

**Final version
26th January 2010**

**RESPONSE TO PROPOSALS IN EARLY REVIEW OF
RO BANDING FOR CO-FIRING OF BIOMASS WITH CHP
January 2010**

**A report to the Secretary of State for Energy and Climate Change
from the
RENEWABLES ADVISORY BOARD**

As a result of a challenge to the banding within the Renewables Obligation (RO) for co-firing of biomass with CHP, DECC have completed an early review as permitted by the Renewables Obligation Order 2009. DECC are proposing no change to existing banding i.e. 1.0 ROC/MWh for regular biomass and 1.5 ROC/MWh for energy crops. Having considered the evidence RAB support the proposal for no change. This work has raised some issues concerning early banding reviews. This report sets out the results of RAB's review.

1. BACKGROUND

1.1 In May 2007, in the document 'Renewable Energy - Reform of the Renewables Obligation [DTI/05/07/NP. URN 07/636]' the Government introduced the concept of banding. This included the following principles:

- Technologies should be grouped so that those at an approximately equivalent position in technology development and cost should be grouped together in groupings which reflect at least in general terms the market and technological development that the technologies have reached.
- Given the uncertainties (on costs), the Government does not think it appropriate to make fine distinctions between the levels of support given to different technologies but rather to take groups of technologies and set support levels which reflect the general position of that group.
- The allocation of technologies to these groups result from an empirical observation of the costs they face and does not mean that the numbers of bands and distribution of technologies may not change in future (after appropriate consultation).
- The proposal of four bands:
 - Established Band (0.5 ROCs/MWh)
 - Reference Band (1.0 ROCs/MWh)
 - Post-Demonstration Band (1.5 ROCs/MWh)
 - Emerging Technologies Band (2 ROCs/MWh).

- 1.2 In the 2009 Renewables Obligation Order (ROO2009) the Government formally introduced ‘banding’ of the number of Renewable Obligation Certificates (ROCs) on this basis. In particular, co-fired biomass projects with combined heat and power (coCHP) were allocated to the Reference Band and as a result receive 1.0 ROC/MWh from 1 April 2009; coCHP with biomass sourced from defined energy crops were allocated to the Post-Demonstration Band and as a result receive 1.5 ROC/MWh. Despite very few such projects being developed DECC was challenged on the basis of this banding and an early review was initiated following discovery of an error in the original calculation of levelised costs.
- 1.3 DECC commissioned Mott Macdonald and E4Tech to examine the generation costs associated with these technologies. A wide range was identified largely as a result of different CHP configurations and biomass fuel costs. The Renewables Advisory Board (RAB) has not collected its own evidence on these costs but its members’ experience is compatible with the figures reported by Mott Macdonald.
- 1.4 DECC have combined these levelised costs with their own assumptions of forecast lifetime incomes to arrive at proposals for the level of RO banding required to provide a central case 15% real pre-tax project rate of return.
- 1.5 DECC have concluded that although the range of possible levelised costs for coCHP with regular biomass is very wide the central and low cases require a ROC banding of slightly less and less than 1.0 ROC/MWh respectively. They therefore propose to leave the banding allocation unchanged in the Reference Band at 1.0 ROC/MWh.
- 1.6 No evidence of energy crop prices has been presented. Since DECC are unaware of any current developments using energy crops for coCHP they are proposing to leave the banding allocation for this technology unchanged in the Post-Demonstration Band at 1.5 ROC/MWh.
- 1.7 coCHP economics will be affected by the introduction of the Renewable Heat Incentive (RHI) scheduled for April 2011. It is thus anticipated that the outcome of this early review may well be revised in the wider RO banding review due to commence in late 2010 when any changed support relevant to CHP will have become known.
- 1.8 Under the procedures set out in ROO2009 for banding reviews RAB is required to peer review the proposals made by DECC. This report presents the results of that peer review.

2. RAB'S RESPONSE TO THE PROPOSALS

- 2.1 RAB encourages the use of biomass with quality CHP since this leads to high fuel-to-energy conversion efficiencies.
- 2.2 Whilst RAB understands the reasons for this review it regrets that it has been necessary, particularly since introduction of the RHI next year will inevitably further affect the banding appropriate to combined heat and power schemes. RAB has consistently advised that stability of the RO framework is essential to investor confidence; short term reviews such as this are unhelpful in this respect.
- 2.3 To this end it is essential that the outcome of the forthcoming overall RO review, which will take future RHI income into account, protects the economics of projects accredited under existing RO banding arrangements.
- 2.4 The capital, operating and fuel costs reported by Mott Macdonald and E4Tech identify a very wide range, the highest typically being three times the lowest. These are summarised in Chapter 2 of the DECC report. However we note that there is a very limited amount of evidence available. RAB has not had access to the detailed data in the consultants' reports but we are satisfied that the ranges cover our own experience of costs.
- 2.5 The levelised revenue stream figures indicated in Chapter 3 are, we believe, consistent with those used by DECC in its other banding calculations.
- 2.6 The DECC report includes sensitivity studies analysing the effects of medium and high pressure steam plant, the full range of fuel costs, future fuel and steam revenue profiles, and three different required rates of financial return. The wide range of costs when coupled with these other effects results in a very wide range of economics. The most extreme cases examined result in the need for either zero or 3.2 ROC/MWh. This very wide range will need careful review in future.
- 2.7 The scenario most relevant to current projects is the co-firing of regular biomass in a medium pressure plant. In this restricted case the range of ROCs required to achieve a 15% rate of return is bounded at zero for the cheapest identified fuel price and 1.7 ROC/MWh for the most expensive. DECC have nominated a Medium Fuel Price of £70/oven-dried tonne and, although it is difficult to justify a single figure, RAB are satisfied that this should be achievable. This medium case requires a multiple of 0.6-0.7 ROC/MWh i.e. close to the current banding at 1.0 ROC/MWh.

- 2.8 **On the basis of this analysis RAB supports the DECC proposal to leave coCHP with regular biomass unchanged in the Reference Band at 1.0 ROC/MWh.** There is an element of pragmatism in this recommendation but given the expectation of a further review in the near future and the small volume of generation affected we are satisfied with the proposal.
- 2.9 In the absence of reliable fuel costs for energy crops and any known CHP projects co-firing these fuels RAB supports the proposal to leave coCHP with energy crops unchanged in the Post-Demonstration Band at 1.5ROC/MWh.
- 2.10 RAB notes that the overall picture of banding for regular biomass and energy crops will remain as follows:

Fuel	Co-fired	Co-fired with CHP	Dedicated	Dedicated with CHP
Regular Biomass	0.5	1.0	1.5	2.0
Energy Crops	1.0	1.5	2.0	2.0

Table 1: RO Banding - ROC/MWh

- 2.11 This pattern appears logical with the possible exception of dedicated CHP plant burning energy crops which currently earns 2.0 ROC/MWh. This plant is not the subject of early review; however it may deserve particular attention at the time that the RHI is introduced.

3. GENERAL COMMENTS ON THE ‘EARLY REVIEW’ PROCESS

- 3.1 This is the second ‘Early Review’ that has been initiated since the implementation of the Renewables Obligation Order 2009; early review of banding is provided for by Article 33 of the Order. The Order requires RAB to peer review these proposals. DECC are currently preparing guidelines for ‘Early Reviews’ but RAB’s review of this proposal, the conclusions of which we support, has raised some wider issues which we wish to place on record.
- 3.2 The RO itself is subject to regular review, the next commencing later this year. Stability of renewables support policy is essential to investors. Early reviews should be initiated only in exceptional circumstances.
- 3.3 Early review of a single sub-set technology (as was the case here) should be avoided wherever possible because:
- It will encourage developers of similar sub-set technologies to challenge their own bandings. This is particularly likely where different technologies are competing for similar fuels or resources.
 - It will result in similar technologies being reviewed at different dates which may result in inequalities of treatment e.g. if fuel or construction costs have changed with time.
- 3.4 Early reviews should be initiated only when the likely outcome would result in a change of band allocation and therefore a change of ROC multiple of 0.5 ROC/MWh or greater.
- 3.5 ROO2009 requires banding reviews to take account of policy drivers such as encouragement of supply chains or acceleration of immature technologies. RAB recognises that such drivers are vital to achievement of renewables targets. However integration of such encouragements alongside best estimate generation economics requires careful consideration.
- 3.6 If early review results in changes to band allocation and therefore ROC multiples, the issue of ‘grandfathering’ needs to be carefully considered.