

Proposed Arrangements for Baseload Dual Scheme Facilities and Biomass Conversions

1. This paper proposes the metering and Metered output arrangements for baseload Dual Scheme Facilities and Biomass Conversion Facilities participating in the Contracts for Difference (CfD) Scheme.

Context

2. The UK Government's 2011 Electricity Market Reform white paper¹ stated that *"it would be possible for an existing Generator accredited under the Renewable Obligation (RO) scheme to apply for and receive a CfD for additional (but separate) capacity installed"*. In this instance, it would be possible for a Generator to have some capacity accredited under the RO scheme, and some capacity covered by a CfD contract.
3. These Generators have been termed 'Dual Scheme Facilities' (DSFs) under the CfD scheme.
4. Additionally, the UK Government's 2013 Transition from the Renewable Obligation to the Contracts for Difference consultation paper², proposed that *"RO-accredited biomass co-firers seeking to convert one or more of their generating units from fossil fuel to solid biomass should be able to apply for a CfD on an individual unit or station-basis. Where their application is successful, they would be withdrawn from the RO scheme as a co-firer"*. Fossil Fuel Facilities without RO support will also be eligible to apply for CfD support on an individual unit or station-basis.
5. These Generators have been termed 'Biomass Conversion Facilities' (BCFs) under the CfD scheme, and for metering purposes, shall be treated in an identical manner to DSFs.
6. Metering arrangements for intermittent DSFs have been proposed in a separate paper.

Issue

7. The RO and CfD schemes both require total gross input electricity to be deducted from total gross Metered Output. The product of this calculation is used to derive net Metered Output for each settlement period, and therefore informs the payment mechanism under each scheme. Specifically:
 - The RO scheme requires operators of accredited stations to provide total gross inputs and total gross output (measured at station-gate) separately to the scheme Administrator, Ofgem. These values are then netted off for settlement and Renewable Obligation Certificates (ROCs) are issued according to qualifying technology band applicable. The same process for calculating net Metered Output is equally applied to all Generators without loss adjustment.
 - The CfD scheme requires a Generator's low carbon loss-adjusted net Metered Output to be calculated for settlement. Generators will receive/pay a difference payment based on the product of their Metered Output and the difference between strike and reference prices over each settlement period. How metered data is collected (i.e. at the notional boundary point or state-

¹ <https://www.gov.uk/government/publications/planning-our-electric-future-a-white-paper-for-secure-affordable-and-low-carbon-energy>; Page 125.

² https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/223489/ROtransitionconsultation17July2013.pdf; Page 8.

gate) and the loss adjustments applied will vary depending on whether Generators are trading on the public electricity system or on a private wire network.

8. In July 2013, DECC released a draft policy paper which set out that DSFs would need to separately and accurately meter any CfD-accredited capacity attached to their generation site, and that the metering arrangements adopted by these Facilities would need to be compatible with the requirements under both the RO and CfD schemes.
9. Following industry consultation over August and September 2013, industry feedback indicated that due to the operational and accounting complexities faced by a DSF or BCF in undertaking the proposed requirements outlined in paragraph 7, the approach would not be practically possible (nor financially sensible). As such, any obligation to install full, separate, metering to accurately measure the net output from CfD-accredited units would result in Generators opting not to seek CfD subsidy (and therefore DSF/BCF status under the CfD scheme).
10. On further internal discussion, DECC also considered that the combination of the monitoring and administrative requirements imposed under each scheme could be both complex and costly to the RO and CfD scheme administrators and therefore agreed that the proposed approach was not practical.
11. In late September 2013, Drax Limited (Drax) presented an alternative metering methodology, which sought to apply the RO principle of apportionment to imported input electricity. DECC has engaged with Drax on this proposal and sought independent expert analysis on the applicability of the metering methodology to all baseload DSFs and BCFs.

Solution

12. Based on the discussions with Drax and the independent analysis findings, DECC believes that this approach is workable and will provide DSFs and BCFs with more flexibility to meet the CfD metering requirements placed on them, at reduced cost. Below is an explanation of how the proposed CfD allocations process and the metering methodology would work in practice.
13. DSFs and BCFs will be awarded a CfD contract for the additional (and separate) capacity installed or the unit/s they intend to convert from fossil fuel to solid biomass (subject to the allocations process and ongoing compliance with the eligibility criteria at award through to contract execution). Where successfully awarded contracts are executed, both DSFs and BCFs will be entitled to determine which metering system is most appropriate according to their individual circumstances, to meet the requirements under each scheme (where applicable), and as long as they were compatible with BSC metering requirements.
14. Prior to the commencement of their CfD contract and in addition to all relevant contractual Conditions Precedents, DSFs and BCFs would need to meet the following specific requirements:
 - During the application process, the Facility should demonstrate to:
 - a. National Grid in their CfD application, that the proposed CfD-accredited capacity meets CfD eligibility criteria and that the gross Metered Output for the unit for which difference payments are to be claimed will only be from CfD-accredited units.

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- b. Ofgem (via a process to be determined) that the site's Metered Output for which ROCs are to be claimed will only be from RO-accredited capacity and that their metering and fuel system will remain consistent with standard RO requirements;
 - Prior to any CfD difference payments being made on the CfD-accredited capacity, the Facility should:
 - a. obtain agreement from Ofgem and the CfD CounterParty (via cross-checking of database systems or alternative process to be determined) that both are satisfied that the metering and fuel system installed can measure Metered Output as per scheme requirements;
 - b. ensure they have BSC Code of Practice input/output meters installed on all CfD-accredited generating units; and
 - c. meet the Conditions Precedent set out in paragraph 17a below.
15. Once the Facility's CfD-accredited units commence operating, two separate processes will be run in parallel, a:
- a. daily settlement process based upon a combination of actual and estimated metering data and expected renewable output; and
 - b. monthly reconciliation, once the actual fuel data is available (see paragraph 21 and 22).

These processes are both described in more detail below.

16. Difference payments under the CfD scheme would be calculated using the metering methodology below, whereby the Facility's daily (estimated) Loss Adjusted Metered Output (LAMO) per unit is calculated as follows:

$\text{LAMO} = [\text{Metered Unit Gross-Net Output} - (\text{estimated}) \text{ Unit Input Power Allowance}] \times \text{TLM} \times (\text{estimated}) \text{ RQM}$
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17. To derive LAMO for each CfD-accredited unit, the Facility would need to provide the following data sets to the CfD Settlement Services Provider:
- a. Daily gross-net Metered Output volumes for each CfD-accredited unit/s on a half hour basis; and
 - b. Actual total imported input electricity data at station level for the previous trading month.
18. All CfD-accredited units will be expected to have accurate metering installed to record gross-net Metered Output (i.e. gross output minus unit inputs) each trading day. From this gross-net Metered Output, a "Unit Input Power Allowance", to account for other station-wide inputs (see 17b), would be deducted to provide daily estimated gross-net-net unit Metered Output.
19. DECC understands that a sites settlement metering equipment will be located at the site boundary. For CfD settlement purposes, a Generator will likely be required to obtain specific readings for the CfD-accredited capacity. In this instance Metered Output Volumes associated with the BSC CoP compliant unit meter, from the generating station's BSC Settlement Meter (i.e a difference metering approach would be applied).
20. The 'Fixed Input Power Allowance' at station-level would be derived by the Counterparty at the beginning of each operating month. It would be calculated as an average value, based on actual total imported input electricity used by the Facility at a station-level, over the previous three trading months, provided on a rolling basis. This averaged value of the three months of data would then be

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multiplied by the CfD-accredited capacity, as a percentage of overall station capacity. This will provide a firm estimate of the imported inputs drawn by the CfD-accredited units

- a. Facility's will be required as a Conditions Precedent, to provide their last three months of actual total data at the beginning of their CfD contract, and as a [Generator Undertaking], the previous trading month's actual total data thereafter.
- b. The allowance is necessary to work out the estimated amount of imported input electricity used by common/shared services to support the CfD-accredited unit/s, without obligating Generator's to accurately meter these services.
- c. Once the 'Fixed Input Power Allowance' for CfD-accredited capacity had been determined, the Counterparty would apportion this value evenly across number of CfD-generating units at the Facility to derive an estimated 'Unit Input Power Allowance'.

i. Worked example for January 2014:

Total existing RO-accredited capacity = 60MW (i.e. 3 units @ 20MW each)

Total additional CfD-accredited capacity = 40MW (i.e. 2 units @ 20MW each)

Total generating units at the Facility = 5

Averaged monthly imported input data (i.e. Oct-Dec 2013) = $(4\text{MW}+3.4\text{MW}+4.2\text{MW})/3$
= 3.87MW

'Fixed Input Power Allowance' = $3.87\text{MW} / \% \text{ of CfD-accredited capacity}$
= $3.87\text{MW} \times 0.4$
= 1.59MW for all CfD-accredited units.

- d. This estimated 'Unit Input Power Allowance' would be deducted (by the Settlement Agent) from the gross-net Metered Output value (as per paragraph 16) to calculate daily (estimated) gross-net-net unit Metered Output for each CfD-accredited unit.

i. Worked example for January 2014 (cont.):

'Unit Input Power Allowance = $1.59\text{MW} / \text{No. of CfD-accredited units}$
= $1.59\text{MW} / 2$
= 0.80MW per unit

- e. In the event that the units are differing sizes the above calculation would need to establish what proportion of the CfD accredited-capacity each unit makes up, and then multiply the 'Unit Input Power Allowance' by the proportion of each CfD-accredited unit to get the daily (estimated) gross-net-net Metered Output for each CfD-accredited unit. A similar calculation may also be required to account for the loss in load that can occur when a Generator converts a unit to renewable fuel.

i. Worked example for January 2014 with CfD units of differing size (Unit 1 = 60MW, Unit 2 = 40MW):

Unit Input Power Allowance = 1.59MW/% of individual CfD units.

$$1.59 \times 0.6 = 0.95\text{MW}$$

$$1.59 \times 0.4 = 0.64\text{MW}$$

- f. Additionally for baseload DSFs, the CfD Counterparty will need to estimate the 'increased' monthly imported input electricity data over the first three months of operation of the CfD-

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accredited capacity, to account for the expected increase in imported electricity as a result of this additional capacity. This increase in imported input electricity would otherwise not be captured. The 'increase' would be in proportion to the percentage increase in additional capacity.

i. Worked example for January 2014:

Total existing RO-accredited capacity = 60MW (i.e. 3 units @ 20MW each)

Total additional CfD-accredited capacity = 40MW (i.e. 2 units @ 20MW each)

Total generating units at the Facility = 5

Averaged monthly imported input data (i.e. Oct-Dec 2013) = $(4\text{MW}+3.4\text{MW}+4.2\text{MW})/3$
= 3.87MW

Now the estimated % increase = $[1 + (40/100)] * 3.87\text{MW}$
= 5.42MW used in the month

'Fixed Input Power Allowance' = 5.42MW / % of CfD-accredited capacity
= $5.42\text{MW} \times 0.4$
= 2.17MW for all CfD-accredited units.

'Unit Input Power Allowance = 2.17MW / No. of CfD-accredited units
= $2.17\text{MW} / 2$
= 1.08MW per unit

21. As per usual CfD settlement processes, the CfD Settlement Services Provider would then adjust the (estimated) gross-net-net Metered Ometered utput for electricity losses and a fixed Renewable Qualifying Multiplier (RQM) would be applied to derive the proportion of LAMO qualifying for CfD support.
- a. A fixed 'provisional' RQM value would be offered to DSFs and BCFs to provide greater certainty on qualifying CfD support.
22. At the end of the trading month and once the Fuel Management and Sampling (FMS) process had been undertaken and the sample independently verified (i.e. approximately two months later), a reconciliation process would occur to correct the (estimated) LAMO with accurate net Metered output for CfD settlement.
23. These corrected net Metered output values would be processed through CfD Reconciliation Runs as actual fuel inputs (at a station level) and the actual applicable RQM value (at a unit level) would be confirmed through FMS processes.
24. The exact mechanism for the reconciliation process is still to be finalised. DECC is currently working alongside technical experts to determine the best approach for establishing actual input electricity values.