5 or 6 hours. In some cases the number of such interruptions experienced by consumers in a year might also number more than 4 (the minimum necessary to qualify for compensation under a 3-interruption standard). Also the study was carried out several years ago so values need to be

increased. The value quoted was for residential consumers while business consumers place a larger negative value on interruptions. With increased “tele-working” some householders will experience negative values similar to small businesses. These considerations have been used to inform our view that the average negative value is in the order of £50.

The financial impact on companies is considered more fully in Section 3 of this document.

**Question 8 asked: What would be the cost of implementing and operating such a standard?**

- 2.40 Companies estimates of the cost of implementing and operating the standard range from “relatively low (providing arrangements are similar to other Guaranteed Standards)” to £50k - £100k pa. One company put the cost at £75k pa initially, falling to £25k pa when their new Troublecall/GIS systems is implemented. Several said it depended on the threshold set while another states that investment to avoid penalties under a 3 x 3-hour standard would be “far in excess of efficient levels and equivalent to a reduction in Po”.
- 2.41 Ofgem comment: It is agreed that it is unlikely to be economically efficient to invest to eliminate all non-compliances under such a multiple interruption standard. On the other hand if the required standard is set very low (i.e. a high number of interruptions allowed) then the standard would not contribute to Ofgem’s principle objective of protecting consumers. In such circumstances there would still be costs for administering the system but, with few payments, little or no consumer benefit.

**Question 9 asked: Would it be possible to provide automatic payment in some such circumstances? To what extent would it be necessary to require consumers to initiate claims and provide supporting information?**

- 2.42 BGT thought it should be possible, with recent improvements in data systems, for companies to make automatic payments. The distribution companies considered that automatic payment was not technically or economically feasible, the only practicable solution, at the present time, being to require consumers to

make claims, and provide supporting details of interruptions they had experienced.

- 2.43 Ofgem comment: Noting the limitations of current information systems for identifying affected consumers, it appears that there is no readily available alternative to customers initiating claims under the standard. However, companies will have records of network outages and it will be for them to meet the claim or demonstrate why there is no entitlement to a Guaranteed Standard payment.

**Question 10 asked: If it will be necessary for consumers to make claims, what arrangements should be put in place to make this as easy as possible? How should payment arrangements be audited?**

- 2.44 The Northumberland group accept that it will be necessary for customers to keep records and initiate claims but have suggested a logging and claims procedure closely linked to billing arrangements. Professor Cory believes payments could be made through a discount on the quarterly bill. Such arrangements would facilitate auditing. Company suggestions include an industry wide claim form, allowing consumers to use correspondence, telephone or e-mail to make claims. One company thought it would be unrealistic to expect consumers to state when faults occurred. There was general agreement that payment should be via suppliers. BGT say that consumers are not always aware of their rights and should be regularly reminded of their rights to compensation, if not compensated automatically.

- 2.45 Ofgem comment: There appears to be a need for further detailed work to develop standard procedures and address points of detail, such as what happens on change of occupancy of premises and how audit arrangements might best be implemented.

**Question 11 asked: If all compensation payments are to be initiated by claims from consumers could they be based on a rolling year, which restarted after payment had been made? If not a rolling year, what time period is preferred?**

- 2.46 The Northumberland Group dislike the rolling year concept, preferring April – March. They, along with BGT and Wisenergy, suggest escalating payments as

the number of interruptions in a year increase beyond the number allowed in the standard. Professor Cory considers that payments should be on a rolling year basis, with the time period reduced as performance improves.

- 2.47 One distribution company agreed with the rolling year proposal with automatic reset after a successful claim. They consider that a fixed period would be confusing and frustrating to consumers. Most companies however are opposed to the rolling year claiming that it would be administratively cumbersome, unpredictable, and would significantly increase their financial exposure. One said it would confuse customers while another recognised that it has appeal to customers. They generally advocate using an April – March year.
- 2.48 Ofgem comment: A rolling year with re-set, whilst increasing compensation costs, would address concerns about how consumers who experienced a standard of supply that was significantly worse than the standard might receive additional compensation. It is not clear why, if companies only have to check claims from consumers, a rolling year would create additional administrative difficulty. However, in view of fairly widespread anxiety about how such arrangements might operate, it may be appropriate to start with a simple standard based on an April – March year.

**Question 12 asked: If an alternative to a 3-hour definition is preferred what should that be and what would be the maximum number of interruptions allowed? What exclusions should be allowed? How would consumers to whom payments were due be identified and what would be the financial and administrative costs?**

- 2.49 As indicated earlier, only one company (LPN) prefer a 3-minute rather than a 3-hour definition. In their experience, restoration of supply following LV faults in London generally takes more than 3 hours. They consider that a 3-hour definition would create an incentive for companies to restore supplies within 3 hours, but there would be additional pre-planned interruptions and < 3-hour interruptions. This is because measures to minimise the network affected and to assist in fault location should a transient fault re-occur, would not have been carried out during the first interruption. The Northumberland group and Professor Cory favour a standard based on a 2-hour definition.

2.50 Ofgem comment : Despite these concerns the expected performance of LPN against standards based on a 3-hour definition appears to be broadly in line with other companies (see tables 1 & 2 in Section 3 of this document). With a 3-minute definition it would be more difficult to establish and verify entitlement to compensation and it would probably not be possible to have a single national standard for the Guaranteed Standard. The proposal for a 2-hour interruption is much closer to the 3 hour proposal, so it would share many of the same benefits, but it would not be so well matched to the network design standard (P2/5).

**Question 13 asked: Would it be more equitable to have different guaranteed standards in different parts of a company's territory and if so how should these be defined?**

2.51 Three companies believe that there should be a common standard that applied across all companies and in all parts of their territory. Several companies say there is little point in having different urban and rural standards as, for a 3 x3-hour standard, they expect to have similar numbers of failures in urban and rural areas. Different standards would be "meaningless and confusing". However, Scottish and Southern Energy is concerned about differences in performance between the Scottish Highlands and Islands and the rest of their territory. Several companies have emphasised the importance of simplicity and clarity for consumers.

2.52 The Northumberland group recognise the need to understand how standards would apply in both urban and rural areas. BGT are strongly in favour of a uniform national standard.

2.53 Ofgem comment: There appears to be very broad support for a uniform national standard. This aspect, and especially whether special treatment would be appropriate for the North of Scotland, is considered in more detail in Sections 3 & 4 of this document.

2.54 Companies also made a number of additional points in relation to the Overall Standard. However these generally related to the issues considered in Sections 3 & 4 of this consultation document.

### ***Views on the need for an Overall Standard for Telephone Response***

- 2.55 Companies consider that it is right that they should be incentivised on their telephone response. However, they consider that the IIP project will provide adequate incentives in this area. They therefore consider that the best course of action would be to rely on the IIP measures and not proceed with the development of a new Overall Standard for telephone response. To have both would be unnecessary duplication and introduce a risk of double jeopardy.
- 2.56 The Northumberland Group commented that it is important that consumers are given an opportunity to speak to someone, and so pass on useful information, rather than just receive a recorded message. BGT consider that it is essential that consumers experience a quick and helpful response and that it should be related to the IIP proposals. Other respondents did not express a view on whether there is a need for an Overall Standard on Telephone response that was separate to the proposed IIP arrangements.

### ***Views on the future of Overall Standard 1a (Restoration in 3 hours)***

- 2.57 Although companies are supportive of the underlying objectives of this current standard, they consider that it should be discontinued for the following reasons:
- It creates perverse incentives. Companies that make genuine overall improvements (e.g. by reducing short interruptions) see a worsening of their performance, as measured by this standard. This is particularly inappropriate in view of the provisions in the Utilities Act for penalties on companies for unsatisfactory performance against Overall Standards. This weakness is exacerbated with increased use of automatic switching for restoration of HV faults.
  - Companies are incentivised to minimise the duration of interruptions under IIP, while it is considered that the proposed Multiple Interruption Guaranteed Standard, which is based on interruptions of more than 3 hours duration, will better protect the interests of individual consumers. They consider that any standard based on the number of interruptions of more than 3 hours duration, per 100

consumers, would represent an unnecessary duplication and also introduce an element of double jeopardy.

- 2.58 The Northumberland Group's view is that the standard should be tightened to distinguish interruptions of more than 2 hours duration and that it should not be discontinued until any alternatives have proved to be satisfactory. They suggested the use of "swipe card" technology to gather information on interruptions. Other respondents have not commented on Overall Standard 1a, though BGT have made a general comment that Overall Standards should be similar to the IIP, so that companies are encouraged to invest in the network.

### 3. Issues in setting Multiple Interruption Standards

#### *Impact on companies*

3.1 It is necessary to consider how a Multiple Interruption Standard will impact on Distribution Companies. Early informal feed back from interested parties, following publication of Ofgem's Initial Thoughts document, suggested that it would be useful to consider how the form of standards suggested in that document as "a possible way forward" would impact on companies.

3.2 At a meeting on 16 August 2001 with representatives of an Electricity Association IIP Working Group, Ofgem requested that companies provide estimates of:

(a) The number of failures against a 3 hour Multiple interruption Guaranteed Standard they would expect to incur in a typical year if the allowed maximum was set at

3 interruptions

4 interruptions

5 interruptions

For this estimate companies were asked to assume that pre- arranged, transmission and generation interruptions would be excluded from the standard but they were asked to provide an indication of how their estimate might be affected if this was not the case.

(b) An estimate of the number of failures against a 3 minute Overall Standard they would expect to incur in a typical year if the allowed maximum was set at

5 interruptions

6 interruptions

7 interruptions

8 interruptions

9 interruptions

For this estimate companies were asked to assume that all interruptions would be counted under the standard except for repeat interruptions from one incident

(as for the IIP measures). They were also asked to provide an indication of how their estimate might be affected if other categories of interruption are excluded.

- 3.3 Ofgem also engaged EA Technology to carry out further work in order to provide a better understanding of how different factors contribute to failures against these standards and how companies might improve their performance. It was agreed that, while EA Technology would consider the estimates provided by all the companies, it would not be practicable in the time available for them to carry out detailed studies with all companies. They have therefore visited and engaged in discussions with a small number of companies that were thought to have experience of particular difficulties, such as Consac cable failures and long rural circuits.
- 3.4 It is important to recognise that the standards that are being considered are new measures and most current company data collection and information systems are not readily capable of providing information in that form. However, all companies appear to have done their best to provide estimates. Companies, and especially those EA Technology has worked with closely, have been willing to share their data, and the assumptions that they have used in making estimates, with Ofgem's staff and consultants. Some companies have provided detailed estimates as part of their formal public response to the consultation. Others have provided estimates, or information to supplement their formal public response, direct to EA Technology. Ofgem is therefore including in these paragraphs a summary of EA Technology's assessment of how the proposed standards will impact on companies, rather than publishing a separate report from the consultants.
- 3.5 EA Technology collated information provided by the companies in response to the questions set out in para 3.2 above. This is set out in Tables 1 & 2 below. Some information was thought to be very reliable, whilst other information was incomplete or appeared to have been estimated on the basis of doubtful assumptions. In the case of two companies EA Technology considered that assumptions used in compiling the estimates for the Guaranteed Standards were unrealistic and they adjusted the figures on the basis of (what they considered to be), in the light of other company information, more realistic assumptions. It was subsequently accepted by the companies that their estimates should be adjusted

to encompass a range of possible outcomes, from the company estimates to the EA Technology adjusted figures.

Company	% of customers experiencing more than x interruptions (> 3min), where x is:					Comments
	5	6	7	8	9	
A	0.60	0.27	0.10	0.04	0.02	All Voltage levels (over estimation of LV)
B	0.67	0.3	0.14	0.08	0.05	All Voltage levels (over estimation of LV)
C	2.99	1.66	1.14	0.66	0.47	Accurate Figure given – All voltages
D	1.10	0.50	0.20	0.10	0.05	Accurate Figure given – All voltages
E	3.71	2.07	1.23	0.71	0.3	Estimated EHV and LV contributions
F	1.30	0.76	0.31	0.12	0.04	Estimated EHV and LV contributions
G	3.74	2.45	1.17	0.48	0.30	Estimated figures (mid range +/-20-25%)
H	0.38	0.22	0.13	0.08	0.05	HV Only
I	1.55	0.49	0.16	0.06	0.02	Estimate of effect of all voltage levels
J	4.85	2.85	1.60	0.90	0.45	No LV included, Estimated (mid range +/-20-25%)
K	2.67	1.16	0.52	0.27	0.19	No LV included, 5 year average
L	1.07	0.50	0.18	0.06	0.03	HV Only
M						No Figures provided
N	0.13	0.07	0.04	0.01	0.00	All Voltages

Table 1 – Summary of Overall Standard Responses

3.6 Estimates in Tables 1 & 2 exclude interruptions from pre-arranged, transmission and generation outages. EA Technology noted that two companies (B & D), from published data, have similar network length, % of HV network underground, faults per 100km of network, and % of faults restored within 3 hours. These companies had provided very similar estimates of their expected performance under the proposed standards. This tends to suggest that companies with similar networks will have similar performance under Multiple Interruption Standards. EA Technology proceeded to compare and contrast the estimates of different companies, taking into account published data on companies' networks and network performance, known system problems such as Consac cable and long rural circuits, and the assumptions that each company had used in making their

estimates. This enabled EA Technology to form a view on which of the company estimates were the more reliable estimates.

Company	% of customers experiencing more than x interruptions (> 3 hours), where x is:			Comments
	3	4	5	
A	0.04	0.01	0.001	All Voltage levels (over estimation of LV)
B	0.11	0.02	0.003	All Voltage levels (over estimation of LV)
C	0.27	0.22	0.04	Accurate Figure given – All voltages
D	0.1	0.02	0.001	Accurate Figure given – All voltages
E	0.23-1.88	0.08-1.03	0.01-0.49	Estimated EHV and LV. Best-worst case LV estimate.
F	0.29-2.04	0.11-1.36	0.04-0.86	Estimated EHV and LV, Best-worst case LV estimate.
G	0.57	0.14	0.04	Estimated figures (mid range +/-20-25%)
H	0.02	0.01	0.00	HV with estimates for 132, 33kV and LV
I	0.18	0.04	0.01	Estimate of effect of all voltage levels
J	0.2	0.033	0.008	No LV included – Estimated figures mid range +/-20-25%)
K	0.05	0.01	0.002	No LV included, 5 year average
L	0.17	0.06	0.01	HV Only
M	1.24	0.6	0.29	Figures from Incident Management System All Voltage Levels – LV Estimated
N	0.11	0.03	0.009	All Voltage Levels

Table 2 – Summary of Guaranteed Standard Responses

3.7 Despite some difficulties arising from inaccuracies or incomplete data EA Technology considered:

- Do companies have different patterns of interruptions, or do they share a common pattern?
- Is the spread between the companies due to random variation in the outage data, or are there real differences that need to be taken into account?

They did this by trying to fit several statistical probability distributions to the data sets and then by testing the quality of the fit.

3.8 One possible statistical distribution, the Poisson distribution, was found to give an inadequate fit. An attempt was therefore made to use another statistical distribution, the Negative Binomial distribution. As the data in Tables 1 & 2 provides an insufficient range of data points to test the validity of a binomial distribution, use was made of data covering a wider range of interruptions than companies had been asked to provide, but which had been provided by two companies. This provided a very good fit as shown in Fig 1. This shows the % of consumers experiencing particular numbers of interruptions due to HV causes as reported by the companies and as predicted from a negative binomial distribution.

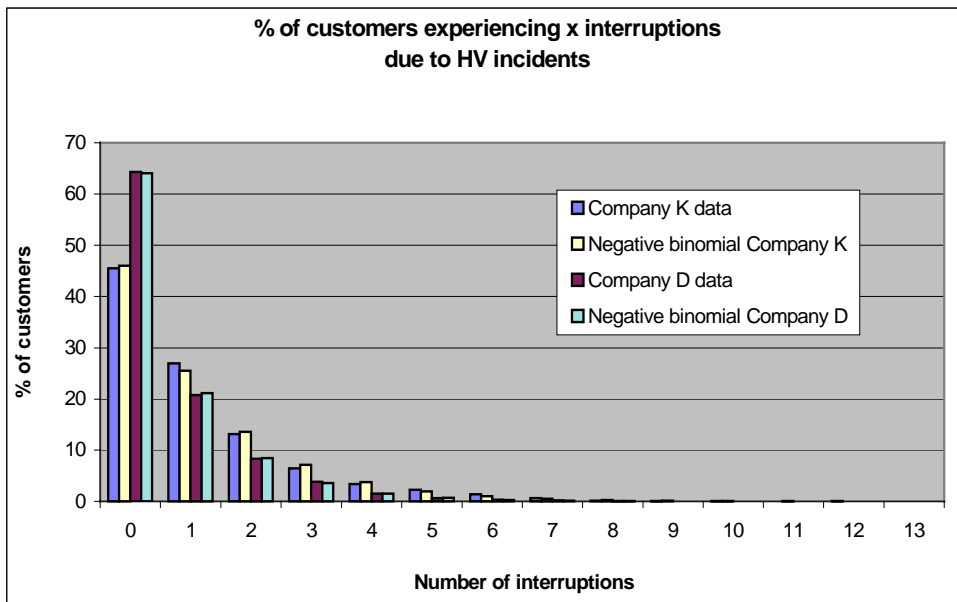


Fig 1 Comparison of negative binomial distribution with data from 2 companies

3.9 The negative binomial distribution was then used to establish expected values and variances. The expected (or average) values were then taken as the parent population and confidence bounds calculated using data from the 14 companies as a test on the distribution. The Negative Binomial distribution was then reconstructed to indicate the spread of values that would be expected from the 14 companies. If a companies data falls outside these limits then it is considered to be significantly different whilst if it falls within it could have occurred by chance.

- 3.10 EA technology used this approach in order to inform their judgements on which company estimates of performance against the standard were likely to be unreliable, or were being significantly influenced by operational factors (e.g. long overhead lines or Consac cable). This led to just one company's estimates being excluded in developing projections of the cumulative customer populations seeing multiple interruptions using the Negative Binomial distribution, though there was insufficient evidence to deduce why their data was unreliable.
- 3.11 The negative binomial distribution was then used to estimate the most likely values for the fraction of customers experiencing 4, 5 etc faults and thus the cumulative totals of customers experiencing more than 3, 4 etc faults. The results are shown in Table 3 below.

Best estimate of customers seeing x number of 3 hour interruptions, where x is:		
> 3	> 4	> 5
0.13%	0.03%	0.008%

Table 3 – Estimate of average performance from Negative Binomial distribution

As it appears from negative binomial statistics that the spread of data between the companies can largely be explained by random variations in the outage data, EA technology concluded that it would be reasonable to apply the same Guaranteed Standard criteria to all the companies.

- 3.12 As EA Technology considered that there was insufficient evidence to be completely confident that the Guaranteed Standard data fitted a negative binomial distribution, they also used the normal (or lognormal) distribution to assess the probability that a certain fraction of a typical company's customers would experience more than a particular number of faults. They have produced two lognormal probability distributions. One of these (Fig 2) is based on data provided by only the four companies whose data they deemed to be reasonably accurate (Companies A, B, C & D). The other (Fig 3) is based on data provided all but one, (i.e.13) of the companies.

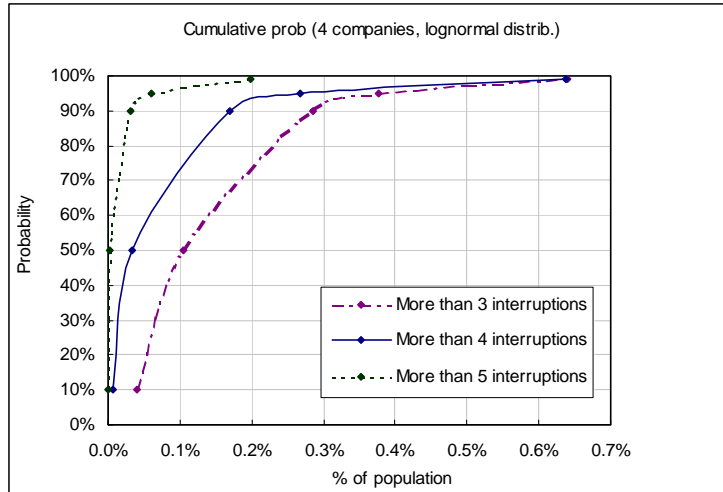


Fig 2 Lognormal probability distribution (4 companies)

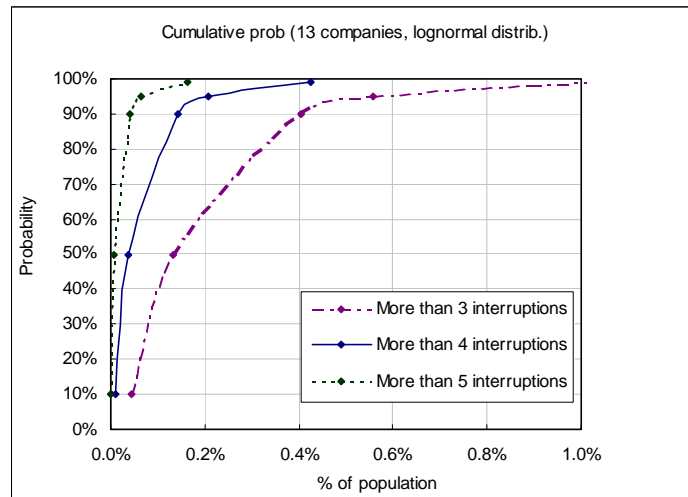


Fig 3 Lognormal probability distribution (13 companies)

Taking the most likely outcome (50% probability), gives the following expected average performance:

	Best estimate of customers seeing x number of 3 hour interruptions, where x is:		
Based on data from	> 3	> 4	> 5
4 companies	0.11%	0.03%	0.003%
All companies	0.13%	0.04%	0.007%

Table 4 Estimates of average performance based on Lognormal distribution

The predictions for the 13 companies are very similar to those derived using the negative binomial distribution (Table 3). The correlation between the two approaches gives confidence in both assessments.

3.13 From the statistical work carried out by EA Technology it is clear that the estimated performance of most companies (against different numbers of interruptions for the possible Guaranteed Standard) follows a common statistical pattern that approximates to a negative binomial distribution or to a lognormal distribution. They consider that, for the proposed Guaranteed Standard (interruptions > 3 hours), the difference in expected performance between companies is not large enough to justify different levels for the standard.

3.14 EA Technology reached a number of other conclusions based on comparisons and statistical analysis of information provided by companies, their discussions with a subset of companies, and their own knowledge of the issues. Significant points are:

- For the proposed Overall Standard (interruptions > 3 minutes), four licensed companies with extensive rural circuits, are expected to have significantly worse performance than the remainder. LPN, also on account of its network design, is expected to have much better performance than the other companies. This needs to be recognised in setting the Overall Standard.
- Failures of LV Consac cable would account for only a small proportion of failures against a Guaranteed Standard set in the range 3 – 5 interruptions. This is also the case for an Overall Standard set in the range for which companies were asked to provide estimates.
- Despite Scottish Hydro Electric having a larger proportion of overhead circuit than any other company, estimates suggest that their performance will fit within the spread of other companies data. As a result, there does not seem to be any reason to treat the more remote parts of their region differently under the Guaranteed Standard.
- Two companies have provided data that shows that their worst performing HV circuits tend to be different each year, while two

other companies have shown that for them it tends to be the same circuits that perform badly each year.

- There is scope for companies to improve their performance against both the Overall and the Guaranteed Standard by increased use of automation and remote control, and by improved fault management. Ofgem believes that with the introduction of Multiple Interruption Standards companies will have an increased incentive to identify situations where this can be done in an economically efficient way.

3.15 From information collated by EA Technology, it appears that it would be practicable to base an Overall Standard on the percentage of consumers served by each company experiencing no more than 5 interruptions of more than 3 minutes duration. However it would be unrealistic to set a common percentage performance threshold for all companies.

3.16 EA Technology consider that the Guaranteed Standard could be set at either 3 or 4 interruptions, of more than 3 hours duration. There would however be a difference in the total cost of compensation under these standards. How compensation payments are to be funded is discussed in the following paragraphs and Section 4 of this report.

### ***Difficulties in setting the Multiple Interruption Guaranteed Standard***

3.17 Several companies have drawn attention to the fact that the relevant legislation indicates that the standards should be set at a standard of performance that "ought to be achieved". They interpret this as indicating that the Guaranteed Standard should be set so that it is possible for them to have no failures. Companies would like to have the standard set in this way for a variety of reasons:

- Some argue that no allowance was made for compensation payments in calculations to set the current distribution price control.
- Others, while accepting that the cost of compensation is likely to be relatively insignificant when compared with other components of

price control calculations, point out that such small additional costs can summate with others to a significant additional cost.

- Others, regardless of the financial impact on them, are concerned about how a failure to meet the standard may adversely affect their reputations.

3.18 Some companies have pointed out that for the existing Guaranteed Standards they can generally take action to ensure that they have no failures. The low level of failures (and hence payments) against the existing standards tends to support this comment, though in some years and in some companies there have been large numbers of failures against GS2 (restoration within 24/18 hours). They therefore believe that the standard should be set at a relatively large number of interruptions so that this pattern can be maintained. Also with the standard set at a high level of interruptions they could, as the year proceeds, individually identify situations where it is likely that the standard would be breached and take action to ensure that service to consumers remains within the level specified in the standard.

3.19 Such an approach is not likely to be acceptable to consumers. From responses received it appears that some consumers believe that the standard could be set tighter than the 3 x3 hour standard that was suggested in the Initial Thoughts document, while BGT consider that a 3x3 hour standard would be appropriate. Customers experiencing four such interruptions receive a standard of supply significantly worse than the average for all consumers, which is just less than one interruption of around 80 minutes duration every year. It therefore appears that such consumers are receiving a standard significantly worse than they might reasonably consider "ought to be achieved", and hence should be entitled to compensation.

3.20 Most companies seem to consider that the standard should be set at a large number of interruptions, so that they would have virtually no breaches. On the other hand, consumers are opposed to the standard being set at such a level, which they would consider to be fairly ineffective. An attempt has therefore been made to identify ways in which these opposing views might be reconciled. There are two possible approaches that have been suggested, both of which

involve a more relaxed standard being set initially and tightened in subsequent years. These are:

#### Approach I

Try to achieve a compromise, such as a 4x3-hour standard, in order to reduce the total cost of compensation payments. Some companies do not consider this to be sufficient, arguing for the standard to be set at an even larger number of interruptions. In that event consumers served by some companies would find the standard ceased to have any significant impact.

#### Approach II

Reduce the level of the compensation payment from the level of £50 that was proposed in the Initial Thoughts paper. BGT suggested this approach. It is thought that £50 would correspond to the average negative value experienced by consumers entitled to compensation payment. However, it could initially be set initially at £25 to match the minimum value experienced by consumers entitled to compensation (i.e. value to purely domestic consumers experiencing 4 interruptions each of just over 3 hours duration). The compensation payment could then be reviewed, with the intention of increasing it, at the next Price Control Review. By then information from actual operation of the standard will be available.

- 3.21 A major disadvantage of setting a relatively relaxed standard initially is that arrangements for the Guaranteed Standard are going to have to rely on consumers making claims for compensation. With a very relaxed standard they would have few opportunities and little incentive to make claims. Consequently the argument that some respondents have put forward, that the standard could be tightened as experience is gained, does not appear to be valid. Little experience would be gained from operating a relaxed standard. It should also be recognised that the new Guaranteed Standard will introduce new goals to which distribution company management will doubtless respond. A relaxed standard might therefore very soon have little impact, with the result that little information and experience will be gained on which to base a more demanding standard.

3.22 Similarly, deferring introduction of the Guaranteed Standard until the next price control as suggested by some companies, would serve little purpose as there would not be significant additional information available then, on which to base the standard. By contrast, if a Guaranteed Standard is introduced in April 2002 there will be some useful data available two years later which can be used to refine or further develop the standard as part of the next price control. Deferring introduction of the Guaranteed Standard until the next price control would also be contrary to the expectation given to consumers in the December 1999 document.

### ***Developing a Viable Guaranteed Standard***

3.23 In order to make progress in developing a viable Guaranteed Standard, it is helpful to consider the question of whether a well managed company could, or should, achieve zero failures against the standard. The following factors are relevant:

- It is unrealistic to assume that equipment failures can be totally eliminated. Although that would be desirable, measures intended to achieve it (such as duplication of all LV and rural circuits) would be uneconomic and not totally effective. Many other network standards and targets (e.g. IIP targets) recognise this and many do not call for a 100% achievement.
- The industry's network design standard (P2/5), also for economic reasons, provides for restoration of supply only in repair time (which is often more than 3 hours) for groups of consumers totalling less than 1 MW of load. Consequently when failures do occur the design standard does not require that all supplies can be restored within 3 hours.
- If equipment failures followed a purely random pattern there would, for statistical reasons, be clusters of failures (both spatial and temporal) that would result in some multiple interruptions. In practice, failures tend to be correlated owing to reasons of design,

age, manufacture, and environment of equipment, and consequently produce a greater tendency to clustering, with consequent multiple interruptions.

The above considerations lead to the conclusion that, even in well-run companies, there will inevitably be clusters of equipment failures resulting in small numbers of multiple interruptions.

- 3.24 If it is recognised that an efficient company will have a small shortfall against a multiple interruption standard, then it seems reasonable that the resulting costs of compensation payments and administration should be a legitimate expense which should be included in price control calculations. However, this would only be up to the level of an efficient company's shortfall. In practice these costs are likely to be relatively small but such an approach should overcome the objections of those companies that believe they should not have to fund compensation for a shortfall against a standard when even an efficient company would be unable to achieve 100% performance.
- 3.25 Consumers will naturally be concerned at any suggestion that the cost of compensation payments would be passed through to them via Use of System Charges. However, these are likely to be quite small. For example, if the Guaranteed Standard is set at a level such that 0.1% of consumers are entitled to £50 compensation then the cost would be equivalent to 5 pence per consumer per year. Only some of the consumers who are entitled to a compensation payment will actually make a claim, and companies will doubtless take steps to improve their performance against the standard, so the actual costs may be expected to be below that level. Ofgem would not expect to make any allowance in Use of System charges for any additional compensation costs resulting from a company having a less than efficient operation.
- 3.26 The effect of the arrangements outlined above would be that all consumers benefit from economically efficient design and operational policies, while the small number of consumers for whom this does not prove to be satisfactory (i.e. the worst served consumers) receive compensation funded through the price control. If a company should be inefficient in minimising its shortfall against the standard, then the additional compensation costs would fall on the company.

- 3.27 The cost of administering the standard should also be regarded as a legitimate company expense, up to the level of claims that an efficient company would incur. However, from estimates provided by companies, if the standard was set at a realistic level with straightforward rules for implementation, it appears that these costs will be relatively insignificant compared with other components of price control calculations.
- 3.28 The approach outlined above leads to the question of how the level of performance (as measured by the standard) of an efficient company might be established. As with other judgements of performance at price control reviews, it will probably be necessary to use both comparative and analytical methods. The studies carried out by EA Technology provide an insight into how that might be done. Their comparisons make use of company performance estimates, rather than actual Multiple Interruption data, but it has been possible for them to identify outliers (some may be estimating errors) and points of difference that merit investigation. Although EA Technology were not able, in the time available, to use an analytical approach to typical networks it may be possible to do this to provide a better understanding of these issues in order to supplement comparative data at a price control.
- 3.29 It is important to recognise that, because companies do not have the means of accurately identifying supplies where performance has fallen short of the standard, it is necessary to operate the standard and collect data on actual claims before reliable comparisons can be made between the performance of different companies.
- 3.30 This approach seems to offer the prospect of introducing a Multiple Interruption Guaranteed Standard set at a number of interruptions that consumers will consider fairly identifies the worst served consumers, while at the same time providing reassurance for companies that, providing they operate efficiently, there will be no adverse impact on their finances or reputation.

## 4. Proposed Multiple Interruption Standards

### *Implementing the Guaranteed Standard*

- 4.1 It is proposed that the approach advocated above should be adopted and the standard should be set at a maximum of 3 x 3-hour allowed interruptions, as suggested in the Initial Thoughts paper. This means that consumers would be entitled to compensation if they experienced 4 or more interruptions of a least 3 hours duration during the year. A supply with this level of reliability would generally be regarded as unsatisfactory, and hence the consumer should be entitled to reasonable compensation.
- 4.2 With such a standard it appears that, from estimates provided by companies with reliable data, around 0.11% of consumers are likely to be entitled to compensation payments (from Fig 2/Table 4). Ofgem expects actual claims to be below this level as companies will take steps to improve performance from their estimated levels, not all consumers will make claims, and there will be exclusions as set out in para 4.6 below.
- 4.3 It is considered that the Guaranteed Standard compensation payment should be set at £50 (as discussed in Para 2:39). The cost of compensation, and administration arising from operation of the Guaranteed Standard, up to levels appropriate to an efficient company, would be regarded as allowed expenditure for price control purposes.
- 4.4 There may be a moderate short-term difficulty as no provision for this expenditure was explicitly included in calculations for the current price control (though the introduction of Multiple Interruption Standards was a feature of the proposals that were accepted by the companies). It is important, however, that a realistic Guaranteed Standard should be introduced ahead of the next price control so that data on claims received by the companies, needed to inform judgements on "efficient levels" for each company, will be available at that time.
- 4.5 Ofgem considers that, in accepting the December 1999, Distribution Price Control proposals companies accepted the cost implications of the proposals on Multiple Interruption Standards. They will have been aware that there would be compensation and administration costs from the Overall and Guaranteed

Multiple Interruption Standards outlined in the Price Control Final Proposals, so it is not unreasonable to expect them to carry moderate costs for the remainder of this price control. The likely total compensation costs appear modest in terms of distribution company finances and price control calculations. Assuming 50% of eligible consumers claim compensation, an efficient company with 2m consumers should expect to incur compensation costs of less than £55,000p.a. This is equivalent to 5.5p per consumer.

- 4.6 With the standard set at a maximum of 3 x 3-hour interruptions it is proposed that interruptions resulting from pre-arranged outages and widespread transmission failures should be excluded. However, interruptions resulting from a loss of supply at a single transmission system exit point will be included, as discussed in paragraph 2.36. Loss of supply from the transmission system due to failure of transmission-connected generation should receive the same treatment as transmission system failures, but interruptions resulting from failures of embedded generation should not be excluded from the standard. There would be no exclusions for severe weather but interruptions that had resulted in GS2 (> 18 hours restoration) payments would be excluded. This will avoid double jeopardy, reducing compensation that would otherwise be payable as a result of severe weather. In addition it is considered that Ofgem should have powers to exclude interruptions resulting from exceptional and unforeseen events (such as terrorist action, medical epidemic etc.).
- 4.7 It is proposed that the standard should be based on an April – March year. The intention is that the standard should be as simple as possible so that it is easily understood by consumers and straightforward for the companies to operate. Companies will be expected to be proactive in promoting the Multiple Interruption Guaranteed Standard and in making the claims mechanism as simple as possible. In the absence of comprehensive company recording systems, it is expected that, where uncertainty exists, the benefit of doubt should be given to the consumer.
- 4.8 Ofgem considers that it would be desirable for a standard procedure, and possibly standard forms, to be introduced to enable consumers to claim compensation via their electricity supplier. It therefore intends to enter into discussion with interested parties in order to explore whether that might be

possible. It will also be necessary to provide definitions where there are outstanding issues that need clarification. For example, in order to address the concerns of some respondents, it may be appropriate that interruptions should not count as separate interruptions if restoration lasts for less than 3 hours.

4.9 This proposal can be compared with the impact on companies and consumers if the Guaranteed Standard were to be set at a more relaxed level (say a maximum of 4x 3-hour interruptions). For example, with a 4 x 3-hour standard set at £50 up to 0.03% of consumers would be likely to be entitled to compensation at a maximum cost equivalent to 1.5p per connected consumer (see Fig 2). That would represent a saving of 4p per year per customer compared with a 3 x 3-hour standard. Consumers would have to experience 5 interruptions of more than 3 hours duration before being entitled to compensation. On the other hand, consumers generally would probably not regard a saving of 4p as significant. It is also possible that, as companies improve their performance, such a relaxed standard would very soon become ineffective as a means of identifying the worst served consumers. It therefore appears that such a relaxed standard would be less effective in achieving the objective than the 3 x 3-hour standard proposed.

4.10 As indicated earlier, it is considered that a review of the operation of the Multiple Interruption Guaranteed Standard should be carried out during the next Distribution Price Control Review. Such a review should, among other things, consider whether it is appropriate to:

- Including all transmission failures in the operation of the standard, perhaps by introducing some form of pass-through of the resulting costs to transmission companies
- Modify the treatment of interruptions due to failures of generation embedded in the distribution system, in order to reflect any changes in the role of embedded generation in contributing to system security.
- Use a rolling year as a basis for the Standard. (Data provided by companies and collated by EA Technology suggests that the additional cost would be quite small and it would address consumers concerns that there should be some additional

compensation for consumers who suffered more than the minimum number of interruptions to qualify for the compensation payment.)

- Introduce automatic payment of compensation payments, perhaps through new metering technology.

4.11 Ofgem invites comment on these proposals for a Multiple Interruption Guaranteed Standard from all interested parties. Views would also be welcome on how “best practice” in encouraging and facilitating claims for Multiple Interruption Guaranteed Standard Payments might be identified. Ofgem wishes to encourage a consistent approach and recognises that both distribution and supply companies will have a role to play in developing and operating the necessary administrative arrangements.

### ***Implementing the Overall Standard***

- 4.12 Introducing a Multiple Interruption Overall Standard should be more straightforward. There is widespread agreement that the definitions and administrative arrangements should be closely aligned with those for the IIP project, though there are some important points of detail that need to be addressed. Ofgem intends to address these details in consultation with the industry prior to introduction of the Overall Standard.
- 4.13 It is proposed that there should be a uniform Overall Standard throughout Great Britain. This will specify that consumers should experience interruptions of more than 3 minutes duration from no more than 5 incidents during any year from 1 April to 31 March. However, at least initially, the performance threshold for the Overall Standard will take account of each company's estimated performance.
- 4.14 From information in the EA Technology report, it is considered that required Overall Standard performance for the companies should be set at the following levels:

Company	O.S. Performance Target
NEDL Scottish Hydro-Electric WPD (S West) WPD (S Wales)	96%
LPN	99%
All other companies	98%

- 4.15 These proposed thresholds have been set at relatively undemanding levels because it is considered that it is important to concentrate on establishing reliable measurement and reporting arrangements. Any attempt to create demanding performance targets from estimated data would probably not be successful and would be a distraction from that objective. Ofgem believes that in the short term publication of each company's performance will provide an incentive for companies to improve their relative position in the performance table. It will also provide reliable data from which more demanding thresholds can be set. In the short term the specified level will do little more than indicate an expectation. However, when experience has been gained in operating the arrangements, Ofgem expects to be able to refine these requirements in stages with the ultimate aim of setting a standard that specified a performance of 99% for all companies. The first step in this process will be to review operation of the Overall Standard along with the Guaranteed Standard at the time of the next Distribution Price Control Review.
- 4.16 Ofgem invites comment from all interested parties on these proposals for a Multiple Interruption Overall Standard. Views will also be welcome on detailed aspects of implementing the proposed Standard that may not have been fully addressed in this consultation document.

## 5. Proposals for Other Standards

### *The need for an Overall Standard on Telephone Response*

- 5.1 As companies' performance in providing a satisfactory telephone response is to be measured and incentivised under the IIP project, there does not appear to be any benefit in also having a separate Overall Standard for Telephone Response. Indeed, should one be introduced, there would be a large degree of duplication, with the resulting risks of companies being subject to double jeopardy.
- 5.2 In view of this, and inline with views expressed by respondents to the Initial Thoughts document, Ofgem does not propose to introduce an Overall Standard on Telephone Response

### *The future of Overall Standard 1a (Restoration within 18 hours)*

- 5.3 Although Overall Standard may have served a useful purpose in the past it is now widely believed to be provide perverse incentives. It has focused attention on the time taken to restore supplies after an interruption but the IIP new measures will provide an general incentive for companies to restore supplies quickly. In addition, the proposed Multiple Interruption Guaranteed Standard will focus attention on consumers having interruptions of more than 3 hours duration.
- 5.4 Almost all respondents to the Initial Thoughts consultation paper appear to share these views. Ofgem therefore propose to take the necessary steps so that Overall Standard 1 a is discontinued with effect from 1 April 2002. This will eliminate what would otherwise be unnecessary duplication.

## Appendix 1 – Distributors’ responses on Multiple Interruption Standards

The Ofgem “Initial Thoughts” document asked for responses on all aspects discussed but also posed some specific questions in section 4 of the document on which views were sought. Responses from all the 11 companies with distribution licenses are summarised below. In some cases these are a condensed versions of specific responses to these questions. In some other cases it has been possible to extract a view from more general comments. Other comments on each type of standard have also been summarised in tabular form.

Paragraph 3.18 contained a table summarising the main features of IIP plans and proposals and those in the Initial Thoughts document. Some companies have provided their own views on this table and a summary of these, for both Overall and Guaranteed Standards, are contained in a similar tabular format at the end of Appendix 1. Again, where possible, views have been extracted from more general comments.

### *Multiple Interruption Overall Standard*

Question 1: Is it satisfactory for definitions and arrangements for the Multiple Interruption Overall Standard be closely allied to those for IIP or should they be more closely related to what might be practicable for the Multiple Interruption Guaranteed Standard?

Company (Region)	Summary of response
East Midlands Electricity	Should be related to IIP but consistent with other Overall Standards
GPU (Midlands)	Align with IIP
LPN (London)	Agree to align as far as possible with IIP
NEDL (North East)	Agree that OS should embrace all interruptions as defined in the IIP RIGS
Seeboard (South East)	Support use of IIP definitions
Scottish & Southern (South of England &	Should be closely integrated with IIP

North of Scotland)	
Scottish Power (Mersey and North Wales & South of Scotland)	Agree should be consistent with IIP
TXU (Eastern)	Should be allied to IIP
WPD (South West and South Wales)	Multiple Interruption Overall Standards should be closely related to IIP definitions and RIGs
United Utilities (North West)	Welcome proposal that GS & OS should have different definitions and short interruptions be excluded from OS
Yorkshire Electricity	Support proposal that OS be aligned with IIP definitions and admin arrangements

Question 2: If they are to be aligned to IIP arrangements what additional definitions and data collection arrangements will be needed to supplement those in place for IIP. What would be a satisfactory maximum number of interruptions for such a standard?

<b>Company (Region)</b>	<b>Summary of response</b>
East Midlands Electricity	EME would not need any additional definitions or data collection mechanisms. May not give the same accuracy standards of IIP. Standard should be set at 5 interruptions as proposed in Price Control
NEDL (North East)	Standard should be 99% experience no more than 7 interruptions (or 97% experience no more than 5 interruptions)
Seeboard (South East)	Proposed company data systems will allow reporting against this standard without any changes in definition. If standard is set at 5 interruptions target level should be 0.97%
Scottish & Southern (South of England & North of Scotland)	It is not reasonable to expect companies to incur system development costs on fault histories until necessary definitions and data arrangements have been defined.
Scottish Power (Mersey and North Wales & South of Scotland)	Introduction should be delayed because companies currently have no robust reporting mechanism to analyse recent years' performance. As data is captured target can be tightened progressively to give challenging but achievable standards
TXU (Eastern)	More time needed to develop arrangements. Estimates suggest just under 99% achievement if standard set at 5 interruptions
WPD (South West and South Wales)	No additional definitions required. Data collection arrangements will need to be supplemented for a supply interruption database. Standard should be set at 5, but with exclusions advocated by WPD

United Utilities (North West)	It is possible to flex both the threshold and the percentage achievement required. (A standard of 5 interruptions is estimated to produce approx. 0.4% failures from HV faults. LV faults will increase the number of failures by approx.10% giving total failure rate of approx. 0.5%)
Yorkshire Electricity	Standard should be set at 97% of consumers seeing no more than 5 interruptions. System preparation can be done in advance but some changes can only be implemented when details are finalised in mid-Jan. Concerned about challenging timetable

Question 3: If it is considered that the Overall Standard should be more closely linked to a Guaranteed Standard how should opposing pressures be reconciled? Companies will favour restrictive definitions, many exclusions, and a high number of allowed interruptions in order to limit their administrative and financial burden, while customer concerns and views on adequate compensation will be reflected in opposing views. What definitions and exclusions should be adopted? How should performance be audited?

Company (Region)	Summary of response
East Midlands Electricity	GS need not be directly linked to the Overall Standard. The GS must be easily understood by consumers while the OS can be more complex.
WPD (South West and South Wales)	Multiple Interruption GS and OS standards should not be aligned. Different definitions and arrangements are best way of reconciling opposing pressures.

Question 4: Depending on the definitions adopted, should there be different Overall Standards for different companies and for different parts of a company's territory?

Company (Region)	Summary of response
East Midlands Electricity	Reasonable to have different OS for different companies. Single OS should apply to whole of a company's territory
GPU (Midlands)	In view of future risk of fines, reflect inherent and inherited network differences in targets to be imposed. If not investment requirements should be addressed at next price control.
LPN (London)	Set standard for each company that reflects historical performance and price control funding.
Scottish & Southern (South)	OS must take account of regional variations, especially land topology which influences network design. In NW Scotland there are

of England & North of Scotland)	extremely long circuits where it is economically impossible to achieve a "reasonable" multiple interruption performance. Not possible to have same targets for all regions of the country.
Scottish Power (Mersey and North Wales & South of Scotland)	Nothing explicit, but comments are about "the target"
WPD (South West and South Wales)	Establish a common maximum number of interruptions but it would be unrealistic to adopt a common service target for all companies. There should be a uniform service level for all parts of a company's territory.
Yorkshire Electricity	Same standard should be set across all companies. Should be set at 97% of consumers seeing no more than 5 interruptions

Other Comments on Overall Standards:

<b>Company (Region)</b>	<b>Summary of response</b>
GPU (Midlands)	Important to consider inter-relationship between GS & OS multiple interruption standards and also other aspects e.g. Utilities Act , IIP, GS2 (restore within 18 hrs)
Seaboard (South East)	It will not be possible to target investment to improve performance as only 12% of circuits are consistent poor performers against the proposed overall standard. Better to base standard on a rolling 5 year average.
Scottish & Southern (South of England & North of Scotland)	Support introduction of workable arrangements in April 2002 with further improvements for consideration at next price control
Scottish Power (Mersey and North Wales & South of Scotland)	IIP provides an incentive to reduce overall interruptions. Proposed GS will protect worst served consumers. Therefore, is there any need to have an OS at all? Concerned about duplicate penalties with OS & IIP. Inadequate funding. Implementation date of April 2002 unacceptable. Introduction before systems and procedures in place would produce consumer dissatisfaction. Delay till next price control
TXU (Eastern)	OS not necessary. If introduced should only be for short term. IIP should provide long term protection.
United Utilities (North West)	Accept introduction of OS is appropriate

### ***Multiple Interruption Guaranteed Standards***

Question 5: Would a 3-hour definition for interruptions and a maximum of three such interruptions adequately reflect a level of service at which compensation should become payable?

<b>Company (Region)</b>	<b>Summary of response</b>
East Midlands Electricity	3-hour definition is acceptable but 3 interruptions too low. Would mitigate against proactive management of multiple interruptions. Concerned that 3-hour definition may not be acceptable to consumers
GPU (Midlands)	Support 3-hour definition but with threshold significantly greater than 3 interruptions. Set low threshold for 2002-05 to minimise impact on companies and then revisit at next price control when there will be a better understanding of service levels and required investment. Interruptions from a single incident should be amalgamated.
LPN (London)	No, should use 3-minute definition (in order to be consistent with IIP) and threshold set to reflect each company's circumstances
NEDL (North East)	Support 3 hour definition as it is a pragmatic solution but should be set at 5 interruptions. Failures for 3 interruption standard would be 0.05% but can be reduced when current Foot & Mouth crisis is over
Seeboard (South East)	3-hour definition is an acceptable and pragmatic solution. Agree that interruptions from single incident should not be aggregated. If set at 3 interruptions they would have 2,000-4,000 failures. Should be set at 5 interruptions. Standard needs to satisfy "ought to be achieved" requirement of Electricity Act.
Scottish & Southern (South of England & North of Scotland)	Support 3-hour definition. Little robust information to set threshold. To date, GS compensation payments have been "exceptional". I.e. when company processes have failed. Suggest logic in 6 x 3-hour interruption standard to match 18 hour GS1 restoration standard
Scottish Power (Mersey and North Wales & South of Scotland)	Support 3- hour definition. Should set threshold at a fairly high level of 9 or 10.
TXU (Eastern)	Agree 3-hour definition but 5 interruptions would be a more realistic threshold. It should protect customers and incentivise companies but not impose excessive financial burden. If set at 3 interruptions there would be around 5,500 failures. Delay introduction till April 2003 when effective operation of IIP will give insight to appropriate level
WPD (South West and South)	Agree with 3-hour criteria (consistent with P2/5). Maximum allowed interruptions should be set higher than 3 so that failure rate was

Wales)	around 0.05% of consumers (For WPD this would be at 4 rather than 3 interruptions).
United Utilities (North West)	Should have 3-hour definition, which will focus attention on interruptions that should be given priority.
Yorkshire Electricity	Strongly support 3-hour definition but threshold of 3 is too low. Should be set at 5 to give fewer failures (in line with existing GSs), allow few exclusions, and take account of data uncertainties in setting standard. Would match price control proposals.

Question 6: What exclusions should apply for such a standard? Would it be reasonable to exclude transmission and generation failures but include all other causes of failure?

Company (Region)	Summary of response
East Midlands Electricity	Exclude transmission, generation and pre-arranged interruptions. Also exclude some 3 <sup>rd</sup> party damage/vandalism. Also include all exemptions in existing Standards of Performance Regulations.
GPU (Midlands)	Exclude transmission, generation and severe weather failures and planned interruptions.
LPN (London)	Exclude planned outages, transmission and generation failures, adverse weather and third party damage. For extreme events (e.g. widespread flooding from Thames) Ofgem should grant exemptions if requirements of design standard P2/5 were inadequate.
NEDL (North East)	Only exclude categories of interruptions that consumers can recognise i.e. pre-arranged and severe weather
Seeboard (South East)	Exclude cut out failures and meter faults. Also include exemptions in existing Performance Regulations, Generation, Transmission and Generation
Scottish & Southern (South of England & North of Scotland)	Pre-arranged, transmission, generation, malicious damage severe weather and align with other GS standards by excluding "force majeure".
Scottish Power (Mersey and North Wales & South of Scotland)	Exclude interruptions due to pre-arranged outages, transmission and generation failures and vandalism.
TXU (Eastern)	No comment on GS. May intend comment on OS exclusions to also apply to GS?
WPD (South West and South Wales)	Exclude transmission and generation failures and also interruptions resulting from severe weather
United Utilities (North West)	Exclude pre-arranged interruptions and severe weather events. Interruptions from transmission and generation failures (including low frequency & load shedding etc) should be excluded or thresholds should be raised to compensate. Distributor fuse failures

	should be excluded.
Yorkshire Electricity	Exclude pre-arranged, force majeure & cut-out fuse failures (covered by GS1)

Question 7: Would £50 be a satisfactory level of compensation in such circumstances?  
What would be the likely financial impact on companies?

Company (Region)	Summary of response
East Midlands Electricity	£50 would be unequitable (cf £50 for 18 hour interruption). Consumers more concerned about duration than frequency. £20 would more closely represent consumer views.
GPU (Midlands)	£50 almost equal to a years DUOS charges. Should be set at £20 in line with UMIST research
LPN (London)	Compensation should be related to DUOS charges paid. Concerned about financial exposure from unrelated widespread faults (e.g. flooding) uncertainties arising from definitions. Also consumers already compensated for > 18 hour interruptions. A payment of £25 would be appropriate.
NEDL (North East)	£20 for 5 interruption standard i.e.40% of typical DUOS charge
Seaboard (South East)	£50 inappropriate and inequitable. Should take account of average DUoS charges and zero allowance in price control "Penalty" should be say 50% average DuoS i.e. £20 for Seaboard.
Scottish & Southern (South of England & North of Scotland)	£50 is not sound for uncertain scale of failures. Most GS payments are £20. Disproportionate and unfair to loose a years DUOS charge. Also admin costs which will be higher if threshold is not set high.
Scottish Power (Mersey and North Wales & South of Scotland)	Why is Ofgem proposing £50 when 3 x £4 (UMIST study) = £12?
TXU (Eastern)	£50 would impose "regulatory shock" which may not benefit consumers. Would lead to inefficient short-term investments at expense of long-term network improvement for most consumers. £20 is 45% of DUOS charge in E Anglia but only 23% in S Wales.
WPD (South West and South Wales)	No. Should be set at £20. Cost for a 4 x3-hour standard would be £14k for S West and £10k for S Wales. That would be consistent with level of other GS payments
United Utilities (North West)	Should be set at £20. i.e.5 x £4 as per UMIST and inline with other standards
Yorkshire Electricity	£25 is an acceptable level (6x£4). Further failures within the reporting period should result in a further £25 penalty

Question 8: What would be the cost of implementing and operating such a standard?

<b>Company (Region)</b>	<b>Summary of response</b>
East Midlands Electricity	Cost would be minimal if the number of claims received was low. If standard set at 3 interruptions, 2 technical grade staff would be required.
GPU (Midlands)	Investment to avoid penalties under 3 x 3-hour standard would be far in excess of efficient levels and equivalent to a reduction in P <sub>o</sub> .
LPN (London)	No significant implementation costs providing claims in line with expectations
Seeboard (South East)	Level of standard will influence cost though cost will be influenced by number of claims received, not just payments made. If standard set at 3 interruptions costs will be £75,000 - £100,000 but for more reasonable number of failures £15,000 - £30,000
Scottish & Southern (South of England & North of Scotland)	Admin costs will depend on threshold
Scottish Power (Mersey and North Wales & South of Scotland)	Customers will not know the exact time that they were off supply. Consequently there will be a huge number of invalid claims and associated costs
TXU (Eastern)	Relatively low providing arrangements are similar to those for other Guaranteed Standards
WPD (South West and South Wales)	For 4x3-hour standard would be £50-100k pa for each company
United Utilities (North West)	£75k pa until Troublecall/GIS system implemented, then £25k pa
Yorkshire Electricity	Depending on threshold time admin., time in assessing claims (including unsuccessful claims) could be considerable. Manual process but using system changes developed for IIP

Question 9: Would it be possible to provide automatic payment in some such circumstances? To what extent would it be necessary to require consumers to initiate claims and provide supporting information?

<b>Company (Region)</b>	<b>Summary of response</b>
East Midlands Electricity	No. Imperative that consumers initiate claims and provide supporting information.
LPN (London)	No. Customers to make claims for company to validate. Little prospect for advanced metering in the short and medium term without suitable incentives being introduced.
NEDL (North East)	No reasonably foreseeable process to to support automatic payments.
Seaboard (South East)	Only practicable solution at this time is to require all customers to claim.
Scottish & Southern (South of England & North of Scotland)	No prospect of making GS payments automatically
Scottish Power (Mersey and North Wales & South of Scotland)	Support use of an industry-wide claim form which customers would submit via their supplier.
TXU (Eastern)	Automatic payments not technically of economically feasible. Customers should claim with simple note of dates when off supply
WPD (South West and South Wales)	Not possible to accurately identify affected meter points and distribution businesses do not have names of consumers. Therefore necessary for consumers to initiate claims
United Utilities (North West)	Strong view that customers should claim for failures as automatic payment impossible due to problems of feeder and phase identification
Yorkshire Electricity	Automatic admin. not possible. Consumers to make claims.

Question 10: If it will be necessary for consumers to make claims, what arrangements should be put in place to make this as easy as possible? How should payment arrangements be audited?

<b>Company (Region)</b>	<b>Summary of response</b>
East Midlands Electricity	Happy for claims to be in writing, via telephone or E-mail but validation procedure required. Audit as for other Guaranteed Standards.
GPU (Midlands)	
LPN (London)	
NEDL (North East)	Customers to request companies to investigate incidents

Seeboard (South East)	
Scottish & Southern (South of England & North of Scotland)	Customers should put claims in writing (via their supplier) within one month of implied failure confirming dates and times of interruption
Scottish Power (Mersey and North Wales & South of Scotland)	Industry wide claim form. Entitlement to and payment of compensation would be complicated by change of occupancy
TXU (Eastern)	Existing arrangements for GS2 ( ) work well and should be adopted for new standard. Payment should be via supplier except where he has requested direct payment to consumer.
WPD (South West and South Wales)	By letter or telephone. No need for standard forms. Payment arrangements should be audited as for other GS standard payments.
United Utilities (North West)	Customers to provide approximate dates of > 3-hr interruptions for manual checking by company
Yorkshire Electricity	Accept claims by via phone, E-mail, or in writing. Considering use of claim form on Internet. Unrealistic to require consumers to state when faults occurred. Payments should be via supplier. All valid claims to be paid. Set high threshold to minimise exclusions. Audit using an extension of existing ISO 9002 arrangements

Question 11: If all compensation payments are to be initiated by claims from consumers could they be based on a rolling year, which restarted after payment had been made? If not a rolling year, what time period is preferred?

Company (Region)	Summary of response
East Midlands Electricity	No. Admin would be onerous and consumers confused. Prefer reporting by regulatory year.
GPU (Midlands)	Could not accept a rolling 12 month period. Would be punitive to companies, costly to implement and poorly understood by consumers.
LPN (London)	Agree with rolling year and automatic reset after successful claim. Fixed period would be confusing and frustrating to consumers.
NEDL (North East)	Recognise arguments for rolling year but more difficult to assess claims, and more failures would necessitate standard set at 6 rather than 5 interruptions for regulatory year
Seeboard (South East)	Insufficient data to assess impact of rolling year but this would complicate admin. and hence increase cost. Believe April – March year should be used though proposal should be reconsidered at next price control when more data is available.
Scottish &	Do not support rolling year – high admin cost and unpredictable.

Southern (South of England & North of Scotland)	Period should be April –March with only one payment in period
Scottish Power (Mersey and North Wales & South of Scotland)	April –March. Rolling year would add to admin burden.
WPD (South West and South Wales)	Rolling 12 month period but not restarted after a payment
United Utilities (North West)	Rolling year has appeal for customers but concerns about complex to check and higher exposure (2 to 3 times higher) for companies. Best to use April-March in line with other statistics
Yorkshire Electricity	Year should be April-March (as other GSs) with claims within 1 month of entitlement as assessment may be a length process. Different period would be confusing for consumers

Question 12: If an alternative to a 3-hour definition is preferred what should that be and what would be the maximum number of interruptions allowed? What exclusions should be allowed? How would consumers to whom payments were due be identified and what would be the financial and administrative costs?

Company (Region)	Summary of response
East Midlands Electricity	3-hour definition may not be acceptable to consumers. Alternative is to use a 3-minute definition and raise threshold
GPU (Midlands)	
LPN (London)	3-minute definition preferred (3-hours creates an incentive for additional planned interruptions & additional < 3hour interruptions) with a “reasonable” threshold to reflect company’s circumstances, as analysed by Ofgem
WPD (South West and South Wales)	3 hour definition best. Do not support any alternative definition

Question 13: Would it be more equitable to have different guaranteed standards in different parts of a company’s territory and if so how should these be defined?

Company (Region)	Summary of response
East Midlands Electricity	This would not be equitable, but threshold must be suitable for all parts of a company's territory
GPU (Midlands)	Difficult to justify differing standards for each PES. Should be a national common standard
LPN (London)	No need for regional variation within LPN but different urban and rural standards might be appropriate.
NEDL (North East)	Differing standards within authorised area not necessary but existing principle of different standards for different areas should be retained. Recognise the argument in favour of a common standard
Seaboard (South East)	Not acceptable to have different standards in different parts of a company's territory but there will inevitably different levels of performance against standards due to different design, operating environment etc. This should be taken into account in setting levels for standards
Scottish & Southern (South of England & North of Scotland)	Prefer to see company specific targets but exceptional areas should be separately identified/ring fenced. One such area is Highlands & Islands. Prefer to see this region excluded due to long circuits, P2/5 exemption, high fault rates, automation no help to end consumers, few local staff & high travel times.
Scottish Power (Mersey and North Wales & South of Scotland)	Nothing explicit
TXU (Eastern)	Uniform national standard should be set as a Guaranteed Standard for all companies, focussing on what was acceptable to consumers in general. To set different standards for different parts of the country would fail the test of simplicity and clarity.
WPD (South West and South Wales)	There will be similar numbers of failures in urban areas (due to LV cable faults) and rural areas (due to long overhead radial feeders) . Therefore not necessary to have different standards for different parts of a company's area.
United Utilities (North West)	Differentiating between urban and rural consumers would be meaningless and confusing. Worst served consumers are as likely to be on troublesome LV cable as on an extended overhead HV circuit.
Yorkshire Electricity	Threshold should be the same for all companies and in all parts of a company's territory. Simple and ensures consistent treatment for adjacent communities. Disaggregation would be onerous and produce no justifiable consumer benefit.

- Other Comments on Guaranteed Standards

Company (Region)	Summary of response
East Midlands Electricity	Collection of information should precede the setting of any OS & GS standards. Multiple Interruption Standards not well understood. Also no track record of collecting IIPdata to RIG requirements.
GPU (Midlands)	Little opportunity to avoid breaching standard, as proposed. Random nature of failures (only 30%fail again in following year). Therefore difficult to target investment. Better to pay compensation. Work needed by EA Technology.
LPN (London)	
NEDL (North East)	Standard should be set at level such that an efficient company will have few failures. GS should focus more on what can reasonably be achieved than on current performance. Issue too important to neglect. More challenging targets and appropriate funding should be set for DPRIV
Seeboard (South East)	In longer term it may be possible to include transmission & generation failures in standard but place an obligation on transmission company and generators to compensate distribution companies. Administration costs for processing both valid & invalid claims will be high and were not allowed for at price control.
Scottish & Southern (South of England & North of Scotland)	GS should focus only on interruptions causing severe difficulties to customers. To date GS payments only apply to exceptional events. An efficient company should not have to make payments. A threshold set on the basis of an expected level of failures would be a departure from current norm.
Scottish Power (Mersey and North Wales & South of Scotland)	Concerns about timetable to introduce data collection and admin., overlap with IIP and funding. Implementation date should be put back to next price control.
TXU (Eastern)	Implementation programme should give time for companies to identify and address problem circuits. Standards should be achievable so that penalties can be avoided by management action. Standards need to be consistent with existing initiatives and avoid "double jeopardy".
WPD (South West and South Wales)	
United Utilities (North West)	Interruptions from a single incident should count as one interruption as proposed for IIP and OS in order not to discourage temporary reconnection. Not convinced of need for GS. OS should be thoroughly tested before GS developed
Yorkshire Electricity	Many assumptions in estimates of impact of proposed standard. Therefore not appropriate to use as a basis for differential thresholds/ penalties.