DETERMINATION BY THE GAS AND ELECTRICITY MARKETS AUTHORITY OF A DISPUTE REFERRED TO IT UNDER SECTION 23 OF THE ELECTRICITY ACT 1989 CONCERNING CONNECTION COSTS AT THE PREMISES

1 INTRODUCTION

1.1 The Gas and Electricity Markets Authority (the "Authority") has been asked by [redacted] (the "Customer's Agent") on behalf of [redacted] (the "Customer") to determine a dispute between the Customer and [redacted] (the "Company"). The dispute concerns the costs associated with an upgraded electrical power connection at the Customer's development at Borast[redacted] (the "Premises").

1.2 The dispute has been referred to the Authority for determination under section 23 of the Electricity Act 1989 (the "Act"). The Authority is required to determine such disputes once a person requiring a connection has requested it to do so.

2 BACKGROUND

2.1 This dispute concerns the reinforcement charges imposed by the Company for the provision of an upgraded Available Supply Capacity (ASC) to the Premises. The original ASC for the Premises is disputed by the parties. The Company states that the ASC was originally set at 3MVA increasing to 3.5MVA on 2 September 2004. The Customer states that there was no agreement in place prior to 2 September 2004 when the ASC increased to 3.5MVA.

2.2 The Customer originally requested an ASC of 4.5 MVA but accepted 3.5MVA as an interim arrangement due to the limited capacity of the 33/11kV transformers at Tenbury Primary. The Company sent two formal offers to the Customer outlining

the technical requirements and contributions required for the reinforcement works. The first offer dated 15 September 2004 was for the sum of £38,023.41 and the second offer dated 7 December 2004 was for the sum of £33,304.61. The second offer was accepted and paid by the Customer. This work was completed during 2005 and the ASC of 4.5MVA was provided to the Premises during late January 2006.

2.3 The scheme agreed between the Company and the Customer was based upon the replacement of the two 33/11kV volt transformers at Tenbury Primary and the up-rating of two sections of 11kV cable. It was agreed that the costs for the replacement of the two transformers (at approximately £153,000) would be met by the Company as they were included in their Long Term Development Statement proposals for the area. All of the other works were considered to be reinforcement works and costs were 'separately' apportioned under the 25 per cent rule.

2.4 The issue in dispute relates to the charges for the remaining work relating to the upgrading of 100 metres of 11kV cable. The charges for the cable (£33,304.61) were paid by the Customer in order to progress the connection but the Customer believes the work has not been correctly calculated and apportioned under the 25 per cent rule. On 29 December 2006 the Customer's Agent referred the dispute on behalf of the Customer to the Authority for determination under section 23 of the Act.

3 VIEWS OF THE CUSTOMER

Basis of Complaint

3.1 The Company's Agent was requested by the Customer to make observations and recommendations regarding the reinforcement charges that were imposed by the Company for the provision of an upgraded electrical power connection to the Premises.

3.2 The Customer's Agent states that the original application request by the Customer to the Company was made in early 2004 for an up-rated connection had effectively "stalled" due to what were perceived to be unreasonable budget charges which the Company proposed to impose. The Customer's Agent states that the existing connection to the Premises had an available capacity of approximately 3.5MVA at 11kV and an increase to 4.5MVA was requested by the Customer. The Customer's Agent states that there is some dispute as to the original ASC for the Premises; the Company states that it was originally set at 3MVA but never advised or confirmed increasing to 3.5MVA on 2 September 2004. The Customer's Agent states that there was no agreement in place with the Customer until September 2004 and that it was only put in place at this time and at the request of the Customer in order to set a basis for the ongoing negotiations.

3.3 The Customer's Agent states that the original discussions started in early 2004 and, having discounted a number of scheme options, the optimum scheme was based upon the replacement of the two 33/11kV transformers at [redacted] and the up-rating of two sections of 11kV cable. Following protracted negotiations, it was agreed that the costs for the replacement of the two transformers (at approximately £153,000) should be met by the Company. The replacement of the two transformers was eventually completed during 2005 and full capacity afforded to the Premises in late January 2006. The Customer's Agent states that all of the works at the Premises were considered to be attributable to reinforcement and costs for both parts of the works were 'separately' apportioned under the 25 per cent rule.

3.4 The Customer's Agent states that the remaining work, relating to the upgrading of two sections of 11kV cable with a route length of 100 metres, was the subject of further discussions but the charges (amounting to £33,304.61) have been paid by the Customer in order to progress the connection.

3.5 The Customer's Agent states that the basis for the complaint is that the Customer has paid for works associated with the installation of two 11kV cables, which were

installed as up-stream reinforcement and for which they should not have been liable for costs had they been correctly calculated and apportioned under the 25 per cent rule. The Customer's Agent adds that the methodology employed by the Company to apportion the up-stream reinforcement costs is considered to be incorrect and outside the spirit of their Licence Condition 4 statement ("LC4 Statement").

Circuit Parameters

3.6 The Customer's Agent states that the Company did not originally comply with requests to provide plans, calculations or loading details on which to base any calculations or assessments but following discussions with the Company these issues have now been resolved and the plans and data provided.

3.7 The Customer's Agent states that the Company makes reference in a letter (dated 22 October 2004 relating to the application of the 25 per cent rule with relation to cable ratings and the application of associated utilisation factors as defined under Engineering Recommendation P17 ("ER P17")) to the calculation of an "effective capacity" for individual cable sections. The Customer's Agent is unable to find any reference within either the Company's LC4 Statement or ER P17 which would give rise to the definition of or relevance of "effective capacity" in determining the charging methodology for this scheme. The Customer's Agent believes that the following details represent the parameters for the connection:

- there was no connection agreement or separate ASC in place at the commencement of the negotiations;

- the Customer was under the impression that their ASC was in the order of 4MVA (the ASC in place with the previous site owners) with no indication of review by the Company at the time of the change of tenancy;

- the first connection agreement between the Company and the Customer was therefore dated September 2004 and was for 3.5MVA (approximately 182 amps);

- the initial capacity requested by the Customer was for 4.5MVA (approx 235 amps);

- the incremental increase in load was therefore 1MVA (approximately 52 amps); and

- suggested circuit ratings prior to any up-stream reinforcement work, and derived under ER P17 has been stated by the Company to be 314 amps.

3.8 The Customer's Agent states that it is at this point that the Company have applied a 50 per cent "utilisation factor" to the sustained rating so reducing the circuit rating to 157 amps. The Customer's Agent adds that if this were the rating of the main and reserve circuits then the circuits would actually be incapable of carrying the normal load associated with the original connection let alone the proposed increase. The Customer's Agent adds that the Company have stated that the "effective capacity" is the figure used to assess the Customer's contribution to the costs rather than the actual circuit capacity derived under ER P17.

3.9 The Customer's Agent has suggested to the Company that the sustained cable rating is in fact 314 amps on each of the main and reserve circuits, thus providing for a group demand on the two circuits of approximately 6MVA and not the 3MVA suggested by the Company. The Customer's Agent states that they have referred the Company to their own network design planning manual (the "Network Design Manual") and suggested that a sustained cable rating is defined within this document and that definition states that the utilisation factor applied is 100 per cent i.e. "cables supplying industrial and large commercial loads where loads close to maximum demand are sustained for long periods".

3.10 The Customer's Agent states that the origins of the 50 per cent and 75 per cent "utilisation factors" only apply to 5 day distribution ratings and the operating parameters are again stated within the Network Design Manual. The Customer's Agent adds that the definition confirms that the utilisation factor actually applies

to the ratings given to a circuit and is dependant upon the network configuration under consideration. The Customer's Agent states that in this instance the ratings associated with 50 per cent and 75 per cent "utilisation factors" are both appropriate. The Customer's Agent adds that this is not to say that it is acceptable for the Company to apply a further second "utilisation factor" on top of the listed "utilisation factor". They state that this has been proposed by the Company and that it effectively halves the actual and stated cable ratings.

3.11 The Customer's Agent states that they have been unable to reconcile the reasoning behind, or the definition of "effective capacity" as detailed by the Company. The Customer's Agent states that correspondence between the Company and the Customer's Agent shows that the Customer's Agent has requested an explanation for the application of the 50 per cent "utilisation factor" and its subsequent implementation, however, no response has been forthcoming from the Company. Furthermore, the Customer's Agent considers that where ambiguity exists within the current edition of the Company's LC4 Statement this should be addressed as a matter of urgency. The Customer's Agent states that consideration should now be given to the recovery of costs by the Customer from the Company on the assumption that the Company is unable to substantiate their charging methodology.

3.12 The Customer's Agent has provided the Authority with tables provided by the Company showing the Company's interpretation of the assessment for the application of the 25 per cent rule. This table can be found at Appendix One to this determination. The Customer's Agent has also provided tables, in a similar format and based on incremental capacities of 1MVA and 1.5MVA (adopting the Company's suggestion that the initial ASC was 3MVA but the Customer's Agent asserts that there is nothing to support this argument), see Appendix Two to this determination.

3.13 The Customer's Agent states that in both of the tables at Appendix Two the increase is less than 25 per cent. The Customer's Agent goes on to add that the Customer would have been happy to marginally reduce their requested capacity if it would have also reduced the capital charges for the provision of the incremental increase. The Customer's Agent adds that with regard to the table shown in Appendix One to this determination the Company's application of the suggested "utilisation factor" and the subsequent calculation of the "effective capacity" do not stand up to scrutiny.

3.14 In conclusion, the Customer's Agent states that they have engaged in direct and protracted communication and consultation with the Company's Network Strategy Managers but they are still not in a position to accept the substance and reasoning behind the Company's technical stance. The Customer's Agent adds that they are therefore unable to accept the Company's reasoning for the imposition of the additional charges for the reinforcement works.

4 VIEWS OF THE COMPANY

Background Information

4.1 The Company states that the Customer's original ASC was 3MVA and the effective date for tariff assessment i.e. when they took responsibility for the energy account from the previous owner/occupier was January 2003. An initial request was received to increase the capacity to 3.5MVA which was agreed to at no charge but this was the maximum permissible increase allowed at that time due to technical constraints on the existing distribution system. The details were outlined in a formal offer letter dated 2 September 2004 and the revised effective date for tariff assessment was 6 September 2004.

4.2 The Company states that a subsequent request was received to increase the capacity further to 4.5MVA which equated to a total increase in capacity of 1.5MVA. The Company states that two additional formal offer letters were sent to the Customer outlining the technical requirements and contribution required

towards the reinforcement works, the first dated 15 September 2004 for the sum of £38,023.41 and the second dated 7 December 2004 for the sum of £33,304.61. The Company states that the former offer included the use of copper cables for the reinforcement works which provided the ability for future expansion for the Customer whilst the latter offer provided only for aluminium cables. The latter offer was accepted on 10 December 2004 by the Customer and payment received by the Company and a programme of works commenced. The Company states that it should be noted that the final reinforcement works were undertaken using copper cables and not aluminium, at no additional cost to the Customer as this was considered to be the better technical solution to meet the existing and anticipated future distribution system requirements.

4.3 The Company states that to enable it to provide the additional capacity there was also a requirement to undertake reinforcement works at Tenbury Primary which was already running at firm capacity. This reinforcement was based on the replacement of two 33/11kV transformers and associated plant and equipment and was the reason to limit the initial increase in ASC to 3.5 MVA.

4.4 The Company notes that this work had been considered sometime previous to the final connection strategy being determined for the Customer and had been included in the Company's Long Term Development Statement proposals for the area therefore the costs to undertake this work for the connection at the Premises was not included in the assessment for the reinforcement contribution required from the Customer.

Statutory Obligations

4.5 The Company states that the main overriding statutory requirements that are applied to the technical assessment and methodology for all connection enquiries, including this scheme, are as follows:

- Section 9 of Act 1989 – General duties of licence holders

- Section 9(1) – It shall be the duty of an electricity distributor to develop and maintain an efficient, co-ordinated and economical system of electricity distribution.

- Standard Conditions of the Electricity Distribution Licence – 1 June 2008.

- Condition 13 – Charging methodologies for use of system and connection.

- Section 13.1(b) – The licensee must at all times have in force, a connection charging methodology which the Authority has approved on the basis that it achieves the relevant objectives.

- Condition 24 – Distribution planning standard and quality of performance reporting.

- Section 24.1(a) – The licensee must plan and develop is Distribution System in accordance with a standard not less than that set out in Engineering Recommendation P2/6 of the Energy Networks Association ("ER P2/6") so far as that standard is applicable to it.

4.6 The Company States that for compliance with the above statutory duties, the basic design principles applied to the technical assessment and methodology for all connection enquiries, including this scheme, are as follows:

- Establish the Customer's overall connection requirements and ASC for a new or increased capacity connection i.e. electrical load in kVA or MVA.

- Determine the geographical location in relation to the existing distribution system cables, plant and equipment etc.

- Undertake a technical study to include:

- Establishing the normal and optimum feeding criteria based on the existing distribution system circuit arrangement(s) together with the most appropriate single alternative i.e. normal and standby circuits based on ASC requirements.

- Establishing if reinforcement work is required to the existing distribution system to accommodate the new or increased capacity e.g. overlay cables and/or replace plant and equipment. Consideration will be given to the relevant voltage at the point of supply (POS), i.e. the metered voltage and where applicable, "one voltage level" above, for example, to provide an 11kV POS may require reinforcement at a 33/11kv primary substation transformer where a new load exceeds the firm capacity of the substation.

- Consideration will also be given to the requirements of ER P2/6 for group demand where applicable. The requirements are not applicable to an individual customer connection i.e. where a new or increased capacity connection cannot be provided from the existing distribution system assets, then the customer will be treated as a "sole user" and may have to fund both their connection and associated reinforcement assets as required.

- Determine the size and rating of cables, plant and equipment based on the Company's primary and secondary Network Design Manuals and associated industry guidelines, to provide the connection and associated reinforcement assets as required.

- The provision of a formal offer which outlines the technical and financial requirements for the connection the relevant customer has requested.

The Complaint

4.7 The Company understands that the dispute relates to two specific issues:

- The technical assessment and methodology applied to the original circuit configuration and in particular, the justification of applying an additional 50 per cent "utilisation factor" to the original cable size and rating to determine what the Company deems as "effective capacity". The Company is aware of the Customer's Agent's views this is an unknown industry term without an appropriate definition and therefore the Customer's Agent believes it is incorrect terminology. The Company believes that the fundamental basis of the complaint is that any technical assessment should be based on the rating tables contained within the Network Design Manual which are derived from guidelines contained within ER P17. The Company understands that the Customer's Agent believes that any additional correction factors applied to the published ratings to cater for operational utilisation i.e. "effective capacity" are incorrect.

- The subsequent application of the 25 per cent rule based on the above technical assessment resulting in the contribution from the Customer towards the reinforcement for the increase in capacity. The Company is aware that the Company's Agent believes this charge is unjustified.

4.8 The Company states that the LC4 Statements applicable to this dispute were effective from 1 January 2004 and 1 April 2004 and that any references made are applicable solely to these documents and not any subsequent versions.

4.9 The Company states that the term "effective capacity" is defined within the statements as "the maximum capacity under normal operating conditions of a distribution asset (existing) assuming voltage and frequency parameters are met." The Company explains that to ensure compliance with its statutory obligations through the application of the basic design principles outlined in paragraph 4.6 above they always consider the "effective capacity" of any distribution asset and not just the standard ratings that may be applied to cables, plant and equipment. The Company adds that the assessment of "effective capacity" has to take into consideration not only the overall circuit loading of cables, but also the

"utilisation" (defined in [redacted] as "the percentage of a cable's distribution rating which is not exceeded during its normal operational condition").

4.10 The Company explains that the actual design criteria to ensure compliance with the above requirements and that applied to determine the correct connection strategy for any scheme is contained within the Network Design Manual which is available to be downloaded from its website. The Company adds that for this scheme the parameters outlined in section [redacted] of the Network Design Manual 'HV Metered Supplies' were considered and in particular, the section entitled 'Ring Mains' which is also supported by section [redacted] of the Network Design Manual '11kv Circuit Configuration and Loading'. The relevant paragraphs from this section state:

- Cable ratings on ring mains shall be based on the winter 5 day distribution rating – 50 per cent or 75 per cent utilisation as appropriate to the type of circuit (the Company states that this is also in-line with the conditions outlined in the relevant tables contained in Part 1 of [redacted]).

- The 5 day distribution ratings assume a mix of domestic, industrial and commercial loads, if the ring consists of exclusively industrial/commercial load then sustained ratings may have to be used.

- Whilst the normal open point should be located to split the load approximately 50/50 over the two halves of the ring, it may sometimes be necessary to apply 60/40 or even a 70/30 split depending on circumstances. In this case, 75 per cent utilisation ratings must be applied to the cables."

4.11 The Company explains that based on this criteria they will apply either a 50 per cent or a maximum of 75 per cent "utilisation factor" to any circuit configuration to ensure compliance with their licence obligations. The Company therefore considers that the application of a 50 per cent "utilisation factor" to the original

sustained cable rating for the Premises of 314 amps is justified. The details of this can be found summarised in the table at Appendix One to this determination.

4.12 The Company states that as part of the initial technical study it was established that the average load on the existing and normal circuit was 240 amps, i.e. 75 per cent utilisation being the maximum permissible. The Company explains that the majority of the load on this circuit was attributed to the Customer being 3MVA (157.46 amps). The Company states that when the actual increase of an additional 1.5MVA is considered, the anticipated circuit load would have increased to 240 amps + 79 amps = 319 amps thereby exceeding the sustained cable rating capacity of the existing arrangement. The Company adds that an assessment of the alternative (standby) provision under the then ER P2/5 (now ER P2/6) requirements on the remaining 11kV circuits could not support the above.

4.13 The Company understands that the Customer's Agents view is that the full 314 amp sustained rating should have been used in the assessment i.e. 78.73 amps divided by 314 amps x 100% = 25.07%. The Company states that it is their view that by applying this methodology based on the above technical justifications, the outcome would still have exceeded the 25 per cent rule parameters.

4.14 The Company states that with regard to the application of the 25 per cent rule their connection charging methodology statement (section 2.6) states that "reinforcement of the existing system (which for the purpose means works occasioned by the new or augmented connection but not for its sole use), will be charged for, subject to the following:

- No charge will normally be made for reinforcement of the existing distribution system if the new or increased load requirement does not exceed 25 per cent of the existing "effective capacity" at the relevant points on the system. Previous related increases will be taken into account in deciding whether this aggregate load requirement meets the 25 per cent test. In certain circumstances, this 25 per

cent test will not apply in particular, it will not apply if the connection is at EHV (i.e. at a voltage level at or higher than 22kV or at a substation with a primary voltage of 66kV or above).

- In general, charges will not take into account reinforcement at more than one voltage level above the voltage of connection."

4.15 The Company states that the above 25 per cent rule criteria was applied to the scheme in justifying the relevant reinforcement charge. The Company concludes that they are of the opinion they have fulfilled all of their obligations to the customer in applying the technical and financial charging methodology requirements for the provision of an increase in connection capacity.

5 STATUTORY OBLIGATIONS

5.1 Under section 19(1) of the Act, an electricity distributor may require any expenses reasonably incurred in providing any electric line or electric plant to be defrayed by the person requiring the connection to such an extent as is reasonable in all the circumstances. Under section 19(4) of the Act, such expenses included in the recovery of the capitalised value of any expenses likely to be incurred in continuing to provide the electric line or electric plant

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5.2 Any dispute arising under sections 16 to 21 of the Act, between an electricity distributor and a person requiring a supply of electricity may be referred to the Authority under section 23 of the Act for determination.

5.3 The works undertaken is a connection that falls within the statutory obligations set out above.

6 DISCUSSION/CONCLUSIONS

6.1 Both parties have agreed in writing that their arguments are reasonably reflected in sections 3 and 4 of this determination. The issue that the Authority is determining is whether the cost of reinforcing the network necessary to allow the Customer to increase its ASC should have been met by the Company rather than the Customer.

6.2 Having sought further clarification as to the facts from both parties, carefully considering the arguments reflected in sections 3 and 4 and in conjunction with discussions in the oral hearing that took place on 1 October 2008, and subsequent written submissions from the parties (further to the Authority's requests for clarification), the Authority has considered the following issues in this determination.

- The ASC for the Premises at the time that the new tenant, the Customer in this determination, occupied the Premises;

- The incremental increase in the ASC required by the Customer for the Premises (the numerator in the 25% rule);

- The capacity of the network supplying the Premises prior to its reinforcement, referred to by the Company as the "effective capacity" (the denominator in the 25% rule); and

- The ratio of the incremental increase in the required ASC for the Premises and the "effective capacity" (the "25 per cent rule"). Under the LC4 statement that applied at the time, the value of this ratio determined whether the network reinforcement cost should be met by the Customer or the Company.

6.3 These issues are discussed in turn below and are followed by the Authority's conclusions. It should be noted that the discussion of ASC uses MVA as the unit of capacity whereas for the discussion about network capacity, amps (A) is used. In the conclusion both units are quoted so that the links to the text are clear.

The Available Supply Capacity (ASC) and incremental increase in ASC for the premises

6.4 In the oral hearing that took place on 1 October 2008, the Customer's Agent argued that when the new tenant occupied the Premises, the Customer assumed that the available capacity was 4.0MVA at 11KV. The Company argues that the Customer's original ASC was set at 3MVA and it received an initial request to increase the capacity to 3.5MVA and this was agreed at no extra charge to the Customer. The Company adds that it subsequently received a further request to increase the capacity to 4.5MVA.

6.5 The Company has explained that the ASC for a premise is set out in a connection agreement between a connectee (or customer) and the Company. In the event of a change of tenancy, unless the ASC is subsequently reduced or increased at the request of the new occupier, the Company asserts that it is reasonable to assume that, unless notified otherwise, the existing ASC will continue. The Company also confirmed that it may not always be aware that a customer has vacated and that a new customer has occupied a premises. In such circumstances the Company will be unclear on the new tenant's capacity requirements.

Determining the ASC

6.6 The Authority notes the positions of both parties on the applicable ASC for the Premises. In making a decision on this issue, the Authority has received and reviewed the following documents:

- Agreement between [redacted] (the "Previous Tenant") and [redacted] ("MEB") to reduce the ASC to 20 kVA – signed 15 February 1999;

- Correspondence between the Customer's Agent and the Company regarding the capacity requirements for the Premises;

- The Company's applicable LC4 Statement; and

- Distribution Use of System (DUOS) charges levied by the Customer's supplier.

Agreement between Previous Tenant and MEB

6.7 The agreement between the Previous Tenant and MEB confirms that the Previous Tenant, requested a reduction in its available capacity to 20kVA. However, this does not provide an indication of the ASC that was set at the time and would have applied on an on-going basis after the change of tenancy (when the Customer occupied the Premises).

Correspondence between the Company and the Customer's Agent concerning the Customer's capacity requirements

6.8 We have received and reviewed correspondence between the Company, the Customer's agent and the Customer that discusses the ASC and the Customer's capacity requirements. These are discussed below:

- In a letter of 4 September 2007 to the Customer's Agent, the Company explains that no formal connection agreement was in place when the Customer occupied the Premises. The Company's letter explains that the capacity charges are based on a rolling demand and the highest recorded value was 3.076MVA, therefore, the Company used 3MVA for the maximum demand charge calculation. The letter also explains that it received a request from the Customer to increase the

capacity required to 3.5MVA and a formal offer was produced dated 2 September 2004 which explained that the capacity could be provided at no cost without the need for reinforcement. The Company's letter also explains that a revised formal offer was provided to increase capacity to 4.5MVA which required reinforcement works with a customer contribution of £38,304.61.

- The Company's budget quote of 28 July 2004 sets out a number of options to support an increase in capacity to 4.5MVA.

The Company's applicable LC4 Statement

6.9 The Authority has reviewed the Company's LC4 Statement connection charging methodology that was applicable at the time of the change of tenancy dated May 2002. The Authority notes that the methodology does not provide a definition of how the Company will derive an ASC in the event of a change of tenancy or that the ASC is generally set in a connection agreement.

DUOS bills provided by the Company

6.10 The Company has provided DUOS bills which cover the period between the Company occupying the Premises and September 2004 when the ASC was set at 3.5MVA. The DUOS bills confirm that the electricity consumption was below or close to 3MVA.

ASC - The Authority's Views

6.11 In the event of a change of tenancy involving a non-domestic customer it is important for the new tenant, their appointed supplier and the relevant distribution Company to determine and agree the electricity network capacity requirements of a premises. This is necessary to ensure that justifiable and accurate bills are provided and to ensure that the relevant distributor is able to deliver efficiently the required capacity requirements. For example, the Customer concerned will be aware of their electricity supply requirements which will be

closely linked to the use of a premises. For example, if a new tenant's electricity consumption is mainly for lighting, then a revised lower ASC may be required. However, if the Customer wishes to run a production facility on the site, then the existing ASC may be appropriate, if not an increase in network capacity may be requested

6.12 Determining the ASC is also an integral part of a distributor's duty to run an economic and efficient distribution network. That is, the distributor should take steps to ensure that it is aware of a customer's capacity requirements for network planning purposes and to ensure that there is clarity about the starting position if a customer requests an incremental increase in their network capacity requirements. This is of particular relevance for customers with large loads such as this determination case.

ASC - The Authority's Conclusions

6.13 We have been unable to confirm whether the Customer requested an interim capacity of 3.5MVA and this is a point that is disputed by the Customer's Agent. There is therefore no conclusive evidence as to whether the initial ASC of the Customer was 3MVA or 3.5MVA. The Authority concludes that the Company should have taken steps to formalise the capacity requirements through a connection agreement. The Authority notes that there was no formal agreement in place detailing the ASC at the time when the request for the 4.5MVA was made and the interim arrangements were only put in place in September 2004 when it was set at 3.5MVA. The Authority therefore concludes that it was not appropriate for the Company to levy an incremental increase in the ASC as the difference between the required ASC (4.5MVA) and the rolling ASC of 3.0MVA. That is, the Company was not justified in charging the Customer for a capacity increase where the initial ASC was not previously set and agreed in a contractual arrangement.

The capacity of the network supplying the Premises prior to reinforcement

6.14 The capacity of the network supplying the Premises prior to its reinforcement is referred to by the Company in this determination document as the "effective capacity". The Company defines "effective capacity" (section 4.15 refers) as: "the maximum capacity under normal operating conditions of a distribution asset (existing) assuming voltage and frequency parameters are met." We note that this was not defined in the LC4 Statement that was applicable at the time of the request for an upgrade (dated May 2002). The Authority is of the view that this definition of "effective capacity" is not precise and is open to interpretation. The Authority is not aware of an industry standard interpretation of the quantity referred to as "effective capacity". The Company has stated to the Authority[1] that the calculation of "effective capacity" "cannot always be considered an exact science or assessed in isolation to other factors known or unknown". This supports our view that this quantity is open to interpretation. In order to determine this case therefore it is necessary for us to give careful consideration to what would be a more precise definition of it.

6.15 The Customer's Agent argues that the "effective capacity" should be the capacity of the distribution asset that provides the supply to the Premises under normal operating conditions. The Company has proposed two different methodologies for determining it. The first of these, Option 1, is described in Section 4 of this determination. A further report was produced by the Company following the oral hearing that describes both Option 1 and a further Option 2. Option 1 considers the capacity of the feeder supplying the Customer in isolation but, in contrast to the Customer's Agent's view, only using a proportion of the full rating of the asset. Option 2 considers the capacity of both the normal supply feeder and the alternative supply feeder – i.e. both halves of a conventional 'ring' circuit design. Each of these options is now discussed in more detail.

[1] Addendum to Central Network's Technical Report of 16 October 2008

Customer's Agent's Approach

6.16 The Customer's Agent's interpretation of "effective capacity" is the full rating of the feeder supplying the Customer which the Customer's Agent believes to be 314 amps, the sustained summer rating of the cable. There is some logic in this argument because the definition of "effective capacity" refers to "the capacity... of a distribution asset" under "normal operating conditions" It also seems reasonable to assume that "normal operating conditions" means an intact system.

The Company's Approach

6.17 As explained above, the Company has described two approaches to the derivation of the "effective capacity". Option 1, which is described in this document, is to take the full rating of the cable supplying the premises, agreed by both parties to be 314 amps, and apply a factor to it to ensure that the cable is not fully utilised in normal operation but can support additional load in the event of the failure of another part of the ring circuit. The Company claims that this is necessary to meet its statutory obligations. The Company states that either a 50% or 75% utilisation factor is used in its methodology. In this case it argues that the 50% figure should apply but does consider both the 50% (157A) and 75% (235.5A) cases in the calculations set out in Appendix One to this determination.

6.18 Option 2, which was not originally presented in the Company's statement, considers both the circuits forming the two halves of the ring. In this approach, the "effective capacity" is the rating of the weakest side of the ring. This ensures that all customers can be supplied even when the stronger circuit of the ring fails. The Company states that, using this approach, the "effective capacity" is 223A, the rating of a section of overhead line in the alternative supply route to the Premises.

Effective Capacity – The Authority's View

6.19 It is clear from the above that the imprecise definition of "effective capacity" causes considerable uncertainty as to its actual value. The Authority accepts that

there is some logic in the Customer's Agent's argument. However, the use of the term "Effective" in the denominator term does suggest that it refers to a quantity that may not simply be "the capacity...of a distribution asset". It could, alternatively, be interpreted as:

- the usable capacity taking account specific constraints that reduce the supply capacity; or

- the secure capacity taking account of the most onerous contingency for the specific section of the network.

6.20 The Authority has also considered the interaction of ER P2/6 with "effective capacity". The Company has a licence obligation to plan and develop its system in accordance with a standard not less than ER P2/6. ER P2/6 indirectly sets the capacity that a network must provide by specifying the network's response in the event of circuit outages. For networks that support a demand of between 1 to 12MW, the group demand less 1MW must be met within 3 hours of a circuit outage. The section of network that supplies the Premises falls into this category. Therefore, it can be argued that the "effective capacity" is determined by the capacity of the alternative supply, the Company's Option 2. We consider this to be a more appropriate methodology than the Company's Option 1.

Effective Capacity – the Authority's conclusion

6.21 Having considered the various options for defining the "effective capacity", the Authority has concluded that the most appropriate methodology is Option 2 as presented by the Company. However, the Authority can appreciate that the Company's definition of "effective capacity" can easily be interpreted in the way that the Customer's Agent has argued for. Additionally, if the Company's Option 2 is linked more closely to ER P2/6, it can be argued that the "effective capacity" can be assessed as the capacity of the weakest circuit plus 52.5A (1MW). This is because ER P2/6 allows 1MW of demand to remain unsupplied for the duration of

the first circuit outage. The Authority has concluded that "effective capacity" should take account of the requirements of ER P2/6 but that because its definition is unclear, three values for "effective capacity" should be tested in this determination. These are:

- Customer's approach – 314A
- Company's Option 2 – 223A
- ER P2/6 – 275.5A

Applying the 25% rule

6.22 Having considered in detail the ASC and the "effective capacity", the numerator and denominator respectively of the 25 per cent rule equation, we can now combine the two to establish what results are achieved for the different methodologies for "effective capacity".

	Methodology	Increase in ASC (Numerator)	"Effective Capacity" (Denominator)	Result
Case 1	Customer's Agent's position	52.5A (1MVA)	314A	16.7%
Case 3	Company – Option 2	52.5A (1MVA)	223A	23.5%
Case 4	ER P2/6	52.5A (1MVA)	275.5A	19.1%

6.23 In all cases the ratio is less than 25 per cent. The Authority therefore concludes that it was inappropriate for the Customer to pay the reinforcement works.

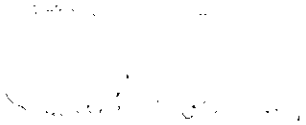
7 DETERMINATION

7.1 Having due regard to the points outlined above, the information and evidence provided by the parties and representations in the oral hearing, the Authority has formed the view that for the reasons discussed in section 6 of this determination,

the Company was not justified in charging for the reinforcement works undertaken and the Customer should be refunded £33,304.61.

7.2 This document constitutes a notice stating the reasons for the Authority's decision for the purpose of section 49A of the Act.

Rachel Fletcher (8 April 2009)



Director Distribution

Duly authorised on behalf of the Gas and Electricity Markets Authority

Appendix One

Summary of the Company's Application of the 25% Rule

Option 1 Methodology

Description	**MVA at 11 kV**	**Amps at 11 kV**
1. Original ASC	3.0	157.46
2. Interim Increase	3.5	183.71
3. Final Increase	4.5	236.20
4. Actual Total Aggregate Increase	1.5 (Item 3 – Item	78.74 (Item 3 – Item 1)
	Amps at 11kV (Sustained Rating)	
Original Circuit (0.2 in^2 Cu Cable Rating – Sustained Laid Direct	314 Table 3.3.1.5.F Company's Network Design Manual	
Utilisation Factor	**50 %**	**75%**
6. "Effective Capacity"	157 (item 5 x 0.5)	235.50 (Item 5 x 0.75)
7. 25 % Rule Apportionment	50.15% (Item 4/Item 6 x 100 %)	33.43 % (Item 4/Item 6 x 100%)

Appendix Two

Summary of the Customer's Application of the 25% Rule

1MVA Increase

Description	**MVA at 11kV**	**Amps at 11kV**
Original ASC	3.5	184 amps
Increase	4.5	236 amps
Actual Incremental Increase	1	52 amps
	Amps at 11kV (Sustained Rating)	
Original Circuit 0.2inCu Cable rating	314 amps	
Utilisation Factor	**100 %**	
Actual Capacity (AMPs)	314 amps	
25% Rule Apportionment	78 amps	
Percentage Increase	16 %	

1.5MVA Increase

Description	**MVA at 11kV**	**Amps at 11kV**
Original ASC	3.0	157 amps
Increase	4.5	236 amps
Actual Incremental Increase	1.5	78 amps
	Amps at 11kV (Sustained Rating)	
Original Circuit 0.2inCu Cable rating	314 amps	
Utilisation Factor	**100 %**	
Actual Capacity (AMPs)	314 amps	
25% Rule Apportionment	78 amps	
Percentage Increase	24 %	