



DCUSA CONSULTATION TWO

DCP 222 - Non billing of Excess Reactive Power Charges

1 PURPOSE

- 1.1 The Distribution Connection and Use of System Agreement (DCUSA) is a multi-party contract between electricity Distributors and electricity Suppliers and large Generators. Parties to the DCUSA can raise Change Proposals (CPs) to amend the Agreement with the consent of other Parties and (where applicable) the Authority.
- 1.2 This document is a Consultation issued to Distribution Network Operators (DNO), Independent Distribution Network Operators (IDNO), Suppliers, Citizens Advice, Elexon, any other interested Parties and the Authority in accordance with Clause 11.14 of the DCUSA seeking DNO views on 'DCP 222 – Non billing of excess Reactive Power charges' (Attachment 1). Respondents are invited to consider the questions set out below and submit comments using the form provided as Attachment 2.
- 1.3 Responses should be submitted online or emailed to DCUSA@electralink.co.uk by 27 May 2015.

2 Background of DCP 222 – Non billing of excess Reactive Power charges

- 2.1 DCP 222 was raised by Western Power Distribution to look at options for Network Operators to not charge excess reactive power charges to generators who operate, at the request of the Network Operator, with a power factor less than 0.95.
- 2.2 This CP has been raised as a result of an issue flagged by National Grid in their paper on the System Operability Framework in September 2014. It suggests that there is a rapidly emerging issue around falling Volt Ampere Reactive (VAR)¹ demand leading to high voltage levels on the National Electricity Transmission System operated by National Grid under low load conditions.
- 2.3 The proposer of this change has stated that following recent Statement of Works Applications to National Grid under the Connection and Use of System Code (CUSC) some DNOs are asking for generation to operate to help control reactive flows. These conditions may result in generators being requested to operate outside of the 0.95 power factor limit to assist with this system wide voltage control issue. This issue relates to both

¹ Volt Ampere Reactive (VAR) is a unit used to measure reactive power in alternating current (AC) circuits.

EHV > 22kV or 11kV generators, although so far no DNO has currently required any HV generator to operate outside the 0.95 power factor.

- 2.4 There are currently two methodologies for charging Distribution Use of System (DUoS), the Extra-high-voltage Distribution Charging Methodology (EDCM) which applies to EHV designated properties and the Common Distribution Charging Methodology (CDCM) which applies to HV and LV connected generators. The EDCM does not have specific reactive power charges whereas the CDCM does. As a result, this CP is only looking to address issues with the CDCM.
- 2.5 As such those generators charged under the CDCM would currently be charged an excess reactive power charge if they were to operate outside 0.95. This would discourage generators carrying out this instruction given that those generators would be only generating outside 0.95 power factor for the wider system benefits of all customers. The removal of the excess reactive power charge may therefore be appropriate where a DNO requests a generator to operate outside of the 0.95 power factor limit.

3 Working Group Assessment of DCP 222

- 3.1 The DCUSA Panel established a Working Group to assess DCP 222. This Working Group consists of DNO, Supplier and Ofgem representatives.
- 3.2 The Working Group felt the change was required due to the excess reactive power charge being charged to generators that are being required by the DNO to operate outside of the 0.95 power factor limit.
- 3.3 Although it is not believed to be an issue in all DNO areas at the current time, it is expected to be an issue in more than one DNO area in the short to medium term. The Working Group discussed the solution presented in the change proposal (Option 1) and agreed that an alternative option (Option 2) should be raised which does not introduce new tariffs or require additional Line Loss Factor Classes (LLFCs) to be created, in order to offer an option which may potentially be easier to implement.

4 DCP 222 - previous consultation

- 4.1 The Working Group issued one consultation previously seeking industry opinion on the CP which closed on 7 April 2015, and proposed two options to facilitate this change. The two options were;

Option 1

Insert new tariffs with no reactive power charges being applied to them into Section 16; Table 7 of DCUSA and insert a new note 7, which states that “Where a DNO has requested a generator to operate with a power factor of less than 0.95, excess reactive power charges will not be applicable.”

For clarity please see the relevant part of DCUSA below.

Table 1: Half-hourly metered generation tariffs				
Point Connection	Of	Unit Rate	Other Charges	Tariff Name
LV	One	Three	Fixed and Reactive Power	LV Generation Intermittent
LVS				LV Sub Generation Intermittent
LV	Three			LV Generation Non-Intermittent
LVS				LV Sub Generation Non-Intermittent
HV	One			HV Generation Intermittent
HV	Three			HV Generation Non-Intermittent
LV	One	Fixed		LV Generation Intermittent no RP charge
LVS				LV Sub Generation Intermittent no RP charge
LV	Three			LV Generation Non-Intermittent no RP charge
LVS				LV Sub Generation Non-Intermittent no RP charge
HV	One			HV Generation Intermittent no RP charge
HV	Three			HV Generation Non-Intermittent no RP charge

Note 1: A single-rate tariff is applied to NHH settled generation, as there is no readily available and accurate information about the time at which units are delivered.

Note 2: Intermittent generation is defined as a generation plant where the energy source of the prime mover cannot be made available on demand, in accordance to the

definitions in Engineering Recommendation P2/6. These include wind, tidal, wave, photovoltaic and small hydro. The operator has little control over operating times therefore, a single-rate tariff (based on a uniform probability of operations across the year) will be applied to intermittent generation.

Note 3: Non-intermittent generation is defined as a generation plant where the energy source of the prime mover can be made available on demand, in accordance to the definitions in Engineering Recommendation P2/6. The generator can choose when to operate, and bring more benefits to the network if it runs at times of high load. These include combined cycle gas turbine (CCGT), gas generators, landfill, sewage, biomass, biogas, energy crop, waste incineration and combined heat and power (CHP). A three-rate tariff will be applied to generation credits for half-hourly settled non-intermittent generation.

Note 4: LV Sub Generation applies to customers connected to the DNO Party's network at a voltage of less than 1 kV at a substation with a primary voltage (the highest operating voltage present at the substation) of at least 1 kV and less than 22 kV, where the current transformer used for the customer's settlement metering is located at the substation.

Note 5: not used.

Note 6: Note 4 above for LV generation substation tariffs will be applied for new customers from 1 April 2010.

Note 7: Where a DNO has requested a generator to operate with a power factor of less than 0.95, excess reactive power charges will not be applicable.

Option Two

Option two proposes to use the existing calculated tariff only and not apply the excess reactive power charge for those Customers which the DNO determines should have a zero Excess Reactive Power charge applied. This would likely be achieved by a change to the Common Distribution Charging Methodology to as it would need to be revised in order to allow for the non-application of part of a published tariff for certain Customers. It is noted that this change applies to HV and LV voltage levels only at 11 kV and below.

- 4.2 Responses to this consultation and other correspondence received by the Working Group have been reviewed by the Working Group. The Consultation, responses received and Working Group comments are given as Attachment 3.
- 4.3 Following the review of the DCP 222 consultation responses, the Working Group agreed that although Option Two had a solution which could be applied in the St Clements Services Durabill billing system it needed to be understood if this solution could be applied in the DNOs with other billing systems, (please see the detail in the table below).

St Clements Services Durabill Solution for DCP222 Option 2

Use the existing calculated tariff only and apply the excess reactive power charge for those Customers which the DNO determines should have a zero charge applied.

There are two potential ways in which this could be handled in DURABILL:

Solution 1 – Copy Tariffs

Create copies of any affected tariffs and remove reactive charge elements from the copied version. Any affected sites can then be moved to the copy tariff.

This would mirror the approach that it being used in DURABILL for customers on EDCM sites which operate, at the instruction of the network operator, with a power factor less than 0.95.

There would be no impact on DURABILL. **DURABILL HLIA024** DCP 222 – Non Billing of Excess Reactive Power Charges

Solution 2 – Site Level Flag

Add a new flag on the Maintain Site Details screen to indicate that the site should not be charged reactive charges. The HH invoice generation package (DIPR003) would need to be amended to ensure that reactive charges are set to zero for any sites where this flag is set.

There will be a cost to solution 2

- 4.4 Members noted that if the (CDCM) generator was requested to operate outside the power factor of 0.95 then they would be able to do so not just for the Half Hourly (HH) period(s) that the DNO requested the generator do so, but for the entirety of the charging period, as the tariff could not be applied to specific HH periods only. This could result in the generator operating outside a 0.95 power factor and the socialising of the unfunded Excess Reactive Power charges (applied if a generator operates outside of 0.95 power factor).
- 4.5 It could be argued that Distribution Customers are paying to alleviate this system wide voltage control issue with no costs being borne by the Transmission System Operator (TSO).
- 4.6 Furthermore concerns were raised that this arrangement would lead to a potential trilateral agreement between the Customer, DNO and National Grid being required. The Working Group is seeking views on:
- whether or not this is an issue for the DUoS charges or a transmission issue that could be addressed at higher voltage levels; and
 - also any perceived impact on DNO and supplier billing systems in particular any DNO Parties who do not operate a Durabill billing system.

5 Assessment against the DCUSA Objectives

- 5.1 For a DCUSA Change Proposal to be approved it must be demonstrated that it better meets the DCUSA Objectives. There are five General DCUSA Objectives and five Charging Objectives. The full list of objectives is documented in the CP form provided as Attachment 1.
- 5.2 The Working Group has assessed the CP against the DCUSA objectives and the Working Group members agree that the following DCUSA Objective is better facilitated by DCP 222.
- **General Objective One - The development, maintenance and operation by the DNO Parties and IDNO Parties of efficient, co-ordinated, and economical Distribution Network**The Working Group has assessed the CP against the DCUSA charging

objectives and the Working Group members agree that the following DCUSA Objective is better facilitated by DCP 222.

- **General Objective Three** - The efficient discharge by the DNO Parties and IDNO Parties of obligations imposed upon them in their Distribution Licences
- **Charging Objective One** - That compliance by each DNO Party with the Charging Methodologies facilitates the discharge by the DNO Party of the obligations imposed on it under the Act and by its Distribution Licence

5.3 Charging Objective 1 and General Objective 3 are both better facilitated as a result of this change proposal by ensuring that the wording within DCUSA does not create an inconsistency with the Distribution Licence, which would be in place at that time.

5.4 The Working Group has assessed the CP against the DCUSA objectives and the Working Group members agree that the following DCUSA Objective is better facilitated by DCP 222.

6 Implementation Date

6.1 The proposed implementation date for DCP 222 is 1 April 2016.

7 DCP 222 – Consultation Questions

7.1 The Working Group is seeking responses from DNOs to the following consultation questions.

No.	General Questions
1	National Grid has not explicitly requested that all DNOs provide this service, so do you believe that this service should be reflected by a change to the Common Distribution Charging Methodology (CDCM) for LV & HV connections.
2	The Working Group discussed whether it is correct that National Grid may benefit from this service without incurring any costs. Do you agree with this assumption?
3	Has National Grid specifically requested that these connection conditions be added to new LV and / or HV generator connection offers and if so, on how many instances has this been included within new connection agreements?

4	This change proposes an arrangement that could lead to a trilateral agreement between the Customer, DNO and National Grid. Do you believe this to be the case? Please provide comments?
5	Should the non-billing of excess reactive power only apply to new customers
No.	DNO/IDNO Specific Questions
6	When is it envisaged (if at all) that this requirement to request that 11kV generators operate outside a 0.95 power factor will be needed in each DNO License area - and if appropriate, how many generators will this be expected to impact?
7	If you are a DNO or IDNO and do not use the Durabill billing system, please advise how Option Two could be incorporated into your existing billing system – if at all?
No.	Supplier Specific Question
8	If you are a Supplier do you envisage there being any billing or validation systems issues as result of Option Two being implemented?

7.2 Responses should be submitted using Attachment 2 to dcusa@electralink.co.uk no later than 27 May 2015.

7.3 Responses, or any part thereof, can be provided in confidence. Parties are asked to clearly indicate any parts of a response that are to be treated confidentially.

8 NEXT STEPS

8.1 Responses to the Consultation will be reviewed by the DCP 222 Working Group who will use the responses to aid them in the progression of the CP.

8.2 If you have any questions about this paper or the DCUSA Change Process please contact the DCUSA by email to DCUSA@electralink.co.uk or telephone 020 7432 3016.

ATTACHMENTS

- Attachment 1 – DCP 222 CP
- Attachment 2 – DCP 222 Consultation Two Response Form
- Attachment 3 – DCP 222 Consultation One and Responses