

Renewables Obligation banding review - impact on waste-fuelled stations

Towards the end of October 2011, DECC released a consultation document on proposed changes to the Renewables Obligation. The document drew considerable media attention, most notably for the announcement that subsidies available to energy from waste facilities could be halved. However, several other significant amendments which will impact on biomass and waste-fuelled stations appear to have slipped beneath the radar, as Stopford's Sean Hayward explains.

Background

The Renewables Obligation (RO) is the Government's key mechanism for supporting renewably sourced electricity. Under the scheme, suppliers are currently obliged to source 11.4 percent of their electricity from renewable sources, a figure which rises by 1 percent annually. Meanwhile, generators of eligible renewable electricity are awarded with Renewable Obligation Certificates (ROCs) by the industry regulator, Ofgem. These certificates are ultimately purchased by electricity suppliers who require them as evidence that they have met their RO - failure to submit enough results in a stiff financial penalty. Consequently, ROCs have a monetary value which currently stands at around £50 each, ensuring that the renewables sector continues to grow.

ROCs are awarded to generators in proportion to the amount of renewable electricity they generate, ordinarily at a rate of one ROC per MWh. In 2009, DECC introduced 'banding', a mechanism whereby certain technologies and technology/feedstock combinations were given further incentives through the award of 1.5 or 2 ROCs per MWh. At the same time, other more established technologies saw their incentives cut. For example, electricity generated through anaerobic digestion is currently eligible for 2 ROCs per MWh whilst that generated from sewage gas receives just 0.5 ROCs per MWh. To date, around 25 different renewable technologies have been defined with bandings ranging from 0.25 to 2 ROCs per MWh.

To get an understanding of the scale of the RO, it's worth noting that more than 21 million ROCs were awarded during 2009/10 obligation period – ROCs are clearly big business for renewable generators.

Proposed changes

On the 20th October 2011, DECC released details of changes it proposes to make to the Renewables Obligation for the 2013 - 2017 period. DECC's decision to announce these changes well ahead of the implementation date is not unintentional and aims to give the sector plenty of time in which to adjust. Some of the key changes are highlighted below.

Energy from Waste with Combined Heat and Power (EfW-CHP)

Perhaps the most significant proposal in the consultation document, and the one which has received the most attention, is DECC's proposal to reduce the support available to energy from waste plants with combined heat and power (EfW-CHP) from 1 ROC per MWh to 0.5 ROCs per MWh (EfW without CHP is not supported under the RO). Using evidence provided by the consulting engineers ARUP, DECC concluded that EfW CHP is viable without any RO support at all. However, they conceded that 'unique barriers' which add to the overall risk and indirect costs of EfW CHP projects have resulted in just four deployments to date. Consequently, DECC appear to have taken the middle ground and propose setting RO support at 0.5 ROCs for new accreditations as well as extensions to existing accreditations.

Renewable energy content of mixed wastes

Interestingly, the means by which the renewable energy content of wastes is determined is also discussed in the consultation document. This is important since ROCs are only awarded for the energy output which is attributable to renewable sources, sometimes termed the 'qualifying percentage'. In theory, the qualifying percentage of MSW fuelled stations can be 'deemed' at 50%, so long as the MSW hasn't been subject to any sorting or segregation. Since almost all wastes streams now undergo some degree of recycle recovery, deeming is virtually impossible. However, it seems increasingly likely that, under pressure from the European Commission, Defra's definition of MSW will be broadened to include other MSW-like waste streams, which will potentially include commercial and industrial (C&I) waste. Whether EfW plant operators will be able to deem MSW-like C&I waste, or will be required to present evidence which confirms the renewable energy content remains to be seen. However, what seems certain is that carbon-isotope based approaches, which determine the energy-origins of waste by analysing carbon in post-combustion flue-gases, will have an increasingly important role to play.

Advanced Conversion Technologies - ACTs

ACTs are those electricity generation technologies which involve the creation of an intermediary fuel from a feedstock. The intermediary fuel, which is usually combusted for electricity generation, can be either a liquid or a gas, and must be created through a 'substoichiometric' process. These processes are usually referred to as pyrolysis and gasification.

The 2009 incarnation of the RO introduced two categories of ACT - 'standard' and 'advanced'. Each category was defined by the calorific value (CV) of the intermediary fuel it produced. Above a certain CV, an ACT falls into the 'advanced' category, and it is eligible for the award of 'double ROCs', i.e. 2 ROCs per MWh. Where the CV is lower, the technology may fall into the 'standard' category, for which 1 ROC per MWh is available. Beneath a lower CV threshold, no ROCs are awarded at all.

Now, after just two years, DECC is proposing to change these definitions. Rather than referring to the CV of the intermediary fuel, the definitions will instead relate to the means by which electricity is generated from the intermediary fuel, regardless of its CV. This means that analytical techniques and instrumentation which have been developed for the purposes of determining syngas CV will now be redundant.

DECC's stated intent is to move to higher efficiency solutions. Consequently, the proposed new ACT categories are defined as follows:

- If an internal combustion engine is used (i.e. gas engine/gas turbine or combined cycle), the process will be defined as 'advanced'. The proposed new advanced-band would also cover the additional electricity generated using the waste heat captured from the internal combustion engines, for example using an organic rankine cycle engine;
- If external combustion is used (i.e. standard rankine cycle using a boiler and steam turbine) the process will be defined as 'standard'.

In addition, the number of ROCs available to each category will change. Under DECC's plans, the ROCs available to 'standard' ACTs will be downgraded from 1 ROC per MWh to 0.5 ROCs per MWh. However, the 'advanced' technologies will fare slightly better, with a reduction from 2 ROCs per MWh to 1.9 ROCs per MWh for 2015/2016 commissions and 1.8 ROCs per MWh available for 2016/2017 commissions. Electricity generated from anaerobic digestion will be treated similarly.

For some technology providers, the outcome of the proposed changes is stark. For example, a gasification plant that creates a high-CV syngas for electricity generation via a steam-cycle would currently be eligible for double ROCs. Under DECC's proposed changes this would be slashed by 75% to 0.5 ROCs per MWh.

ACT Uplift

DECC are also seeking opinion on the introduction of a 'CHP Uplift' for ACTs. Standard combustion technologies are currently eligible for up to 0.5 extra ROCs per MWh if they operate in CHP mode. This ROC uplift is not available for ACTs, but it seems that DECC wish to explore options for addressing this situation. However, given that work is soon to commence on Phase 2 of the Government's Renewable Heat Incentive (RHI), which might realistically be expected to raise the eligibility cap on ACT installations (currently set at a modest 200 kWth), it remains to be seen whether this inequality will be resolved through the reward of additional ROCs.

A call for further evidence

Less than 3 weeks after the consultation was launched, Charles Hendry, Minister of State wrote to Gaynor Hartnell, Chief Executive of the Renewable Energy Association. In his letter, Mr Clarke stated DECC's intention to undertake further work on the costs of ACTs to 'inform our consultation on the proposed banding levels under the RO'. Mr Clarke went on to concede that the evidence currently held by DECC 'may not give a representative picture of the costs and deployment potential of this industry', and asked for industry views to be further represented. Clearly, the outcome of the consultation is not a foregone conclusion.

DECC's RO consultation period closes on the 12th Jan 2012.