Sent by post to DNO company secretaries and by email to DNO regulation managers

Promoting choice and value for all gas and electricity customers

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Tuesday 14 December, 2010

Dear colleague,

Decision in relation to completion of CDCM approval condition – generation dominated areas

Since 2000 Ofgem has been encouraging the Distribution Network Operators (DNOs) to make improvements to their use of system (UoS) charging arrangements, in particular at the highest voltage levels. Our consultations have pointed out the need for charging methodologies to take into account developments in the distribution system (such as the emergence of independent networks and the increase in distributed generation (DG)). We have also stressed the importance of cost reflective charges for the efficient development and use of networks and in helping to tackle climate change by rewarding distributed generation and demand-side management where these bring network benefits.

DNOs have a critical role in driving or at least facilitating changes to their charging arrangements to ensure they remain up to date with or anticipate changes in the wider electricity industry.

Until 2008 there had been slow progress in relation to the development of improved charging arrangements. In June 2009 the Authority introduced new licence conditions that ensured that the DNOs implemented a common methodology and governance at lower voltage levels[1] for April 2010 (the Common Distribution Charging Methodology (CDCM)[2]).

On 20 November, 2009, Ofgem published its decision to approve the CDCM. Our decision to approve the CDCM was subject to five conditions[3]. Four of these have been met. The remaining condition was to review the issue of charging generators where the network is or will become dominated by generation.

In our CDCM consultation we noted that generation capacity in SSE's Hydro area was 1.42GW compared to summer minimum demand of 1.14GW. We also noted that about 10GW of additional generation capacity was forecast to connect between 2010 and 2015. Both sources suggested that generation dominated areas could already be an issue on some DNOs' networks and that the expected growth in DG would increase the likelihood of DG driving incremental system reinforcement.

The DNOs were required to review the issue and make proposals to us by 1 September, 2010. In particular, we sought proposals to address the possibility that the CDCM may not, without adaptation, provide appropriate cost signals to generators to locate and use the

[1] High voltage and low voltage (HV/LV)
[2] Please see http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=480&refer=Networks/ElecDist/Policy/DistChrgs
[3] We consulted on the conditions in September 2009. Please see http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=502&refer=Networks/ElecDist/Policy/DistChrgs

network where the network is or has scope to be generator dominated. We noted that this issue needed careful consideration and prompt action due to the numbers of generators already connected in some areas and the projections for new connections during 2010-2015.

On 1 September, 2010, the Energy Networks Association (ENA) sent us a report on behalf of all DNOs. The report was entitled 'CDCM charging condition report to Ofgem – Generation charging in generation dominated areas'[4]. The report was intended to fulfil the DNOs' condition in relation to generation dominated areas.

In their report the DNOs concluded that no change is required to the CDCM at this time. They set out that interaction "with factors outside the direct control of the DNOs" mean they plan to complete further work and report back to us by 31 July, 2011.

Having reviewed the DNOs' current report we consider that they have not demonstrated adequately that they have fulfilled the condition we set them in relation to generation dominated areas. Whilst we recognise that resourcing the development of the Extra High Voltage Distribution Charging Methodology (EDCM)[5] has been a particular issue recently we are disappointed by the DNOs' lack of progress on generation dominated areas. We consider that recent problems should be temporary and that the DNOs should be capable of adequately resourcing themselves to tackle all charging issues.

This decision letter sets out our decision to extend the timeframe for compliance with the condition set out in our CDCM decision. We set out the details of what we expect from the DNOs going forward and an approach for defining a new deadline for compliance with the condition.

Background

The CDCM currently credits all generators for the units they generate. We consider it important for the issue of generation dominated areas to be addressed due to concerns that there might be or become parts of DNOs' networks where the costs to reinforce the network are driven by DG, as opposed to demand customers.

As mentioned above, when we consulted on the DNOs' proposed CDCM, we noted that generation dominated areas could already be an issue on some DNOs' networks.

Furthermore, the number of connections completed by DNOs has considerably increased over the last three reported years. In particular, in 2007-08 the number of DG connections by DNOs was 90, in 2008-09 it was 242 and in the most recently reported year, 2009-10, was 1458[6]. Also, by 19 November, 2010, 15,468 installations had registered to participate in the Feed-in Tariffs (FITs) scheme. Of those installations, 11,370 were registered between 1 April and 30 September, 2010. The level of connection of DG and registrations to the FITs scheme further underlines the need to thoroughly consider the issue of generation dominated areas.

Our decision

The condition we set the DNOs required that they review the issue of generation dominated areas and propose appropriate changes to the CDCM for charging where the network is generation dominated.

[4] Please see http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=654&refer=Networks/ElecDist/Policy/DistChrgs

[5] DNOs are required to deliver the EDCM project in accordance with SLC50A of their licences. The obligation was introduced following our July 2009 decision letter (ref 90/09)

[6] These numbers are in accordance with the data provided to us as part of our annual Connections Industry Review. The findings of each review are published on our website at http://www.ofgem.gov.uk/Networks/Connectns/ConnIndRev/Pages/ConnIndRev.aspx. Please note that the 2009/10 report is due to be published in early 2011.

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We have reviewed the DNOs' report on generation dominated areas and consider that it does not demonstrate adequately that DNOs have fulfilled the condition we set them. Whilst the report includes what appears to us to be a preliminary consideration of the issue and presents some data, the DNOs propose more extensive work through 2010 and 2011. At present, we consider that the DNOs' report may be best characterised as recording the initial stage of a review; that review ought to have been completed prior to 1 September, 2010.

The report does not in our view assess adequately the issue or provide a compelling and fully reasoned case for the options that the DNOs propose and their preferred way forward. There are several issues that have led us to this conclusion that are set out below.

DNOs should complete a more comprehensive review of generation dominated areas to demonstrate adequately the fulfilment of the condition set in our original CDCM decision. In this respect, we support the DNOs' intention to complete further work in this area. It is our understanding that DNOs are in the process of appointing consultants to assist them in carrying out this further work.

To demonstrate that the condition has been fulfilled, we expect DNOs to submit a further report that includes:

- A more detailed assessment of the issue. This should include:
  - a clearer evaluation of definitions and tests for a generation dominated area, including consideration of alternatives
  - a more detailed analysis of the extent to which generation dominated areas are prevalent on HV/LV networks
  - a detailed justification of any decision not to undertake analyses that may be desirable but is not carried out.
- Options for developing the CDCM that are subjected to and assessed using detailed cost-benefit analyses.
- A well evidenced conclusion concerning whether change is needed at this stage. A clear timetable of when changes to charging arrangements may be necessary and, in light of this timetable, details of what the DNOs plan to do to ensure that the CDCM remains fit for purpose.

Reasons for our decision

The following table sets out a summary of our reasons for our decision. A more detailed summary of our reasons can be found in Appendix 1 to this letter.

Reason	Summary
Definition of generation dominated area	The DNOs' definition is not supported by any particular rationale or consideration of alternatives.
Fault levels	Management of fault levels by DNOs is particularly relevant in relation DG. However, the DNOs' report does not consider the effects DG might have on fault levels or whether fault levels may be a way of identifying generation dominated areas.
Tests for determining generation dominated areas	The two tests proposed by the DNOs lack justification. Furthermore, there may be specific issues in relation to their tests that require further consideration.

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Analysis only considers effects at GSPs, BSPs[7] and primary substations	The DNOs' analysis reviews the likelihood of generation dominated areas by reviewing the circumstances at GSPs, BSPs and primary substations. Whilst the circumstances at primary substations may give an indication of whether an entire HV/LV network is generation dominated, the DNOs' analysis does not consider the extent of generation dominated areas actually on their HV/LV networks.
Options for developing the CDCM are limited	Whilst the DNOs considered eight options, their review of those options was brief and not supported by specific evidence. Furthermore, we consider they could have considered a broader range of more substantive options.
Exogenous factors were not explained	In a covering letter to their report, the DNOs noted that they planned to complete further work on generation dominated areas. This was because of exogenous factors outside their direct control. However, these exogenous factors were not described or explained.
Timetable for change not clear	In addition to their report, data shared with us by the DNOs suggests that generation dominated areas already exist and may become more material over time. However, the DNOs did not set out the likely timescales over which generation dominated areas may become material and when appropriate changes may be necessary.

Revised timescales

DNOs have proposed to complete further work on the issue of generation dominated areas and that they plan to report back on their findings in July 2011. We are concerned that according to this plan the issue will not be properly addressed in a timely manner. In particular we consider seven months is a long time to wait for the DNOs' report with no visibility of progress in the intervening period. We are concerned that limited progress may be made until the deadline is near and that this approach may hold up the implementation of changes to charging arrangements.

We have decided to revise the deadline by which DNOs should satisfy us that they have fulfilled the condition. In the first instance DNOs should report to us by an interim deadline. The interim deadline will be 1 April, 2011. At the interim deadline, we expect the DNOs to send us a report that sets out their progress at this point and their likely direction and timescales for completing any further analyses and for developing charging arrangements. Based on that progress report, we will set an appropriate final deadline for delivering against the condition. We expect the DNOs to determine a definitive direction as soon as possible, and to explain how they intend to deliver any necessary change.

The interim and final deadlines described above are extensions to our original deadline for completing the condition set in our CDCM approval decision. In other words, the original deadline for fulfilling the condition will be revised following our review of progress in April

[7] GSPs are Grid Supply Points and BSPs are Bulk Supply Points.

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2011. Therefore DNOs face the continued risk of being investigated for potential breach of their licence obligation should they not fulfil the original condition by the final deadline.

Developing more cost reflective charging methodologies is important for encouraging more efficient use of DNOs' networks and in helping tackle climate change. Developing charging arrangements to take account of generation dominated areas may be necessary to ensure that the relative costs and benefits that generators impose on networks are appropriately reflected in DNOs' UoS charges. In this respect DNOs have a critical role in reviewing and leading the development of charging arrangements to take account of generation dominated areas.

Please contact Nicholas Rubin (020 7901 7176 or nicholas.rubin@ofgem.gov.uk) if you have any questions in relation to the content of this letter.

Yours sincerely,

Rachel Fletcher
Partner, Distribution
Signed on behalf of the Authority and authorised for that purpose

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Appendix 1 – Detailed summary of our reasons

Definition of generation dominated area

The DNOs define a generation dominated area as one that is 'served by substations or substation groups where thermal reinforcement of substation assets is more likely to be caused by generation than demand'.

This definition is not supported by any particular rationale or consideration of alternative definitions. For example, the definition does not take account of fault levels (see below); considers reinforcement only of (undefined) substation assets; and is probabilistic (based on the likelihood of reinforcement being driven by generation as opposed to demand). We consider that the DNOs should have set out in more detail why their definition is appropriate, particularly in light of, at least, these considerations.

Fault levels

Typically, the two main reasons that require a DNO to reinforce its network are: (i) the capacity of the network needs to be increased to accommodate demand growth or new generation within thermal and voltage limits; and/or (ii) for safety reasons to ensure that the fault level of the network is effectively managed to accommodate changes in its use.

Fault level reinforcement is particularly important when considering the impacts generation customers might have on the operation of a network. This is because the connection of a generator can materially affect the fault level of the section of network to which it is connected.

Besides the actual reinforcement driven by DG, simply analysing the fault levels on the DNOs network might be an alternative or complimentary means of identifying generation dominated areas.

However, the DNOs' report does not consider the impacts DG might have on network fault levels or associated costs. Instead, it is based entirely on thermal capacity constraints and costs. Nor does it explain why fault level analysis was not considered necessary or appropriate. We consider that this is a significant oversight given the critical impact DG can have on a network's fault levels. We would have expected the DNOs to have considered whether fault levels are a way of identifying generation dominated areas and how associated costs could contribute to the setting of UoS charges. We would also have expected the DNOs to explain why they may have concluded that consideration of fault levels is inappropriate.

Tests for determining generation dominated areas

Using their definition, the DNOs developed two tests for determining generation dominated areas on their networks. In combination, the two tests work together to refine the numbers of substations or substation groups to those that are considered to be probably generation dominated.

The first test identifies those substations that have less surplus demand capacity than surplus generation. These substations are considered to be 'generation heavy'. The second test determines which of the 'generation heavy' substations are likely to require thermal reinforcement within a 10 year period. The rationale for adopting the two tests was limited to describing how the tests work. There was no consideration of why each of them was thought to be appropriate and how they compare to alternative tests. Furthermore, it was not clear why both tests should be used together.

We also have specific concerns with the tests used by the DNOs. Test one generally assumes that a generation dominated area must consist of more installed generation capacity than there is demand for capacity by customers consuming energy. However, a

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network area may have more demand based capacity and yet the costs of reinforcing the network may be driven by generation capacity because growth in generation is much faster than is the growth in demand. Test two assumes that generation growth will be 1% per year, whereas DNOs' forecast growth in DG over next 5 years[8] varies from 3% to 22% growth and is 12% on average across DNOs.

Consequently we are concerned that the design and justification for the tests have not been presented adequately and that there may be issues that need further consideration.

Analysis only considers effects at GSPs, BSPs and Primary Substations

The DNOs' report concluded that the issue of generation dominated areas is immaterial. In particular they found that only 1% of all grid supply points (GSPs), bulk supply points (BSPs) and primary substations[9] in all DNO areas are potentially generation dominated, i.e. 57 of 5647. They also identified that 0.6% of all primary substations are potentially generation dominated, ie 28 of 4606.

This high level analysis does not identify the prevalence of generation dominated areas within the DNOs' HV/LV networks. This is significant because without more detailed analysis DNOs would be unable to develop CDCM charges on a voltage level basis and provide more targeted signals to customers.

The DNOs' analysis does not explain the materiality of the issue in terms of capacity or cost. A detailed answer to this question might allow DNOs to differentiate between areas where the costs driven by DG are more significant than others. Understanding how generation dominated an area is would allow the DNO to set cost reflective charges that provide a proportionate signal for whether DG should locate there, relocate or change behaviour.

Options for developing the CDCM are limited

The DNOs set out 8 options for developing charging arrangements. Except for 'Option A – No change', the remaining options introduce or refine existing tariffs. This has the effect of either redistributing credits or limiting credits paid to DG. More fundamental changes to the CDCM arrangements were not considered. For example DNOs did not consider changes that model the costs of DG in generation dominated areas and introduce charges as well as credits for DG.

The DNO review of options was brief and not supported by specific evidence. There is no consideration of the extent to which the DNOs proposals might be more or less cost reflective or how they might impact on decisions to connect to and use the network. Given the significance of this issue our view is that the DNOs should have considered a broader range of options and assessed the merits of each in more detail.

Exogenous factors were not explained

The DNOs' report concludes that they are not planning to develop changes to the CDCM for the time being and that they propose to undertake a study of tariffs for charging DG in generation dominated areas. In a covering letter to their report, the DNOs say that further study is proposed '*due to interactions with factors outside the direct control of the DNOs*'.

We consider that the DNOs' proposal to complete a further study due to exogenous factors suggests that they consider that their report has not addressed sufficiently the issue of generation dominated areas. Whilst exogenous factors may have hindered the delivery of the DNOs' report (this point is not backed up so we have not considered this further), we would have appreciated being informed before the 1 September deadline so an extension

[8] According to their Forecast Business Plan Questionnaires (FBPQs)
[9] Primary substations represent the boundary between the EHV and HV/LV networks.

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could have been considered. In any case, given the importance of this work to ensure more cost reflective charging methodologies for DG we are disappointed by the lack of progress made to date.

Timetable for change not clear

The DNOs' analysis does not consider the impact of DG over time. This analysis is particularly important in light of their overall conclusion to do nothing for the time being and previously shared forecasts of growth in DG (see above). Whilst DNOs have proposed not to change the CDCM for the time being, there is likely to be a point at which change is necessary. The report does not identify when, even in broad terms, this is likely to be; nor is any indication provided as to what likely future developments would trigger a change.

The DNOs' analysis concludes that there may already be generation dominated areas. Their own forecasts of growth of DG suggest that the situation is likely to become more frequent. In our view it is therefore appropriate to begin developing suitable arrangements for charging where the network is generation dominated. In light of the DNOs' proposed way forward, we consider they should build on their analysis and compile a more compelling evidence base that sets out the extent of generation dominated areas, when the issue is likely to become material and when appropriate charging arrangements should be implemented.

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