

CUSC Environmental Standing Group

Meeting Name	CUSC Environmental Standing Group
Meeting No.	2
Date of Meeting	15 th August 2008
Time	10:00am – 1:00pm
Venue	Elxon Offices, 350 Euston Road, London

This note outlines the key points from the second meeting of the Environmental Standing Group

Members Present:

Duncan Burt	DB	Chairman
Richard Dunn	RD	Secretary
Emma Carr	EC	National Grid
Graham Mitchell	GM	RWE npower
Bill Gunshon	BG	RWE npower
Paul Jones	PJ	E.on
Garth Graham	GG	Scottish and Southern
Keith Hodson	KH	Central Networks
Dipen Gadhia	DG	Ofgem
David Jones	DJ	Elxon

Apologies:

Dave Wilkerson	DW	Centrica
Barbara Vest	BV	AEP
Tim Davies	TD	Joint Office

1. Introductions/Apologies for Absence

1. Apologies for absence were received from DW, BV and TD.

2. Minutes of the first meeting held on 11th July 2008

Accuracy

2. The change marked version of the minutes were agreed as a correct record subject to the deletion of the words “.... SF6 from transmission and” from the final paragraph of Minute 25.

Matters Arising

3. Minute 5 – third indent (Schedule 9 of the Electricity Act 1989) – RD circulated copies of Schedule 9 and National Grid's Statement on its Schedule 9 responsibilities to the meeting for discussion under item 4.
4. Minute 5 - final indent (Legal advice to BSC Panel Members). DJ reported that the legal advice was confidential to the BSC Panel and therefore would not be circulated more widely. However, he confirmed that the advice was that the Panel had appropriate discretion under the Ofgem guidance to consider whether the consideration of the costs of carbon were relevant to a particular BSC Modification and thus was able to discharge its duties properly under the BSC.
5. Minute 7 – final paragraph (extension of guidance to Methodology Forums). DG indicated that Ofgem did not see any reason at present why the guidance could not be extended to apply to Methodology Forums such as the TCMF but would consult on this issue in due course in the context of the Industry Codes Governance Review (ICGR).

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- Minute 29 – (Progress on Modifications identified for potential carbon cost analysis). It was recognised that progress on the issues identified at the first meeting of the Group had generally been slow due to the holiday season. DB requested that Members who took an action to consider the carbon cost aspects of particular Modifications at the first meeting should endeavour to report back to the third meeting.

Action: Relevant Members

3. Group Terms of Reference (TORs)

- The Group noted the final version of the TORs that the CUSC Panel had approved at its meeting on 25th July.

4. Schedule 9 of the Electricity Act 1989

- RD indicated that Schedule 9 was mainly concerned with the preservation of natural beauty, conservation of flora and fauna, geological or physiographical features and objects of architectural, historic or archaeological interest. It was therefore difficult to detect any potential read-over to evaluation of the carbon costs of Modifications to Industry Codes from the responsibilities placed on licensees under Schedule 9.
- PJ suggested that the Schedule 9 responsibilities were similar to the licence requirements for licensees. As such these were qualitative requirements that the licensee would endeavour to meet as part of their wider responsibilities towards the environment and therefore would not necessarily be expected to feature in any carbon cost assessment of a Code Modification.
- DG confirmed that it was Ofgem's view that the Schedule 9 requirements were part of the wider environmental responsibilities of licensees. However, Ofgem expected Code Panels to be cognisant of these responsibilities when it came to considering the carbon cost of Modifications in the round.
- It was agreed that Members would review the Schedule 9 material that had been circulated at the meeting and provide any further comments at or before the next meeting of the Group.

Action: All Members

5. Paper by E.on Central Networks on Losses

- KH presented this paper and explained that the paper outlined an example (Distribution Losses) of one of the many design considerations that a DNO must consider in meeting both their Distribution Licence and Distribution Code obligations.
- The Distribution Code contained the familiar requirements to develop, maintain and operate a coordinated and economical system for the distribution of electricity and facilitate competition in the generation and supply of electricity.
- An important consideration is the effect of distribution losses associated with cables, plant and equipment and how this compares with the equivalent carbon cost as a relative measure. KH explained the graphs in his paper. These showed the effects of operating standard high voltage distribution cables at different levels of cable utilisation both for un-ducted and ducted cables. Daily losses for a typical 11kV un-ducted cable (185AL 507amps direct) increased at an exponential rate above a 50% utilisation factor. At a 50% utilisation factor the losses were 384 kWhrs/km whilst the losses at 100% load factor were 1536 kWhrs/km - an increase of 400%. For an equivalent ducted cable (300AL 499amps direct) there were lower losses – 227kWhrs/km at a 50% utilisation factor and 907 kWhrs/km at 100% utilisation factor although the increase at the higher utilisation rate was also exponential – again 400%.

15. KH noted that in the current climate of “sweating the assets” the more a distribution asset cable is utilised the greater the carbon cost from the exponential increase in losses. The same sort of experience could be expected for transformers. In the Central Networks East area the optimum utilisation factors were about 50% but this tended to be higher in the Central Networks West area.
16. DB thanked KH for presenting his paper to the Group and suggested that there were a number of issues raised by KH’s paper in the context of carbon cost evaluation that the Group would need to assess as part of its deliberations. Clearly the losses due to the average utilisation factor of a typical network asset would be significant over the lifetime of that asset (e.g. 25 years). Factoring this in could therefore lead to a decision to invest in new assets rather than bear a high level of losses over the lifetime of existing assets. It was generally implicit in the current CUSC Access Modifications that network assets could be subject to a higher utilisation factors in order to expedite the connection of new generation. However, that assumption would need to be tested in the context of carbon costs from the higher losses that would result from the higher utilisation factors. PJ confirmed that the Working Group evaluating the carbon cost of CAP164 was mindful of the potential adverse impact on losses on connect and manage and he had mentioned the need for such an evaluation in his presentation to the first meeting of the Group. GG noted that CAP164 would increase losses due to both a higher level of north/south flows and higher asset utilisation factors.
17. DG asked if losses presented in KH could have been considered during the evaluation of CAP149 Transmission Entry Capacity with Restricted Rights (codified the process were users are able to request an SQSS non compliant connection to the GB Transmission System) It seemed inevitable that single circuit connections would mean that the connection assets would be operating at a higher utilisation factor. PJ commented that he could not be sure that consideration of losses would have made any difference to the outcome for CAP149 which had been approved by the Authority but there were likely to have been higher losses associated with a SQSS non-compliant connection. DB commented that such losses were not taken into account in National Grid’s regression model for losses since this was concerned with analysing losses arising from power transfers between zones.
18. It was agreed that there would need to be a section in the Group’s final report to the CUSC Panel considering the issues raised by losses.

Action: National Grid

6. Progress on Modifications identified for potential carbon cost analysis at the first meeting of the Group

Grid Code Example – Change in Minimum Standards for Reactive Power Capability (Rated MW Working Group)

19. DB explained that National Grid had taken an action at the first meeting of the Group to analyse a Grid Code Modification carbon cost example. DB gave the meeting a presentation on a proposed change to the Minimum Standards for Reactive Power Capability. The Rated MW Working Group were currently considering a proposal for a reduction in the minimum Grid Code requirement for reactive capability for generators connected to the transmission system. The possible benefits of this proposed change would be to:
 - allow generating units to operate at higher efficiency levels for refurbished and new plant;
 - increase potential real power output of existing plant with limited investment

The Trade-offs to these possible benefits were increased TSO investment requirements for reactive equipment and the impact on system security. For

example a 500MW turbine could probably operate at 520-530MW producing additional power and thus improving efficiency but the unit would provide lower levels of reactive power increasing the need for investment by the TSO to make good the shortfall in reactive power and maintain system security. The aim of the proposal was to establish a revised baseline for the provision of minimum reactive capability to achieve the efficiency benefits whilst minimising the trade-offs.

20. In analysing the carbon impact the assumption would need to be made that the trade-offs were successfully avoided (i.e. no investment/security issues for the TSO) and that the main carbon impact is greater efficiency of generating units affected (i.e. more energy for the same fuel). A full economic assessment of such a change would capture the carbon cost adequately but National Grid would not normally undertake a full economic assessment of such a proposal given that there were obvious benefits.
21. The carbon cost assessment would start from the standpoint that the change would be expected to increase the efficiency of the generating units. If those units were operating more efficiently then they could be expected to be selected to run more frequently replacing less efficient generation and thus producing a net carbon benefit. The minimum carbon benefit could be considered as zero. The assumptions necessary for this analysis were the amount of less efficient generation likely to be offset, the carbon intensity of generation (both for the more efficient and for the offset generation) and the duration over which to assess the impact (5 years or more?). The basic expectation was that the carbon assessment was likely to be in line with any "economic" assessment since the carbon cost formed a subset of such an assessment.
22. Complicating factors were:
 - The assessment assumed that more efficient generation would run in preference but it might not be the most economic and still may not run;
 - The assessment ignores any additional asset investment which would have economic and carbon costs;
 - The simple assumptions ignore plant efficiency complications of part loading, two shifting etc. if any of these were need to underpin a lower security standard (e.g. more part loading of plant then this effect would need to be brought in to the carbon assessment.
23. Some broad conclusion could be drawn from the analysis described above:
 - the assessment inevitably runs the risk of being too complex
 - it can be simplified with assumptions
 - the same caveats apply to carbon cost assessment as they would do to any economic assessment
24. During discussion on the presentation PJ noted that there could be an impact on the ETS. However, logically if the ETS was working properly the correct answer for the assessment of any Modification should be wholly represented by the economic assessment. The Grid Code example could therefore be a good example of needing to be careful to avoid double counting where other mechanisms (in this case the ETS) could be expected to have factored in carbon cost already. GG agreed and mentioned that the danger of double counting was high were CAP131 and CAP148 to be implemented together. There were also issues raised from this Grid Code Modification about the impact of relative prices of different fossil fuels on the world market. GG suggested that this could be one of those complex Modifications which the Group had previously noted could benefit from analysis by an experienced external consultant to ensure no double counting and that sufficient attention was given to externalities and cross-code implications. PJ agreed but noted that there were cross-code coordination requirements already in place. He also believed it was important to make some broad assessment before any consultant was asked to do any work – there was little point in asking consultants to assess the carbon cost of

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Modifications which after initial analysis suggested that the carbon cost elements were nugatory (FLTs).

CUSC Modification CAP167

25. EC explained how the CAP167 Working Group had approached the carbon cost evaluation for CAP167. CAP167 was proposed by National Grid and sought to amend the CUSC to provide definitive clarification in the assessment of whether a small embedded power station development (or the aggregate effect of multiple projects) had a significant impact on the transmission system and thus should be subject to a request for a Statement of Works process. At present this was left to the discretion of the DNO who may not (in the opinion of National Grid) have access to the necessary information to assess accurately what impact such developments might have on the transmission system. The Working Group had developed a proposal where by National Grid will produce a methodology and MW Thresholds per GSP in accordance with criteria and a process within the CUSC. Consequently, the Thresholds will have an impact on the potential number of small embedded power stations that are be able to connect without requiring a Request for a Statement of Works. To assess the carbon cost the following approach has been proposed, firstly establish a baseline for each DNO area (the Group is likely to focus only on Scotland and Northern England. Identified MW thresholds as the trigger for the Statement of Works based on high, medium and low. For example in SHETL's area it is proposed for the assessment thresholds is 2.5MW, 5.0MW and 7.5MW (large power stations in SHETL's area began at 10MW). The Group was focussing only on Scotland and Northern England.
26. The threshold would determine the amount of generation that would be subject to Statement of Works process. The next stage was to work out the % of renewable generation falling into specific thresholds and the carbon cost saving/loss (using SPC) resulting from the renewable generation being brought forward or put back by exclusion or inclusion from the requirement for a Statement of Works.

DCUSA Modification

27. BG reported that the DCUSA Panel had not been able to identify an appropriate Modification that would necessitate a carbon cost evaluation and would be content to consider implementation of the guidelines developed by the Standing Group.

7. Next Steps

28. It was agreed that relevant Members should report back to the next meeting on their consideration of the carbon cost assessment of Modifications relating to Losses (BSC), Smart Metering/Energy Efficiency (BSC), Gas transmission (UNC). DJ agreed to provide some evaluation of the recent Microgeneration Modification in the BSC (P218) and PJ agreed to report further on carbon costs of CAP164.

Action: Relevant Members

29. DB indicated that his aim was still to draft the Standing Group Report in parallel with the Group's consideration of the issues and fill in the gaps as the debate reached conclusions so that a draft report could be considered as the final act of the Group.

Action: DB

8. AOB

30. None.

9. Date of Next Meeting

31. The next meeting of the Group will be held on Monday 8th September 2008 at

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Elexon's Offices commencing at 10am. KH tendered his apologies for the next meeting.