

Amendment proposal:	Connection and Use of System Code (CUSC) CAP169: Provision of Reactive Power from Power Park Modules, Large Power Stations and Embedded Power Stations (CAP169)		
Decision:	The Authority ¹ directs that WGAA3 be made ²		
Target audience:	National Grid Electricity Transmission PLC (NGET), Parties to the CUSC and other interested parties		
Date of publication:	21 December 2009	Implementation Date:	21 March 2010

Background to the amendment proposal

The provision of reactive power to NGET is a mandatory ancillary service under the Grid Code. The Grid Code sets out the reactive range that generators must be able to provide to NGET, including the ability to pass through 0MVar³ (ie operate at unity power factor). The Grid Code also reflects that certain embedded generators operate under Distribution Network Operator (DNO) restrictions that mean they cannot provide the reactive power range specified in the Grid Code. In these circumstances, the Grid Code sets out that the range to be provided will be specified in the bilateral agreement with NGET.

The CUSC includes provisions for NGET to enter into appropriate agreements with generators to enable NGET to issue instructions to generators for the provision of reactive power, and to pay generators for this service. However, the CUSC does not currently enable NGET to enter into such agreements with Power Park Modules (PPMs), or Large Power Stations with a capability below 15MVar. The CUSC also does not reflect that certain generators are under DNO restriction; in particular that certain generators are not capable of accepting an instruction from NGET to operate at unity power factor.

The amendment proposal

CAP169 was proposed by NGET in February 2009. CAP169 seeks to amend the reactive power provisions in the CUSC and is in three parts:

- **Part 1:** seeks to align the CUSC with the Grid Code. It proposes to amend the CUSC so that PPMs and DC Converters can be despatched and providers can be paid for reactive power in accordance with the CUSC.
- **Part 2:** proposes to amend the obligation on NGET to conclude or amend Mandatory Service Agreements (MSAs) with all Large Power Stations with a reactive power capability below 15MVar upon request from the power station⁴.
- **Part 3:** seeks to introduce reduced payment terms (20%) for the provision of reactive power from certain embedded generators that are subject to connection restrictions for a relevant DNO and are unable to despatch to 0MVar.

¹ The terms 'the Authority', 'Ofgem' and 'we' are used interchangeably in this document. Ofgem is the Office of the Gas and Electricity Markets Authority.

² This document is notice of the reasons for this decision as required by section 49A of the Electricity Act 1989.

³ 0MVar is the point at which a generator is neither absorbing nor exporting reactive power.

⁴ There is a Grid Code obligation on all Large Power Stations to have the necessary capability to provide reactive power but the CUSC does not require NGET to enter into MSAs with those with a range below 15MVar.

A joint CUSC and Grid Code Working Group (WG) was established to review the implications of the Amendment Proposal⁵. Part 3 of CAP169 was the main area of discussion at the WG and resulted in the following Working Group Alternative Amendments (WGAAAs) being raised:

- **WGAA1** – was raised by NGET and **extends Part 3 of CAP169** in the event that there is a 'long term operational restriction' on a generator's ability to provide reactive power, ie something that was not known at the time of the restriction.
- **WGAA2** – was proposed by the WG and removes Part 3 of the amendment proposal meaning that only Parts 1 and 2 would, if WGAA2 were approved, be implemented. There were differing views among the WG with regard to Part 3. The WG considered that WGAA2 would allow the Authority to implement Parts 1 and 2 of CAP169 without having concerns about Part 3. The effect of WGAA2 is that generators under DNO restriction (as well as those not under restriction) would receive **full payment** for the provision of reactive power, regardless of whether NGET had chosen to instruct the service.
- **WGAA3** – was proposed by EDF Energy in response to the WG consultation on CAP169. This proposes a **zero payment** should be made where a third party restriction exists that prevents the unit from providing the service in accordance with an instruction from NGET.

CUSC Panel⁶ recommendation

The CUSC Panel (the Panel) discussed CAP169 at its meeting on 30 October 2009. The majority of the Panel considered that CAP169 Original and WGAA3 did not better facilitate the applicable objectives. The majority also considered that WGAA1 and WGAA2 did better facilitate the applicable objectives. When considering which of the proposals best meets the applicable objectives, three Panel members considered they are best met by WGAA1, and four considered that they are best met by WGAA2.

The Panel were concerned at the low number of responses to NGET's consultation on CAP169 and requested that NGET issue a note alongside the final Amendment Report, to raise awareness of CAP169 and to invite interested parties to provide any further comments to Ofgem.

The Authority's decision

The Authority has considered the issues raised by the amendment proposal (including the alternatives) and the final Amendment Report (AR) dated 17 November 2009. The Authority has considered and taken into account the responses to NGET's consultation on the amendment proposal which are attached to the AR⁷. **The Authority has concluded that:**

⁵ CAP169 if approved would require consequential changes to the Grid Code. Grid Code proposal E/09 sets out the consequential changes that would be required were CAP169 or any of the alternatives to be approved. The Authority's decision on E/09 was issued alongside its decision on CAP169 and is available on Ofgem's website.

⁶ The CUSC Panel is established and constituted from time to time pursuant to and in accordance with the section 8 of the CUSC.

⁷ CUSC amendment proposals, amendment reports and representations can be viewed on NGET's website at <http://www.nationalgrid.com/uk/Electricity/Codes/systemcode/amendments/>

- 1. implementation of WGAA3 will better facilitate the achievement of the applicable objectives of the CUSC⁸; and**
- 2. directing that the amendment be made is consistent with the Authority's principal objective and statutory duties⁹.**

Reasons for the Authority's decision

We have set out below our views on whether CAP169 and any of the alternatives better achieve the applicable objectives and the reasons why, on balance, we consider that of the options available to us, WGAA3 best facilitates these objectives.

We note that the Panel found it difficult to balance the various options available against the applicable objectives, and the Panel noted that it may be useful to consider undertaking a full review of the reactive power mechanism in the future. We note the Panel considered that a higher number of industry responses would have assisted the Panel in making its recommendation, and requested additional views to be submitted by industry to Ofgem. The Panel also noted that it agreed with the respondent which considered that if CAP169 (or any of the alternatives that include Part 3) is implemented, the Balancing Services Standing Group (BSSG) should be tasked with monitoring implementation.

Whilst we consider that enough evidence was provided in the AR to justify a decision in support of WGAA3, we have concerns that insufficient evidence was provided in the AR to justify the assessment of the other options against the applicable objectives, or in support of the Panel recommendation. It is also not clear to us that the Panel has provided a fully informed recommendation, in light of the Panel's concerns at the low level of industry responses through the CUSC process. In general, we would expect the Panel to be satisfied that it had all necessary information available to it to inform its recommendation, before submitting the final AR to Ofgem for decision. We are disappointed that the Panel submitted the final AR to Ofgem without gathering and assessing all of the necessary information.

Whilst on balance we consider WGAA3 is the best of the options available to us, we request NGET to give further, urgent consideration to this issue, and to take all reasonable steps to ensure appropriate industry engagement in developing a solution that ensures appropriate remuneration is in place where restricted service is provided to NGET.

Applicable Objective (a): the efficient discharge by the Licensee of the obligations imposed upon it by the Act and the Transmission Licence

The Grid Code requires the categories of generator to which CAP169 relates to provide reactive power as a mandatory ancillary service. We consider that it is appropriate that generators capable of providing this service should be paid in the same manner as other generators who are paid for providing this mandatory service. The Authority recognises that CAP169 and any of the alternatives would result in an increased pool of providers that NGET could instruct to provide reactive power, which would be of benefit to NGET.

⁸ As set out in Standard Condition C10(1) of NGET's Transmission Licence, see: http://epr.ofgem.gov.uk/document_fetch.php?documentid=5327

⁹ The Authority's statutory duties are wider than matters which the Panel must take into consideration and are detailed mainly in the Electricity Act 1989.

We are concerned that CAP169 Original, WGAA1 and WGAA2 could introduce a payment (albeit a reduced payment under CAP169 Original and WGAA1) for a service which NGET may not in all cases be in a position to use in the most efficient manner. The Grid Code recognises that NGET does not have the ability to instruct certain embedded generators with DNO restrictions to 0MVar¹⁰. The AR sets out that these restrictions result in NGET “being unable to instruct the relevant generators to achieve the economic and efficient use of reactive power across the national electricity transmission system”. We are concerned that this could result in payments for a service which NGET cannot utilise, which might in turn result in occasions when inappropriate costs ultimately fall to consumers. We also note the view submitted in response to NGET’s consultation and discussed by the WG that there is a possibility that MVar production from a restricted generator may contribute to a requirement for additional balancing actions¹¹ therefore further increasing costs to all users (and consumers).

We note that there are existing provisions for a 20% payment in the CUSC for restricted service in certain circumstances, but it is not clear to us that this should also apply to the circumstances CAP169 seeks to address. We note this was discussed by the WG and in responses to NGET’s consultation, where it was suggested that the existing 20% payment is intended to incentivise generators to return to full service, not to deal with circumstances where the ability to make use of the full reactive range is outside of the generator’s control.

We accept that it may be possible to make a case to demonstrate that some level of remuneration may be appropriate for providers of reactive power under restriction. In particular, we note that NGET considers that remuneration is appropriate in light of the ‘dynamic benefit’ such generators provide in the event of a system fault. However, we do not consider that sufficient evidence has been presented to the Authority for us to conclude that it is appropriate for such generators to receive either a 20% payment (CAP169, WGAA1) or full payment (WGAA2) for reactive power where third party restrictions are in place, and consider that there is a risk that inappropriate costs could ultimately fall to consumers. Hence, we do not consider that it has been demonstrated that CAP169 Original, WGAA1 or WGAA2 better facilitate Applicable Objective (a).

We note that WGAA3 would have the benefit associated with the CAP169 and the other alternatives, as it would increase the pool of providers that NGET could instruct to provide reactive power (ie it would enable NGET to instruct affected generators NOT under DNO restriction). In addition, it would avoid the risk of potentially inappropriate costs falling to consumers, by imposing a zero payment where third party restrictions are in place. We consider WGAA3 does better facilitate applicable objective (a) than the existing provisions. However, we would urge NGET and/or affected parties to consider further the appropriate level of remuneration for generators in these circumstances and, if appropriate, to bring forward proposals, backed by evidence, in respect of the payments made to such generators.

Applicable Objective (b): Facilitating effective competition in generation and supply of electricity

We note that NGET considers that CAP169 Original and WGAA1 better facilitate Applicable Objective (b) as the reduced (20%) payment ensures that inappropriate costs for a

¹⁰ In these cases, the reactive range to be provided is specified in the bilateral agreement.

¹¹ Either instructing other generators to absorb or export reactive power to accommodate the MVar from the restricted generator.

restricted service are not picked up by other parties through Balancing Services Use of System (BSUoS) charges. We agree that it is inappropriate for full payment (ie WGAA2) to be provided where the full service is not available to be utilised. However, we also note that even the reduced payment may result in inappropriate costs to other users.

We note that some respondents to NGET's consultation consider that, by increasing the pool of reactive providers that NGET can instruct, CAP169 and the alternatives facilitate greater competition in the provision of such services. We recognise the benefits associated with additional service providers, but also recognise that, in the case of generators under restriction, NGET does not always have a choice to instruct such generators in line with system operation requirements. In particular, we are concerned that if NGET cannot instruct a generator to OMVAr, and an option is approved that provides for payment for this restricted service, it will create a class of party that is always being paid by NGET (for a service NGET may not in all cases need or want). We are concerned that this may lead to discrimination in the provision and payment for this service. As indicated above, we do not consider that sufficient evidence has been presented to the Authority for us to conclude that it is appropriate for such generators to receive the payment proposed for reactive power where third party restrictions are in place. For these reasons, we do not conclude that CAP169 Original, WGAA1 or WGAA2 better facilitate applicable objective (b).

We recognise that a case may be made that some remuneration is appropriate for the provision of a restricted service. However, we have not been presented with evidence to inform views about the appropriate level of this remuneration. We note that the WG and respondents to NGET's consultation have commented that the DNO restriction is in place as a result of a generator choosing this type of cheaper connection, and requiring generators to operate in voltage control mode rather than at unity factor, this assists DNOs in avoiding breaches of statutory voltage limits. The AR sets out that it is not possible to state that this is the only reason for such restrictions being in place. We consider it may have been appropriate for further consideration to have been given to this issue, as it would be helpful to better understand the reasons for any restrictions being in place to inform views about the appropriate level of remuneration.

In light of the issues discussed above, on balance we consider that WGAA3 better facilitates the applicable CUSC objectives overall, and is the best of the options that have been proposed. However, as noted above, we consider that further, urgent consideration is required as there remain outstanding issues to be addressed to ensure appropriate remuneration levels are in place.

Decision notice

In accordance with Standard Condition C10 of NGET's Transmission Licence, the Authority, hereby directs that amendment proposal WGAA3 of amendment proposal CAP169: 'Provision of reactive power from Power Park Modules, Large Power Stations and Embedded Power Stations' be made.

Stuart Cook

Acting Partner, Transmission and Governance

Signed on behalf of the Authority and authorised for that purpose.