DETERMINATION DECISION 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 Embedded Network Owner" ("ENO")) to determine a dispute between the ENO and [redacted] ("the Company"). The dispute concerns the connection costs at [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 if asked by either party to do so.

2 BACKGROUND

2.1 The ENO has an agreement with a customer to build an electricity network with a capacity of 40MVA to enable an electricity supply to the Premises. The network will be embedded in the Company's distribution services area and will be connected to its extra high voltage (EHV) system. The ENO initially enquired about a connection to the Company's network in November 2007. The parties then met to discuss how to make 40MVA available. The Company stated that it would be necessary for:

- a third 132kV circuit to be installed between [redacted] substation and [redacted]; and
- a third 132/33kV transformer with an additional 33kV switchboard section to be installed at [redacted].

2.2 During subsequent negotiations the parties discussed completing this work in two phases and came to a formal agreement in December 2007.

2.3 The first phase is a 20MVA supply made available on an interim basis with a Point of Connection (POC)[1] on the Company's 33kV switchboard at its [redacted] substation. The network design for this first phase included laying two 33kV cable circuits from [redacted] substation to a new 33/11kV substation to be established at the Premises. The formal agreement for the first phase was accepted by the ENO on 20 February 2008 and work is complete. The ENO paid the Company £82,317 for the non-contestable works[2]; there was no charge for the provision of the existing 33kV circuit breakers at [redacted] substation, only for the works of refurbishment/maintenance necessary to bring them into service. The ENO made it clear to the Company that it would continue to challenge the requirement for what it terms as the two 33kV sequential circuit breakers at the Premises.

2.4 The second phase of the project will allow the available capacity to be increased from 20MVA to 40MVA. The Company will construct an additional 132kV circuit from [redacted] grid supply point (GSP) and install a 90MVA 132/33kV transformer and an associated 33kV switchboard extension at [redacted] substation. A further quotation for the full 40MVA capacity was issued on 17 March 2008 and amounts to £4.85m. The formal agreement for the second phase was entered into on 20 June 2008. The ENO conditionally accepted this quotation in order to progress the project.

2.5 The issues in dispute relate to the requirement for the so-called sequential circuit breakers to be installed downstream of the Company's existing 33kV circuit breakers at the Premises and the manner in which the Company has apportioned the connection costs in respect of the Premises. The ENO referred the dispute to the Authority for determination on 20 May 2008.

3 VIEWS OF THE ENO

3.1 The ENO states that it has actively pursued a strategy of constructing and operating out of area embedded electricity networks since 2000. The ENO asserts that it has agreements in place for the ownership and operation of over 40 EHV/high voltage (HV) connected networks spread across all the distribution service areas in the UK. Establishing these networks has involved discussions concerning connection agreements with all Distribution Network Operators (DNOs).

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[1] The Point of Connection means the point on the licensee's Distribution system at which the premises will be directly or indirectly connected to that system.
[2] Non-contestable works are connections activities that can only be carried out by a Distribution Network Operator (DNO).

3.2 The ENO states that the Company is the only DNO that is requiring it to install sequential circuit breakers and that the Company's policy contradicts the industry-agreed DNO/Independent Distribution Network Operators (IDNOs) boundary interface arrangements. The ENO adds that it supports these principles and arrangements and applies them when dealing with connection requests for embedded networks from IDNOs operating in its respective distribution areas. The ENO refers to two main areas of dispute that are summarised below.

Sequential circuit breakers

3.3 The ENO states that it agreed to the installation of two 33kV sequential circuit breakers in order for the project at the Premises to commence in time to meet their connection deadline. The ENO states that this interim formal agreement for the first phase of the works was accepted on 20 February 2008 and that at this time it was made clear to the Company that the ENO would continue to challenge the requirement for the sequential circuit breakers.

3.4 The ENO does not agree with the Company's insistence that a sequential circuit breaker arrangement must be provided downstream of the Company's 33kV circuit breakers. The ENO states that the Company cites the requirement for sequential circuit breakers as necessary to allow it to comply with its duties under section 9 of the Act: specifically "to develop and maintain an efficient, co-ordinated and economical system of electricity distribution" ("section 9"), irrespective of ownership. The ENO disagrees with the Company's interpretation of the requirements of section 9 in so far as the need for sequential circuit breakers is concerned and believes that the Company is the only distribution business that interprets section 9 in this way.

3.5 The ENO understands that the Company is concerned with the under-utilisation of "strategic assets", for three reasons: (1) preventing capacity from being made available to other connectees; (2) preventing compliance with security standards; and (3) restricting the switching options for network isolation during, for example, supply restoration. The ENO takes a different view on this from the Company. The ENO interprets section 9 so that embedded distribution networks can be connected directly to another DNO's system without the need for sequential circuit breakers. The view of the ENO is that its experience of owning and operating embedded networks and allowing third parties to connect to their networks demonstrates that a single protection device at the connecting point

between networks, supported by appropriate operating/access agreements, is sufficient to meet all the technical and operation requirements of the connection parties. In the case of the Premises, the ENO's view is that adequate isolation and feeder protection can be provided on the existing two Company circuit breakers at [redacted] substation without the need for additional switchgear and associated graded protection. The ENO believes that this approach would deliver a simplified least cost solution.

3.6 The ENO states that in exceptional circumstances where the party providing the connection can justify the requirement for duplicate protection devices, the party requiring the connection should only be expected to pay for one set of equipment. The ENO cites section 2.2 of the Company's Statement of Basis and Methodology of Charges for Connection to the Electricity Distribution System ("the methodology statement"), which states: "Where the connection designed and/or the Electrical Plant and/or Electric Lines to be installed are of a greater size and capacity than the practicable minimum required for that connection, the excess cost will normally be borne by us". The ENO states that this statement supports its view that, where the Company insists on the installation of sequential circuit breakers, the cost is to be borne by it.

3.7 The ENO strongly believes that a requirement to connect additional sequential circuit breakers at the boundary with embedded networks is having a significant adverse effect on competition in connections. The ENO states that this equipment is expensive; £120k in the case of the connection at the Premises (which excludes the costs of the land and for housing the equipment). It is therefore clear to the ENO that a requirement for competitors to install such equipment, but not for the Company's own connection business to do so, significantly inhibits the ability of rival network operators to compete in the Company's distribution service areas.

POC and Cost Apportionment

3.8 The ENO does not agree with the Company's charges for the second phase as they include the full cost of the proposed reinforcement (which, in the Company's view, is on the basis that the ENO is the sole beneficiary, with second comer rules applying). The ENO contends that the reinforcement of the Company's network upstream of the 33kV switchboard cannot be classed as sole user because the reinforcement is to enable them to increase the restriction in capacity from 20MVA to 40MVA at the ENO's existing POC to the 33kV switchboard at [redacted] substation. As with the first phase, the ENO states that

it has reluctantly and conditionally accepted the Company's network design and quotation in order to progress the project.

3.9 The ENO understands that it will be necessary for the Company to upgrade their EHV electricity network and equipment at [redacted] substation to provide the full 40MVA required for the Premises. The ENO does not agree with the Company's interpretation of the POC for the embedded network. Consequently, the ENO does not agree with the application of the charging arrangements associated with upgrading the electricity network. The Company has stated that the POC is at 132kV and all assets downstream of the POC are considered to be "network extension" and therefore fully chargeable. The ENO's interpretation is that the POC is at 33kV and all assets upstream of the POC are considered to be "reinforcement" and therefore subject to the apportionment rules described in section 2.3 of the Company's methodology statement.

3.10 The ENO states that the Company has informed it that the most cost effective option to reinforce the supply to [redacted] substation is to lay a new 132kV cable circuit from [redacted] GSP and install a 90MVA transformer and associated equipment at [redacted] substation. The ENO is not aware of whether other options such as upgrading the existing plant and equipment have been considered and dismissed. The ENO has raised its concern that it is not aware that the Company's approach results in a technical solution which represents the least cost solution. The ENO is of the view that upgrading the network with 90MVA equipment is likely to be far in excess of what is necessary to meet the additional 20MVA required for the Premises.

3.11 The ENO explains that the Company has requested payment of the full costs (£4.85m) associated with the work based on sole user benefits as it views the work as a network extension. It is the ENO's view that the work is reinforcement of existing shared assets and therefore subject to the apportionment rules. The ENO believes that its capital contribution to the reinforcement scheme proposed by the Company should be around £640,000. The ENO has derived this figure by taking the increase in capacity (20MVA) it requested and expressing it as a percentage (13.3%) of the new firm capacity (150MVA) at [redacted] substation with the additional 90MVA installed, i.e: 20/150 x £4.85m = £640,000. Therefore, the ENO expects to see a substantial reduction in charges from those being proposed by the Company.

Further arguments

3.12 The ENO has received feedback from other customers and consultants of other customers confirming their reluctance to enter into agreements with the ENO to build and operate embedded electricity networks in the Company's areas. The ENO summarises that the views expressed by these customers relate to the need for protracted discussions with the Company in respect of the kinds of issues raised in this determination and their main concern is the uncertainty these issues bring, particularly with regard to potential delays and changes to plan. The ENO states that this also limits its ability to provide important "value added" services to its customers.

3.13 The ENO draws attention to what it views as the Company's inconsistent approach to the application of its design criteria and its connection charging policy. The ENO states, for example, that it has recently connected an embedded electricity network located in [redacted] without the need for sequential circuit breakers. A further example of the Company's inconsistency relates to the way in which it has applied its reinforcement apportionment rules for the redevelopment of a site located in its distribution services area where the ENO states that it is currently negotiating with the relevant customer to carry out the contestable works. The ENO states that this example has very close similarities with the connection at the Premises, yet the way in which the Company has treated it is entirely different. The ENO states this type of inconsistency makes it very difficult to provide accurate and meaningful advice to its customers.

4 VIEWS OF THE COMPANY

4.1 The Company states that the ENO accepted its offer for the interim 20MVA on 20 February 2008.

4.2 The Company argues that its position in this dispute is clearly justified by reference to its general duties in relation to section 9 "to develop and maintain an efficient, co-ordinated and economical system of electricity distribution."

4.3 The Company explains that the legislation does not require the duty to be discharged only insofar as it is practicable (or reasonably practicable) to do so. The Company states that this duty is unqualified and suggests that it is to be

regarded as an overriding objective of the public policy that is set out in the legislative drafting. The Company discusses the duty further and adds that:

- an 'efficient' distribution system is one that is designed and operated to be resilient and reliable, that is maintained and repaired properly and promptly, and that provides essential facilities and services in a convenient and ongoing manner that is consistent with user needs and requirements;

- a 'co-ordinated' distribution system is one that supports diverse network elements that are organised and arranged in proper technical relation to each other in order to ensure an effective operation of the network as a whole; and

- an 'economical' system is one that is cost-effective at any given level of operation and expenditure because it deploys the physical and other resources available to it to the best advantage and in doing so minimises the total financial burden borne by users.

4.4 The Company adds that taking into account its views of its section 9 duty as described above in combination and within the context of the Act, it is clear that the section 9 duty requires an electricity distributor to develop and maintain a distribution system that is reliable and resilient overall, that is designed and integrated in a manner that ensures that the system works properly and effectively for the purpose of distributing electricity, and that avoids wasteful expenditure and makes the most effective use of resources in the best interests of the generality of users.

4.5 The Company understands that there are two matters that are in dispute. One being that the Company will not agree to provide a 33kV point of supply (POS – ownership boundary between the proposed DNO network and the IDNO network) at its [redacted] substation and has proposed that the POS is established remote from the substation. The Company adds that the ENO would prefer a POS at the [redacted] substation. The second matter refers to the Company requiring the ENO to fund all the costs associated with the provision of an additional 132kV circuit between [redacted] GSP and the [redacted] substations. The Company considers this to be a network extension and is therefore fully chargeable. The Company states that the ENO believes this element of works to be reinforcement and therefore should be subject to cost apportionment factors.

Location of the POS

4.6 The Company will not normally specify a POS to be established at any of its primary, main, or grid substations. The Company suggests that this is the case for all categories of connection whether for demand, generation, or IDNO purposes. The Company explains that there may be cases where such an arrangement can be considered appropriate; for example, where the primary, main or grid substation is new and is to be provided for the sole or predominant use of the applicant. The Company adds that this is not a new policy and is the standard legacy practice in all its licensed distribution areas.

4.7 The Company adds that there are a number of reasons why the arrangement proposed by the ENO should generally be avoided. These are:

- Inefficient network design – their section 9 duty requires network operators to develop and maintain an efficient, co-ordinated and economical system of electricity distribution (see paragraph 4.1 - 4.4).

- Impact of major works – the Company believes there would be a significant adverse impact if major works were carried out at the substation. The Company would need to agree proposals, apportion costs, and operate within complex operational processes with any number of parties who might have a POS at the substation. The Company believes this would be inefficient and that it is outside the scope and purpose of its section 9 obligations.

- Control over access – the Company does not want to dilute its controls on access to key operational sites and believes that this is what would happen if it were to provide access to other companies to install, maintain, and read the metering equipment associated with each POS. The Company asserts that this is far more significant a risk than any existing level of risk relating to current joint use sites (whether NGET/DNO or DNO/DNO) due to the large number of companies that could potentially be involved at any particular site and the much larger number of sites that could be subject to such arrangements.

Requirement to comply with section 9

4.8 The Company explains that apart from service assets, distribution systems are provided for the benefit of all users of the distribution system. While DNOs are

required to provide sole use assets in order to provide individual connections, these assets are at the extremities of the network where there is no realistic option for shared use. The Company adds that it would be inappropriate for a DNO to allocate certain assets for sole use if the effect of this is to prevent other existing or potential users of the network from making full and efficient use of those assets.

4.9 The Company therefore suggests that, on that basis alone, it would only be appropriate to allocate primary, main or grid substation assets for sole use if the demand could be matched to the full rating of the assets. The Company concludes that to do otherwise would raise a significant risk that assets will remain under-utilised and that other users will be denied the opportunity to make use of them. The Company suggests that this could result in other users of the system facing higher connection costs and longer lead times for their projects and in the Company's view would mean that it is following a policy and practice that was contrary to the Company's section 9 obligations.

4.10 The Company disagrees with the ENO's view that the Company's position creates the need for sequential circuit breakers. The Company adds that there is a degree of confusion concerning these references. The Company states that the issue of boundary isolation and protection equipment has been discussed in various industry workgroups, and that Ofgem has explained its views in both its July 2005 document (Regulation of Independent Electricity Network Operators) and most recently its letter to the Company dated 8 April 2008 regarding various proposals by the ENO. The Company understands that the intention is to avoid any requirements for duplicate assets to be provided in series at any location solely in order to provide each party with the ability to operate equipment under its own ownership. The Company supports this position subject to the appropriate operational arrangements being agreed between the two parties. However, the Company considers this to be a different issue from the requirement to avoid sequential circuit breakers. The Company suggests that these should be a normal feature of any electricity distribution system and are required to resolve faults from the system and to limit the number of customers impacted by planned or unplanned circuit outages. The Company states that it has explained its position to Ofgem, in a letter dated 2 May 2008.

4.11 The Company adds that it is important for both DNOs and IDNOs to consider their section 9 obligations in respect of developing and maintaining the

distribution network. Also, at a DNO/IDNO boundary or DNO/DNO network boundary (i.e. the POS) there will always be a need for a circuit breaker or another protective device to meet the requirements of the ESQCR (Electricity Safety, Quality and Continuity Regulations 2002). The Company adds that when the downstream DNO/IDNO is not going to use all the capacity available at that point in the network, this may create a need for an additional circuit breaker to be provided and/or for the POS to be established elsewhere. In such situations there would appear to be two alternatives for connection that will allow full use of the circuit capacity to be provided, both of which may require additional circuit breakers. The two options are illustrated diagrammatically as examples (b) and (c) in Appendix 1 to the Company's submissions, where an IDNO has requested a 2MVA capacity connection and the Company's circuit breakers are each rated at 12MVA.

4.12 The Company has provided the following overview of the options detailed diagrammatically in Appendix 1 to the Company's submissions:

- Example (a) shows the arrangement that the Company says is preferred by the ENO. The Company believes that this option would result in its circuit breakers being under-utilised.

- Example (b) shows an alternative arrangement which would allow better utilisation of the Company's circuit breaker. However, this option would require the Company to make a connection to the IDNO's circuits and, because of the further ownership boundary, would also require additional circuit breakers to be installed.

- Example (c) shows the Company's preferred arrangement: this also requires additional breakers but avoids the control and operation issues because of the simpler interface between the Company and the IDNO, and

- Example (d) shows the logical extension of example (b), in which additional IDNOs connect, and it highlights the resulting operational complexity because of the number of control boundaries involved.

4.13 The Company states that the above examples illustrate the direct interaction between section 9 obligations, ownership boundaries, and the need for circuit breakers. The Company states that it would only support the arrangement

illustrated in example (c) as it considers this option to be the one best justified by the requirements of its section 9 obligations.

4.14 The Company does not support example (a) because of the resulting under-utilisation of its assets.

4.15 The Company does not support the arrangements in examples (b) and (d) because of the complex commercial, operational, and control arrangements that would be required (which it considers to be unworkable in practice) and because the arrangement in each case creates unnecessary multiple hand-offs between distributors. The Company believes that such hand-offs are incompatible with its (and the ENO's) section 9 duties to maintain efficient and co-ordinated networks. The Company also believes that the hand-offs would create opportunities for error and therefore are incompatible with its legal duties in relation to safety. The Company states that nevertheless it should be noted that in appropriate circumstances, where the demand matches the circuit breaker capability and there are no other material considerations, the Company may be prepared to accept the arrangements indicated in example (a) above.

Other Considerations

4.16 The Company states that all distributors are aware of the over-estimates of capacity associated with new connection projects. It believes that applicants over-estimate to minimise the risk that the completed project will be inadequate for the actual electrical demand, leading to costly rework, subsequent lengthy project delays, and sometimes even litigation.

4.17 The Company states that this will normally be the case even where the end user customer and his proposed use of the premises are known at the outset. But the effect is even more significant where the project is speculative – that is, where the end user customers and their individual demand estimates will only be known at a later stage. DNO/IDNO connections may be either with a known end-user requirement (as in this case) or speculative.

4.18 The Company states that while a DNO is obliged to prepare a connection scheme capable of delivering the capacity that has been requested, it will normally retain a degree of flexibility in respect of modifications to its distribution system, which it may choose to carry out at a later time if the actual

capacity requirement is then found to be lower than originally requested. Such system modifications may have the effect of releasing capacity for use by other customers. However, in the case of a DNO/IDNO connection, the key point to be considered is that in the highly likely event that the actual demand is found to be less than the capacity requested, and where the DNO has allocated assets at its substation for the sole use of the downstream DNO/IDNO, in practical terms it will normally be impossible for the physical connection and POS arrangements to be modified at any later stage. This is because, at the time that the lower capacity requirement is established, the opportunity for the downstream DNO/IDNO to secure land rights for the POS equipment would have passed (normally being land on the development site in question).

4.19 The Company has further issues with the limitations on space available for outgoing circuits at existing primary, main and grid substation sites. The number of outgoing circuits will always be constrained by the size of either the site or the buildings, sometimes both. The Company states that in inner city and urban areas the substation buildings often fill the site and there is no possibility to extend. The Company believes that if the outgoing circuits are not fully utilised, it may be impossible for the full capacity of the incoming circuits and/or transformer capacity to be used. The Company states that both these inefficiencies would be contrary to its section 9 obligations and may lead to higher charges and delays to other users.

4.20 The Company states that it should be noted that its position on this matter is consistent with the ENA's DNO/IDNO "principles document" (Principles for the Planning, Connection and Operation of Electricity Distribution Networks at the Interface between DNOs and IDNOs – Version 1 dated 28 August 2007). This confirms, at section 4.2, that "The ownership of the 33kV/HV cable feeding the IDNO network shall be agreed between the DNO and IDNO and the decision will need to balance the requirements of the IDNO with the ongoing development of the DNO's system in the area".

Location of the POS for the project at the Premises

4.21 The Company's relevant 132kV network, fed from [redacted], is shown diagrammatically at Appendix 2 to the Company's submissions. The [redacted] substation 33kV bus bar is marked "[redacted]". The Company's relevant 33kV network, fed from [redacted] substation, is shown at Appendix 3 to the

Company's submissions. The Company's connection proposals for the project at the Premises are shown at Appendix 4 to the Company's submissions.

4.22 The Company states that the ENO would have preferred the POS to have been established on the outgoing side of the two existing "spare" 33kV feeder circuit breakers at [redacted] substation. From the ENO's perspective, it is desirable to connect its cables directly to the Company's existing circuit breakers (the ENO's preferred arrangement is illustrated in example (a) of Appendix 1 to the Company's submissions). However, where there is spare capacity in the circuit breaker, the Company states that it is the Company's (and the ENO's) section 9 duty to ensure that capacity is made available to other connectees, either to ensure compliance with security standards or to provide switching options for restoration.

4.23 These circuit breakers are each rated at 1200 amps and therefore have a maximum capability of 69MVA. The Company believes it would be inappropriate to allocate these assets for the sole use of a single party for a demand requirement significantly less than their rating. Even if the full 40MVA declared requirement is reached, there will still be at least a further 29MVA that could otherwise be used to connect other customers or for other network purposes. If the ENO's declared 40MVA level is not reached, then still further capacity would be available for other purposes.

4.24 The Company states that an examination of the Company's network diagrams indicates that it is very often the case for a 33kV circuit breaker at a 132/33kV substation to feed a number of 33/11kV transformers at more than one downstream substation (see Appendix 3 to the Company's submissions). The same principle applies at other voltage levels, as indicated in Appendix 2 to the Company's submissions.

4.25 The Company states that the two circuit breakers at the centre of this case have previously been considered for use as part of a network improvement project. The POS the Company has adopted for the ENO's connection still allows these circuit breakers to be used for a network improvement in addition to providing the ENO's connection. If the Company had adopted the ENO's preferred arrangement, additional circuit breakers would have been needed to progress the network improvement project, subject to any available space constraints.

4.26 The Company also wished to state that the ENO has not been required to fund sequential circuit breakers. The two pre-existing 33kV feeder circuit breakers at [redacted] substation were deemed to be "spare" and were not subject to connection charges for their provision. The Company states that only charges for refurbishment and maintenance were made, as necessary, to bring them into service.

4.27 The Company states that at this stage it has not been provided with the design of the contestable works for approval but understands that the ENO intends to install 33kV metering circuit breakers at the Premises as part of the assets to be offered for adoption by the Company. Alternatively, the ENO has the option to propose that the boundary metering and POS are established on the 11kV switchgear at the substation at the Premises[3].

4.28 The Company also wished it to be recognised that a further reason for selecting the design with the POS remote from [redacted] substation was the need to progress the project without delay in order to meet timescales. The Company states that even if it had been prepared to establish the POS at its [redacted] substation, it would have needed to carry out additional design works and possibly secure a network outage in order to establish whether the existing "spare" 33kV circuit breakers would be suitable for the fitting of the necessary voltage transformers and current transformers required for the boundary metering.

4.29 The Company states that in December 2007 it was presented with an exceptionally short time scale for a project of this size, with quotation, build and commissioning required by June/July 2008. It is the Company's understanding that the associated project delays would have been unacceptable to the ENO.

4.30 The Company states that it should be noted that the Company's decision not to allow the POS to be established at [redacted] substation has not denied the ENO the opportunity to be the connections provider, since the ENO is to install all of the contestable works between [redacted] substation and the ENO and the Premises.

[3] Ofgem understands that this stage has now been completed.

Cost apportionment factors

4.31 The Company states that in order to provide the 40MVA capacity, it will be necessary to:

- provide an additional 132kV circuit breaker at [redacted];
- provide a third 132kV circuit between [redacted] and [redacted] substation;
- provide a third 132/33kV transformer at [redacted] substation; and
- extend the 33kV switchboard at [redacted] substation.

4.32 This is all shown in the diagram included as Appendix 4 to the Company's submissions. The Company states that as Ofgem will be aware, it is necessary to categorise these works as either "network extension" or "reinforcement" in order to decide if they should be fully or partially funded by the ENO.

4.33 In order to comply with its licence obligation not to discriminate between customers, the Company has had to develop a detailed policy which can be applied across the full range of connection scenarios and voltages. The Company points out the key principles within this policy as follows:

- In general, the Company considers a "network extension" to be the installation of new electric lines or electrical plant at or downstream of the POC.
- The Company considers "reinforcement" to be the installation of new electric lines or electrical plant upstream of the POC, which will replace or enhance existing distribution system shared use (mains) assets.
- The Company states that where an existing shared use (mains) asset is to be replaced, this will always be considered to be reinforcement.
- The Company states that where an additional shared use (mains) asset is to be installed which will not replace an existing asset, it will be considered to be (i) reinforcement if it is upstream of the POC, but (ii) a network extension where it forms part of the network extension required to make the new connection (that is, where it forms part of a continuous unbroken

series of connected assets between the POC and the POS, even if some of the assets are to be shared use or inter-connected with other parts of the distribution system).

4.34 The Company states that the fourth approach above provides for consistent treatment in the application of connection charges in a variety of scenarios, especially for projects that require provision of primary system assets, as follows:

- where new assets are to be provided at a new substation – this is a network extension;
- where new assets are to be provided at an existing substation but not integrated with existing plant – this is network extension;
- where new assets are to be provided at an existing substation and integrated with existing plant – this is network extension; and
- where replacement assets are to be provided at an existing substation and integrated with existing plant – this is reinforcement.

4.35 The Company believes that its method of categorising system assets as either network extension or reinforcement is consistent with the requirements of its approved connection charging methodology.

4.36 The Company states that any assumption that the categorisation of system assets as "sole use" or "shared use" should equate to the categorisation of "network extension" or "reinforcement" respectively is a misleading simplification. The Company provides the following example: many projects require an 11kV network extension to connect a new substation with ring main unit, transformer, and LV cabinet to an existing 11kV ring. Clearly, both the new 11kV feeders and the ring switch components of the ring main unit will, once connected, be for shared use with existing customers, but these assets are not considered to be reinforcement. Indeed, to treat them as such would inappropriately result in them also being categorised as "non-contestable", so limiting the scope of competition in connections. The Company goes on to state that when shared use assets are categorised as a network extension, this does not automatically result in the connection applicant being required to meet all of the installation costs. It states that standard condition 14 of the electricity distribution licence (paragraph 14.10 refers) requires the distributor to consider

the benefit arising to itself or any other party from the works and its ability to recover costs from any other party.

4.37 The Company states that when considering whether there is a benefit, it will normally consider if it has a need to share in the capacity created by the connection works. For example, if a particular network is close to its P2/6 compliance limit and is assessed to require works to resolve that issue in the foreseeable future, then the Company may support the costs of the shared use assets in proportion to its need for the capacity to be created. The Company states that in the ENO's case, the Company has no need for additional capacity to be created; therefore its offer to the ENO includes a full charge for the works involved. The Company sets out its planning load estimates for the [redacted] substation 33kV network prior to notification of the project at the Premises at Appendix 5 to its submissions.

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 electrical 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, the expenses reasonably incurred may include the capitalised value of any expenses likely to be incurred in continuing to provide the electric line or electrical plant.

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 constitute 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 document. The two primary issues that the Authority is determining on are as follows:

- The requirement by the Company for the ENO to install 33kV circuit breakers at the Premises (referred to in the previous sections as "sequential" circuit breakers); and

- The apportionment of the cost of the new 132kV circuit, 132/33kV transformer and substation extension.

6.2 In order to reach its conclusions, the Authority has sought further clarification of the facts from both parties, carefully considered the arguments reflected in sections 3 and 4 and facilitated an oral hearing that took place on 5 November 2008. The Authority notes the arguments raised by both parties and in coming to its decision has focused on the following points:

- The technical need for the 33kV circuit breakers at the Premises;
- The obligations on the Company to develop, maintain and operate an efficient, co-ordinated and economical system;
- The benefits of encouraging competition in connections;
- Whether the 132kV works are reinforcement or a network extension (the definition of system reinforcement);
- The definition of Required Capacity (the numerator in the calculation of the cost apportionment factor); and
- The definition of New Network Capacity (the denominator in the cost apportionment factor).

6.3 The two primary issues that the Authority is determining on are discussed in turn below (and include discussion of the points raised above) followed by the Authority's conclusions.

The requirement by the Company for the ENO to install 33kV circuit breakers at the Premises (referred to in the previous sections as "sequential" circuit breakers)

Technical need for the 33kV circuit breakers

6.4 The Authority is of the view that the logical starting point for the consideration of this point is whether there is a technical need for the 33kV circuit breakers. This was addressed during the oral hearing and it was established and agreed by all parties that there was no technical requirement for the installation of the 33kV circuit breakers. The Company confirmed that, if it had been making this connection itself, it would not have installed the circuit breakers.

The obligations on the Company to develop, maintain and operate an efficient, co-ordinated and economical system

6.5 The Company states that it is not its normal policy to establish a Point of Supply (POS) at a primary substation. It argues that it considers that its section 9 obligation requires these circuit breakers to be installed so that the POS can be established at the Premises. This in turn allows the existing 33kV circuit breakers at H[redacted] substation and the new 33kV cables from [redacted] substation to the Premises to be used to supply any potential future connectees. The Company argues that this approach better meets its section 9 obligation compared with the connection arrangement proposed by the ENO. The Company also explains that it does not support the ENO's proposed connection arrangements due to what are in its view the complex commercial, operational and control arrangements that would be required which it considers to be incompatible with its legal duties in relation to safety.

The benefits of encouraging competition in connections

6.6 The Authority is also concerned that the Customer's choice to source a competitive connections provider has caused costs that the customer would not have incurred if it had chosen to source its connection from the Company. The Authority considers that customers may be dissuaded from considering alternative connections providers in the Company's distribution areas if they are faced with additional complexity and costs arising solely from their choice of connections provider. It is incumbent on the Company to ensure that it establishes policies and charging arrangements that do not distort, prevent or restrict the establishment of competition in connections.

The Authority's conclusions

6.7 The Authority considers that the technical requirement for circuit breakers should be the primary driver and against this criterion alone the circuit breakers should not have been installed as both parties agree that there is no technical need for them. The Authority notes the Company's stated connection policy, its position regarding its section 9 obligation and its concerns that the circuit breakers are required to prevent under-utilisation of its 'strategic assets.' However, the Authority notes that the Company has not identified any specific potential need to make use of the 33kV circuit breakers at [redacted] substation (these were previously unused but were both initially used for the two circuits to the Premises) or the new 33kV cables from [redacted] substation to the Premises. The Authority is of the view that the Company could have negotiated and developed an arrangement with the ENO so that the 33kV circuit breakers at the

Premises could be installed, at the Company's cost, at a future date if the Company needed to access any spare capacity in the new circuits.

6.8 The Authority also considers the Company's policy not to allow a POS at a primary substation to be unreasonable. The Authority accepts that establishing a POS at a primary substation does raise important issues in connection with access to the substation and with any works that are required to be carried out at the substation. However, the Authority takes the view that the number of occasions when such issues could arise will be very limited and that there is no reason why jointly agreed arrangements, including direct supervision by a member of the Company's staff if required, could not be put in place to manage such situations.

6.9 The Authority agrees that the integration of one or more ENOs does add to the level of complexity that the Company is required to manage but does not consider this to be unduly onerous.

6.10 We have also been advised by the ENO that connection arrangements of this kind have been put in place in other distribution service areas and that no operational or safety problems have been encountered.

6.11 After careful consideration of the arguments raised by both parties the Authority has determined that it was not reasonable for the Company to require the installation of the 33kV circuit breakers at the Premises at the ENO's cost because there was no technical need for them and the issues of future network access for other parties could have been addressed in other ways.

The apportionment of the cost of the new 132kV circuit, 132/33kV transformer and substation extension

6.12 The second issue that the Authority has been asked to determine relates to the apportionment of the cost of the new 132kV circuit, 132/33kV transformer and substation extension to be installed by the Company to provide the full 40MVA capacity required by the Customer. In reaching conclusions on this issue the Authority has considered the following points that are discussed below:

- Definition of reinforcement

- Required capacity (the numerator)

- New Network capacity (the denominator)

The definition of reinforcement

6.13 The Company argues that the installation of this equipment does not represent system reinforcement. Instead, it argues that the new 132kV connection at [redacted] GSP acts as a POC for the supply to the Premises and that all of the assets from [redacted] GSP 132kV substation to [redacted] substation, including the extension of [redacted] susbstation, form part of a continuous connection to the Premises rather than system reinforcement. Therefore, the Company has treated this as a network extension and not reinforcement.

The Authority's Conclusions

6.14 The Authority notes the Company's approach in this case but is not persuaded that it is reasonable to classify these works as being part of the connection works rather than system reinforcement. In particular, the initial connection (phase 1) to the Premises was made using existing, spare circuit breakers on the [redacted] substation 33kV busbar. It would therefore appear logical that the 33kV busbar at [redacted] substation should be the POC for the new supply.

6.15 For phase 2, the new connection works are between [redacted] substation and [redacted] GSP, upstream of the existing POC. The phase 2 works are providing greater capacity between two existing network nodes and therefore the Authority considers that they should be categorised as system reinforcement. The Company argues that there is a continuous series of new assets between the Premises and [redacted] GSP. However, this only occurs because one of the 33kV circuits from [redacted] substation to the Premises is moved from its original [redacted] substation circuit breaker to a new [redacted] substation circuit breaker in the final arrangement. Additionally, the Authority considers it reasonable to consider the [redacted] substation 33kV busbar to be an existing asset even though it is extended as part of this work.

6.16 The Company cites the example of the extension of an existing 11kV ring to connect a new 11kV/LV ring main unit substation. The Company argues that the extension to the 11kV ring is shared use but is not considered to be reinforcement. The Authority does not consider this to be analogous with the case in dispute. A simple extension of an 11kV ring does not provide additional

network capacity whereas the new 132kV connection between the [redacted] substation and the [redacted] substation clearly does.

The definition of Required Capacity – the numerator

6.17 The ENO considers that the Required Capacity should be 20MVA on the basis that the reinforcement works are only required to provide 20MVA of the total 40MVA applied for. The Company considers that the Required Capacity should be the full 40MVA applied for.

The Authority's conclusions

6.18 It is the Authority's view that the Required Capacity in this case is 40MVA. Whilst we note that the Company delivered the first phase of 20 MVA from its existing network, both parties are not in dispute as to the ENO's load requirements. The Authority therefore concludes that 40MVA is the required capacity in this case.

The definition of New Network Capacity – the denominator

6.19 Both parties agree that the New Network Capacity is the firm capacity (as defined by Engineering Recommendation P2/6) of the three 132/33kV transformers at [redacted] substations. This firm capacity is the combined capacity of the two 60MVA transformers (i.e. assuming the loss of the new 90MVA transformer). The Authority notes that there is disagreement as to the rating that should be applied to establish the firm capacity and therefore the New Network Capacity.

The Authority's conclusions

6.20 In reaching a conclusion on this point the Authority has reviewed Engineering Recommendation P2/6. Engineering recommendation P2/6 defines circuit capacity as "the appropriate cyclic ratings or, where they can be satisfactorily determined, the appropriate emergency ratings" of the equipment making up the circuit. The Authority considers that it is therefore reasonable to apply the cyclic rating of the two 60MVA transformers to establish the New Network Capacity. The Authority therefore agrees with the ENO that the New Network Capacity should be derived using cyclic ratings. However, the authority is aware that cyclic rating of equipment is related to the characteristics of the load being supplied and that the new load being supplied by the ENO's network could potentially reduce the cyclic rating of the 60 MVA transformers. For the

purposes of this determination, the cyclic rating of the transformers is assumed to be 75MVA each, as stated by the ENO, giving the New Network Capacity of 150 MVA. However, if the Company can demonstrate to the Authority that a different cyclic rating is appropriate in this case, the Authority may decide to revise this figure.

6.21 The overall conclusion that the Authority has reached is that this 132kV work should be classed as reinforcement and that the costs incurred by the Company should be apportioned using 40MVA as the Required Capacity and 150MVA as the New Network Capacity.

7 DETERMINATION

7.1 For the reasons outlined above the Authority has concluded that it was not reasonable to require the ENO to provide the 33kV circuit breakers at the Premises. The Authority therefore requires the Company to refund to the ENO the sum of £125k being its estimate of the incremental cost of this connection arrangement to the Embedded Network Operator. The incremental cost has been arrived at by estimating the total cost of the installation of the 33kV circuit breakers at the Premises, including the cost of land and buildings, and deducting the estimated cost of the metering current and voltage transformers that would have been installed at [redacted] under the connection arrangement preferred by the ENO.

7.2 The new 132kV circuit, 132/33kV transformer and substation extension to be installed by the Company to provide the full 40MVA capacity required by the ENO should be considered to be system reinforcement works. For phase two of the project, which the Authority notes is yet to proceed and no further connections costs have since been paid, the Company should levy charges based on a proportion set by the ratio of the Required Capacity and the New Network Capacity. The Authority has determined that:

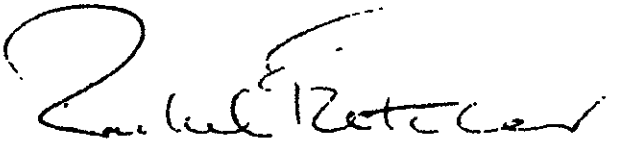
- The Required Capacity is 40MVA.
- The New Network Capacity is 150MVA.

7.3 The Authority has calculated that, based on a total reinforcement cost of £4.85m, the contribution of the ENO for reinforcement should be 40/150 x £4.85m = £1,293,333 (subject to any adjustment to the New Network Capacity outlined in paragraph 6.20).

7.4 The Authority understands that the new 132kV circuit, 132/33kV transformer and substation extension have not yet been constructed. In the event that these reinforcement works do proceed and increase the supply capacity to the ENO to 40MVA, the Authority notes that the total reinforcement cost may vary from the original estimate of £4.85m. In particular, the Company acknowledged that the estimate of £4.85m included the full cost of the 132kV cable sized for the 90MVA transformer. The Company committed to pass any savings on to the ENO that would have resulted from the installation of a cable sized for the minimum scheme employing a 60MVA transformer.

7.5 In the event that the cost of the reinforcement does vary from £4.85m, the apportionment of the cost will calculated using the principles set out in this determination.

7.6 This notice constitutes a notice stating the reasons for the Authority's decision for the purposes of Section 49A of the Act.

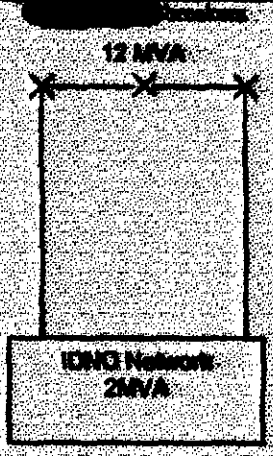


Rachel Fletcher (17 November 2009)
Partner, Distribution
Duly authorized on behalf of the Gas and Electricity Markets Authority

Appendix 1 – Illustrated Examples

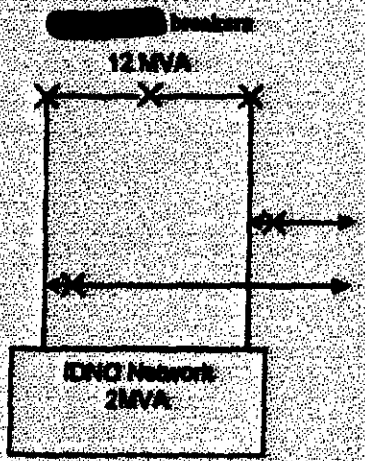
(assets under IDNO ownership shown in red and green)

(a) [redacted] preferred connection of IDNO network with no (circuit) breakers in series.

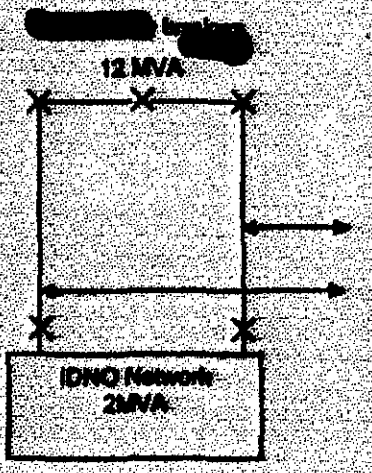


(b) As above, but section 9 duty obliges [redacted] to connect other circuits – either to use capacity of 12 MVA breakers or to provide switching options to provide resilience/compliance in respect of other customers.

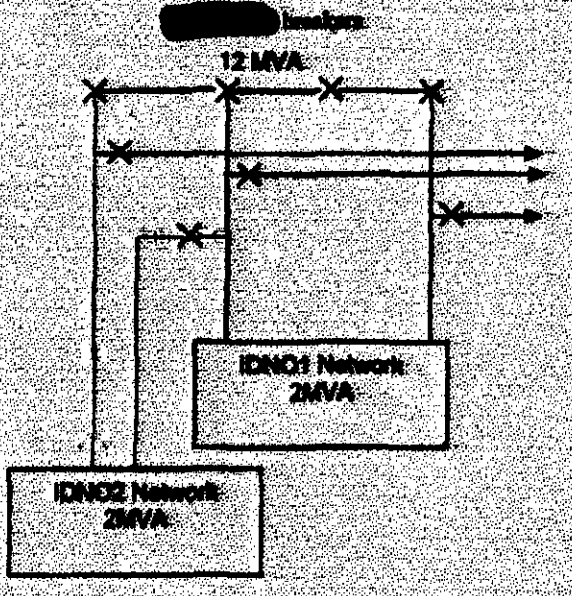
Two additional breakers (means of isolation) needed because of ownership boundary – an ESQCR obligation. This is difficult to manage because of the need to require co-ordination of both [redacted] and IDNO control functions.



(c) [redacted] preferred arrangement for section 9 compliance – also requires a pair of additional breakers, but avoids control issues because of simpler interface between [redacted] and IDNO.

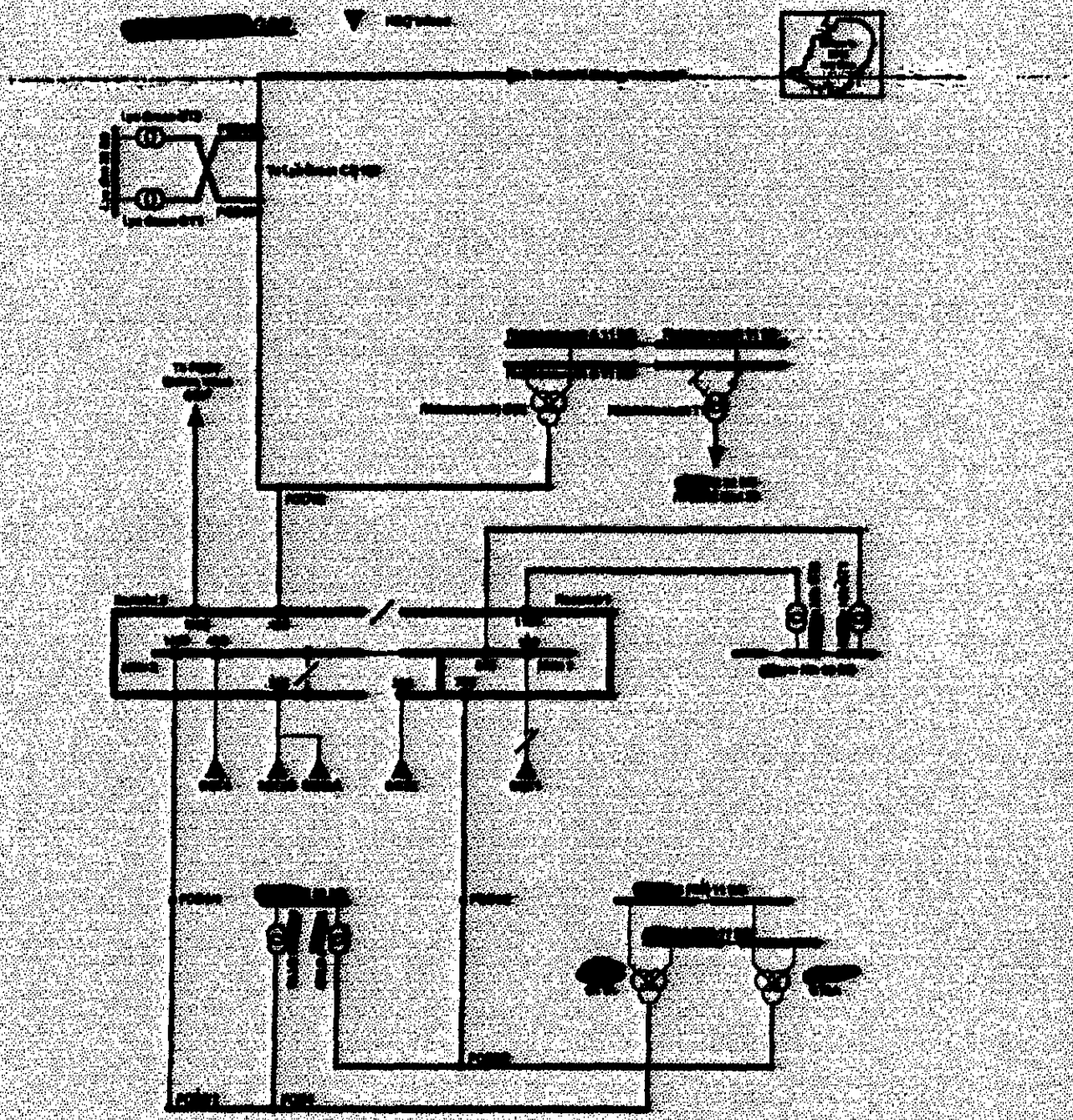


(d) Logical extension of example (b) where additional IDNOs connect. For two circuits, two control rooms would need to co-ordinate. But for one circuit three control rooms would need to co-ordinate ... and so on.

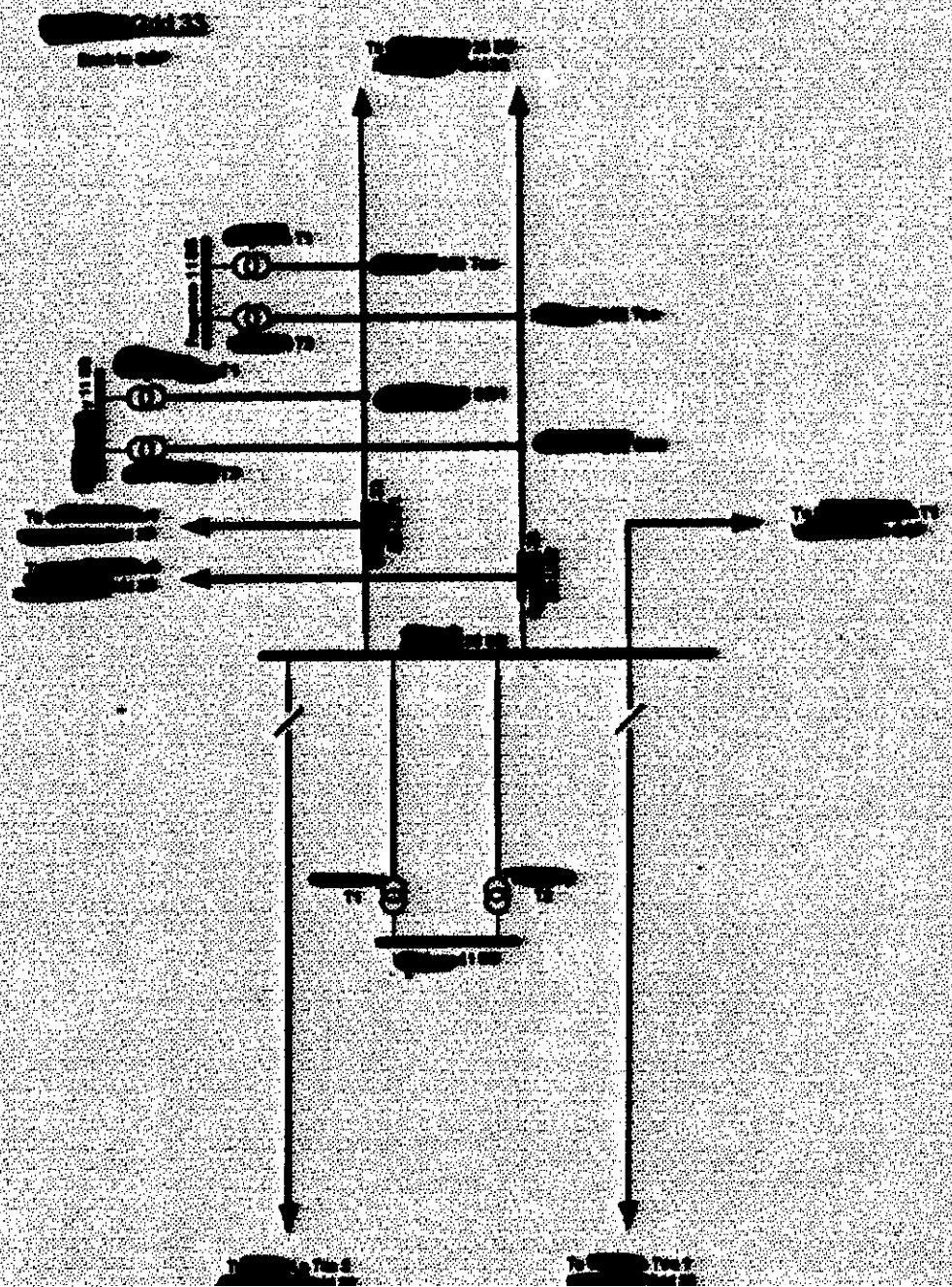


[redacted]

Appendix 2 – [redacted] 132kV Network Diagram

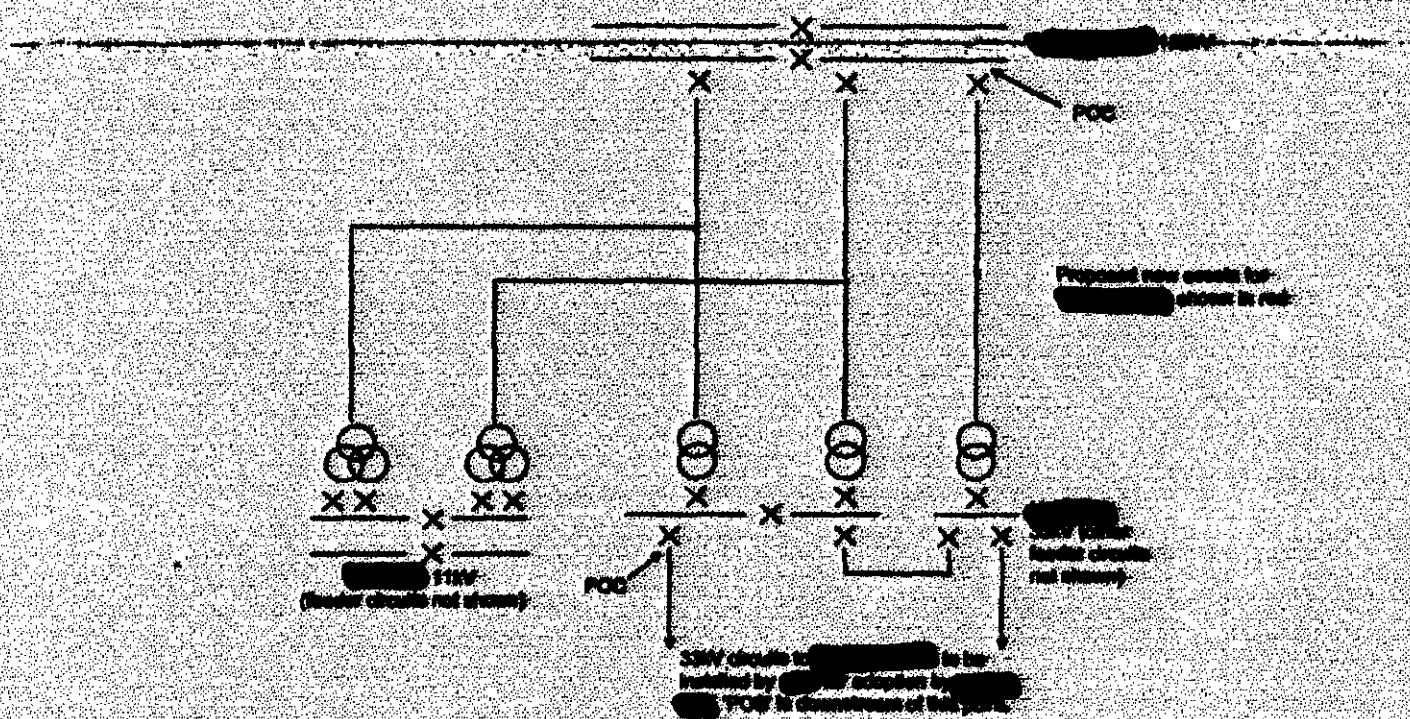


Appendix 3 – Holywell 33kV Network Diagram



[redacted]

Appendix 4 – [redacted] 132KV and 33kV Network Diagram with [redacted] Proposals



Appendix 5 – Planning Load Estimates for [redacted] Substation 33kV Network

[redacted] 132/33kV substation – 2 x 60MVA

Without [redacted] development (ACS connected MW):

	08/09	09/10	10/11	11/12	12/13
Winter	52.1	52.6	53.0	53.5	53.9
Summer	38.9	39.4	39.8	40.3	40.7

With [redacted] development (ACS corrected MW):

	08/09	09/10	10/11	11/12	12/13
Winter	55.1	72.6	93	93.5	93.9
Summer	41.9	59.4	79.8	80.3	80.7