



How RO, CfD and RHI impact on Biomass and EfW CHP

Mahmoud Abu-Ebid
CHPQA Programme Director



Focus on...

➤ CHPQA and the RO

- ROC Eligibility for Good Quality CHP
- CHPQA Certification for ROCs (CHPQA GN44 Certificate)

➤ CHPQA and CfD

- Eligibility for CHP specific CfDs applicable to biomass and waste but not bio-liquid fuelled GQCHP
- CHPQA Certification for CfDs (CHPQA GN44 Certificate)
- See CHPQA Guidance Note 44 (Issue 5)

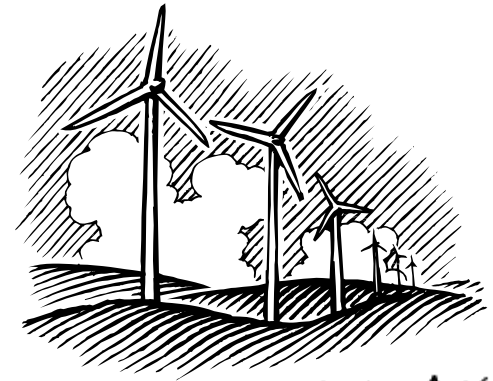
➤ CHPQA and RHI

- A specific tariff for biomass-fuelled GQCHP, doesn't apply to EfW CHP
- Schemes need to be certified by CHPQA in order to benefit
- Only for heat produced via the engine/turbine.



Introduction to the Renewables Obligation

- First introduced in 2002
- Support electricity generation from renewable sources
- Separately legislated in:
 - England and Wales
 - Scotland
 - Northern Ireland
- Banding is Technology specific
- Continually reviewed and developed
- **Will close to new generation at the end of March 2017 and then run until 2037**





The RO and Banding

Key Features:

- First introduced in 2009 and gave:
- “Banding” concerns the provision varying levels of support (ROCs/MWh) for different types of generation technology
- New banding regime introduced in April 2013 to run through to 2017



The RO 'Grace Period'

The Renewable Obligation Closure Order (2014):

- Set out the RO closure date to new renewable capacity as 31 March 2017
- Ensured that projects already supported under the RO will continue to receive support for 20 years under the RO
- Introduced an 18 month 'grace period' designed to protect projects against certain risks of delay and not being able to obtain RO accreditation after 31 March 2017

Biomass CHP wishing to make use of this grace period needed to be CHPQA certified prior to 9th November 2014.... Too late now



Banding Regime 2013 to 2015

Generation Type	CHP Eligible Power Output [ROCs/ MWh]	Non-CHP Output [ROCs/MWh]
Biomass / Energy Crops Conversion with CHP	1.5	1
Co-firing of Bio-mass with CHP	1.0	0.5
Dedicated Bio-mass with CHP	2.0	1.5
Co-firing of Bio-mass with CHP (enhanced)	1.5	1.0
Energy from Waste	1	0.0

Ref: Government response to the consultation on proposals for the levels of banded support under the Renewables Obligation for the period 2013-17 and the Renewables Obligation Order 2012

Note: RHI support is not available to Bioliquid CHP schemes. These schemes if certified as GQCHP by the CHPQA programme would receive 1.9 or 1.8 ROCs./MWh if accredited in 2015/16 and 2016/17 respectively.

These are only available where support under the RHI is not available



ROC Eligibility

For GQCHP, the power output eligible for the award of ROCs is determined using:

$$\text{Eligible Power Output} = \text{NPO} \times \text{Biomass Content (\%)} \times \left(\frac{\text{QPO}}{\text{TPO}} \right)$$

From CHPQA
Certificate



Dual CHPQA Certification

Quality Certification for an existing CHP Scheme

CHPQA Certificate No: **1234567890**

Scheme: SITE NAME TEST
OX11 0QR

CHPQA Scheme Reference No: 8760 B

This is to Certify that the Self-Assessment of the above CHP Scheme undertaken by TEST USER of Scheme performance during the calendar year: 2014 has been Validated under the Combined Heat and Power Quality Assurance programme and that:

1. The Total Power Capacity of this Scheme is:	0.600 MWe
and the Qualifying Power Capacity is:	0.600 MWe
2. The threshold Power Efficiency criterion for this Scheme is:	20 %
and the Power Efficiency of this Scheme is:	34.43 %
3. The Qualifying Heat Output from this Scheme is:	923 MWh
and the Heat Efficiency of this Scheme is:	10.55 %
4. The threshold Quality Index criterion for under Initial Operation is:	95
and the Quality Index of this Scheme is:	94.60
5. The Total Fuel Input to this Scheme is:	8,749 MWh
and the Qualifying Fuel Input is:	8,749 MWh
6. The Total Power Output from this Scheme is:	3,012 MWh
and the Qualifying Power Output is:	2,921 MWh
7. The fuel supply reference(s) (e.g. TRANSOCO MPR, gas meter reference nos. and/or other unique ID descriptors) for this Scheme are:	
	[123456789]

Scheme validated by the following note: the Qualifying Power Output referred to in item 6 above over the Total Power Output referred to in item 5 above.

Quality Certification for an existing CHP Scheme for ROCs eligibility

CHPQA Certificate No: **1234567890**

Scheme: SITE NAME TEST
OX11 0QR

CHPQA Scheme Reference No: 8760 B

This is to Certify that the Self-Assessment of the above CHP Scheme undertaken by TEST USER of Scheme performance during the calendar year: 2014 has been Validated under the Combined Heat and Power Quality Assurance programme and that:

Information for ROCs Eligibility

1. The Total Power Capacity of this Scheme is:	0.600 MWe
2. The Power Efficiency of this Scheme is:	34.43 %
3. The Qualifying Heat Output from this Scheme is:	923 MWh
and the Heat Efficiency of this Scheme is:	10.55 %
4. The threshold Quality Index criterion for this Scheme under Annual Operation is:	100
and the Quality Index of this Scheme is:	110.79
5. The Total Fuel Input to this Scheme is:	8,749 MWh
6. The Total Power Output from this Scheme is:	3,012 MWh
and the Qualifying Power Output is:	3,012 MWh
7. The Technology Type for this Scheme	Reciprocating engine
8. The Main Fuel Type for this Scheme:	Biogas
9. The Percentage of Renewable Fuel is:	100.00 %

Scheme validated by the following note: the Qualifying Power Output referred to in item 9 above over the Total Power Output referred to in item 6 above.

6. The projected Total Power Output from this Scheme is:	3,012 MWh
and the Qualifying Power Output is:	3,012 MWh



ROC Eligibility – QI Definitions

- As a result of the CHPQA review, new QI formulas have been created for new schemes seeking CHP ROCs Certification
- For New Schemes: QI Definitions for ROCs Eligibility are provided in Table 2 of CHPQA Guidance Note GN44 (Issue 4) – available from <https://www.gov.uk/chpqa-guidance-notes>
- For Old Schemes that can demonstrate they reached financial close, prior to 26th July 2012, can use the old QI formulae shown in Table 3 of GN44 issue 4
- All other schemes have been subject to new formulae shown in Table 2 since January 2014

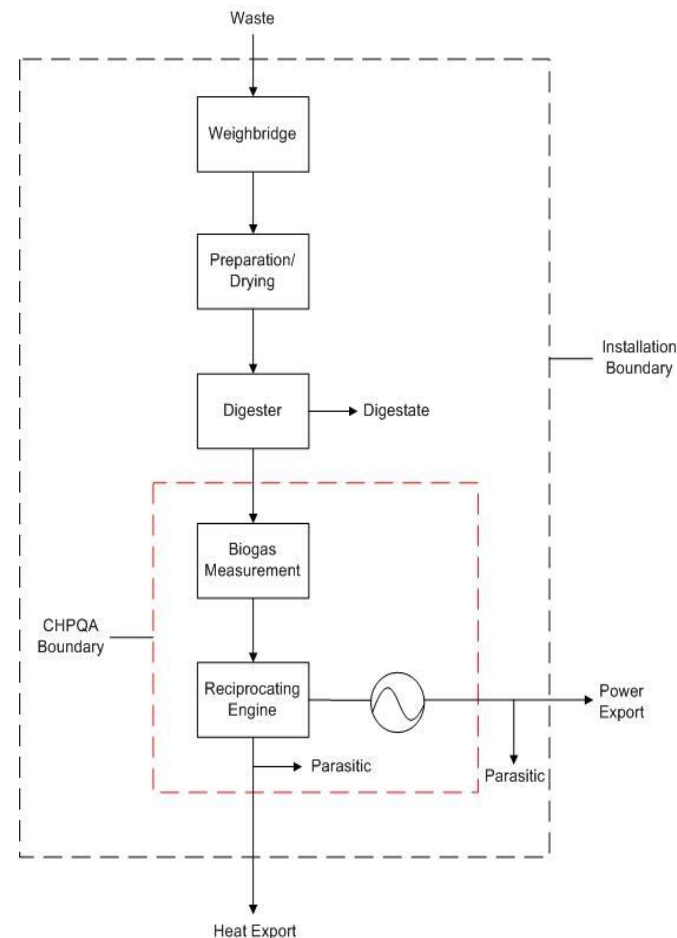
New review is due to take place in December 2015, to accommodate the EU new Reference Values.....will be covered later



ROC Eligibility – QI Definitions

Advanced Conversion Technologies (ACTs)

- Gasification
 - Pyrolysis
 - Anaerobic Digestion
- For biogas fired schemes, the fuel input boundary should normally be drawn at the gas inlet to RE
- Should use the Biogas QI formula





Safeguard Provision for QI

Three policy criteria:

- The minimum primary energy saving requirement of 10% (0% for schemes <1MW electrical capacity).
- A new requirement for a minimum heat efficiency of 10% (gross calorific value).
- An overall efficiency of at least 35% (gross calorific value) for schemes >25MW electrical capacity.

Schemes that meet all 3 criteria but do not achieve a QI of 100 will be awarded a QI of 100 based on the design data, and an appropriate X value will be developed.



QI Threshold for DH/DC schemes

New Renewable CHP primarily supplying Heating/Cooling Networks:

- QI threshold of 95 for an initial period of operation of 5 years will be allowed
- Need a Business Plan to demonstrate this.

Subject to :

- Achieving a QI of 100, by the 6th full calendar year or an increase by at least 5 points by the 6th full calendar year.
- Achieving this by means of network connection to heat loads in additional buildings, on additional sites or to additional industrial or commercial users.



Contract for Difference (CfD)



Contract for Difference (CfD)?

- Regulations for CfD came into force in Great Britain on 1/8/2014
- CfD will replace the RO for all new projects from 1/4/2017.
- First round of applications was in Oct 2014 (Northern Ireland from April 2017)
- Applicable to biomass/waste, but not bio-liquid CHP,
- Need CHPQA GN44 (Issue 5) certificate (full or partial)
- Paid difference between 'strike price' (cost of investing in the specific low carbon technology) and the 'reference price' (average market price for electricity in GB market). If 'reference' exceeds 'strike' price, generator must pay difference.



CHP-specific CfD Eligibility

- Two eligible technologies :
 - *dedicated-biomass with CHP* and
 - *EfW with CHP*.
- Support paid only on the proportion of metered electrical output assessed by CHPQA to be QPO.
- Use CHP Qualifying Multiplier= QPO/TPO .
- Provide evidence of intended “useful heat” load in F3 submission.
- Must maintain annual CHPQA certification (full or partial) once operating and for the duration of any CfD offered in order to continue to receive support.



CfD Investor Safeguard

- During the CfD contract lifetime **biomass** (but not EfW) CHP Schemes protected against risk of loss of heat customer(s) for up to 5 years (**5 CHPQA certification periods**)
- Under this “investor safeguard”, a plant may elect to have their CHP Qualifying Multiplier (QPO/TPO) assessed on most recent CHPQA F3 ‘design’ Certificate, rather than previous year’s operation
- AD and ACT CHP (gasification or pyrolysis) eligible for CfDs, not required to obtain GN44 certification in order to qualify.



Renewable Heat Incentive (RHI)



RHI

Following DECC consultation on expansion of the Non-Domestic Scheme

- Current (Jan 2016) tariff for Biomass installations > 1MW is 2.03 p/kWh
- **A specific tariff for solid biomass GQCHP of 4.17p/kWh**
- Schemes will need to **be certified by CHPQA** in order to benefit from CHP tariff
- EfW plants will only be eligible for the biomass tariff (2.03p/kWh), for the Biomass % contained in Waste.
- No special EfW CHP RHI tariff
- CHP RHI eligible heat is not the same as QHO
- CHP scheme boundaries for CHPQA certification not always the same as for RHI eligible installation
- Only heat produced via the engine/turbine will qualify,
- This will require to be metered separately.



Eligibility for CHP RHI tariff

- The eligibility date for the CHP RHI tariff is the date of the Consultation Response publication (4/12/2013).
- Owners of installations commissioned prior to the date of the publication are not eligible for this tariff.
- Under CfD, the strike price is equivalent to the RO support for dedicated biomass power only (i.e. without ½ ROC uplift). The intention is for participants to be able to apply for the RHI as well as CfD support.



Final message

1- Biomass CHP can obtain ROC uplift* and ECA

Or

2- Standard ROC (no uplift) and RHI but no ECA

And

3- From 2017 can only apply for CfD & RHI but no ECA

***From 1/4/2015, new biomass schemes no longer have the choice to opt for CHP 0.5 ROC uplift, only RHI support, if eligible, for heat generated. The uplift will be grandfathered but operators will still need to retain annual certification with CHPQA**