DETERMINATION BY THE GAS AND ELECTRICITY MARKETS AUTHORITY OF A DISPUTE REFERRED TO IT UNDER STANDARD CONDITION 7 OF THE ELECTRICITY DISTRIBUTION LICENCE:

Whether the calculation of import charges by Scottish Hydro Electric Power Distribution plc did or would comply with the relevant distribution use of system charging statements.

1. INTRODUCTION

1.1. [redacted] ("the Customer"), represented by [redacted] ("the Customer's Agent") has referred a dispute between the Customer and Scottish Hydro Electric Power Distribution plc ("the Company") to the Gas and Electricity Markets Authority ("the Authority")[1] for determination. The dispute concerns whether the Distribution Use of System ("DUoS") Charges for imports of electricity levied on the Customer by the Company did or would comply with the Company's DUoS Charging Statements for the period 1 April 2006 to 31 March 2012 ("the Relevant Period").

1.2. The dispute was referred to us for determination under Standard Licence Condition ("SLC") 7.12 of the current Electricity Distribution Licence ("the Licence"). Under SLC 7.12, we are required to determine such disputes once either party to the dispute has requested that it do so.[2]

1.3. Alongside this determination we have published submissions that were provided to us by the Customer's Agent and the Company.

2. SUMMARY OF THE DISPUTE AND OUR DECISION

2.1. The dispute relates to the method used by the Company to calculate the capacity element of the DUoS import charges levied on the Customer over the Relevant Period.[3] This element is calculated based on the "Chargeable Capacity"[4] for import, which is the higher of the Authorised Capacity for import (which is 1MVA for the Customer) and a capacity figure based on the import capacity actually used. The Customer's Agent claims that the capacity element of the Customer's DUoS import charges should not have been

[1] The words "Authority", "Ofgem", "we", "our" and "us" are used interchangeably in this document.
[2] Note that a similar condition (SLC 4E(4)(a)) has been present in the Licence during the Relevant Period, even though the numbering has changed.
[3] The Customer's Agent is not disputing the other elements of the DUoS charges Over the Relevant Period, these were: service charge of £2,034.96; and unit charge of £2,049.15.
[4] Also called the Maximum Import Capacity (MIC).

calculated using a capacity figure based on meter readings taken on occasions when [redacted] was not importing active power (even though it was importing reactive power).[5] The Customer's Agent also disputes the duration over which the Company could continue to apply a Chargeable Capacity in excess of the Authorised Capacity.

2.2. The Customer's Agent has requested that we determine whether the method used by the Company to calculate the Chargeable Capacity is the same as the method outlined in the Company's DUoS Charging Statements for the Relevant Period. We discuss this (including the concepts of active power and reactive power) in more detail below.

2.3. We have reviewed the evidence, including the arrangements that the Customer established with the Company and with National Grid Electricity Transmission (NGET), in its role as GB system operator, at the time of connection. We have concluded that, during the Relevant Period, the Company did not comply with its DUoS Charging Statements, which were based on the Company's statement of charging methodology for use of its distribution system. We expect an appropriate refund to be made to the Customer.

3. LICENCE OBLIGATIONS

3.1. The licence obligations detailed here are those that were in force during the Relevant Period.

DUoS Charging Statement

3.2. Under SLC 4A(1) of its Licence the Company was required to prepare a charging statement for use of system, in a form approved by us, and in accordance with the Company's use of system charging methodology.

3.3. Under SLC 4A(10), the Company was prohibited from entering into any use of system arrangement which did not ensure that its use of system charges would comply with the charging statement (or, where applicable, with the revision of that statement which was the most recent at the relevant time).

DUoS Charging Methodology

3.4. Under SLC 4(1) of its Licence the Company was required to have in place a use of system charging methodology that had been approved by us on the basis that it

[5] An explanation of reactive power and active power is provided in paragraphs 4.7 and 4.8

achieved the relevant objectives.[6] It also required the licensee to comply with that charging methodology.

Compliance with the Relevant Charging Statements and Methodologies

3.5. Paragraph 7.11 of the current Licence applies where the licensee or other person who is a party to a relevant agreement are in dispute as to whether the Use of System Charges comply with the relevant Charging Methodology or Charging Statement. Where paragraph 7.11 applies, the dispute may be referred by either party to us for it to determine whether the charges in question did or would comply with the relevant Charging Methodology or Charging Statement.

4. FACTS OF THE CASE

Background to the dispute and the issue for determination

4.1. The Customer [redacted] built a [redacted] wind farm [redacted] The Customer requested a distribution connection[7] from the Company, the local Distribution Network Operator (DNO). As a result of the distribution connection, the Customer was liable to pay DUoS import charges.[8]

4.2. The Customer considered that its DUoS import charges were too high, and had various discussions with the Company over the period 2006 to 2009. The Company accepted that the Customer had not been charged on the correct tariff, and paid a refund to the Customer in settlement of that issue for the period 1 April 2005 to 31 March 2010;[9] that matter is separate from this determination. After that refund was made, the Customer considered that the remaining DUoS import charges for the Relevant Period were still too high.[10] The Customer is content with the DUoS charges

---

[6] The Relevant Objectives for the Use of System Charging Methodology are set out in SLC 13 of the current licence.

[7] The Customer's site is within a few kilometres of the electricity transmission network, and there was no distribution network in that location. The Customer had the right to request either a distribution connection or a transmission connection, and opted for a distribution connection. The Company built a new section of distribution network to connect the Customer to the network.

[8] The connection agreement between the Customer and the Company is dated [redacted] Because the connection date was before 1 April 2005, the Customer is defined as a "pre-2005 generator". We made a policy decision that these customers would not be liable for DUoS export charges until 25 years after their dates of connection owing to the fact that they paid "deep" charges at the time of connection: http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=837&refer=Networks/ElecDist/Policy/DistChrgs

[9] The Company discovered that it had charged the Customer the wrong import tariff (HV tariff, instead of EHV tariff) for a five year period (1 April 2005 to 31 March 2010). The Company made a refund of £435k to the Customer.

[10] After the refund for the period 1 April 2005-31 March 2010, the DUoS import charges for the Customer were £830k for the Relevant Period. We note that the two periods did not coincide fully; but this is not relevant to

from 1 April 2012 onwards, when the charges had been calculated using the EDCM.[11] The Customer appointed the Customer's Agent (a consultancy) in April 2011 to investigate the DUoS import charges for the Relevant Period. The Customer's Agent has questioned the method by which the Company had calculated DUoS import charges for the Customer during the Relevant Period. On 17 July 2012, the Customer's Agent, acting on behalf of the Customer, wrote to us, asking us to make a determination of this dispute. The issue which we have been asked to determine is whether the Company charged in line with its charging statements when calculating DUoS import charges for the Customer for the Relevant Period.

4.3. The Company explains that its method of reflecting reactive power in calculating the chargeable capacity (explained further below) was in line with industry standards during the time in question. The Company stated that it was not normal industry practice to treat extra high voltage demand and generation customers in a different way in relation to import capacity charging or to apply a formula which took account of the half hourly timing of reactive power import in comparison to generation export.

DNOs' charging methodologies and charging statements

4.4. Prior to April 2012 (including during the Relevant Period), the DNOs did not have common charging methodologies[12]; each DNO (or group of DNOs within one company) used its own methodologies. They have had a common methodology for extra high voltage demand customers since April 2012. The DNOs submitted their pre-2012 methodologies to us for approval. For example, in 2004, the DNOs submitted proposed methodologies to us for approval; we conducted a public consultation and had a series of discussions with the DNOs; we asked the DNOs to make certain changes; we then approved the methodologies for use from 1 April 2005.

4.5. Each DNO has (and had during the Relevant Period) a licence obligation to publish a statement of its charging methodology,[13] and a licence obligation to publish a statement of its charges.[14] The statement of charges which sets out the basis on which charges will be made for use of system.

---

this determination. The Customer considers that the charges for 1 April 2005 to 31 March 2006 (after the refund) might not have been correct, but cited issues with data as the reason for not including that year in the scope of this determination request.

[11] The EDCM is the Extra High Voltage (EHV) Distribution Charging Methodology. It is a common approach, used by all 14 DNOs, and has been used to calculate import charges since 1 April 2012, and also export charges since 1 April 2013 (although the Customer has a pre-2005 exemption from paying export charges)

[12] Common methodologies were introduced from 1 April 2010 onwards. The applicable common methodology for the Customer's site for import charges was introduced on 1 April 2012.

[13] See SLC13 for the current obligation.

[14] See SLC 14 for the current obligation.

4.6. We note the following: during the Relevant Period, the Company's statements of its use of system charging methodology gave a high-level description of the methodology; and its charging statements contained more detail, including definitions that are relevant to this determination. In this case, neither of the parties has argued that the charging statement is inconsistent with the charging methodology; the dispute concerns whether the relevant charging statements themselves have been properly applied in the charges made to [redacted]. For that reason, our determination focuses on the application of the charging statements, and not on the charging methodology.

Reactive power

4.7. The specific issue for this determination is how the Company used measurements of active power flows (measured in units of kWh) and reactive power flows (measured in units of kVArh) when determining when (and by how much) to increase DUoS import capacity charges to the Customer.[15]

4.8. Reactive power (kVAr) is a feature of alternating current flowing in circuits, such as those that form part of the transmission and distribution networks in Great Britain. Active power (kW) (also called "real power") is the power that is used by customers; reactive power can be viewed as a necessary but "useless counterpart". However, both active and reactive power must be transported on the networks in order to ensure the proper functioning of those networks. Therefore, network assets are sized in order to accommodate the total power (measured in units of kVA); i.e. the combination of active and reactive power flowing over the network at any given time.[16]

The Customer's relationship with NGET

4.9. When a generator exports power onto a transmission network, it has certain obligations under the Grid Code.[17] These obligations include voltage control. In simple terms, the obligations on generators that use the transmission network can be divided into two categories:

- Basic requirements: All generators must maintain voltage levels within a certain tolerance range around a set voltage point. This requirement can be met using

[15] Flows can be thought of as the amount of something that moves in a certain amount of time; e.g an active flow is the amount of useful energy that moves through the connection in a half hour period. The power is the instantaneous measure of the flow, e.g. the active power is the active flow in a half hour period, divided by half an hour. As discussed later, metering equipment measures flows for each half hour period; this data is then processed to give values for the power(s).

[16] Total power is the combination of active and reactive power Typically, reactive power is about 5 per cent of the total power. The networks and equipment that is connected to them (e.g. by customers) are optimised to operate with a certain level of reactive power.

[17] The Grid Code governs the technical aspects of the relationships between parties that are connected to the networks, and the transmission System Operator (SO), NGET. For further information, see http://www.nationalgrid.com/uk/Electricity/Codes/gridcode/

automatic systems that import or export reactive power whilst exporting active power; and

- Further requirements: Some generators (e.g. those with larger export capacities and that can have a more significant impact upon the transmission network) have more stringent obligations. In addition to the basic requirements noted above, they have an obligation to vary the voltage set point by +/-5% within two minutes of an instruction from NGET. This service normally requires manned facilities at the generator's site, rather than just automatic systems. The requirement is set out in a Mandatory Service Agreement (MSA) with NGET.

4.10. Most generators that use the transmission system have an MSA with NGET. With an MSA in place, a generator can receive remuneration from NGET for all of the voltage control services (basic and further, as described above) that it provides for NGET. Without an MSA in place, a generator cannot receive remuneration from NGET for any of the voltage control services that it provides (i.e. not even the basic services required of all generators).

4.11. We understand that the Customer advised NGET that the [redacted] was not required to have an MSA, and that an MSA has not been in place between the Customer and NGET. Without an MSA in place, the Customer did not have an obligation to provide the further voltage control services for NGET. Nor did NGET have the obligation (or ability) to make remuneration to the Customer for the basic requirements of voltage control that the Customer did provide via its automatic response system.

Calculation of Chargeable Capacity by the Company

4.12. A connection agreement between a customer and a DNO must contain certain agreed values for the maximum amount of total power (a combination of active and reactive power) that is expected to pass through the point at which the site connects to the distribution grid ("the Connection point"): this is known as the "Authorised Capacity" of a site. Where the connection exports electricity as well as imports it, a separate Authorised Capacity will be specified for imports and exports. [redacted] is both an importer and an exporter of electricity. It has the same Connection Point for both imports and exports.[18]

4.13. The DNO levies charges based on a customer's "Chargeable Capacity". This is generally expected to be equal to the Authorised Capacity. However, sometimes a

[18] The connection agreement also states that the Customer has an "Authorised Capacity Import "Auxiliary Supply" of 50kVA. This is for small on-site functions (e g. lighting). It is separate from the main connection, and so is not relevant to this determination. This determination considers the main connection that has an "Authorised Capacity Export" of [redacted] and an "Authorised Capacity Import" of 1MVA.

customer imports or exports more than the respective Authorised Capacities. This can often be accommodated by the DNO, but the DUoS charges are increased to reflect this additional use of the assets.

4.14. The connection agreement between the Customer and the Company states that the authorised capacity for the import connection is 1MVA.[19] The Customer has an agreement with the Company that allows it to import up to (and including) 1MVA of total power.

4.15. The subject of this dispute is the method used by the Company to decide whether the Customer exceeded this 1MVA level, and hence whether the Chargeable Capacity (and DUoS import charges) should be increased. The dispute is about which combinations of imports and/or exports of active and/or reactive flows could give rise to an import level above 1MVA of total power and hence an increase in DUoS import charges. The Customer's Agent considers that the Company decided to increase charges in a manner that was not in line with its charging statement (which was based on its charging methodology).

5. DISCUSSIONS AND CONCLUSIONS

Our approach

5.1. We considered the information was submitted by the Customer's Agent and the Company, including comments that each party made on the other's submissions. We met with the Customer's Agent and the Customer, and then with the Company. We then considered further information that both parties submitted. We sought information from NGET about the Customer's obligations under the Grid Code, and held a teleconference with NGET to discuss the information that it had provided.

Overview of the Company's charging statements

5.2. During the Relevant Period, the Company changed the form of its charging statement[20]: it used one version for the first three years (1 April 2006 to 31 March 2009, the "2006-09 statements"); a second version for the fourth year (1 April 2009 to 31 March 2010, the "2009-10 statement"); and another for the last two years (1 April 2010

[19] MVA is a unit of total power, the product of voltage (V) and current (A). 1,000,000VA = 1,000kVA = 1MVA
[20] The charges listed in the charging statement changed each year. But the discussion here is about the form of the charging statement, e.g. what definitions were presented.

to 31 March 2012, the "2010-2012 statement"). These statements differed in some aspects, as noted below.

5.3. The equations (including that for Chargeable Capacity) that the Company used to implement the charging methodologies[21] were not stated in the charging statements for any of the six years, but were made available to customers upon request, and were the same throughout the Relevant Period.

Relevant references from the 2006-09 statements and the 2009-10 statement

5.4. The Company's charging statements for the first four years of the Relevant Period (the 2006-09 and 2009-10 statements) included the following definition of Chargeable Capacity (this definition was identical in each of these statements):[22]

- ***Chargeable Capacity*** *means the Authorised Capacity of the supply expressed in kilovoltamperes (kVA) or such higher capacity as may be determined from* ***the recorded peak demand*** *in kilowatts (kW) in the month of the account, and the associated power factor. Whenever the Chargeable Capacity in a month exceeds the Authorised Capacity, the Authorised Capacity will be reset to the higher figure until further notice.* (emphasis added)

5.5. Essentially, this definition explains that:

- the Customer's import charges would be calculated using the Chargeable Capacity;
- the Chargeable Capacity would start off as being equal to the Authorised Capacity (1MVA in the connection agreement);
- however, if the site imported more than the 1MVA of total power ("*a* higher capacity", see below), this higher capacity would become the new Chargeable Capacity;
- and so the charges would be based on this higher capacity, until further notice; but after that notice had been given, the Chargeable Capacity would be reduced to the Authorised Capacity, or changed to a higher value if warranted by the capacity usage observed at the site (see previous steps).

5.6. In addition to the definition of Chargeable Capacity set out above, the 2009-10 statement included the following definition of Maximum Capacity (which was not given in the 2006-09 statements):

---

[21] The equation for calculating the Chargeable Capacity was one example
[22] For example, see page 14 of the Company's charging statement for 2006-07.

- *We will charge to the nearest kVA for Maximum Capacity. If the maximum demand in any month is greater than the agreed Maximum Capacity, we will apply the availability charges to the highest kVA for at least 12 calendar months and until the Maximum Capacity is reviewed.* [redacted]

5.7. We consider that "maximum demand" in the definition of Maximum Capacity in the 2009-10 statement means the same thing as "peak demand" in the definition of Chargeable Capacity in the 2006-2009 statements and the 2009-10 statement. We consider that this definition of "Maximum Capacity" does not impact upon the approach to calculating the Chargeable Capacity in the 2009-10 statement.

5.8. However, we consider that the definition of "Maximum Capacity" in the 2009-10 statement does clarify that "until further notice" in the definition of Chargeable Capacity in that statement should be construed as meaning for "at least 12 calendar months". We discuss below whether this can be read across to the 2006-09 statements.

Relevant references from the 2010-12 statements

5.9. The Company's charging statements for 2010-12 included an explanation of Chargeable Capacity and Exceeded Capacity. They are set out below. These have been taken from the 2010-11 charging statement; there were minor wording differences in the 2011-12 charging statement, but these are not material in relation to this determination.

- ***Chargeable Capacity**: The standard charge will be a site's Maximum Import Capacity (MIC) multiplied by a pence kVA per day rate. The chargeable capacity is, for each billing period, the highest of the MIC or the actual capacity, with the same charge rate applying throughout the relevant charging year.*

- ***Exceeded Capacity**: Where a customer takes additional capacity over and above the MIC without authorisation, the excess will be classed as exceeded capacity. The exceeded portion of the capacity will be charged at the same p/kVA/day rate, based on the difference between the MIC and the actual capacity. This will be charged for the duration of the month in which the breach occurs.*

Analysis of the charging statements

5.10. Comparing the various statements, we consider that "Maximum Import Capacity (MIC)" in the 2010-12 statements has the same meaning as "Authorised Capacity" in the 2006-09 and 2009-10 statements; and that "actual capacity" in the 2010-12 statements has the same meaning as "higher capacity" in the 2006-09 and 2009-10 statements.

We consider that the definitions of Chargeable Capacity and Exceeded Capacity in the 2010-12 statements are describing the same concept, and should be considered together; this leads to the same interpretation of the 2010-12 statements as of the 2006-09 and 2009-10 statements, in paragraph 5.5, above.

5.11. However, in other respects, the 2010-12 statements differ from the earlier statements. The 2010-12 statements do not include any detail about how to determine the "actual capacity" of a connection, whereas the 2006-09 and 2009-10 statements go into more detail about the meaning of the phrase "such higher capacity". Our analysis of the meaning of each set of charging statements is set out in the section on "Our views on the meaning of Chargeable Capacity" below.

5.12. The three groups of statements give different information about the duration for which a higher capacity (in excess of the Authorised Capacity) should can be used for setting charges:

- the 2006-09 statements do not specify the length of time for which the Chargeable Capacity should be set on the basis of the higher capacity;
- the 2009-10 statement states that the higher capacity should be used as the basis for setting Chargeable Capacity for at least 12 calendar months; and
- the 2010-12 statements state that the higher capacity should be used as the basis for setting Chargeable Capacity only for the month in which the higher capacity was observed.

5.13. We note that the Company says that its approach (including with respect to the duration of higher capacity charges) remained the same throughout the Relevant Period. We consider that this would have been inappropriate, given that the provisions on duration differed substantially across the three sets of charging statements applicable over the Relevant Period.

The dispute

5.14. The Company states that it calculated charges in a manner that was a standard industry practice at the time. The Customer's Agent states that the Company's practice did not amount to a correct interpretation of the charging statements. There are two aspects to this dispute that we consider, in turn, below:

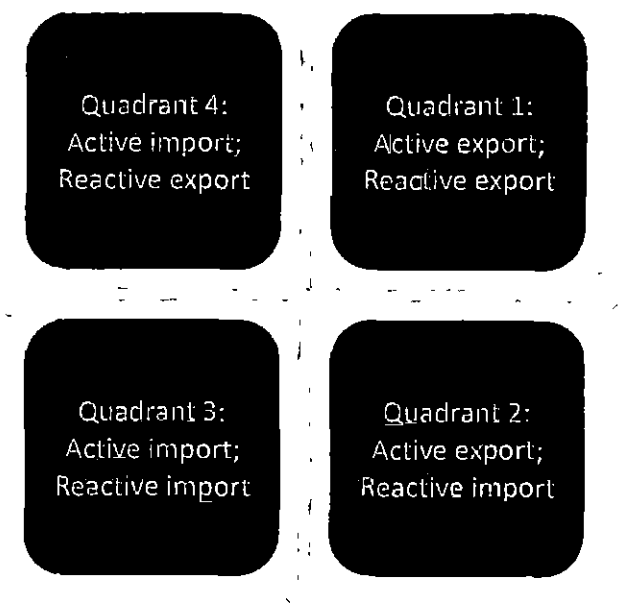
- the definition of such "higher capacity": in the 2006-2010 statements this determines the basis for increasing the "Chargeable Capacity", and the level to

which it would be increased. We consider that it also applies to the definition of "actual capacity" in the 2010-12 statements (see below); and

- the interpretation of "until further notice": in the 2006-2010 statements this determines the duration for which a higher Chargeable Capacity would be used. We also consider this phrase in conjunction with "at least 12 calendar months" in the 2009-10 statement; for the 2010-12 statements, the phrase is replaced by "the duration of the month in which the breach occurs".

5.15. Over the Relevant Period, the Company changed the Chargeable Capacity for the Customer ten times: it was increased seven times, and decreased three times. When deciding whether the Chargeable Capacity had exceeded the Authorised Capacity, the Company considered data for half hour periods, collected by the meters for the Customer's site. The meters measured the power flows (active power flows, measured in kWh; and reactive power flows, measured in kVArh) over each half hour period. These can be plotted on a "quadrant diagram". This is an x-y plot of active and reactive flows, where a negative value is an import and a positive value is an export. This is illustrated in a simple form, below:

Figure 1



5.16. It is agreed by both parties to the dispute that there should be no DUoS import charges payable in Quadrant 1. The Customer's Agent is arguing that the potential increase in Chargeable Capacity should never have been based on measurements made

when the generator is in Quadrant 2, but instead it should have been based on when its active import was at the highest level for the month (in Quadrants 3 or 4).

The Company's basis for increasing the Chargeable Capacity

5.17. The following analysis considers the method used by the Company to calculate the increase in Chargeable Capacity. The active and reactive power flows for any given half hour period were combined to give the total flow (kVAh) for that half hour period. This was then divided by 0.5 (half an hour) to give the total power (kVA), i.e. the average total power over that half hour. If this total power for a half hour period exceeded the Authorised Capacity, then the Chargeable Capacity was reset to that higher value. The first part of the dispute is about which combinations of flows (imports / exports of active / reactive flows) should have been considered, and hence which half hour periods should have justified increases in the Chargeable Capacity.

5.18. The Company's approach was as follows, and is also shown in the following table:

- The equation used by the Company to process the data was:
    - Chargeable Capacity = 2 x SQRT ((active import) ^ 2 + (reactive import) ^ 2)
- This would give non-zero results for data in quadrants 2, 3 and 4 of Fig 1. If the highest value resulting of the calculation above for a particular month was greater than the Authorised Capacity, this will be the basis for increasing the Chargeable Capacity.

Quadrant 4 Active import and reactive export Can increase Chargeable Capacity. Calculation: - used active import data only; - reactive export data was not used.	**Quadrant 1** Active export and reactive export Cannot increase Chargeable Capacity. Calculation: - used none of the data; - calculation was never carried out for these half hours .
Quadrant 3 Active import and reactive import Can increase Chargeable Capacity. Calculation: - used both active and reactive import data.	**Quadrant 2** Active export and reactive import Can increase Chargeable Capacity. Calculation: - used reactive import data only; - active export data was not used.

The Customer's Agent's proposed basis for increasing the Chargeable Capacity

5.19. The Customer's Agent considers that, in order to comply with the charging statements, the Company should have used a different approach, as follows:

- Equation:
    - Chargeable Capacity = 2 x SQRT ((active import) ^ 2 + max ((reactive import) ^ 2 , (reactive export) ^2))
- This would give non-zero results for data in quadrants 3 and 4, but not for quadrant 2. If the highest value resulting from the calculation above for a particular month was greater than the Authorised Capacity, this would be the basis for increasing the Chargeable Capacity.

5.20. The Customer's Agent considers that the Company should only have considered the half hour periods in which the active import was at the highest level for the month, and that both active and reactive power flows should have been used from any of those periods of active import (i.e. Quadrants 3 and 4) in the determination of whether the Chargeable Capacity should be increased. This process is set out in the following table:

Quadrant 4 Active import and reactive export Can increase Chargeable Capacity. Calculation: - use both active import and reactive export half hour data only.	**Quadrant 1** Active export and reactive export Cannot increase Chargeable Capacity. Calculation: - use none of the half hour data; - should never be calculated for these half-hours.
Quadrant 3 Active import and reactive import Can increase the Chargeable Capacity. Calculation: - use both active import and reactive import half hour data.	**Quadrant 2** Active export and reactive import Cannot increase the Chargeable Capacity. Calculation: - use none of the half hour data; - should not calculate for these half-hours.

5.21. Whereas the Company considered all of the data (active and reactive) from quadrants 2 and 3, the Customer's Agent proposes that all of the data from quadrants 3 and 4 should have been considered. Also, while the Company used the maximum total power from all the half hour measurements, the Customer's Agent proposes using only the measurements from the half hour when the *active* import is at the highest for the month. The interpretation offered by the Customer's Agent would mean that the pattern

(timing and magnitude) of changes to the Chargeable Capacity would not have been the same as that used by the Company.

Our views on the meaning of Chargeable Capacity

5.22. Our reasoning focuses on the definitions of Chargeable Capacity given in the charging statements. Chargeable Capacity is stated to be measured in units of kVA; i.e. it is a total power (i.e. active and reactive power flows).

5.23. The earlier statements state that a higher level of Chargeable Capacity (above the Authorised Capacity stated in the connection agreement) would be calculated using the "peak demand (kW)" and "the associated power factor".

5.24. Interpreting the ordinary meaning of that definition, we consider that the "peak demand" should be interpreted as the highest value of active import for a half hour period in a given month; rather than the highest total flows (i.e. the combination of active and reactive flows) for a half hour period in a given month. This is consistent with the wording of the charging statement which refers to "recorded peak demand in kilowatts (kW)": kilowatts are a measure of active power, whereas reactive power is measured in kilovoltamperes reactive (kVAr) and total power is measured in kilovoltamperes (kVA).[23] Using this approach, when the active power import at a connection is zero, the demand in (kW) is zero. From the use of the phrase "peak demand (kW)" in the 2006-09 and 2009-10 statements, we consider that the Chargeable Capacity could only be increased above the Authorised Capacity on the basis of metering measurements from the half hour periods when there are import flows of active power (kWh).

5.25. The 2006-09 and 2009-10 statements define "power factor" as the "ratio of kW and kVA supplied in any month". This definition is not entirely clear. "kW" and "kVA" are units of active power and total power, respectively. Power is an instantaneous measure that can vary with time, and so further clarification would be needed in order to refer to it over a period of time; this is addressed by the way that the calculations are conducted in practice.

---

[23] These parameters (active power and reactive power) are instantaneous phenomena. For the purposes of charging, they are not measured instantaneously and directly; rather, they are calculated from measurements of flows over each half hour period. The Customer's import and export connections were one and the same set of assets. Strictly speaking, an attempt to have active flows in opposite directions simultaneously would simply result in some degree of cancelling out, leaving a net active flow in one direction. Therefore, when the Customer was exporting active power it was, by definition, not importing active power, i.e. its peak demand (kW) was zero. However, because the measurements were not made instantaneously (but rather for each half hour period), each period could have non-zero data for flows in opposite directions (import and/or export of active and/or reactive power).

5.26. In terms of how the Company applied the definition of Chargeable Capacity in practice: The available metering data is for active flows and the reactive flows for each half hour period. These can be converted into real power and reactive power, by dividing each by the time period (0.5 hours); so, a value of zero active import equates to zero active power. The approach (used by the Company and proposed by the Customer's Agent) was to use the equations set out above in paragraphs 5.18 and 5.19. In both of these equations, the power factor is not used explicitly, but is incorporated in the equations by the use of active flows and reactive flows for each individual half hour period.

5.27. In essence the dispute is about which data from which half hour periods should have been used to calculate the "higher values" for the Chargeable Capacity above the Authorised Capacity. For the reasons given above, our interpretation of the 2006-09 and 2009-10 charging statements is that the Company should only have considered half hour periods when there were active imports – i.e. when the "demand in kilowatts" was non-zero; those half hour periods in which there was no active import should not have been considered. Hence, the Chargeable Capacity could only have been replaced by a higher value that came from a half hour period with active import (that period could have included reactive flows that were import, export, or zero).

5.28. The Company should not have considered half hour periods when there were no active imports for the purposes of setting Chargeable Capacity at a level above the Authorised Capacity. This includes those occasions on which the Customer was exporting active power and importing only reactive power (e.g. for the purposes of voltage control under its Grid Code obligations, as discussed above), which are the cause of most of the higher charges that the Customer has disputed. Our interpretation of the 2006-09 and 2009-10 statements is that any imports of purely reactive power, no matter how large, would not (of themselves, and in the absence of an import of active power) constitute justification for increasing the Chargeable Capacity; this is because they do not contribute to "demand in kW", which measures only real power imports.

5.29. We note that the 2010-12 charging statements do not contain the same definition of Chargeable Capacity as the earlier statements. In particular, those later statements do not refer to "peak demand in kilowatts", but state that Chargeable Capacity should be increased when "actual capacity" exceeds Authorised Capacity. In our view, those later statements should be interpreted in the same way as the 2006-09 and 2009-10 statements for the following reasons:

- The 2010-12 statement refers to "actual capacity" for imports. The word "Importing" primarily refers to, and is naturally understood as, a customer deliberately drawing power from the network for use in its activities. That is, importing is primarily to do with imports of active power; albeit there are likely to be some accompanying imports or exports of reactive power, but that is a secondary consideration for the customer, and is not normally the purpose of having an import capacity.[24] This tends to suggest that Chargeable Capacity for imports should not be in increased based on periods during which there were no imports of real power.

- We also note that the Charging Statements should have allowed "**any person** to make a reasonable estimate of the charges"[25] (emphasis added). In this case, we consider that restricting the definition of "actual capacity" to times of real power import is consistent with the ordinary person's understanding of import capacity.

- Finally, we note that the Company represented to the Customer that its approach to setting capacity charges had not changed between the 2006-10 charging statements and the 2010-12 charging statements. We, therefore, consider it appropriate to read the 2010-12 charging statements in a manner consistent with the earlier statements.

Duration of the higher Chargeable Capacity

5.30. Once the Company had increased the Chargeable Capacity to a higher value (above the Authorised Capacity), it remained at that higher value for several months at a time. The Customer's Agent disputes the duration of the time that elapsed before the Company reduced the Chargeable Capacity.

5.31. The 2006-10 statements did not specify the meaning of "until further notice" in relation to Chargeable Capacity. We consider that the ordinary meaning of "until further notice" meant that the higher charges could continue at the Company's discretion, subject to an implied requirement that the discretion be exercised reasonably. However, the 2009-10 statement also said that higher charges would apply "for at least 12 calendar months and until the Maximum Capacity is reviewed". From the data that we have, the Company's practice in all of the first four years of the Relevant Period appears to have been to reduce the Chargeable Capacity after 12 months (unless the Company

[24] Our comments on this point are to assist us in interpreting the Company's 2010-12 charging statements. For the avoidance of doubt, we are not saying here that imports of reactive power are not relevant for charging. We recognise that they do have impacts upon the network, and we note that the DNOs' common methodologies for DUoS charges include an appropriate approach to reactive power charges.
[25] See paragraph 14.3(a) of SLC 14 of the current licence

had decided further to increase the Chargeable Capacity – on the basis of even higher observed power flows - before the 12 months had expired). That is, it appears that the approach specified in the 2009-10 statement was applied in the previous three years as well. We consider that to have been a reasonable approach to the Company's discretion to maintain higher charges "until further notice".

5.32. The 2010-12 statements did not use the "until further notice" formulation in relation to Chargeable Capacity, but specified that Exceeded Capacity charges "will be charged for the duration of the month in which the breach occurs". As discussed previously, the definitions of Chargeable Capacity and Exceeded Capacity refer to the same situation. Therefore, the higher value of Chargeable Capacity (above the Authorised Capacity) should be applied only for the month in which the Customer used that higher capacity. For the next month, the Chargeable Capacity should have been reset to the Authorised Capacity, unless data from that next month allowed the calculation of a new higher value in which case that new higher value would have been used as the Chargeable Capacity. From the data that we have, this was not the Company's practice. It used the higher capacity for a longer period than one month (unless it made a further increase in the meantime). However, this was not even in line with its previous practice of 12 months; rather the Company appears to have used longer durations (one particular value of higher capacity was used for 19 months in the period 2010-12). It is not clear why the Company applied neither its policy from the 2010-12 charging statements, nor even (although not appropriate for 2010-12) its previous approach from 2006-10.

5.33. The Customer's Agent considers that the stipulation as to duration ("the duration of the month in which the breach occurs") from the 2010-12 statements should have been applied for the whole of the Relevant Period. The Customer's Agent considers that an alternative would be to use the higher value for the remainder of the charging year, and to apply whichever approach was chosen throughout the whole of the Relevant Period.

5.34. We consider that it is not appropriate to treat all of the six years in the same manner, either as the Company did, or as the Customer's Agent proposes. During the earlier four years (1 April 2006 to 31 March 2010), the Company had the discretion to use a higher value of the Chargeable Capacity for as long as it deemed appropriate; we consider that its approach of using the value of 12 months was reasonable. We note the difference in the stipulation as to duration for the two later years (1 April 2010 to 31 March 2012) which required monthly recalculation of the Chargeable Capacity. We therefore consider that the Company did not change the Chargeable Capacity as often as

it should have done for the later two years; i.e. it should have been (but was not) adjusted every month.

5.35. Finally, we have considered the changes that the Company made to the Chargeable Capacity before it corrected the issue of the incorrect tariff (see paragraph 4.2 above). We note that the Chargeable Capacity was changed only twice (both increases) during the period 1 April 2006 to 31 March 2010. After the incorrect tariff was corrected, there were eight changes for that period. It is not clear why the Company used a different approach before and after correcting the tariff. However, we have been asked to determine on the issues that occurred in the calculations after this correction. Any issues prior to that correction will not affect the refund owed to the Customer, and have not been considered in this determination.

Impact upon charges

5.36. For the reasons set out above, we consider that the capacity element of the DUoS charges paid by the Customer was (for most months during the Relevant Period) higher than should have been calculated by the Company following its Charging Statements.[26]

5.37. We note that the Customer's Agent has proposed an alternative approach for calculating the Chargeable Capacity, as discussed in paragraphs 5.19 to 5.21, above. The Customer's Agent's approach suggests that there were 16 occasions that warranted an increase in the Chargeable Capacity. The impact of these upon the charges would depend upon the duration for which they were applied. All of the approaches (proposed by the Customer's Agent and us) suggest that the charges should have been significantly lower than those that were charged by the Company to the Customer for the Relevant Period.

Summary of our views

5.38. We have determined that the Company did not charge in line with its DUoS charging statements when calculating the Chargeable Capacity (import) for the [redacted] for the Relevant Period.

5.39. The Company should not have reset the Chargeable Capacity above the level of Authorised Capacity for imports based on measurements taken when [redacted] was not importing active power.

[26] The Company's charging methodology aimed to recover its entire allowed revenue for each year. Had the Customer not been charged these higher charges, the monies would have been allocated by the charging model to the DUoS charges of other customers.

5.40. For the first four years, the Company had the discretion to use a higher Chargeable Capacity for at least 12 months; its practice was to do so for 12 months, unless another increase was made in the meantime. For the later two years it should have used a higher Chargeable Capacity only for "the month in which the breach occurs"; its practice was to do so for several months at a time.

Our proposed resolution

5.41. Our proposed resolution is that the Company should make a refund to the Customer, based on the two aspects of the determination (circumstances in which the Chargeable Capacity can be said to exceed the Authorised Capacity, and duration of higher charges), as summarised above.

5.42. Based on metering data provided to us by the Customer's Agent, we have calculated a value for the capacity element of the charges, on the following basis:[27]

- First four years: use the higher Chargeable Capacity for 12 months;
- Last two years: reset Chargeable Capacity each month;
- The data available to us did not include meter readings for February 2012 and March 2012. There were no instances in the other ten months of 2011-12 of the Chargeable Capacity being higher than the Authorised Capacity. We have assumed that this was also the case in February 2012 and March 2012.

5.43. On this basis, our preliminary calculations suggest that the capacity element of the DUoS charges for the Relevant Period should have been £116,694.99. We understand that the Customer paid a total capacity charge of £826,204.23. Our preliminary assessment is, therefore, that the Company's incorrect approach to the application of its own DUoS capacity charges resulted in an overpayment of £709,509.24 that should be refunded by the Company to the Customer.[28]

5.44. We ask that the Company responds to us within four weeks of the date of this determination, with any representations about the value of the refund[29] in light of our determination as to the correct interpretation of the charging statements in force over the Relevant Period (and having consulted, if appropriate, with us and / or the Customer's Agent). We will consider any such representations, and communicate our

[27] The Customers' Agent considers that the capacity element of the charges for the Relevant period should have been £76,765.07 (if the Chargeable Capacity was reset each month throughout the Relevant Period), or £89,329.76 (if reset at the end of each charging year for the Relevant Period). Our approach is different to this

[28] This excludes interest payments that could be due

[29] Including an appropriate method for calculating any interest that is due

view about any revisions to the value by publishing a supplement to this determination. The refund should be paid within four weeks of the publication of this determination.

6. DETERMINATION

6.1. We have determined that, for the Relevant Period (1 April 2006 to 31 March 2012), the Company did not calculate the capacity element of the DUoS import charges for the Customer in line with its DUoS charging statements, as discussed in paragraphs 5.38 to 5.40, above.

Andrew Burgess, 15 July 2013
Associate Partner, Transmission & Distribution Policy
Duly authorised on behalf of the Gas and Electricity Markets Authority

APPENDICES

Alongside this determination we have published redacted versions of files that were submitted by the Customer's Agent and the Company. The dates are included in the file names, and show the order of submissions, comments, etc.

- Appendix 1: Customer's Agent's submission of evidence, and comments:
  - App 1 - 2012-09-11 - Customer submission - redactions
  - App 1 - 2012-10-15 - Customer comments - redactions
  - App 1 - 2012-10-28 - [redacted] slides - redactions
  - App 1 - 2012-11-26 - Customer response - redactions
  - App 1 - 2013-01-08 - Customer comments - redactions
  - App 1 - 2013-04-03 - Customer response - redactions
- Appendix 2: Company's response to submission of evidence, and comments:
  - App 2 - 2012-10-04 - Company response - redactions
  - App 2 - 2012-10-24 - Company comments - redactions
  - App 2 - 2013-03-22 - Company response - redactions

[redacted] **comments (see comments numbers marked up below).**

Question and Response 1

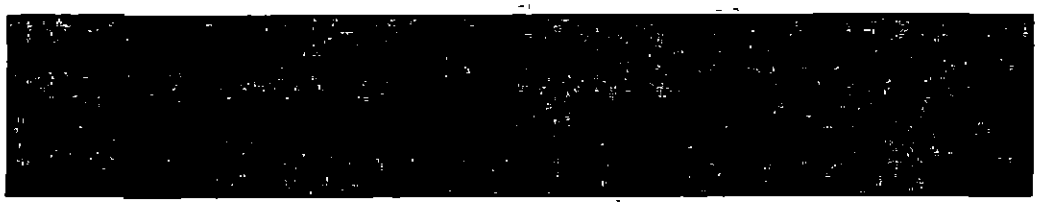
1 We agree with SSE that only import use of system charges are applicable.

2 We are unable to say how SSE have applied charges to other customers as we are not privy to that information The dispute is over [redacted] and not with other customers.

3. We did not consider the 2012 methodology The dispute is about the correct application of the published and Ofgem agreed methodologies from 2006 to 2011.

4. The Customer's Agent is not seeking retrospective application of the 2012 methodology. The Customer's Agent is seeking the application of the methodologies stated in the charging statements of SSE from 2006 to 2011. If all these methodologies are the same this is incidental to the determination

5 The document referred to by SSE was provided in our evidence as an attachment to email ref 138 and was provided as evidence of our efforts to resolve the dispute with SSE The relevant extracts referred to by SSE are as follows



Equation 3 $\text{Peak Import Capacity} = 2\sqrt{kWh_{export}^{2} + \max(kVArh_{import}, kVArh_{export})^{2}}$ **for the peak demand HH period**

We confirm that Equation 3 above is the formula used by ourselves to calculate the charges in Table 6 of our submission and is the formula required to apply the methodology set out in the Ofgem approved SSE statement of charges

6. We absolutely disagree that there is any "special treatment" involved – we are applying the published and approved charging methodology.

7 We note that Grid Code compliance requires reactive power capability during times of generation i e export and Gnd Code does not apply to electricity imports to the wind farm. However, if the Gnd Code reactive power control system was operating during import periods (even though not required by Grid Code) the import Chargeable Capacity will be affected. This could appear to be the case in 2008 (see Table 6 of our submission). The

published methodology means that additional charges apply for these periods. We are not disputing these additional charges shown in Table 6 for this period in particular.

Question and Response 2

8. We note that [redacted] identified a problem with the calculation of charges though they did not examine, review or reference the published charging methodologies

[redacted]

Question and Response 3

9 We agree that SSE used the formula provided to calculate charges, but with the additional caveat that it was also applied when AI was negative (i.e the generator was exporting not importing) and for these periods AI was set to zero In our view this formula does not implement the published charging methodologies in the statements approved by Ofgem.

10 SSE are referring to charges from April 2012 which are not part of our dispute

11 Table 5 was submitted under the request of Ofgem.

Question and Response 6

12 All customers are "unique" in that they have a specific connection point to the network and in relation to all other customers. The point of connection will influence real and reactive flows However, we are not disputing the flows There is no dispute over the metered data. We maintain that SSE have not applied the metered flows as stated in the published methodology in their charging statements.

13. We have covered Gnd Code above in Comment 7.

14 Our dispute does not concern other DNO charges – we do not see these as relevant to the determination

15. Our dispute is about the published and Ofgem approved charging methodologies from 2006 to 2011 and does not concern charges from April 2012

16. We are not disputing other DNO charging statements We are only concerned with the SSE charging statements. In our view the methodology is

clearly descnbed, even though the relevant formulas are not provided We are not askıng for more detail, merely that the methodology stated is actually implemented.

Appendix – SSE response with comments

Response – [redacted] DUoS Determination

Question 1:

Please confirm exactly what is in dispute in this case (i e. what you are asking the Authority to determine), attaching any relevant paperwork to back up your argument

Response:

The Customer disputes the validity of the method applied to calculate the import capacity (kVA) charges for the [redacted] generation site. The Customer contends that the method of calculation deployed by Scottish Hydro Electric Power Distribution plc ("SHEPD") up to and including March 2012 was not appropriate for exporting generation connections

The [redacted] connection is an Extra High Voltage ("EHV") export/import connection, to which only import use of system charges are applicable during the period in question SHEPD applied its chargeable import capacity calculations to the [redacted] connection on the same basis as all other EHV connections and have not applied differential treatment to individual customers or any category of customers

Our method of calculating chargeable import capacity for EHV connections was in line with industry standards during the time in question. Industry developments have subsequently (in 2012) led to a different method of calculation which is universally employed by the GB DNOs

The Customer's Agent seeks retrospective application of the method now agreed and implemented by all DNOs in 2012 The first of the sought after outcomes stated on Page 19 of the document submitted by the Customer's Agent, ref [redacted] confirms this as the outcome sought by the Customer in this dispute This is however inappropriate in principle and special charging treatment should not be applied to a single customer in any event

In our view, Grid Code compliance contractual obligations between the Customer and the Transmission System Operator (NGET) are essentially the source of the pattern and level of reactive power consumption recorded at [redacted] These obligations, rather than the actions of SHEPD, result in distribution capacity charges of a greater level than may have been anticipated by the Customer

Question 2:

Please provide a timeline detailing when this issue was raised with the Company and any subsequent interactions/correspondence. Please attach any relevant correspondence

Response:

The Customer's Agent has provided a detailed timeline which we believe reasonably accurately indicates the interactions between the Customer and us on this matter However, we do note that the Customer's Agent has recorded three entries (124, 125 & 126) regarding Meeting 1. This may give a misleading impression of SHEPD's ability to respond to queries, as the two emails and subsequent telephone call were within two consecutive days and fail to take account of the fact that SHEPD was co-

ordinating personnel and meeting room availability over two locations We also wish to add some correspondence which has been omitted, but is relevant to the case.

In 2010, there was correspondence between the Customer and us and also a meeting at [redacted] The correspondence between the parties is enclosed. The meeting was on 9th November 2010 and attended by [redacted].

The correspondence and the paper by the Customer's consultant at that time, [redacted], are attached in Appendices 1 – 4.

Question 3:

Please provide details of the basis on which you calculated the charges for this Customer from 1st April 2006 to 31st March 2012 Please include details of where this calculation may have changed and the reasons for these changes

Response:

The basis of our calculation of chargeable capacity was the formula set out below and this was unchanged across the penod in question.

Over this period, the formula used to calculate the kVA demand values for each half hour settlement period was·

$2 \times (\sqrt{(AI^2 + RI^2)})$

where·

AI = Active Import in kWh

RI = Reactive Import in kVArh

The formula was subsequently changed in April 2012, with the introduction of EDCM demand charging and the associated common DNO charging statement template. This change followed a lengthy penod of industry discussions and developments The introduction of EDCM was originally intended to take place in 2010, alongside the implementation of CDCM However, this was delayed until 2012, meaning that a common approach to EHV DUoS charging was not implemented when originally expected

The Customer's Agent refers to a period when the site was charged as an HV customer, rather than EHV. SHEPD notified the Customer of this matter, and rectified the billing accordingly SHEPD does not consider it relevant to the current issue on which detennination is sought by the Customer and submits that Table 5 of Appendix B, supplied by the Customer's Agent, is irrelevant for the purposes of this determination.

Question 4:

In the Customer's submission of evidence there is reference to particular definitions they state the Company used as the basis for their calculation Please provide details and copies of these definitions, i e the specific documents where these definitions can be found.

Response:

The relevant statements are provided in the zip file "SHEPD Statements 2006 - 12.zip"

Question 5:

In the Customer's submission there is reference to particular methods provided to the Customer's Agent when they were seeking to understand the calculations. Please provide copies of these as supplied to the Customer, see reference 130, 139 and 138 of Table 1 Summary of Key email correspondence.

Response:

In Appendix 5 [redacted] explains the calculation methodology, as requested by the Customer's Agent Please note that, due to a formatting anomaly in our e-mail software, the square root sign was inadvertently converted to a dot when copied into the e-mail. However, the formula was described fully in the text of paragraph 4.

In Appendix 6 ([redacted], writes to [redacted] prepared by the Customer's Agent

Question 6:

Please provide anything else, e g correspondence, calculations as is relevant.

Response:

[redacted] has a unique connection on SHEPD's DNO network The windfarm is the only customer connected to SHEPD's [redacted]

[redacted]

We understand that the Customer has Grid Code obligations to provide the Transmission System Operator (NGET) with certain services, not least of which is to import and export reactive power to assist with voltage stabilisation on the Transmission network. SHEPD asserts that in meeting these obligations the Customer's lead and lag activity varies within a significant range, triggering excess capacity charges. SHEPD has acted properly in using the resultant kVArh figures as recorded on the metering to calculate import capacity charges as detailed elsewhere in this response.

Our method of reflecting reactive power in calculating chargeable capacity was in line with common DNO approaches to such calculations during the period in question. It was not normal DNO practice to treat EHV demand and generation customers in a different way, in relation to import capacity charging, or to apply formulae which took account of the half hourly timing of reactive power import in comparison to generation export

As mentioned previously, the implementation in 2012 of the Extra High Voltage Distribution Charging Methodology (EDCM) has resulted in the GB DNOs applying a new standard formula for the calculation of chargeable import capacity This new formula recognises the half hourly timing of reactive power import in comparison to generation export.

The Customer is effectively seeking retrospective application of this "later thinking" in relation to generation customer charging and unique treatment in charging, which we do not believe is something we may offer.

DNO Charging Statements of the period did not normally go to the level of detail that the Customer now contends should have been given, nor were required to do so to meet Regulatory approval requirements. The level of detail in such statements has evolved over time and now, following considerable and lengthy development work, common statement formats are applied across the distributors. We do not however believe that it is appropriate to measure historic arrangements against current arrangements and thereby obtain retrospective benefit

Approved Charging Statement

- *Chargeable Capacity is defined as*

- *the 'Authorised Capacity of the supply expressed in kilovoltamperes (kVA)*
- *or such higher capacity as may be determined from* ***the recorded peak demand in kilowatts (kW)*** *in the month of the account,* ***and the associated power factor****.*

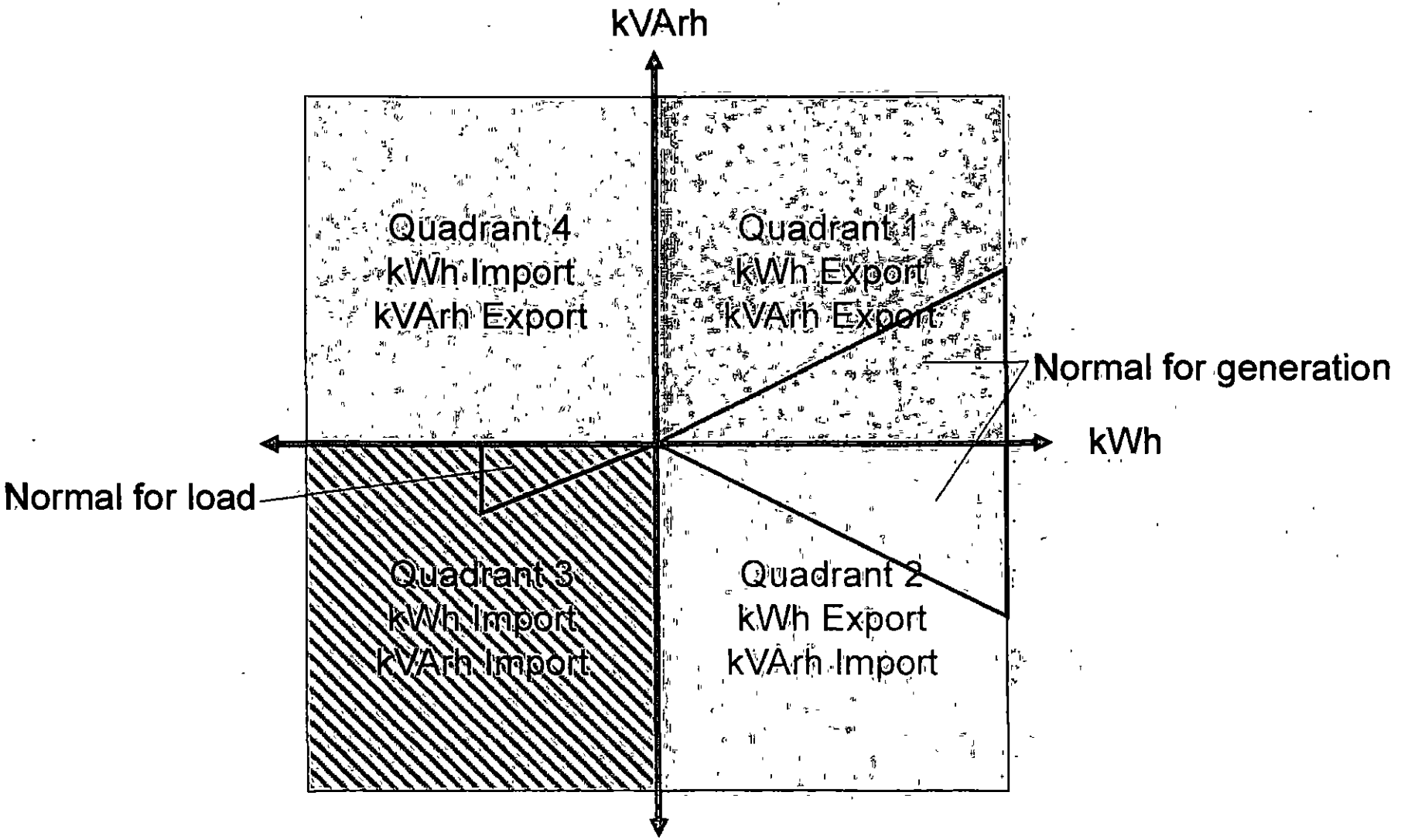
Interpretation

- SSE Interpretation
  - Chargeable Capacity in any half-hour period *applies whether importing or exporting kWh*

$$2\sqrt{kWh_{import}^{\ 2} + kVArh_{import}^{\ 2}}$$

- [redacted] Interpretation
  - Chargeable Capacity in any half-hour period *only applies when importing kWh*

$$2\sqrt{kWh_{import}^{\ 2} + \max(kVArh_{import}^{\ 2}, kVArh_{export}^{\ 2})}$$


kVArh
Quadrant 4
kWh Import
kVArh Export
Quadrant 1
kWh Export
kVArh Export
Normal for generation
kWh
Normal for load
Quadrant 3
kWh Import
kVArh Import
Quadrant 2
kWh Export
kVArh Import

Worked Examples

- kWh and kVArh from metered data.

- 4 examples follow, one for each quadrant, using the first data point in each quadrant from the half hourly metered data set commencing 1/4/06 - 00:00-00:30

Worked Example 1

- Quadrant 1 (1/4/2006 @ 04:00 – 04:30)
  - kWh import = 0
  - kVArh import = 0
  - kWh export = 2365
  - kVArh export = 420
- [redacted] Chargeable Capacity = 0 kVA
- SSE Chargeable Capacity = 0 kVA

- Same Chargeable Capacity

Worked Example 2

- Quadrant 2 (1/4/2006 @ 07:00 – 07:30)
  - kWh import = 0
  - kVArh import = 120
  - kWh export = 700
  - kVArh export = 0
- [redacted] Chargeable Capacity = 0 kVA
- SSE Chargeable Capacity = 240 kVA

- [redacted] Higher Chargeable Capacity

Worked Example 3

- Quadrant 3 (26/6/2006 @ 01:30 – 02:00)
  - kWh import = 60
  - kVArh import = 160
  - kWh export = 0
  - kVArh export = 0
- [redacted] Chargeable Capacity = 342 kVA
- SSE Peak Import Capacity = 342 kVA

- Same Chargeable Capacity

Worked Example 4

- Quadrant 4 (1/4/2006 @ 20:00 – 20:30)
  - kWh import = 80
  - kVArh import = 0
  - kWh export = 0
  - kVArh export = 375
- [redacted] Chargeable Capacity = 767 kVA
- SSE Chargeable Capacity = 160 kVA

- [redacted] Higher Chargeable Capacity

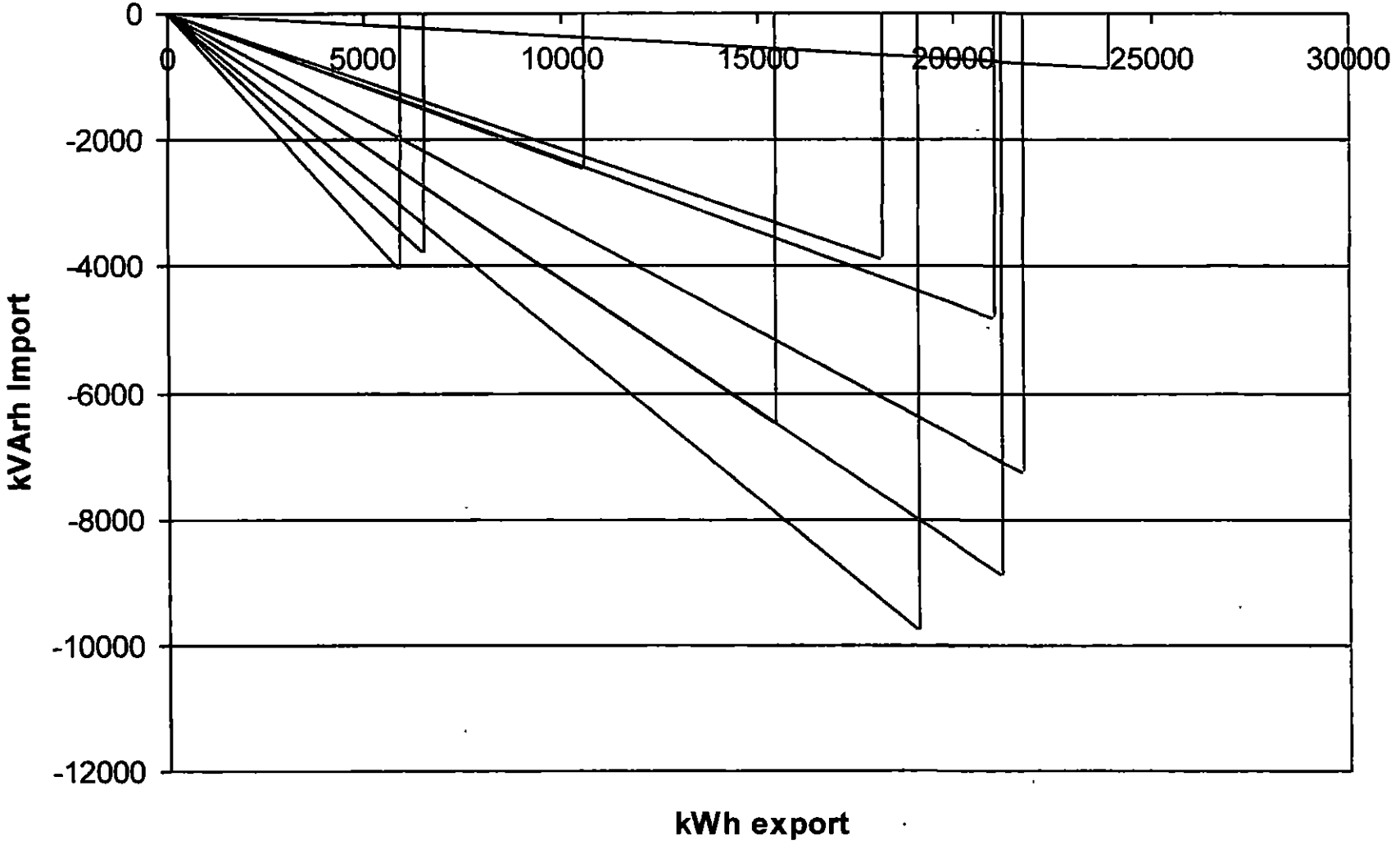
SSE Chargeable Capacity

(Table 3 of [redacted] submission)

Month	kWh import	kVArh import	kWh export	kVAr export	Chargeable Capacity
April 2006	0	4825	21005	0	9650
July 2006	0	6505	15430	0	13010
Sept 2006	0	8930	21215	0	17860
Sept 2007	0	3880	18155	0	7760
Sept 2008	0	875	23950	5	1750*
Dec 2008	0	2350	10550	0	4900
April 2009	0	3810	6485	0	7620
August 2009	0	9780	19090	0	19560
April 2010	0	4065	5905	0	8130
Sept 2010	0	7270	21730	0	14540

*Sept 2008 SSE method calcs a lower value than [redacted] method.

Values used by SSE for Import Chargeable Charge (in red)



[redacted] Chargeable Capacity

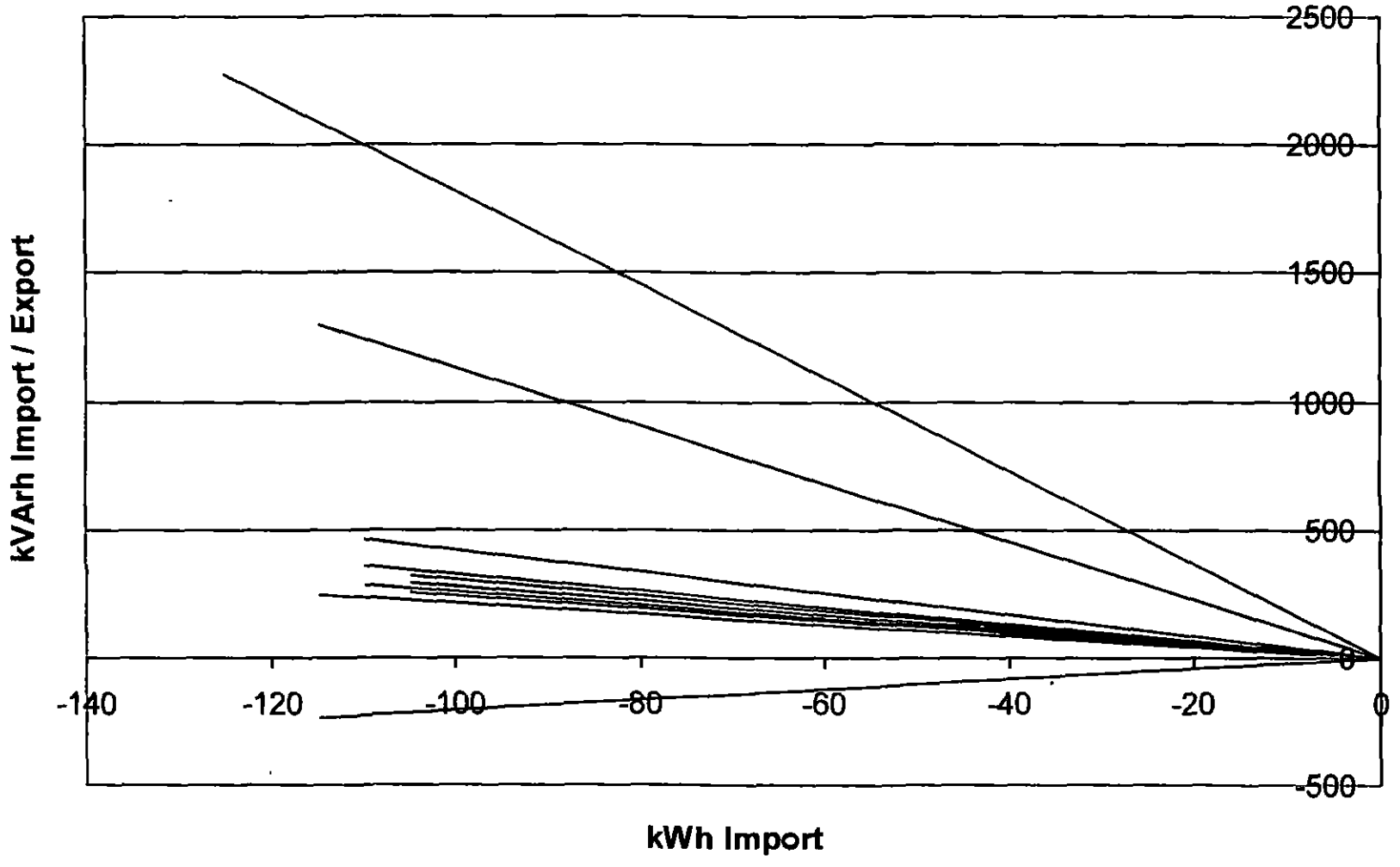
(data but only for the same 10 months as in Table 3 and data extracted from Table 6)

Month	kWh import	kVArh import	kWh export	kVAr export	Chargeable Capacity
April 2006	110	5	0	280	602
July 2006	105	0	0	250	542
Sept 2006	110	0	0	460	946
Sept 2007	110	0	0	355	743
Sept 2008	115	0	0	1295	2600*
Dec 2008	125	0	0	2275	4557
April 2009	105	45	0	290	617
August 2009	115	240	45	115	532
April 2010	115	15	0	245	541
Sept 2010	105	0	0	315	664

*Sept 2008 [redacted] method calcs a higher value than SSE method.

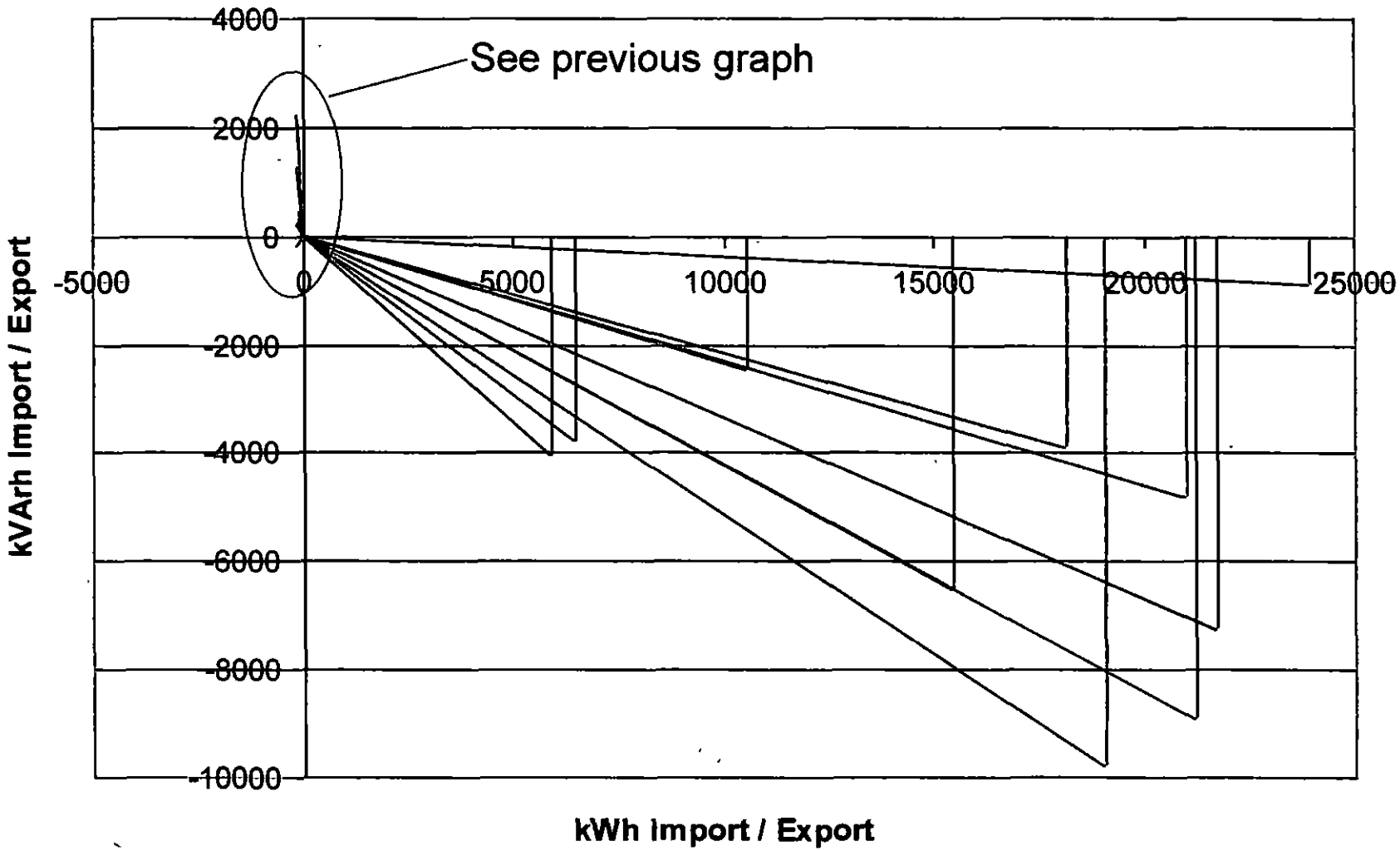
Values used by [redacted] for Import Chargeable Capacity

(only 10 months shown of the 72 months calculated in blue)



SSE and [redacted] Chargeable Capacity

(20 data points for 10 months SSE values are in red)



Summary

- OFGEM are asked to determine:

  which equation most accurately reflects the wording in the approved charging statement?

Company's response to additional question from Ofgem

Question (19/3/13): Was there any discussion about the level of reactive power import and therefore the likely charges before the connection agreement was signed?

Company's response (22/3/13):

The customer's commitment to proceed with the connection for [redacted] was made when the attached connection offer was signed in [redacted] rather than when the connection agreement was signed in [redacted] The connection agreement is normally signed close to the completion of the connection works.

As our discussions with the customer prior to proceeding with this connection were at least nine years ago, we no longer hold records of meetings/telephone calls/e-mails and therefore cannot now verify whether discussions took place regarding import use of system charges or to what level of detail this matter may have been discussed. However, we note that clause 3.4 of the connection offer attached stated that we would be willing to provide advice regarding use of system charges at the customer's request.

The level of advice we would have been able to offer at that point on future charges would have been limited, as these would be so heavily influenced by the actual operating behaviour of the Wind Farm. We would undoubtedly have been willing to provide details of the calculation formula for chargeable import capacity and respond to any questions about application of the charges if we had been asked. As an electricity distributor however, we would not have had adequate information to provide a reasonable assessment of the extent to which the import capacity could be affected by the operating characteristics of this highly complex generation installation. In the early 2000's, when this Wind Farm connection was being planned and the connection under discussion, large scale generation of this type, with relatively unpredictable generation patterns, was still fairly new to this country and we would therefore have had very little data or experience upon which to inform a view of potential future costs for this site. In this instance we would also have had to know about their bilateral commitments with NGC.

In the development of major generation connections, project developers have in-house resources and/or retain specialist consultants to provide the relevant technical and commercial expertise required. Generation developers also have much greater access to detailed technical information from the manufacturers and suppliers of their generation equipment than the electricity distributor has. [redacted] s formally classed as a 'Large Power Station', a classification which demands from the generator an exceptionally high level of knowledge and understanding of all of the technical and commercial issues relevant to their project. We are firmly of the view that it is reasonable to expect that the customer, using the resources and information that were available to them, would have been the party in the most informed position to fully consider and model potential import use of system charges, as part of their financial appraisal and diligence prior to making the commitment to construct such a high value and technically complex project.

Further, in our view it is reasonable to expect that the customer would use their specialist resources to thoroughly consider future distribution charges within the comprehensive analysis they must have undertaken to conclude that it was more beneficial to connect the Wind Farm via an entirely newly constructed sole-use distribution system connected to the transmission system rather than directly to the existing transmission system itself. It is also noted that the customer's company group are now proceeding with the development of phase two of the [redacted] as an extension connected to the distribution system on the same basis as the first phase (which this dispute concerns). They are also now proceeding with a further major wind farm in the SHEPD area which they have also chosen

to connect through another [redacted] distribution connection which continues to remains a very very unique connection scenario.

With the years of introspection at this site we remain resolutely convinced that our methodology, prevailing at that time, was generally in line with industry (as evidenced by other DNO statements) and that we had applied it correctly.

Was there any discussion about the level of reactive power import and therefore the likely charges before the connection agreement was signed?

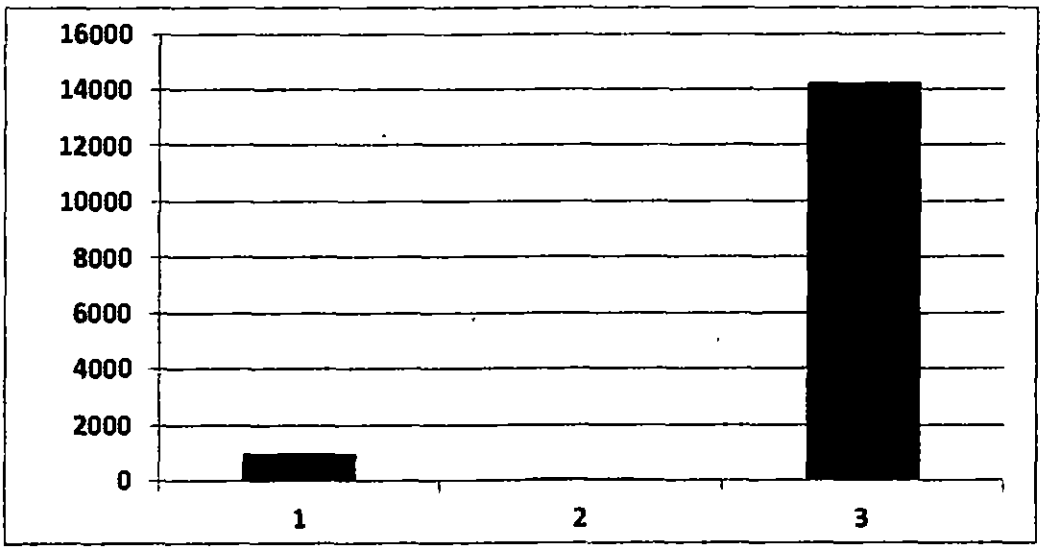
It is highly likely that the levels of reactive power import and export were considered in the application prior to signing the connection agreement. As this was around 10 years ago, it could be very difficult to find evidence in [redacted] archives to prove this. However, the connection agreement has an import capacity of 1 MVA which allows import of real power with reactive import or export in any proportion to this MVA limit. It has an export capacity of [redacted] with power factor limits of 0 95 lead to 0.90 lag. We interpret this to mean an export capacity of [redacted] when importing reactive power and an export capacity of [redacted] when exporting reactive power Under zero wind generation scenarios the windfarm will import a small amount of real power and will export a large proportion of reactive power from the capacitance of the [redacted]. To give an example from the half hourly data, on 14/01/2012 from 19:00 to 19 30, the active import was 95kWh (190kW) and reactive export was 430kVArh (860kVAr), with no active export.

		Import		Export	
Date	Period	AI kWh	RI kVArh	AE kWh	RE kVArh
14/01/2012	VAL_1930	95	0	0	430

[redacted] is not disputing the metered data; we are disputing the charging formula applied to this data

Under deep connection charges which pertained when [redacted] connected pre-2005, the developer will have paid for the network to be provided and/or reinforced to carry the current (Amps) associated with the levels of real and reactive power specified in the connection agreement. If there was a charge for current, it should be applied to the real and reactive power flows ie the apparent power (MVA).

[redacted] not disputing legitimate import charges, levied during real power import periods where reactive power does impact on the charges levied To illustrate this point, we have calculated charges for September 2010 using three different methods. The three methods result in significantly different charges, as shown in the graph below.



Row 1 uses wha[redacted] consider as the correct formula to calculate chargeable capacity, using the larger of reactive import or export during the HH period of maximum real power import for the month, resulting in a monthly charge of £1,042.76. Row 2 assumes there is no reactive power factored into the calculation of chargeable capacity, resulting in significantly lower charges (£165.66), illustrating that reactive power contributes to the level of import DUoS charges (note that [redacted] do not consider the method used for Row 2 to be the correct method for calculating DUoS charges). Row 3 shows the amount invoiced by SHEPD (£14,311.96).

	HH period	Service Charge £	Unit Charge £	HH Meter Data				Capacity based on Monthly HH data kVA	Capacity Charge			Total DUoS Charge £ (exc. VAT)
				Import		Export			Chargeable Capacity kVA	EHV Rate £/kVA	Capacity Charge £	
				kWh	kVArh	kWh	kVArh					
1	02/09/10 10:30-11:00	£29 89	£32 87	105	0	0	315	664	1000	£0 98	£980 00	£1042 76
2	02/09/10 10:30-11:00	£29 89	£32 87	105	0	0	315	105	105	£0 98	£102 90	£165 66
3	10/09/10 16:30-17:00	£29 69	£32 87	0	7270	21730	0	14540	14540	£0 98	£14249 20	£14311 96

We have not been able to use more recent data because SHEPD have incorrectly used the same figure for chargeable capacity of 14,540kVA since September 2010. This means that for every month after September 2010 until April 2012, the chargeable capacity has not been calculated from the import of that month. SHEPD's Charging Statement since April 2010 clearly states that the duration of chargeable capacity in excess of the Authorised Import Capacity is for that month only. This shows that SHEPD have been in breach of their authorised charging statement by not resetting the Chargeable Capacity each month. The issue of resetting chargeable capacity was raised in Question 5, Part c of our document entitled "Submission of Evidence v2-0", submitted to Ofgem on 11th September 2012. This is a separate error on SHEPD's part than the issue of incorrect formula used, but also contributes to the excessively high DUoS charges fo[redacted] This wasn't explicitly stated in our submission of evidence, as we consider that had SHEPD used the correct formula, this error would have not occurred and therefore would not be an issue when recalculating DUoS charges, should Ofgem determine in [redacted] favour.

If the site had lower levels of reactive import, this problem would not have manifested itself. If SHEPD had used the correct formula to calculate chargeable capacity then, regardless of the level of reactive power import, there would not have been a problem. We consider that the majority of customers will fall under one of these two scenarios, although without knowing the formula that other DNOs have used, we cannot say which of the two. The unusual issue which applies to [redacted] is that they have a high level of reactive power import, combined with SHEPD using an incorrect formula, resulting in excessively high charges.

However, the issue that we are referring to Ofgem is not regarding the level of reactive power import. We believe that SHEPD have used an incorrect formula to calculate demand use of system (DUoS) charges, resulting in excessively high charges.

[redacted] imports reactive power due to grid code requirements. Does it receive any form of rebate / recompense / etc. from NGET SO for these actions?

[redacted] import and exports reactive power due to Grid Code requirements, it does not receive any payments or financial compensation from NGET or any other party for importing or exporting reactive power.

As per the previous question, the issue for determination is whether SHEPD have used an incorrect formula to calculate DUoS charges, and the issue would remain the same regardless of whether [redacted] received any financial benefit for importing reactive power.

What determines the actual level of reactive power import onto the [redacted] site? Are there any "rules" that are used (e.g. by NGET) to determine how reactive power is "shared" amongst different sites? Does NGET tell [redacted] what import is required?

The level of reactive power import or export at [redacted] s determined in the same way as at every site which has grid code requirements. The level of reactive power import is governed by network source voltage, the voltage set point and slope, and is illustrated in the following diagram (taken from The Grid Code). The voltage set point and slope are determined by NGET. Reactive power is a local issue, rather than a system wide issue, so the actual level of reactive power import or export will depend on the network characteristics at the site, local demand and generation. These parameters also affect any "sharing" between local users Sharing does not necessarily occur as reactive power generated by one local user can be absorbed by another, alternatively reactive power may be exported by both users to assist the network with a reactive power shortage or vice versa. NGET does not directly specify requirements for reactive power, but they specify the voltage set point and slope, which are factors determining the reactive power flows.

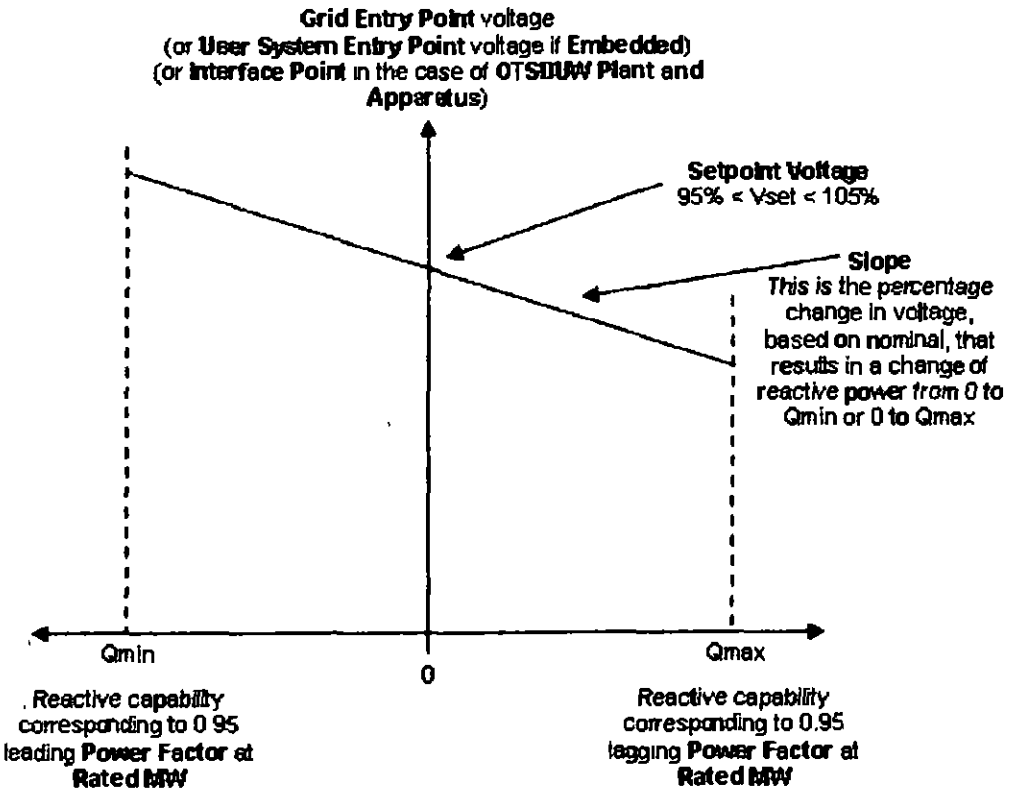


Figure CC.A.7.2.2a

[redacted] response to additional questions from Ofgem
In reply to email from [redacted] to [redacted] on 16/11/2012
Date: 26/11/2012
[redacted]

1. It would be useful to know about the service that [redacted] offers to NGET (SO). This would help us to understand the context (i.e. why the wind farm chooses to import lots of reactive power).

[redacted] does not have any contracts to provide Balancing Services to NGET. However, a requirement of Grid Code compliance for the site is Steady State Voltage Control. This requires the generating unit to operate to a specified voltage set point and slope. Reactive power must be either imported or exported to meet this requirement. It is important to note that [redacted] does not have a choice in how much reactive power it imports or exports – this is determined by the system voltage.

Figure 1 is an annotated diagram from the Grid Code[1] which illustrates this requirement. When the system voltage is exactly at the specified voltage point, there is no need to import or export reactive power, so the power factor will be unity. If the system voltage moves from the specified set point, the generator must import or export sufficient reactive power to operate within the voltage range. The import or export of reactive power will decrease the power factor from unity. The generator may operate at a power factor of up to 0.95 for grid code compliance

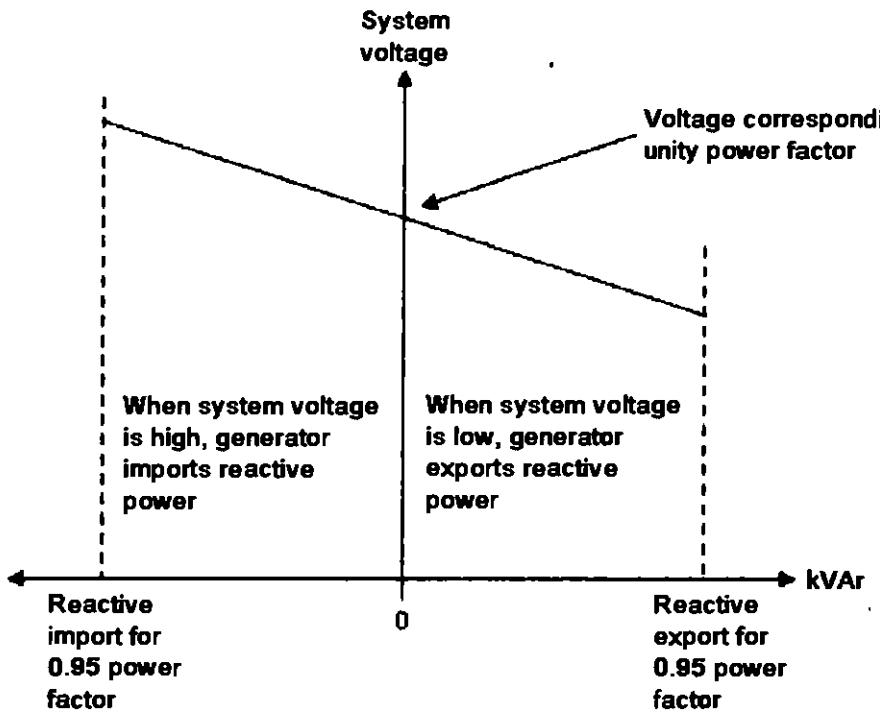


Figure 1 - Reactive power requirement for steady state voltage control

[1]Figure CC A 7.2 2a in Appendix 7 of Connection Conditions from National Grid's 'The Gnd Code, Issue 5, Revision 1' – 06 November 2012

[redacted]

Table 1 lists the monthly reactive energy import during half hourly periods when there is active power export. From this data, the equivalent power factor for each month can be calculated.

	Active export (MWh)	Reactive import (MVArh)	Equivalent power factor		Active export (MWh)	Reactive import (MVArh)	Equivalent power factor
Apr-06	12001	972	0.997	Apr-07	8970	67	1.000
May-06	8390	794	0 996	May-07	7658	63	1.000
Jun-06	5777	639	0 994	Jun-07	4248	94	1 000
Jul-06	5294	1046	0 981	Jul-07	5123	209	0.999
Aug-06	5635	742	0 991	Aug-07	8569	95	1 000
Sep-06	5713	2355	0 925	Sep-07	10419	160	1 000
Oct-06	8362	28	1 000	Oct-07	8633	99	1 000
Nov-06	16385	91	1 000	Nov-07	12967	35	1 000
Dec-06	14347	113	1 000	Dec-07	13263	0	1 000
Jan-07	17418	261	1.000	Jan-08	15129	5	1 000
Feb-07	9863	70	1 000	Feb-08	13203	0	1.000
Mar-07	14261	6	1 000	Mar-08	10835	0	1 000
TOTAL	**123445**	**7117**	**0.998**	**TOTAL**	**119017**	**828**	**1.000**
	Active export (MWh)	**Reactive import (MVArh)**	**Equivalent power factor**		**Active export (MWh)**	**Reactive import (MVArh)**	**Equivalent power factor**
Apr-08	7257	0	1 000	Apr-09	6190	818	0.991
May-08	4197	0	1 000	May-09	9841	656	0 998
Jun-08	7169	1	1 000	Jun-09	4095	591	0.990
Jul-08	7050	0	1 000	Jul-09	6148	797	0 992
Aug-08	5258	0	1 000	Aug-09	8697	1843	0 978
Sep-08	6204	6	1 000	Sep-09	10204	1366	0.991
Oct-08	15178	0	1 000	Oct-09	9591	863	0.996
Nov-08	13618	0	1 000	Nov-09	10326	663	0 998
Dec-08	11559	233	1 000	Dec-09	7599	390	0 999
Jan-09	15249	290	1 000	Jan-10	11888	1752	0 989
Feb-09	9093	302	0.999	Feb-10	5751	1182	0.980
Mar-09	14392	495	0 999	Mar-10	9516	2269	0 973
TOTAL	**116223**	**1327**	**1.000**	**TOTAL**	**99846**	**13190**	**0.991**
	Active export (MWh)	**Reactive import (MVArh)**	**Equivalent power factor**		**Active export (MWh)**	**Reactive import (MVArh)**	**Equivalent power factor**
Apr-10	6518	638	0 995	Apr-11	8563	638	0 997
May-10	3017	2226	0 805	May-11	11724	2226	0 982
Jun-10	4552	830	0 984	Jun-11	4513	830	0 984
Jul-10	8063	1274	0 988	Jul-11	4089	1274	0 955
Aug-10	4132	990	0 972	Aug-11	6737	990	0 989
Sep-10	10139	1184	0.993	Sep-11	10604	1184	0.994
Oct-10	10991	333	1 000	Oct-11	15603	333	1 000
Nov-10	9329	1097	0 993	Nov-11	13676	1097	0.997
Dec-10	7728	747	0 995	Dec-11	15825	747	0 999

[redacted]

Jan-11	9738	863	0 996	Jan-12	15499	863	0 998
Feb-11	11867	1018	0 996	**TOTAL**	**106833**	**10181**	**0.995**
Mar-11	9038	0	1.000				
TOTAL	**95112**	**11199**	**0.993**				

Table 1 - Monthly active export, reactive import and equivalent power factor for [redacted]

[redacted] disagrees with Ofgem's suggestion that [redacted] mports lots of reactive power. As discussed in relation to Figure 1, a power factor close to unity means only small amounts of reactive power are imported or exported. Table 1 shows the power factor is very close to unity in nearly all months in the period. This indicates that [redacted] does not have to import a large amount of reactive power to meet Grid Code requirements.

Within the approved charging statement, there is separate provision for the Company to charge the Customer for excess reactive power import or generation, if applicable. SHEPD have not charged [redacted] n this way.

3. What does [redacted] want out of this determination?

[redacted] are requesting, on behalf of the customer, a rebate for the amount of DUoS charges [redacted] believes have been incorrectly applied during the period between April 2006 and March 2012

The total DUoS charges that [redacted] believes should have been applied are £80,849.18. Please refer to Question 5, Part c of [redacted] submission of evidence for details on the definition used by [redacted] regarding the duration of any capacity exceeding the Authorised Import Capacity. To summarize, in the absence of a definition of the term "until further notice"[3], [redacted] has assumed that the exceeded capacity will be charged for the duration of the month in which the breach occurs[4] for the entirety of the period between April 2006 and March 2012.

Ofgem may consider that the undefined term of "until further notice" refers to the duration of the charging year that the exceeded capacity occurs in. If this is the case, [redacted] believes that the total DUoS charges that should have been applied are £93,413.87.

The total invoiced DUoS charges from SHEPD for the period were £830,288.34. Thus [redacted] request a rebate of £749,439.16 or £736,874.47, depending on the method for setting Chargeable Capacity that Ofgem deems suitable.

[2] Table 1 does not contain any new data since [redacted] initial submission of evidence The information in Table 1 is adapted from the half hourly meter data for the site, which was also adapted for use in the initial submission of evidence

[3] As defined in SHEPD Use of System Charging Statements prior to 1st Apni 2010

[4] As defined in SHEPD Use of System Charging Statements after 1st April 2010

1. **Please confirm exactly what is in dispute in this case (i.e. what are you asking the Authority to determine), attaching any relevant paperwork to back up your argument.**

For the Period requested for determination, monthly EHV Demand Use of System (DUoS) charges consisted of three main components.

- A Service Charge
- A Unit Charge (day/night or summer/winter)
- A Capacity Charge

The monthly DUoS charge was the sum of these three components for that month. The monthly Capacity Charge (£) component was the product of the Chargeable Capacity (kVA) and the Capacity Charge Rate (£/kVA/month)

The Customer's Agent is disputing the method used by the Company to calculate Chargeable Capacity for the Premises for the period 1st April 2006 to 31st March 2012 (the Period)

The Customer's Agent is requesting the Authority to determine whether the method used by the Company to calculate Chargeable Capacity for the Period is the same as the methodology stated in the Company's Authority approved Use of System Charging Statements for the Period

2. **Please provide a timeline detailing when this issue was raised with the company and any subsequent interactions/correspondence. Please attach any relevant correspondence.**

The Customer has sought clarification of the cause of the high charges with the Company on a number of occasions since 2006. Despite the Customer discovering that the Company had applied an HV and not an EHV tariff, and reducing the charges accordingly, the Customer was still concerned about the level of charges Given a lack of progress, in April 2011 the Customer requested that the Customer's Agent investigate the cause of the high DUoS charges

Table 1 summarises the email correspondence between the Company and the Customer and, since April 2011, the Customer's Agent. The Customer's Agent does not necessarily have access to all correspondence between the Customer and the Company prior to its appointment in April 2011.

Table 1 is not a complete record of all email correspondence, only a summary of relevant correspondence In addition to the email records in Table 1 there was some telephone correspondence and meetings The meetings which took place since the Customer's Agent was appointed are summarised in Table 2 and are referred to chronologically in Table 1 as Meeting 1, Meeting 2 and Meeting 3.

The items in Table 1 exclude any "without prejudice" correspondence between the parties

The Customer's Agent has not been privy to any correspondence between the Customer and the Company relating to the erroneous application by the Company of HV tariffs instead of the lower EHV tariffs during part of the Period – none of that correspondence is referenced in Table 1 below.

In Table 1:

- [redacted] is the Customer's import Supplier
- SHEPD and SHETL are used where the affiliations of SSE staff are identified on their emails Where the affiliation was not given SSE staff are designated as SSE
- [redacted] is the Customer

Ref	Date	Item	Contents
100	12/04/2006	Email [redacted]	The calculation of kVA for Import supplies (Square root of ((AI) squared + (RI) squared)) x 2 Charges reflect high Chargeable Capacity.
101	20/04/2006	Email [redacted]	Re SSE mail of 12th April 2006 "this looks to me as though Scottish Hydro has not been charging correctly"
102	21/04/2006	Email [redacted]	First written evidence of concern by client regarding

		[redacted]	Chargeable kVA
103	22/02/2007	Telephone call [redacted]	Imports at [redacted]
104	23/02/2007	Email [redacted]	Thanking [redacted] or call, requesting a meeting and setting out agenda
105	23/02/2007	Email [redacted]	Meeting request rebuffed – suggested meeting with [redacted]
106	27/03/2007	Email [redacted]	Has managed to secure a meeting with SSE on 26th Apnl
107	02/04/2007	Email [redacted]	Has had several long calls with SSE Meeting on 26th April has been cancelled
108	09/05/2008	Email [redacted]	Requesting reduction in ASC (Authorised Supply Capacity) with regard to Maximum Demand data over last 12 months
109	14/05/2008	Email [redacted]	Maximum demand exceeds ASC so looking to increase the ASC.
110	29/05/2007	Email [redacted]	Re relevant definitions and copying Statement of Use of System Charges 2007-8
111	07/07/2008	Email [redacted]	Re Maximum Demand June 2008 of 13010 kVA vs 7760kVA stated by SHEPD
111A	07/07/2008	Email [redacted]	Requesting Maximum Demand is reset to 7760kVA
111B	08/07/2008	Email [redacted]	Requesting response to 14 May email and wanting to increase Authonsed Capacity from 1000 to 7760kVA Engineer to visit re network upgrades.
112	09/07/2008	Email [redacted]	Suggesting that SSE are waiting for a request from [redacted] o reduce ASC from 13010 to 7760.
113	08/09/2008	Email [redacted]	Information on charges, bills and previous correspondence Looking for a meeting
116	15/09/2008	Email [redacted]	Information sent again
117	09/10/2008	Email [redacted]	Requesting to change meeting from 4th to 3rd November
115	10/10/2008	Email [redacted]	Confirms 3rd November meeting in Inverness
118	29/10/2008	Email [redacted]	Reconfirming meeting on 3rd Nov and attendees
119	31/10/2008	Email [redacted]	Questions the value of the meeting Suggests issue is due to data collection and aggregation SSE Charges are "for import capacity for real power", "we

			do not charge for reactive import or export" "The issues really lies between Elexon and your power purchaser"
120	31/10/2008	Email [redacted]	Thanks and wanting the meeting as well
121	03/11/2008	Date of meeting	No record of whether meeting took place.
114	25/11/2008	Email [redacted]	Query on SSE passing on capacity charges regarding reactive power and half hourly data
122	25/11/2008	Email [redacted]	Asking confirmation of 31/10/2008 email that SSE does not charge import capacity for reactive import and export
	April 2011	**Appointment**	**Customer appoints Customer's Agent**
123	31/10/2011	Email [redacted]	Request for SHEPD Charging Statement and Charging Methodology documents back to 2005.
124	21/02/2012	Email [redacted]	Request for first meeting (Meeting 1) to discuss the issue.
125	21/02/2012	Email [redacted]	Second request for first meeting (Meeting 1) to discuss the issue
126	22/02/2012	Telephone call [redacted]	Third request for first meeting (Meeting 1) to discuss the issue
127	09/03/2012	Email [redacted]	Email: 1 Stating the DUoS charges that the Customer's Agent understood had been applied for the April 2011 to February 2012 period 2 Requesting an explanation as to how the Company had calculated the DUoS charges as the Customer's Agent had calculated the DUoS charges based on the Company's Charging Statement and come out with significantly lower charges. This explanation was requested to be sent to the Customer's Agent in advance of the planned meeting of the 23rd March 2012 (Meeting 1) so that best use could be made of the meeting time The explanation as to how the DUoS had been calculated by the Company was requested again by [redacted] on 21/03/2012 – this information was not received before Meeting 1
128	21/03/2012	Email [redacted]	Confirming Meeting 1 and requesting whether [redacted] had considered [redacted] email query of 09/03/2012.
129	23/03/2012	Meeting 1	
130	27/03/2012	Email [redacted]	Post Meeting 1 email listing follow up actions 1 The Company to send written explanation of the methodology used to calculate charges from the HH data, and how that methodology can be derived from the charging methodologies and statements in force at the time; by 10/04/2012 2 The Customer's Agent to send HH meter data for the Premises to the Company, by 30/03/2012

			3 The Customer's Agent to send their thoughts on how the data should be treated, after completion of action 1 4 The Customer's Agent to send options for date of follow up meeting (Meeting 2); by 06/04/2012
131	29/03/2012	Email [redacted]	Email sending list of suggested dates for follow up meeting (Meeting 2)
132	02/04/2012	Email [redacted]	Email requesting response regarding a date for second meeting (Meeting 2)
133	03/04/2012	Email [redacted]	Sending HH meter data for the Company to investigate the cause of the high DUoS charges for period April 2006 to January 2012
134	10/04/2012	Email [redacted]	Third email following up with the Company requesting response regarding a date for second meeting
135	23/04/2012	Email [redacted]	Second email since Meeting 1 requesting that the Company send a written explanation of the methodology used to calculate charges from the HH data and how that methodology can be derived from the charging methodologies and statements in force at the time
136	25/04/2012	Email [redacted]	Third email since Meeting 1 requesting that the Company send a written explanation of the methodology used to calculate charges from the HH data and how that methodology can be derived from the charging methodologies and statements in force at the time
139	27/04/2012	Email [redacted]	Email setting out the method used by the Company to calculate the import Chargeable Capacity element of DUoS charges The Company confirms that they used reactive power values "irrespective of whether or not the recorded kVArh Import and kVArh Export values have occurred at times of kWh Import"
137	30/04/2012	Email [redacted]	Confirming receipt of written explanation from the Company and confirming date of second meeting as 9th May 2012 (Meeting 2)
138	04/05/2012	Email and document [redacted]	Document issued in advance of Meeting 2 Document sets out key information set out in the Company's published Charging Statements and Methodologies, the Company's chosen calculation method to calculate import Chargeable Capacity, the resultant DUoS Capacity Charges imposed on the Premises, The Customer's Agent's assessment of why the Company's chosen calculation method is not compliant with the published Charging Statements and Methodologies and the interpretation of the published Methodology that the Customer's Agent believes should have been used.
140	09/05/2012	Meeting 2	
141	09/05/2012	Email [redacted]	Post Meeting 2 email listing follow up actions: 1 The Customer's Agent to send through the

		[redacted]	Excel table of all the Company's DUoS charges as detailed in the Eon invoices, by Friday 11th May 2 The Company to send through response and position, by 8th June
142	09/05/2012	Email [redacted]	Invitation for Meeting 3 (to be held 13 June 2012)
143	10/05/2012	Email [redacted]	Summary of DUoS charges issued [redacted] o the Customer and the request that the Company inform the Customer's Agent if the DUoS charges understood by the Customer's Agent to have been issued do not match up with the Company's records.
144	17/05/2012	Email [redacted]	Email follow up requesting that the Company respond to the invitation to Meeting 3 (invitation sent by the Customer's Agent on 09/05/2012)
145	31/05/2012	Email [redacted]	Request for an update as to how the Company's investigation of the DUoS charges imposed was progressing
146	13/06/2012	Meeting 3	
147	18/06/2012	Email [redacted]	Evidencing permission fron [redacted] for the Customer's Agent to share with the Company the DUoS charging information that appears on th [redacted] invoices
148	20/06/2012	Email [redacted]	Request of breakdown of DUoS charges issued by the Company to [redacted] for the site
149	25/06/2012	Email [redacted]	Second request of breakdown of DUoS charges issued by the Company [redacted] or the site
150	26/06/2012	Email [redacted]	Copy of the DUoS charges calculated by the Company and passed t [redacted] for the Premises

Table 1: Summary of Key Email Correspondence with the Company

Date	Meeting	Attendees
14 00, 23rd March 2012	Meeting 1 [redacted]	[redacted]
14 00, 9th May 2012	Meeting 2 [redacted]	[redacted]
15 00, 13th June 2012	Meeting 3 [redacted]	[redacted]

Table 2: Summary of Meetings and Attendees

3. Please state the date from which you consider that the method used by SHEPD to calculate chargeable capacity has been incorrect.

The Customer's Agent considers that the method used by the Company to calculate Chargeable Capacity was incorrect since 1st April 2006

The Customer's Agent considers that the method used prior to 1st April 2006 may have been incorrect, but at time of requesting the determination the Customer's Agent did not have sufficient confidence in the data prior to 1st April 2006 to justify bringing the DUoS charges for this period to the Authonty for determination.

4. **Provide details and evidence of the DUoS charges that the Company has calculated and has billed to the Customer by the Customer's import supplier since the date stated in the response to question 3. Please also provide details of the previously refunded over-charge (associated with the incorrect use of the HV tariff not subject to this dispute) to allow us to fully understand the level of DUoS charges that have been billed by the Company.**

Table 4 of Appendix A sets out the EHV DUoS charges calculated by the Company for the Premises for the Penod (Apnl 2006 to March 2012 inclusive) This information was sent to the Customer's Agent by the Company[1] and the Customer's Agent does not dispute that these are the EHV DUoS charges calculated by the Company for the Premises for the Period.

Table 5 of Appendix B sets out the DUoS charges calculated by the Company incorrectly using the HV tanff. This information was sent to the Customer's Agent by the Company[2]. The Customer's Agent notes that the Chargeable Capacity figures in Appendix B are different to those in Appendix A for the time-penod September 2006 to July 2009 The Customer's Agent has not investigated or considered these Appendix B figures as the Appendix A figures are the ones that it agrees were finally applied by the Company and to which this determination relates

[1] Email correspondence from [redacted] the Company) to [redacted] the Customer's Agent) of 26/06/2012 at 15:36, [redacted]
[2] See footnote 1

5. **Please explain why you consider that the method used by the Company to calculate chargeable capacity has differed to that approved by the Authority. In doing this please provide:**
    a. **details of the method you think the Company has used;**
    b. **details of the method you consider the Company should have used; and**
    c. **your assessment of the level of DUoS charges that you would have expected to have been charged.**

Part a

The method used by the Company to calculate the Chargeable Capacity has been confirmed by the Company to the Customer's Agent[3] as:

> *"the demand (import) in kVA has been calculated as twice the square root of the square of the kWh in the relevant half hour plus the square of the kVArh[4] in that half hour. In each monthly DUoS billing period, the maximum demand (import) for that period has been taken as the highest half hourly value calculated in that billing period.* ***This formula has been applied irrespective of whether or not the recorded kVArh Import and kVArh Export values have occurred at times of kWh Import[5]."***

After assessment of the half-hourly meter data for the Premises for the Penod, the Customer's Agent does not dispute that this was the method used by the Company to calculate Chargeable Capacity

Table 3 shows that the half hourly data used by the Company to calculate Chargeable Capacity for the Period when there was no real (or active) power import.

[3] Email correspondence from [redacted]

[4] This was also expressed by the Company as "2 x ($\sqrt{(AI^2 + RI)^2}$)" where AI is Active Import (kWh) and RI is Reactive Import (kVArh) Active Export and Reactive Export were not used in the calculation of Chargeable Capacity by the Company.

[5] Bold emphasis added by the Customer's Agent.

Month	DUoS Charges Chargeable Capacity (kVA)	4 Channel HH Meter Data				HH Period
		Import		Export		
		kWh	kVArh	kWh	kVArh	
Apr 06	9650	0	4825	21005	0	22/04/2006 15 30 - 16 00
Jul 06	13010	0	6505	15430	0	16/07/2006 15.30 - 16 00
Sep 06	17860	0	8930	21215	0	19/09/2006 04 00 - 04 30
Sep 07	7760	0	3880	18155	0	23/09/2007 00 30 - 01 00
Sep 08	1750	0	875	23950	5	11/09/2008 16 30 - 17.00
Dec 08	4900	0	2450	10550	0	07/12/2008 08 30 - 09 00
Apr 09	7620	0	3810	6485	0	11/04/2009 06 00 - 06.30
Aug 09	19560	0	9780	19090	0	20/08/2009 09 30 - 10 00
Apr 10	8130	0	4065	5905	0	05/04/2010 00.00 - 00 30
Sep 10	14540	0	7270	21730	0	10/09/2010 16 30 - 17 00

Table 3: Half Hour Periods used by the Company to calculate Chargeable Capacity

Part b

For the charging years 2006/07 to 2009/10 Chargeable Capacity is defined in the Company's Use of System Charging Statements as[6]:

> *"the Authorised Capacity of the supply expressed in kilovoltamperes (kVA) or such higher capacity as may be determined from* ***the recorded peak demand in kilowatts (kW)*** *in the month of the account,* ***and the associated power factor*** *Whenever the Chargeable Capacity in a month exceeds the Authorised Capacity, the Authorised Capacity will be reset to the higher figure until further notice "*

From 2010/11 the Company's Use of System Charges Statements do not define Chargeable Capacity, however, given the absence of any subsequent, different definition or implied definition in the Use of System Charging Statements for 2010/11 and 2011/12, the Customer's Agent considers that the 2006/10 definition should be also be used for the 2010/11 and 2011/12 charging years

The Customer's Agent considers that the Company should have used the methodology as set out in the Charging Statements for the Penod and repeated above, i e use of half hourly periods with the "recorded peak demand (kW) in the month of the account" to calculate Chargeable Capacity.

Table 6 of Appendix C shows the recorded peak demand for each month Table 3 shows the half hourly periods used by the Company in the calculation of Chargeable Capacity Comparison of Table 3 and Table 6, shows that the Company has not used the half hourly periods of recorded peak demand and has not followed their published Charging Statements

This is a clear deviation by the Company from the Authority approved Use of System Charging Statements

[6] Bold emphasis added by the Customer's Agent

Part c

For each month the Customer's Agent has calculated the Chargeable Capacity based on the recorded peak demand half hour period of that month and the associated power factor Where the resultant Chargeable Capacity was less than the Authorised Import Capacity, the Chargeable Capacity was set as the Authorised Import Capacity. This is in accordance with the methodology from the Company's Use of System Charging Statements and reproduced in Part b above These Chargeable Capacity values and resultant DUoS Charges calculated by the Customer's Agent using the Authority approved methodology are detailed in Table 6 of Appendix C.

One aspect of the setting of Chargeable Capacity is that, for the period 1st April 2006 to 31st March 2010, the Company can use a previous month's Chargeable Capacity value if it was greater than the Authorised Import Capacity[7]. This is explained as

> *"Whenever the Chargeable Capacity in a month exceeds the Authorised Capacity, the Authorised Capacity will be reset to the higher figure until further notice "*

"Until further notice" is not a defined term within the Company's Use of System Charging Statements and the Customer's Agent does not have any basis to interpret the "until further notice" part of this statement

Therefore the Chargeable Capacity values shown in Table 6 Appendix C for the period 1st April 2006 to 31st March 2010 do not take into account the Chargeable Capacity of the previous month and are calculated solely based on the half hourly meter data for the month in question and the Authorised Import Capacity. The Customer's Agent considers that "until further notice" should be interpreted as for one month only, based on the Charging Statements of subsequent years.

For the period 1st April 2010 to 31st March 2012 the Use of System Charging Statements are explicit about the duration of any capacity in excess of the Authorised Import Capacity[8].

> *"Where a customer takes additional capacity over and above the MIC* [Maximum Import Capacity][9] *without authorisation, the excess will be classed as exceeded capacity. The exceeded portion of the capacity will be charged at the same p/kVA/day rate, based on the difference between the MIC and the actual capacity.* ***This will be charged for the duration of the month in which the breach occurs.***"

Therefore the Customer's Agent is confident that the Chargeable Capacity values, and so total DUoS charges, shown in Table 6 of Appendix C for the period 1st April 2010 to 31st March 2012 are correct.

---

[7] The Authorised Import Capacity for the Premises is 1MVA
[8] Bold emphasis added by the Customer's Agent
[9] The Customer's Agent understands Maximum Import Capacity to be the same as Authorised Import Capacity

6. **Please provide any other information you consider is relevant to your case.**

Given the sheer volume of 6 years worth of half hourly meter data, the Customer's Agent has not submitted it to the Authority with this information submission. However should the Authority need to see this information then the Customer's Agent can provide it in a form convenient for the Authority

Appendix A

Table 4 details the DUoS charges calculated by the Company for the Penod based on EHV tariffs The infonnation shown in Table 4 was sent to the Customer's Agent by the Company and the Customer's Agent does not dispute that these are the DUoS charges that have been calculated by the Company for the Premises (after the initial incorrect calculation of DUoS charges for most of the Period using HV tariffs – see Appendix B)

Period	Service Charge £	Unit Charge Day		Unit Charge Night		Capacity Charge			Total DUoS £ (exc. Vat)	Total DUoS £ (inc. VAT)
		Units kWh	Unit Charge £	Units kWh	Unit Charge £	Chargeable Capacity kVA	EHV Rate £/kVA	Capacity Charge £		
Apr-06	£24 56	7660	£12.72	2770	£4 60	9,650	£0 8058	£7,775 97	£7,817 84	£9,185 97
May-06	£24 56	8060	£13.38	4255	£7 06	9,650	£0 8058	£7,775 97	£7,820 97	£9,189 64
Jun-06	£24 56	16290	£27 04	9150	£15.19	9,650	£0 8058	£7,775 97	£7,842.76	£9,215 24
Jul-06	£24 56	21225	£35 23	8685	£14 42	13,010	£0 8058	£10,483 46	£10,557 67	£12,405 26
Aug-06	£24 56	15685	£26 04	5640	£9 36	13,010	£0 8058	£10,483 46	£10,543 42	£12,388 52
Sep-06	£24 56	10855	£18 02	1520	£2 52	17,860	£0 8058	£14,391 59	£14,436 69	£16,963 11
Oct-06	£24 56	13825	£22 95	3650	£6 06	17,860	£0 8058	£14,391 59	£14,445.16	£16,973 06
Nov-06	£24 56	2735	£4 54	1120	£1 86	17,860	£0 8058	£14,391 59	£14,422 55	£16,946 49
Dec-06	£24.56	3155	£5.24	1420	£2.36	17,860	£0 8058	£14,391.59	£14,423.74	£16,947.90
Jan-07	£24 56	890	£1 48	180	£0 30	17,860	£0 8058	£14,391 59	£14,417 92	£16,941.06
Feb-07	£24.56	8120	£13 48	1550	£2 57	17,860	£0 8058	£14,391 59	£14,432 20	£16,957 84
Mar-07	£24 56	3510	£5 83	2580	£4.28	17,860	£0 8058	£14,391 59	£14,426 26	£16,950 85
Apr-07	£26 35	6285	£11 19	3390	£6'03	17,860	£0.8600	£15,359 60	£15,403 17	£18,098 73
May-07	£26 35	15455	£27 51	9425	£16 78	17,860	£0 8600	£15,359 60	£15,430 24	£18,130.53
Jun-07	£26.35	26065	£46 40	14495	£25.80	17,860	£0 8600	£15,359 60	£15,458 15	£18,163 32
Jul-07	£26.35	20740	£36 92	7880	£14 03	17,860	£0 8600	£15,359 60	£15,436 89	£18,138 35
Aug-07	£26.35	16735	£29 79	5830	£10 38	17,860	£0 8600	£15,359 60	£15,426.12	£18,125 69
Sep-07	£26 35	9645	£17 17	4520	£8 05	7,760	£0 8600	£6,673 60	£6,725.16	£7,902 07
Oct-07	£26 35	10020	£17 84	2720	£4 84	7,760	£0 8600	£6,673 60	£6,722 63	£7,899.09
Nov-07	£26.35	7415	£13.20	1498	£2 67	7,760	£0 8600	£6,673 60	£6,715 82	£7,891 08
Dec-07	£26 35	6043	£10.76	1715	£3 05	7,760	£0 8600	£6,673 60	£6,713 76	£7,888 67
Jan-08	£26 35	2975	£5 30	1725	£3 07	7,760	£0 8600	£6,673 60	£6,708 32	£7,882.27
Feb-08	£26 35	8100	£14.42	3145	£5 60	7,760	£0 8600	£6,673 60	£6,719 97	£7,895 96

[redacted]

Period	Service Charge £	Unit Charge Day		Unit Charge Night		Capacity Charge			Total DUoS £ (exc. Vat)	Total DUoS £ (Inc. VAT)
		Units kWh	Unit Charge £	Units kWh	Unit Charge £	Chargeable Capacity kVA	EHV Rate £/kVA	Capacity Charge £		
Mar-08	£26 35	8670	£15.43	4250	£7 57	7,760	£0 8600	£6,673 60	£6,722.95	£7,899.46
Apr-08	£26.96	6415	£11 68	2695	£4.90	7,760	£0.8800	£6,828 80	£6,872 34	£8,075 00
May-08	£26 96	13230	£24 08	7655	£13.93	7,760	£0 8800	£6,828.80	£6,893 77	£8,100 18
Jun-08	£26.96	13460	£24 50	7160	£13 03	7,760	£0 8800	£6,828 80	£6,893.29	£8,099.61
Jul-08	£26.96	12000	£21 84	8605	£15 66	7,760	£0.8800	£6,828 80	£6,893 26	£8,099 58
Aug-08	£26 96	12170	£22.15	2420	£4 40	7,760	£0 8800	£6,828 80	£6,882 31	£8,086 72
Sep-08	£26 96	19720	£35 89	6520	£11 87	1,750	£0 8800	£1,540 00	£1,614 72	£1,897 29
Oct-08	£26 96	5825	£10.60	1205	£2 19	1,750	£0 8800	£1,540 00	£1,579 75	£1,856 21
Nov-08	£26 96	5985	£10 89	4240	£7 72	1,750	£0 8800	£1,540.00	£1,585.57	£1,823.40
Dec-08	£26 96	9290	£16.91	2745	£5 00	4,900	£0 8800	£4,312 00	£4,360 86	£5,014.99
Jan-09	£26.96	4340	£7.90	4000	£7 28	4,900	£0 8800	£4,312 00	£4,354 14	£5,007.26
Feb-09	£26.96	4205	£7.65	4115	£7 49	4,900	£0 8800	£4,312 00	£4,354 10	£5,007 22
Mar-09	£26 96	4195	£7 63	435	£0.79	4,900	£0.8800	£4,312 00	£4,347 39	£4,999 49
Apr-09	£27 90	8905	£16 74	5645	£10 61	7,620	£0 9100	£6,934.20	£6,989 45	£8,037.87
May-09	£27 90	7775	£14 62	2375	£4 47	7,620	£0 9100	£6,934 20	£6,981 18	£8,028 36
Jun-09	£27 90	20310	£38.18	9370	£17 62	7,620	£0 9100	£6,934 20	£7,017 90	£8,070.58
Jul-09	£27.90	16900	£31.77	5695	£10 71	7,620	£0.9100	£6,934 20	£7,004 58	£8,055 27
Aug-09	£27.90	12090	£22 73	3780	£7.11	19,560	£0.9100	£17,799 60	£17,857 34	£20,535 94
Sep-09	£27 90	9785	£18 40	3560	£6 69	19,560	£0 9100	£17,799 60	£17,852.59	£20,530 48
Oct-09	£27 90	8655	£16.27	2215	£4 16	19,560	£0 9100	£17,799 60	£17,847 94	£20,525.13
Nov-09	£27.90	8950	£16.83	2060	£3 87	19,560	£0 9100	£17,799 60	£17,848 20	£20,525 43
Dec-09	£27 90	16955	£31.88	5670	£10.66	19,560	£0.9100	£17,799 60	£17,870 04	£20,550.54
Jan-10	£27.90	3135	£5 89	1225	£2.30	19,560	£0 9100	£17,799 60	£17,835.70	£20,956.94
Feb-10	£27 90	18580	£34 93	4550	£8 55	19,560	£0 9100	£17,799 60	£17,870 98	£20,998.41
Mar-10	£27.90	11245	£21 14	4610	£8 67	19,560	£0 9100	£17,799.60	£17,857.31	£20,982 34
Apr-10	£29 89	13275	£26 68	6345	£12 75	8,130	£0 9800	£7,967 40	£8,036.72	£9,443 14
May-10	£29 89	15080	£30 31	6860	£13 78	8,130	£0 9800	£7,967 40	£8,041 38	£9,448.62
Jun-10	£29 89	22745	£45 72	9510	£19.11	8,130	£0 9800	£7,967 40	£8,062 12	£9,472 99

[redacted]

Period	Service Charge £	Unit Charge Day		Unit Charge Night		Capacity Charge			Total DUoS £ (exc. Vat)	Total DUoS £ (inc. VAT)
		Units kWh	Unit Charge £	Units kWh	Unit Charge £	Chargeable Capacity kVA	EHV Rate £/kVA	Capacity Charge £		
Jul-10	£29.89	9195	£18 48	3040	£6 11	8,130	£0.9800	£7,967 40	£8,021 88	£9,425.70
Aug-10	£29 89	24470	£49.18	7470	£15 01	8,130	£0 9800	£7,967 40	£8,061 48	£9,472 23
Sep-10	£29.89	12235	£24 59	4120	£8 28	14,540	£0.9800	£14,249 20	£14,311 96	£16,816 55
Oct-10	£29.89	9460	£19.01	2910	£5 85	14,540	£0 9800	£14,249 20	£14,303 95	£16,807 14
Nov-10	£29.89	15405	£30.96	3825	£7 69	14,540	£0.9800	£14,249 20	£14,317 74	£16,823 34
Dec-10	£29.89	14950	£30 05	6650	£13 36	14,540	£0 9800	£14,249 20	£14,322 50	£16,828 93
Jan-11	£29 89	5570	£11 20	2480	£4.98	14,540	£0 9800	£14,249 20	£14,295.27	£17,154.32
Feb-11	£29 89	5345	£10 74	2625	£5 27	14,540	£0 9800	£14,249 20	£14,295 10	£17,154 12
Mar-11	£29 89	12870	£25 87	6290	£12 64	14,540	£0 9800	£14,249 20	£14,317.60	£17,181 12
Apr-11	£33.92	11945	£27 00	2480	£5 60	14,540	£1 1000	£15,994.00	£16,060.52	£19,272.62
May-11	£33 92	3895	£8 80	2275	£5 14	14,540	£1 1000	£15,994.00	£16,041.76	£19,250.13
Jun-11	£33 92	16135	£36.46	7605	£17 19	14,540	£1 1000	£15,994 00	£16,081.57	£19,297.88
Jul-11	£33 92	20610	£46.58	11095	£25 07	14,540	£1 1000	£15,994.00	£16,099 57	£19,319.48
Aug-11	£33.92	21965	£49 64	7960	£17.99	14,540	£1 1000	£15,994.00	£16,095 55	£19,314 66
Sep-11	£33.92	6560	£14 82	2390	£5 40	14,540	£1 1000	£15,994 00	£16,048 14	£19,257.76
Oct-11	£33 92	3665	£8 28	3090	£6 98	14,540	£1 1000	£15,994 00	£16,043 18	£19,251 81
Nov-11	£33 92	1515	£3 42	1705	£3 85	14,540	£1 1000	£15,994.00	£16,035 19	£19,242 22
Dec-11	£33 92	2340	£5.29	600	£1 35	14,540	£1 1000	£15,994.00	£16,034 56	£19,241.47
Jan-12	£33 92	3595	£8 12	825	£1 86	14,540	£1 1000	£15,994 00	£16,037 90	£19,245 48
Feb-12	£33.92	4225	£9 55	815	£1 84	14,540	£1 1000	£15,994 00	£16,039 31	£19,247.17
Mar-12	£33 92	7940	£17 94	1010	£2 28	14,540	£1 1000	£15,994 00	£16,048 14	£19,257 76

Table 4: EHV DUoS Charges calculated by the Company for the Premises

[redacted]

Appendix B

Table 5 shows the DUoS charges calculated by the Company for the Premises for the part of the Period where an HV tariff was initially incorrectly used. Information received by the Company shows that the HV tariff was incorrectly used before 1st April 2006 to calculate DUoS charges for the Premises, but the Company's Agent has not included that information in this submission as it is outside of the Period for which determination is being requested The information shown in Table 5 was sent to the Customer's Agent by the Company.

The DUoS charges shown in Table 5 have been superseded by the charges shown in Table 4 of Appendix A [10]

Period	Service Charge £	Unit Charge Day		Unit Charge Night		Capacity Charge			Total DUoS £ (exc. Vat)	Total DUoS £ (Inc. VAT)
		Units kWh	Unit Charge £	Units kWh	Unit Charge £	Chargeable Capacity kVA	Rate £/kVA	Capacity Charge £		
Apr-06	£21.23	7660	£41.21	2770	£14 90	9650	£1 2339	£11,907 13	£11,984 47	£14,081.75
May-06	£21.23	8060	£43 36	4255	£22 89	9650	£1 2339	£11,907 13	£11,994 61	£14,093.67
Jun-06	£21.23	16290	£87.64	9150	£49 23	9650	£1 2339	£11,907 13	£12,065 23	£14,176 65
Jul-06	£21.23	21225	£114.19	8685	£46 72	13010	£1 2339	£16,053 04	£16,235 18	£19,076.34
Aug-06	£21 23	15685	£84.38	5640	£30.34	13010	£1 2339	£16,053 04	£16,188 99	£19,022.06
Sep-06	£21 23	10855	£58.40	1520	£8.17	13010	£1 2339	£16,053 04	£16,140 84	£18,965.49
Oct-06	£21.23	13825	£74 38	3650	£19 63	13010	£1 2339	£16,053 04	£16,168 28	£18,997.73
Nov-06	£21 23	2735	£14 71	1120	£6 02	13010	£1 2339	£16,053 04	£16,095 00	£18,911.63
Dec-06	£21 23	3155	£16 97	1420	£7.64	13010	£1 2339	£16,053 04	£16,098 88	£18,916 18
Jan-07	£21 23	890	£4 78	180	£0.97	13010	£1 2339	£16,053 04	£16,080 02	£18,894.02
Feb-07	£21 23	8120	£43 68	1550	£8.34	13010	£1 2339	£16,053 04	£16,126 29	£18,948 39
Mar-07	£21 23	3510	£18 88	2580	£13.88	13010	£1 2339	£16,053 04	£16,107 03	£18,925 76
Apr-07	£22.76	6285	£36.45	3390	£19.66	13010	£1.3300	£17,303 30	£17,382.17	£20,424.05
May-07	£22 76	15455	£89.64	9425	£54 66	13010	£1.3300	£17,303.30	£17,470.36	£20,527.67
Jun-07	£22 76	26065	£151.17	14495	£84 07	13010	£1.3300	£17,303.30	£17,561 30	£20,634.53
Jul-07	£22.76	20740	£120 29	7880	£45 70	13010	£1.3300	£17,303.30	£17,492.05	£20,553.16
Aug-07	£22 76	16735	£97.06	5830	£33 81	13010	£1 3300	£17,303 30	£17,456 93	£20,511.89
Sep-07	£22 76	9645	£55.94	4520	£26 21	13010	£1 3300	£17,303.30	£17,408 21	£20,454 65
Oct-07	£22 76	10020	£58.12	2720	£15 77	13010	£1.3300	£17,303 30	£17,399.95	£20,444.94
Nov-07	£22 76	7415	£43 01	1498	£8 69	13010	£1.3300	£17,303.30	£17,377.76	£20,418 87

[10] The Customer's Agent notes that the Chargeable Capacity figures in Appendix B are different to those in Appendix A for the time-penod September 2006 to July 2009 The Customer's Agent has not investigated or considered these Appendix B figures as the Appendix A figures are the ones that it agrees were finally applied by the Company and to which this determination relates

Period	Service Charge £	Unit Charge Day		Unit Charge Night		Capacity Charge			Total DUoS £ (exc. Vat)	Total DUoS £ (inc. VAT)
		Units kWh	Unit Charge £	Units kWh	Unit Charge £	Chargeable Capacity kVA	Rate £/kVA	Capacity Charge £		
Dec-07	£22.76	6043	£35 05	1715	£9 95	13010	£1 3300	£17,303.30	£17,371 06	£20,411.00
Jan-08	£22 76	2975	£17.26	1725	£10 00	13010	£1 3300	£17,303.30	£17,353 32	£20,390 15
Feb-08	£22.76	8100	£46.98	3145	£18 24	13010	£1 3300	£17,303 30	£17,391.28	£20,434 75
Mar-08	£22.76	8670	£50 28	4250	£24.65	13010	£1 3300	£17,303 30	£17,400.99	£20,446.16
Apr-08	£23.26	6415	£38.49	2695	£16 17	13010	£1 3700	£17,823 70	£17,901 62	£21,034 40
May-08	£23 26	13230	£79 38	7655	£45 93	13010	£1 3700	£17,823.70	£17,972 27	£21,117.42
Jun-08	£23 26	13460	£80 76	7160	£42 96	13010	£1 3700	£17,823 70	£17,970.68	£21,115.55
Jul-08	£23 26	12000	£72.00	8605	£51.63	13010	£1 3700	£17,823 70	£17,970 59	£21,115 44
Aug-08	£23.26	12170	£73 02	2420	£14.52	13010	£1 3700	£17,823 70	£17,934 50	£21,073 04
Sep-08	£23 26	19720	£118.32	6520	£39 12	13010	£1.3700	£17,823 70	£18,004 40	£21,155 17
Oct-08	£23 26	5825	£34 95	1205	£7 23	13010	£1.3700	£17,823 70	£17,889 14	£21,019 74
Nov-08	£23.26	5985	£35 91	4240	£25.44	13010	£1 3700	£17,823 70	£17,908 31	£20,594.56
Dec-08	£23.26	9290	£55 74	2745	£16 47	13010	£1 3700	£17,823 70	£17,919 17	£20,607 05
Jan-09	£23 26	4340	£26.04	4000	£24 00	13010	£1 3700	£17,823 70	£17,897 00	£20,581 55
Feb-09	£23.26	4205	£25 23	4115	£24 69	13010	£1 3700	£17,823 70	£17,896 88	£20,581 41
Mar-09	£23 26	4195	£25 17	435	£2 61	13010	£1 3700	£17,823 70	£17,874.74	£20,555 95
Apr-09	£23 96	8905	£55 21	5645	£35.00	13010	£1 4200	£18,474.20	£18,588.37	£21,376.63
May-09	£23 96	7775	£48.21	2375	£14 72	13010	£1 4200	£18,474 20	£18,561.09	£21,345.25
Jun-09	£23.96	20310	£125 92	9370	£58 09	13010	£1 4200	£18,474 20	£18,682.17	£21,484.50
Jul-09	£23.96	16900	£104 78	5695	£35 30	13010	£1.4200	£18,474 20	£18,638 24	£21,433 98
Aug-09	£23.96	12090	£74 96	3780	£23 43	19560	£1.4200	£27,775 20	£27,897 55	£32,082.18
Sep-09	£23.96	9785	£60 66	3560	£22 07	19560	£1.4200	£27,775 20	£27,881 89	£32,064 17
Oct-09	£23 96	8655	£53 66	2215	£13 73	19560	£1.4200	£27,775 20	£27,866 55	£32,046 53
Nov-09	£23.96	8950	£55.49	2060	£12 77	19560	£1 4200	£27,775 20	£27,867 42	£32,047.53
Dec-09	£23 96	16955	£105.12	5670	£35 15	19560	£1 4200	£27,775 20	£27,939 43	£32,130.34
Jan-10	£23 96	3135	£19.44	1225	£7 59	19560	£1 4200	£27,775 20	£27,826 19	£32,695 77
Feb-10	£23 96	18580	£115 19	4550	£28 21	19560	£1 4200	£27,775 20	£27,942 56	£32,832.51
Mar-10	£23 96	11245	£69.72	4610	£28.58	19560	£1 4200	£27,775 20	£27,897 46	£32,779.52

Table 5: HV DUoS Charges calculated by the Company for the Premises

[redacted]

Appendix C

Table 6 details the DUoS charges that the Customer's Agent considers should have been charged, based on the published methodology to calculate Chargeable Capacity set out in the Use of System Charging Statements for the 2006/07-2009/10 charging years, and the continued use of that methodology for the charging years 2010/2011 and 2011/2012 given the absence of any subsequent, different definition or implied definition in the Use of System Charging Statements for those two years.

The Customer's Agent has not changed and is not contesting the Service Charge or Unit Charges calculated by the Company and shown in Table 4 of Appendix A. The only component that differs from the values shown in Table 4 of Appendix A is the Chargeable Capacity values which have been calculated by the Customer's Agent. These in turn affect the Capacity Charge and the Total DUoS Charges

Month	Service Charge £	Unit Charge £	HH Meter Data				Capacity based on Monthly HH data kVA	Capacity Charge			Total DUoS Charge £ (exc. VAT)
			Import		Export			Chargeable Capacity kVA	EHV Rate £/kVA	Capacity Charge £	
			kWh	kVArh	kWh	kVArh					
Apr-06	£24.56	£17 31	110	5	0	280	602	1000	£0 8058	£805.80	£847.67
May-06	£24.56	£20.44	105	25	0	230	506	1000	£0 8058	£805.80	£850.80
Jun-06	£24 56	£42 23	110	75	0	160	388	1000	£0 8058	£805 80	£872 59
Jul-06	£24 56	£49 65	105	0	0	250	542	1000	£0 8058	£805 80	£880.01
Aug-06	£24 56	£35 40	105	0	0	430	885	1000	£0 8058	£805 80	£865 76
Sep-06	£24 56	£20 54	110	0	0	460	946	1000	£0 8058	£805 80	£850 90
Oct-06	£24 56	£29 01	110	0	0	505	1034	1034	£0 8058	£832.94	£886.51
Nov-06	£24 56	£6 40	100	0	0	345	718	1000	£0 8058	£805 80	£836 76
Dec-06	£24 56	£7 59	105	0	0	305	645	1000	£0 8058	£805 80	£837 95
Jan-07	£24.56	£1 78	90	0	0	405	830	1000	£0.8058	£805 80	£832 14
Feb-07	£24 56	£16 05	115	0	0	290	624	1000	£0.8058	£805 80	£846.41
Mar-07	£24.56	£10.11	100	0	0	535	1089	1089	£0.8058	£877 14	£911 81
Apr-07	£26.35	£17 22	105	0	0	355	740	1000	£0 8600	£860 00	£903 57
May-07	£26 35	£44 29	115	5	0	290	624	1000	£0 8600	£860.00	£930.64
Jun-07	£26 35	£72.20	120	10	0	270	591	1000	£0 8600	£860 00	£958 55
Jul-07	£26 35	£50 94	120	0	0	250	555	1000	£0 8600	£860.00	£937 29
Aug-07	£26 35	£40 17	115	0	0	260	569	1000	£0 8600	£860.00	£926.52
Sep-07	£26.35	£25.21	110	0	0	355	743	1000	£0.8600	£860 00	£911 56
Oct-07	£26.35	£22 68	110	5	0	285	611	1000	£0 8600	£860 00	£909.03
Nov-07	£26 35	£15 87	110	0	0	580	1181	1181	£0.8600	£1,015 38	£1,057.60
Dec-07	£26 35	£13 81	110	0	0	645	1309	1309	£0 8600	£1,125.42	£1,165 58

[redacted]

Month	Service Charge £	Unit Charge £	HH Meter Data				Capacity based on Monthly HH data kVA	Capacity Charge			Total DUoS Charge £ (exc. VAT)
			Import		Export			Chargeable Capacity kVA	EHV Rate £/kVA	Capacity Charge £	
			kWh	kVArh	kWh	kVArh					
Jan-08	£26.35	£8 37	105	0	0	535	1090	1090	£0 8600	£937.75	£972.47
Feb-08	£26 35	£20 02	100	0	0	645	1305	1305	£0 8600	£1,122 65	£1,169 02
Mar-08	£26.35	£23 00	110	0	0	840	1694	1694	£0 8600	£1,457 14	£1,506.48
Apr-08	£26 96	£16 58	100	0	0	705	1424	1424	£0.8800	£1,253 22	£1,296 76
May-08	£26.96	£38 01	115	0	0	485	997	1000	£0 8800	£880.00	£944 97
Jun-08	£26 96	£37 53	105	0	0	720	1455	1455	£0 8800	£1,280 60	£1,345 09
Jul-08	£26 96	£37.50	110	0	0	610	1240	1240	£0 8800	£1,090.92	£1,155 38
Aug-08	£26 96	£26 55	140	0	0	1410	2834	2834	£0 8800	£2,493 80	£2,547 32
Sep-08	£26.96	£47 76	115	0	0	1295	2600	2600	£0 8800	£2,288.17	£2,362 89
Oct-08	£26 96	£12 79	135	0	5	540	1113	1113	£0.8800	£979.65	£1,019.40
Nov-08	£26.96	£18 61	115	0	40	1050	2113	2113	£0 8800	£1,859 05	£1,904 62
Dec-08	£26 96	£21 90	125	0	0	2275	4557	4557	£0 8800	£4 010.04	£4,058.90
Jan-09	£26.96	£15 18	105	0	0	395	817	1000	£0.8800	£880 00	£922 14
Feb-09	£26 96	£15 14	110	60	0	225	501	1000	£0 8800	£880 00	£922.10
Mar-09	£26 96	£8 43	105	0	0	460	944	1000	£0 8800	£880.00	£915.39
Apr-09	£27.90	£27 35	105	45	0	290	617	1000	£0 9100	£910.00	£965 25
May-09	£27 90	£19 08	120	20	0	110	326	1000	£0 9100	£910.00	£956 98
Jun-09	£27.90	£55 80	145	130	5	300	666	1000	£0 9100	£910 00	£993.70
Jul-09	£27.90	£42 48	125	165	0	195	463	1000	£0 9100	£910 00	£980 38
Aug-09	£27 90	£29.84	115	240	45	115	532	1000	£0 9100	£910.00	£967 74
Sep-09	£27 90	£25.09	115	80	0	160	394	1000	£0 9100	£910 00	£962.99
Oct-09	£27 90	£20 44	115	40	0	330	699	1000	£0 9100	£910.00	£958 34
Nov-09	£27.90	£20 70	115	190	0	270	587	1000	£0 9100	£910.00	£958 60
Dec-09	£27 90	£42 54	125	60	0	165	414	1000	£0 9100	£910 00	£980 44
Jan-10	£27.90	£8 20	120	90	0	230	519	1000	£0 9100	£910.00	£946 10
Feb-10	£27 90	£43 48	110	5	0	325	686	1000	£0 9100	£910 00	£981 38
Mar-10	£27 90	£29 81	140	165	5	145	433	1000	£0 9100	£910 00	£967 71

[redacted]

Month	Service Charge £	Unit Charge £	HH Meter Data				Capacity based on Monthly HH data kVA	Capacity Charge			Total DUoS Charge £ (exc. VAT)
			Import		Export			Chargeable Capacity kVA	EHV Rate £/kVA	Capacity Charge £	
			kWh	kVArh	kWh	kVArh					
Apr-10	£29 69	£39 43	115	15	0	245	541	1000	£0 9800	£980 00	£1,049.32
May-10	£29 89	£44 09	145	0	50	215	519	1000	£0 9800	£980 00	£1,053 98
Jun-10	£29 89	£64 83	120	40	0	65	273	1000	£0 9800	£980 00	£1,074 72
Jul-10	£29 89	£24 59	110	55	0	275	592	1000	£0.9800	£980 00	£1,034.48
Aug-10	£29.89	£64 19	120	40	0	125	347	1000	£0 9800	£980 00	£1,074 08
Sep-10	£29.89	£32 87	105	0	0	315	664	1000	£0.9800	£980.00	£1,042 76
Oct-10	£29.89	£24 86	110	0	0	275	592	1000	£0 9800	£980.00	£1,034.75
Nov-10	£29.89	£38 65	120	70	0	300	646	1000	£0 9800	£980.00	£1,048 54
Dec-10	£29 89	£43 41	120	150	0	155	392	1000	£0 9800	£980 00	£1,053 30
Jan-11	£29 89	£16 18	130	100	0	285	626	1000	£0.9800	£980 00	£1,026 07
Feb-11	£29.89	£16 01	120	80	0	240	537	1000	£0 9800	£980 00	£1,025.90
Mar-11	£29 89	£38 51	135	0	130	370	788	1000	£0 9800	£980.00	£1,048.40
Apr-11	£33 92	£32 60	115	165	40	175	419	1000	£1 1000	£1,100 00	£1,166 52
May-11	£33.92	£13 94	110	0	0	370	772	1000	£1 1000	£1,100.00	£1,147.86
Jun-11	£33 92	£53 65	135	0	0	430	901	1000	£1 1000	£1,100.00	£1,187 58
Jul-11	£33 92	£71 65	135	790	0	0	1603	1603	£1.1000	£1,763 19	£1,868 76
Aug-11	£33.92	£67.63	150	370	160	160	798	1000	£1 1000	£1,100 00	£1,201 55
Sep-11	£33 92	£20 22	120	50	0	160	400	1000	£1 1000	£1,100.00	£1,154.15
Oct-11	£33 92	£15 26	140	350	115	230	754	1000	£1 1000	£1,100.00	£1,149.18
Nov-11	£33.92	£7.27	115	140	0	265	578	1000	£1 1000	£1,100.00	£1,141 19
Dec-11	£33 92	£6.64	125	65	25	0	282	1000	£1 1000	£1,100 00	£1,140 57
Jan-12	£33.92	£9.98	120	45	0	300	646	1000	£1 1000	£1,100 00	£1,143 90
Feb-12	£33.92	£11.39	115	25	0	350	737	1000	£1 1000	£1,100.00	£1,145 31
Mar-12	£33 92	£20 22	110	0	30	445	917	1000	£1 1000	£1,100 00	£1,154.14

Table 6: DUoS Charges calculated by the Customer's Agent for the Premises

[redacted]

[redacted] Response to SSEPD comments on [redacted] Comments using their numbering

2. The Customer states that this dispute only relates to [redacted] and does not relate to use of system charging affecting other customers This is not accurate We have to apply our charging consistently to the group of demand and generation customers which are/were affected by the particular tariff concerned during the specified period It is entirely appropriate and necessary to consider this dispute in context and not in isolation from relevant background information which may potentially be unfavourable to the Customer's arguments We do not believe that we are at liberty to apply different arrangements for the benefit of a single customer

[redacted] Response
We have not asked for a *different* methodology to be applied The fact that SSEPD have applied the same formula to all customers does not mean that it is correct. For the vast majority of customers there will be no difference in the result from applying either the company's or the customer's formula – in the case of the customer in this dispute there is a difference

3 It was neither a regulatory requirement nor the industry standard during the specified period for DNOs to elaborate on the formula used to calculate chargeable import capacity Further we applied a legitimate and appropriate formula to the relevant customer group throughout the period ***The Customer seeks to exploit the contemporary absence of such detail by the substitution of an alternative formula for the one which the Company quite properly deployed*** Such substitution of a more favourable formula does not equate to "correct application" of the published methodologies or statements. The formula which the Customer seeks to use as a substitute was not in general use in the period concerned by GB distributors This and the level of detail provided in statements of the period are important and relevant elements of context to the charging which has been applied and should not be dismissed.

[redacted] Response
We object to the pejorative term "exploit". The charging statement was approved by Ofgem The lack of elaboration in the charging statement on the resulting formula does not allow for multiple interpretations We are asking Ofgem to determine whether the company's or the customer's formula best fits the approved methodology statement

4 The customer seems ***to suggest that his proposed methodology may be the same as the common industry one post April 2012*** but if this is the case this is still not relevant as it is not the thrust of his argument. We maintain that the common industry methodology post April 2012 is quite distinct to any previously approved and applied individual DNO methodology and is testament to the amount of evolutionary time it took to achieve this

[redacted] Response
It was SSEPD who raised the matter of the 2012 methodology The 2012 methodology was not available in 2006 when the dispute commenced. Therefore we agree that it is not relevant

5 We accept ***our Statement is not explicit on the Equation used for determining the Import Capacity*** but we have willingly provided and explained this on request It is for this reason that we allude to industry practice as evidenced by contemporary but different contents in other DNO Statements, all of which achieved similar regulatory approval at that time. There has been considerable evolution over the lengthy period in question to amongst other things take into account the effects of distributed generation and these have largely now been addressed by the introduction of common use of system charging methodologies and statements, and at EHV since April 2012

[redacted] Response
This is why we are asking Ofgem to determine which equation is correct – the customer's or the DNO's.

6 We absolutely disagree for all the reasons we have already stated in our submissions so we will not repeat here

[redacted] Response
As stated above, we are not seeking special charging treatment for this particular customer

8 We were surprised by the omission of this piece of work by an earlier Customer consultant which seemed to allude to a wider recognised industry issue with the treatment of exporting generators by virtue of the metering and settlement systems applicable at that time We note from Comment 12 that the Customer has no dispute over the metered data or settlement flows deployed over the period We believe that the industry, in parallel with charging methodology changes, has evolved and now addressed these concerns with the eventual implementation inter alia of P266 of the BSC dealing with "Improving the allocation of Reactive Power Flows between Import and Export Metering Systems" but only from 23 February 2012 Further we have since been advised by the Customer that the [redacted] site is to have its metering brought into line and hence benefit from these new industry agreed arrangements

[redacted] Response
All of this is irrelevant to the dispute. P266 was not in place in 2006 when the dispute commenced

9 The formula we provided is quite explicit in that it is dependent only on the parameters AI and RI A negative AI would imply an AE, in consistent terminology, which is not present in the formula and therefore does not require the caveated exclusion put forward by the Customer.

[redacted] Response
This dispute is around import charging [redacted] believe that SSEPD have incorrectly applied their own formula when the site is exporting active power (negative AI) SSEPD have used the formula setting the active import (AI) to zero when it was negative but [redacted] believe that this import charging formula should not have been applied since active power was not being imported.

10. See Comment 4 above

11 We are disturbed to note that this was included at the direction of Ofgem

12. The significance of the nature of the specific connection here should not be so readily downplayed or dismissed There is currently no equivalent or similar [redacted] connection on the SHEPD system and the Gnd Code compliance issues which affect import chargeable capacity to such an extent appear to be specific to this one location

The common DNO EHV charging methodology applied since April 2012 substantially reduces but does not eliminate the effect of these issues at [redacted] However, the extremely unusual circumstances which affected import charges at [redacted] prior to 2012 do not in our view justify ***wholesale retrospective changes to all SHEPD EHV billing across the period in question***, simply due to ***no particular formula*** having been published at the time

We note the Customer accepts that location can significantly affect performance at his site and does not dispute the flows that resulted nor the data metered Further it should be noted that it is ultimately the customer's sole choice where he locates This choice presumably after taking into account numerous financial, and technical, considerations including whether he wishes to pay distribution connection and use of system charges in preference to transmission connection and use of system charges, particularly in this unique distribution location [redacted]

[redacted] Response
This has nothing to do with this determination, which is a question of which formula correctly interprets the approved methodology

It is not for the Customer to determine whether all SSEPD's customers need to be rebilled over the penod and we do not believe such a consideration is relevant to Ofgem's decision

14 Calculation of other DNO charges are relevant, we believe, if they reflect practice as approved by Ofgem and sheds light on acceptable different contemporary Statements at a point in their evolution. We note in Comment 16 that the Customer does not dispute other Ofgem approved DNO charging statements

[redacted] Response
The Customer does not dispute either SSEPD or other DNOs' approved charging statements – this dispute relates to the way SSEPD have interpreted the method for calculating import charges Therefore it is not relevant to consider other DNO charging statements

15. This has already been addressed so not repeated here

16. We do not agree that we have incorrectly or inappropnately applied use of system charging in relation to chargeable capacity. In our view, the Customer simply seeks to retrospectively replace our method with one which is more favourable to their particular situation, exploiting the level of provision of detail in the statements which was the norm at the time We are not aware of any other customer having similar issues with our methodology over the penod in question.

[redacted] Response
The fact that no other customer has complained does not mean that the SSEPD interpretation is correct. What we are asking Ofgem to determine is which method is correct If Ofgem determine in the customer's favour this will be "retrospective" The customer has complained about the charges since 2006 but only sought detennination in 2012 having been unable to resolve the matter satisfactonly with SSEPD

Company's response to additional question from Ofgem

Question (19/3/13): Was there any discussion about the level of reactive power import and therefore the likely charges before the connection agreement was signed?

Company's response (22/3/13):

The customer's commitment to proceed with the connection for [redacted] was made when the attached connection offer was signed in [redacted] rather than when the connection agreement was signed in [redacted] The connection agreement is normally signed close to the completion of the connection works.

As our discussions with the customer prior to proceeding with this connection were at least nine years ago, we no longer hold records of meetings/telephone calls/e-mails and therefore cannot now verify whether discussions took place regarding import use of system charges or to what level of detail this matter may have been discussed. However, we note that clause 3.4 of the connection offer attached stated that we would be willing to provide advice regarding use of system charges at the customer's request.

The level of advice we would have been able to offer at that point on future charges would have been limited, as these would be so heavily influenced by the actual operating behaviour of the Wind Farm. We would undoubtedly have been willing to provide details of the calculation formula for chargeable import capacity and respond to any questions about application of the charges if we had been asked. As an electricity distributor however, we would not have had adequate information to provide a reasonable assessment of the extent to which the import capacity could be affected by the operating characteristics of this highly complex generation installation. In the early 2000's, when this Wind Farm connection was being planned and the connection under discussion, large scale generation of this type, with relatively unpredictable generation patterns, was still fairly new to this country and we would therefore have had very little data or experience upon which to inform a view of potential future costs for this site. In this instance we would also have had to know about their bilateral commitments with NGC.

In the development of major generation connections, project developers have in-house resources and/or retain specialist consultants to provide the relevant technical and commercial expertise required. Generation developers also have much greater access to detailed technical information from the manufacturers and suppliers of their generation equipment than the electricity distributor has. [redacted] s formally classed as a 'Large Power Station', a classification which demands from the generator an exceptionally high level of knowledge and understanding of all of the technical and commercial issues relevant to their project. We are firmly of the view that it is reasonable to expect that the customer, using the resources and information that were available to them, would have been the party in the most informed position to fully consider and model potential import use of system charges, as part of their financial appraisal and diligence prior to making the commitment to construct such a high value and technically complex project.

Further, in our view it is reasonable to expect that the customer would use their specialist resources to thoroughly consider future distribution charges within the comprehensive analysis they must have undertaken to conclude that it was more beneficial to connect the Wind Farm via an entirely newly constructed sole-use distribution system connected to the transmission system rather than directly to the existing transmission system itself. It is also noted that the customer's company group are now proceeding with the development of phase two of the [redacted] as an extension connected to the distribution system on the same basis as the first phase (which this dispute concerns). They are also now proceeding with a further major wind farm in the SHEPD area which they have also chosen

to connect through another [redacted] distribution connection which continues to remains a very very unique connection scenario.

With the years of introspection at this site we remain resolutely convinced that our methodology, prevailing at that time, was generally in line with industry (as evidenced by other DNO statements) and that we had applied it correctly.

SSEPD comments on [redacted] Comments using their numbering

2 The Customer states that this dispute only relates to [redacted] and does not relate to use of system charging affecting other customers This is not accurate We have to apply our charging consistently to the group of demand and generation customers which are/were affected by the particular tariff concerned during the specified period It is entirely appropriate and necessary to consider this dispute in context and not in isolation from relevant background information which may potentially be unfavourable to the Customer's arguments We do not believe that we are at liberty to apply different arrangements for the benefit of a single customer.

3 It was neither a regulatory requirement nor the industry standard during the specified period for DNOs to elaborate on the formula used to calculate chargeable import capacity Further we applied a legitimate and appropriate formula to the relevant customer group throughout the period The Customer seeks to exploit the contemporary absence of such detail by the substitution of an alternative formula for the one which the Company quite properly deployed Such substitution of a more favourable formula does not equate to "correct application" of the published methodologies or statements The formula which the Customer seeks to use as a substitute was not in general use in the period concerned by GB distributors This and the level of detail provided in statements of the period are important and relevant elements of context to the charging which has been applied and should not be dismissed

4 The customer seems to suggest that his proposed methodology may be the same as the common industry one post April 2012 but if this is the case this is still not relevant as it is not the thrust of his argument. We maintain that the common industry methodology post April 2012 is quite distinct to any previously approved and applied individual DNO methodology and is testament to the amount of evolutionary time it took to achieve this.

5 We accept our Statement is not explicit on the Equation used for determining the Import Capacity but we have willingly provided and explained this on request It is for this reason that we allude to industry practice as evidenced by contemporary but different contents in other DNO Statements, all of which achieved similar regulatory approval at that time There has been considerable evolution over the lengthy period in question to amongst other things take into account the effects of distributed generation and these have largely now been addressed by the introduction of common use of system charging methodologies and statements, and at EHV since April 2012

6 We absolutely disagree for all the reasons we have already stated in our submissions so we will not repeat here

8. We were surprised by the omission of this piece of work by an earlier Customer consultant which seemed to allude to a wider recognised industry issue with the treatment of exporting generators by virtue of the metering and settlement systems applicable at that time We note from Comment 12 that the Customer has no dispute over the metered data or settlement flows deployed over the period. We believe that the industry, in parallel with charging methodology changes, has evolved and now addressed these concerns with the eventual implementation inter alia of P266 of the BSC dealing with "Improving the allocation of Reactive Power Flows between Import and Export Metering Systems" but only from 23 February 2012. Further we have since been advised by the Customer that the [redacted] site is to have its metering brought into line and hence benefit from these new industry agreed arrangements.

9. The formula we provided is quite explicit in that it is dependent only on the parameters AI and RI A negative AI would imply an AE, in consistent terminology, which is not present in the formula and therefore does not require the caveated exclusion put forward by the Customer

10 See Comment 4 above

11 We are disturbed to note that this was included at the direction of Ofgem

12. The significance of the nature of the specific connection here should not be so readily downplayed or dismissed. There is currently no equivalent or similar [redacted] connection on the SHEPD system and the Grid Code compliance issues which affect import chargeable capacity to such an extent appear to be specific to this one location

The common DNO EHV charging methodology applied since April 2012 substantially reduces but does not eliminate the effect of these issues at [redacted] However, the extremely unusual circumstances which affected import charges at [redacted] prior to 2012 do not in our view justify wholesale retrospective changes to all SHEPD EHV billing across the period in question, simply due to no particular formula having been published at the time

We note the Customer accepts that location can significantly affect performance at his site and does not dispute the flows that resulted nor the data metered Further it should be noted that it is ultimately the customer's sole choice where he locates This choice presumably after taking into account numerous financial, and technical, considerations including whether he wishes to pay distribution connection and use of system charges in preference to transmission connection and use of system charges, particularly in this unique distribution location [redacted]

14 Calculation of other DNO charges are relevant, we believe, if they reflect practice as approved by Ofgem and sheds light on acceptable different contemporary Statements at a point in their evolution We note in Comment 16 that the Customer does not dispute other Ofgem approved DNO charging statements

15 This has already been addressed so not repeated here

16 We do not agree that we have incorrectly or inappropriately applied use of system charging in relation to chargeable capacity In our view, the Customer simply seeks to retrospectively replace our method with one which is more favourable to their particular situation, exploiting the level of provision of detail in the statements which was the norm at the time We are not aware of any other customer having similar issues with our methodology over the period in question

Response – [redacted] DUoS Detennination

Question 1:

Please confirm exactly what is in dispute in this case (i e. what you are asking the Authority to determine), attaching any relevant paperwork to back up your argument.

Response:

The Customer disputes the validity of the method applied to calculate the import capacity (kVA) charges for the [redacted] generation site The Customer contends that the method of calculation deployed by Scottish Hydro Electric Power Distribution plc ("SHEPD") up to and including March 2012 was not appropriate for exporting generation connections

The [redacted] connection is an Extra High Voltage ("EHV") export/import connection, to which only import use of system charges are applicable during the period in question. SHEPD applied its chargeable import capacity calculations to the [redacted] connection on the same basis as all other EHV connections and have not applied differential treatment to individual customers or any category of customers.

Our method of calculating chargeable import capacity for EHV connections was in line with industry standards during the time in question. Industry developments have subsequently (in 2012) led to a different method of calculation which is universally employed by the GB DNOs.

The Customer's Agent seeks retrospective application of the method now agreed and implemented by all DNOs in 2012 The first of the sought after outcomes stated on Page 19 of the document submitted by the Customer's Agent, ref. [redacted] confirms this as the outcome sought by the Customer in this dispute This is however inappropriate in principle and special charging treatment should not be applied to a single customer in any event.

In our view, Grid Code compliance contractual obligations between the Customer and the Transmission System Operator (NGET) are essentially the source of the pattern and level of reactive power consumption recorded at [redacted] These obligations, rather than the actions of SHEPD, result in distribution capacity charges of a greater level than may have been anticipated by the Customer

Question 2:

Please provide a timeline detailing when this issue was raised with the Company and any subsequent interactions/correspondence Please attach any relevant correspondence

Response:

The Customer's Agent has provided a detailed timeline which we believe reasonably accurately indicates the interactions between the Customer and us on this matter However, we do note that the Customer's Agent has recorded three entries (124, 125 & 126) regarding Meeting 1 This may give a misleading impression of SHEPD's ability to respond to queries, as the two emails and subsequent telephone call were within two consecutive days and fail to take account of the fact that SHEPD was co-

ordinating personnel and meeting room availability over two locations. We also wish to add some correspondence which has been omitted, but is relevant to the case

In 2010, there was correspondence between the Customer and us and also a meeting at [redacted] The correspondence between the parties is enclosed. The meeting was on 9th November 2010 and attended by [redacted]

The correspondence and the paper by the Customer's consultant at that time [redacted], are attached in Appendices 1 – 4

Question 3:

Please provide details of the basis on which you calculated the charges for this Customer from 1st April 2006 to 31st March 2012. Please include details of where this calculation may have changed and the reasons for these changes.

Response:

The basis of our calculation of chargeable capacity was the formula set out below and this was unchanged across the period in question .

Over this penod, the formula used to calculate the kVA demand values for each half hour settlement period was

$2 \times (\sqrt{(AI^2 + RI^2)})$

where:

AI = Active Import in kWh

RI = Reactive Import in kVArh

The formula was subsequently changed in April 2012, with the introduction of EDCM demand charging and the associated common DNO charging statement template This change followed a lengthy period of industry discussions and developments The introduction of EDCM was originally intended to take place in 2010, alongside the implementation of CDCM. However, this was delayed until 2012, meaning that a common approach to EHV DUoS charging was not implemented when originally expected

The Customer's Agent refers to a period when the site was charged as an HV customer, rather than EHV SHEPD notified the Customer of this matter, and rectified the billing accordingly. SHEPD does not consider it relevant to the current issue on which determination is sought by the Customer and submits that Table 5 of Appendix B, supplied by the Customer's Agent, is irrelevant for the purposes of this determination

Question 4:

In the Customer's submission of evidence there is reference to particular definitions they state the Company used as the basis for their calculation. Please provide details and copies of these definitions, i e the specific documents where these definitions can be found

Response:

The relevant statements are provided in the zip file "SHEPD Statements 2006 - 12 zip"

Question 5:

In the Customer's submission there is reference to particular methods provided to the Customer's Agent when they were seeking to understand the calculations Please provide copies of these as supplied to the Customer, see reference 130, 139 and 138 of Table 1 Summary of Key email correspondence.

Response:

In Appendix 5 [redacted] explains the calculation methodology, as requested by the Customer's Agent Please note that, due to a formatting anomaly in our e-mail software, the square root sign was inadvertently converted to a dot when copied into the e-mail. However, the formula was described fully in the text of paragraph 4.

In Appendix 6 [redacted], writes to [redacted] in response to the report [redacted] prepared by the Customer's Agent

Question 6:

Please provide anything else, e g correspondence, calculations as is relevant

Response:

[redacted] windfarm has a unique connection [redacted] The windfarm is the only customer connected to [redacted]

As the only customer connected [redacted] there are no other demand or generation customers connected that might influence the network voltage and therefore trigger [redacted] ead and lag responses for the import and export of reactive power, respectively.

We understand that the Customer has Grid Code obligations to provide the Transmission System Operator (NGET) with certain services, not least of which is to import and export reactive power to assist with voltage stabilisation on the Transmission network. SHEPD asserts that in meeting these obligations the Customer's lead and lag activity varies within a significant range, triggering excess capacity charges. SHEPD has acted properly in using the resultant kVArh figures as recorded on the metering to calculate import capacity charges as detailed elsewhere in this response

Our method of reflecting reactive power in calculating chargeable capacity was in line with common DNO approaches to such calculations during the penod in question. It was not normal DNO practice to treat EHV demand and generation customers in a different way, in relation to import capacity charging, or to apply formulae which took account of the half hourly timing of reactive power import in comparison to generation export.

As mentioned previously, the implementation in 2012 of the Extra High Voltage Distribution Charging Methodology (EDCM) has resulted in the GB DNOs applying a new standard formula for the calculation of chargeable import capacity. This new formula recognises the half hourly timing of reactive power import in comparison to generation export.

The Customer is effectively seeking retrospective application of this "later thinking" in relation to generation customer charging and unique treatment in charging, which we do not believe is something we may offer

DNO Charging Statements of the period did not normally go to the level of detail that the Customer now contends should have been given, nor were required to do so to meet Regulatory approval requirements. The level of detail in such statements has evolved over time and now, following considerable and lengthy development work, common statement formats are applied across the distributors We do not however believe that it is appropriate to measure historic arrangements against current arrangements and thereby obtain retrospective benefit.