



DCUSA CONSULTATION THREE

DCP 222 – Non-Billing of Excess Reactive Power Charges

DCP 222 seek to allow Network operators to not charge reactive power charges to generators who operate, at the instruction of the network operator, with a power factor less than 0.95.

This document is the third consultation issued in respect of DCP 222. You are invited to respond to this consultation using the forms provided as Attachments 1 **by 12 April 2016.**

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, any other interested Parties and the Authority in accordance with Clause 11.14 of the DCUSA seeking views on 'DCP 222 – Non-Billing of Excess Reactive Power Charges. Respondents are invited to consider the questions set out below and submit comments using the form provided as Attachment 1.
- 1.3 Responses should be submitted online or emailed to DCUSA@electralink.co.uk **by 12 April 2016**.

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 Distribution Network Operators to not charge excess reactive power charges to generators who operate, at the request of the DNO, 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 generators to operate outside a power factor to help control reactive

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

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.

- 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 Extra-high-voltage (EHV) designated properties and the Common Distribution Charging Methodology (CDCM) which applies to High-voltage (HV) and Low-voltage (LV) demand and generation users.
- 2.5 This issue relates to both EDCM EHV (22kV and above) and CDCM HV (typically 11kV) generators, although so far no DNO has currently required any CDCM generator to operate outside the 0.95 power factor. The EDCM does not have separate reactive power charges as these are taken into account during the load flow calculation process; whereas the CDCM does have separate reactive power charges. As a result, this CP is only looking to address issues with the CDCM.
- 2.6 Generators charged under the CDCM would currently be charged an excess reactive power charge if they operate outside the 0.95 power factor. The power factor is normally agreed at the time of connection and captured in the connection agreement. The proposer claims that this is unfair given that those generators would only be requested to operate outside the 0.95 power factor for the wider system benefits of all customers. The removal of the excess reactive power charge (for these generators) may therefore be appropriate where a DNO requests a generator to operate outside of the 0.95 power factor.

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 A minority of the Working Group felt the change was required due to the perceived unfair excess reactive power charge being charged to generators that may be requested by the DNO to operate outside of the 0.95 power factor limit, although to date no DNO has needed to make such a request to a CDCM customer. Although it is not believed to be an

issue in all DNO areas at the current time, in the future some parties believe it will be an issue in more than one DNO area.

4 DCP 222 - PREVIOUS CONSULTATIONS

Consultation One

- 4.1 The first consultation was issued on 17 March 2015 seeking industry opinion on the CP and proposed two options to facilitate this change, Option 1 as presented in the change proposal form (Attachment 2) and Option 2 which proposed an alternative solution which would have seen the methodology revised to allow for the non-application of part of a published tariff for certain customers.
- 4.2 Responses to the consultation and Working Group comments are given as Attachment 3.

Amendments following Consultation One

- 4.3 Following the review of the DCP 222 consultation responses, the Working Group agreed that Option One was the preferred option of respondents, and as such would be the option which the working group would take forward.
- 4.4 Working group 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 for the whole charging year and not just the specific Half Hourly (HH) period(s) that the DNO requested. The CDCM is an average methodology and does not have tariffs that can be applied to HH specific time periods. This would result in the socialising of the under-recovered excess reactive power charges back into the CDCM revenue pot.

Consultation Two

- 4.5 The second consultation was issued on 6 May 2015 to address concerns raised by respondents in the first consultation; this has been provided as Attachment 4.

Amendments following Consultation Two

- 4.6 Following the review of the responses to the second consultation, it was noted that respondents felt that this arrangement may lead to a potential trilateral agreement

between the Customer, DNO and National Grid being required, which would be out of scope of this DCP.

- 4.7 It was highlighted that if National Grid is not proposing to change the charging arrangements for DNOs to reflect this benefit then it would be unfair for DNOs to amend the CDCM for their customers, as it is also less efficient for DNOs to operate outside 0.95 power factor limits.
- 4.8 The Working Group requested National Grid to evaluate the cost/benefit for the customer of this change. It was expected that this would identify the benefits of putting this change in place and also indicate the costs of not making the change at this time. The working group never received a comprehensive cost benefit analysis from National Grid, although they were sent a generic paper on the issue. However, this analysis only used a small number of GSPs to demonstrate this issue, some members of the working group felt that this did not provide a fair representation of all distribution network areas.
- 4.9 The Working Group also invited National Grid, the six DNOs and Suppliers via the DCUSA Contract Managers to attend these working group meetings, although no additional attendees were seen as a result.

5 DCP 222 CONSULTATION THREE

- 5.1 As a result of the responses to the first two consultations, the Working Group further discussed the proposed DCP 222 change and the issue of charging generators for excess reactive power in the CDCM. The group considered a further option which is to remove the charge for excess reactive power for all generators. This would avoid an additional layer of complexity and the creation of a number of extra tariffs. This would also remove the need for DNOs to actively manage the allocation of Line Loss Factor Classes where customers could potentially migrate between tariffs year on year.
- 5.2 The Working Group considered whether by removing the excess reactive power charge for generators they would still meet the original intent of DCP 222. The group notes that by removing the charge for excess reactive power the intent of DCP 222 would still be met. DNOs would not be charging excess reactive power to any generator, and therefore,

if a generator was requested to operate outside the 0.95 power factor, they would not be charged for excess reactive power – thus meeting the original intent of the CP. The Group agreed to consult on this third option to remove the charge for excess reactive power for all generators in the CDCM.

Option 3

- 5.3 This proposal would result in the removal of the charge for excess reactive power for all generators in the CDCM and would bring them in line with generators connected at EHV. The group agreed that the impact of not charging for excess reactive power would be minimal and that DNOs would still be able to monitor the behaviour of generators on a case by case basis to ensure they are not breaching their connection agreements.
- 5.4 The group has provided information from all six DNOs that detail the interaction between 'Export Tariff Net Revenue' and 'Reactive Power Charge Revenue' for all fourteen DNO regions using the 2016/17 CDCM data. Attachment 5 details the above by DNO area. It was agreed that the financial impact of removing the charge for excess reactive power for generators would be minimal. The revenue recovered currently ranges from £4,196 to a maximum of £87,070 across DNO licences. As generators are paid credits in the CDCM this represents an even smaller percentage of total allowed revenue ranging from 0.001%% to 0.027%%.

6 ASSESSMENT AGAINST THE DCUSA OBJECTIVES

- 6.1 The Working Group is also seeking Parties views on whether the DCP 222 better facilitates any of the DCUSA General Objectives and DCUSA Charging Objectives as set out in the table below.

DCUSA General Objectives	DCUSA Charging Objectives
<p>1. The development, maintenance and operation by each of the DNO Parties and IDNO Parties of an efficient, co-ordinated, and economical</p>	<p>1. That compliance by each DNO Party with the Charging Methodologies facilitates the discharge by the DNO Party of the obligations imposed on it</p>

Distribution System.	under the Act and by its Distribution Licence.
2. The facilitation of effective competition in the generation and supply of electricity and (so far as is consistent with that) the promotion of such competition in the sale, distribution and purchase of electricity.	2. That compliance by each DNO Party with the Charging Methodologies facilitates competition in the generation and supply of electricity and will not restrict, distort, or prevent competition in the transmission or distribution of electricity or in participation in the operation of an Interconnector (as defined in the Distribution Licences).
3. The efficient discharge by each of the DNO Parties and IDNO Parties of the obligations imposed upon them by their Distribution Licences.	3. That compliance by each DNO Party with the Charging Methodologies results in charges which, so far as is reasonably practicable after taking account of implementation costs, reflect the costs incurred, or reasonably expected to be incurred, by the DNO Party in its Distribution Business.
4. The promotion of efficiency in the implementation and administration of this Agreement and the arrangements under it.	4. That, so far as is consistent with Clauses 3.2.1 to 3.2.3, the Charging Methodologies, so far as is reasonably practicable, properly take account of developments in each DNO Party's Distribution Business.
5. Compliance with the Regulation on Cross-Border Exchange in Electricity and any relevant legally binding	5. That compliance by each DNO Party with the Charging Methodologies facilitates compliance with the

decisions of the European Commission and/or the Agency for the Co-operation of Energy Regulators.	Regulation on Cross-Border Exchange in Electricity and any relevant legally binding decisions of the European Commission and/or the Agency for the Co-operation of Energy Regulators.
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7 IMPLEMENTATION DATE

7.1 The proposed implementation date for DCP 222 is 1 April 2018.

8 DCP 222 – CONSULTATION QUESTIONS

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

No.	Question
1	Do you understand the intent of DCP 222?
2	Do you agree with the principles of DCP 222?
3	Are there any unintended consequences of this proposal?
4	<p>For each option (1 & 3) which DCUSA <u>General Objectives</u> does the CP better facilitate? Please provide supporting comments.</p> <ol style="list-style-type: none"> 1. The development, maintenance and operation by each of the DNO Parties and IDNO Parties of an efficient, co-ordinated, and economical Distribution System. 2. The facilitation of effective competition in the generation and supply of electricity and (so far as is consistent with that) the promotion of such competition in the sale, distribution and purchase of electricity.

	<ol style="list-style-type: none"> 3. The efficient discharge by each of the DNO Parties and IDNO Parties of the obligations imposed upon them by their Distribution Licences. 4. The promotion of efficiency in the implementation and administration of this Agreement and the arrangements under it. 5. compliance with the Regulation on Cross-Border Exchange in Electricity and any relevant legally binding decisions of the European Commission and/or the Agency for the Co-operation of Energy Regulators.
5	<p>For each option (1 & 3) which DCUSA <u>Charging Objectives</u> does the CP better facilitate? Please provide supporting comments.</p> <ol style="list-style-type: none"> 1. 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 2. that compliance by each DNO Party with the Charging Methodologies facilitates competition in the generation and supply of electricity and will not restrict, distort, or prevent competition in the transmission or distribution of electricity or in participation in the operation of an Interconnector (as defined in the Distribution Licences) 3. that compliance by each DNO Party with the Charging Methodologies results in charges which, so far as is reasonably practicable after taking account of implementation costs, reflect the costs incurred, or reasonably expected to be incurred, by the DNO Party in its Distribution Business

	<p>4. that, so far as is consistent with Clauses 3.2.1 to 3.2.3, the Charging Methodologies, so far as is reasonably practicable, properly take account of developments in each DNO Party's Distribution Business</p> <p>5. that compliance by each DNO Party with the Charging Methodologies facilitates compliance with the Regulation on Cross-Border Exchange in Electricity and any relevant legally binding decisions of the European Commission and/or the Agency for the Co-operation of Energy Regulators.</p>
6	Is your preference for Options 1 or 3? (The Working Group has at this time discounted Option 2). Please provide reasons.
7	Do you believe there are any implementation issues with either option 1 or 3?
8	Which option do you believe is more reflective of the costs incurred by a DNO of allowing a generator to operate outside the 0.95 power factor?
9	Does the excess reactive power charge for generators provide an incentive for generators to run more efficiently?
10	Are there any alternative solutions or matters that should be considered?
11	Are you supportive of the proposed implementation date of 1 April 2018?
12	Please state any other comments or views on the Change Proposal.

8.2 Responses should be submitted using Attachment 2 to dcusa@electralink.co.uk no later than **12 April 2016**.

8.3 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.

9 NEXT STEPS

- 9.1 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.
- 9.2 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 3008.

ATTACHMENTS

- Attachment 1 – DCP 222 Consultation Three Response Form
- Attachment 2 – DCP 222 Change Proposal Form
- Attachment 3 – DCP 222 Consultation One and Responses
- Attachment 4 – DCP 222 Consultation Two and Responses
- Attachment 5 – Export tariff net revenue vs reactive power charge revenue - All DNOs – 2016/17 CDCM Models