

CHP and the Renewables Obligation

Martin Williams

Summary

- Introduction to the Renewables Obligation
 - The RO and Banding
 - Terminology in the RO
 - Current Banding Levels
 - Banding for Good Quality CHP
- CHPQA and the RO
 - ROC Eligibility for Good Quality CHP
 - CHPQA Certification for ROCs
- RO Banding Review 2013-2017

Introduction to the Renewables Obligation

- Introduced in 2002
- Support electricity generation from renewable sources:
 - Obligation on electricity suppliers
 - Awards certificates (ROCs) to generators
- Separately legislated in:
 - England and Wales
 - Scotland
 - Northern Ireland
- Continually reviewed and developed



Renewables Obligation Order 2009

Key Features:

- Came into effect 1st April 2009
- Introduces the concept of “banding” which provides varying levels of support (ROCs/MWh) for different types of renewable generation
- Enhanced support for schemes fuelled by energy crops
- Gave increased level of support to Good Quality (GQ) CHP over power-only schemes (Dedicated biomass, Energy from Waste, and cofiring of biomass & energy crops)
- Continued support for GQ CHP fuelled by waste

Biomass, Energy Crops and Waste

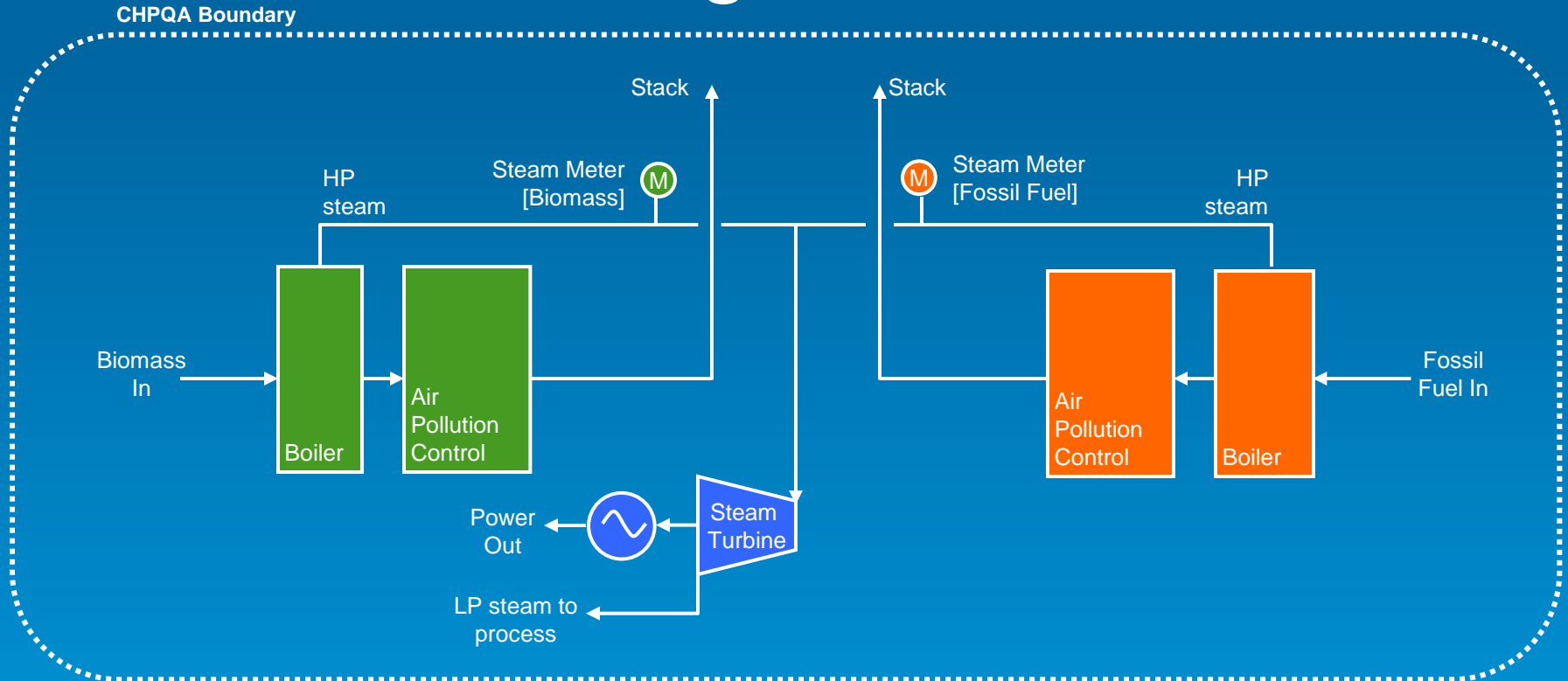
- **Biomass** - fuels where greater than 90% of its energy content is of biogenic origin
- **Waste** – fuels where >10% but <90% of its energy content is of biogenic origin
- **Energy Crops** - specific types of non-food crops grown for energy production; currently:
 - Miscanthus
 - Short Rotation Coppice Willow
 - Short Rotation Coppice Poplar



ROCs Banding

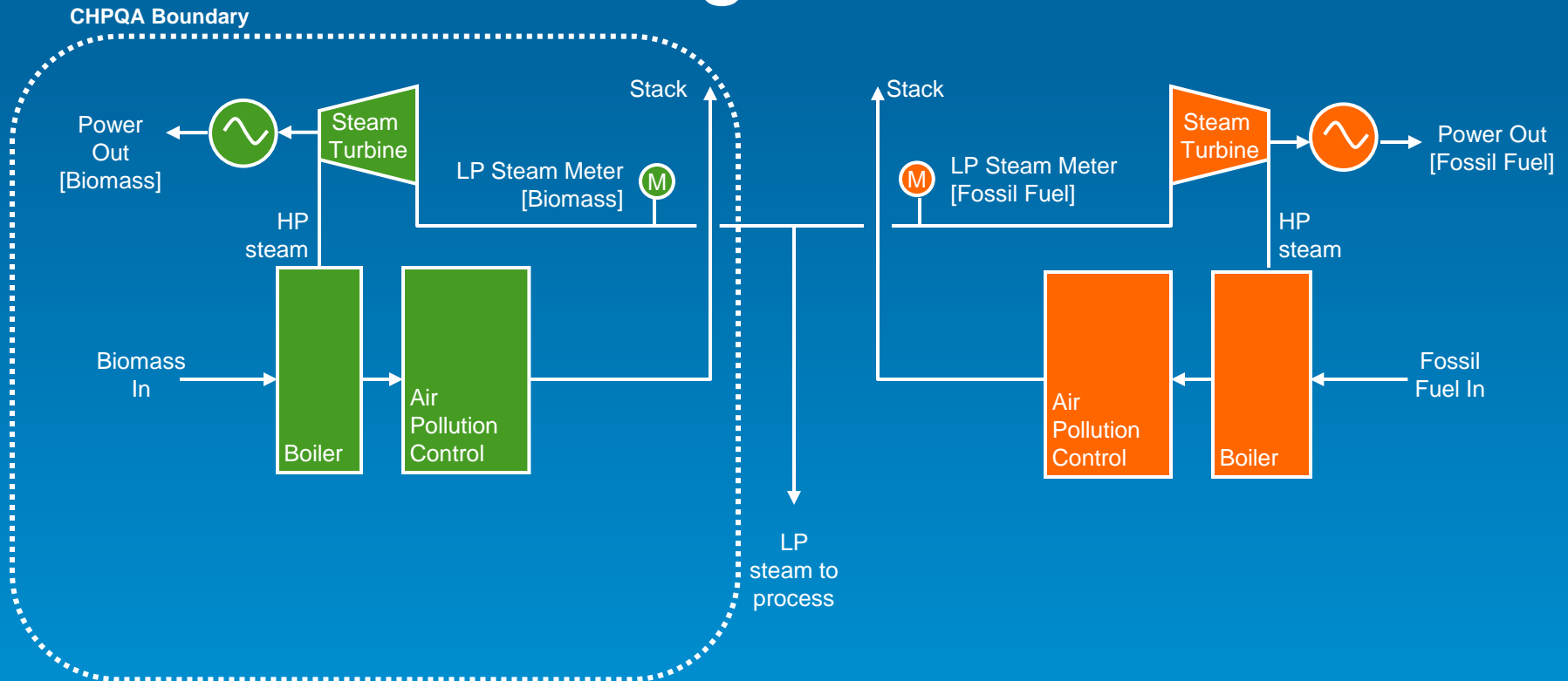
Generation Type	Power-Only	With CHP
	[ROCs/ MWh]	[ROCs/MWh]
Energy from Waste with CHP	-	1
Advanced Gasification/Pyrolysis	2	2
Co-firing of biomass	0.5	1
Co-firing of energy crops	1	1.5
Dedicated Biomass	1.5	2
Dedicated Energy Crops	2	2

Co-firing with CHP



Co-firing of biomass with CHP	1	Electricity generated from [regular biomass/energy crops] by a qualifying combined heat and power generating station in a month in which it generates electricity partly from fossil fuel and partly renewable sources, and where the fossil fuel and regular biomass have been <u>burned in separate boilers or engines</u>
Co-firing of energy crops with CHP	1.5	

Co-firing with CHP



Dedicated Biomass with CHP	2	Electricity generated from [regular biomass/energy crops] by a qualifying combined heat and power generating station in a month in which the generating station generates electricity only from biomass
Dedicated Energy Crops with CHP	2	

ROC Eligibility

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

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

Any remaining power output would be subject to “power-only” bandings covered earlier

Dual CHPQA Certification

CHP QA DEPARTMENT OF ENERGY & CLIMATE CHANGE

Quality Certification for an existing CHP Scheme

CHPQA Certificate No: [REDACTED]

Scheme: [REDACTED]

CHPQA Scheme Reference No: [REDACTED]

This is to Certify that the Self-Assessment of the above CHP Scheme undertaken by [REDACTED] of Scheme performance during the calendar year: 2010 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:	110.79
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:	3,012 MWh

Approved by the CHPQA Administrator on behalf of DECC. Date: [REDACTED]

The CHPQA programme is carried out on behalf of the Department of Energy and Climate Change (DECC), in consultation with the Scottish Executive, The National Assembly for Wales, and the Northern Ireland Department of Enterprise, Trade and Investment.

For the purposes of the Climate Change Levy (General) (Amendment) Regulations 2003 (only), the QPO limit shall be equal to the actual output of the station multiplied by the following ratio: the Qualifying Power Output referred to as item 6 above over the Total Power Output referred to as item 5 above.

Standard Certificate

CHP QA DEPARTMENT OF ENERGY & CLIMATE CHANGE

Quality Certification for an existing CHP Scheme for ROCs eligibility

CHPQA Certificate No: [REDACTED]

Scheme: [REDACTED]

CHPQA Scheme Reference No: [REDACTED]

This is to Certify that the Self-Assessment of the above CHP Scheme undertaken by [REDACTED] of Scheme performance during the calendar year: 2010 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:	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 projected 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 is:	Reciprocating Engine
8. The Main Fuel Type for this Scheme is:	Other Biogas (e.g. gasified woodchips)
9. The Percentage of Renewable Fuel is:	100.00%

Approved by the CHPQA Administrator on behalf of DECC. Date: [REDACTED]

The CHPQA programme is carried out on behalf of the Department of Energy and Climate Change (DECC), in consultation with the Scottish Executive, The National Assembly for Wales, and the Northern Ireland Department of Enterprise, Trade and Investment.

For the purposes of the Climate Change Levy (General) (Amendment) Regulations 2003 (only), the QPO limit shall be equal to the actual output of the station multiplied by the following ratio: the Qualifying Power Output referred to as item 6 above over the Total Power Output referred to as item 5 above.

ROCs Eligible Certificate

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

QI Definitions for ROCs Eligibility are provided in CHPQA Guidance Note GN44 – available from <http://chpqa.decc.gov.uk>

For Schemes >25MWe

Table 1: QI Formulae For Various Types Of CHP Biomass Schemes >25MWe

Solid waste	$QI = 364 \times \eta_{power} + 140 \times \eta_{heat}$
Agricultural Biomass	$QI = 338 \times \eta_{power} + 130 \times \eta_{heat}$
Wood Fuels	$QI = 315 \times \eta_{power} + 120 \times \eta_{heat}$

For Schemes $\leq 25MWe$

Table 2: QI Formulae For Various Types Of CHP Biomass Schemes Equal To Or Less Than 25MWe

Solid waste	$QI = 370 \times \eta_{power} + 140 \times \eta_{heat}$
Agricultural Biomass	$QI = 370 \times \eta_{power} + 130 \times \eta_{heat}$
Wood Fuels	
≤1MWe	$QI = 329 \times \eta_{power} + 120 \times \eta_{heat}$
>1 to ≤25MWe	$QI = 315 \times \eta_{power} + 120 \times \eta_{heat}$

ROC Eligibility – QI Definitions

For Schemes using Advanced Conversion Technologies (ACTs)

- Gasification
- Pyrolysis
- Anaerobic Digestion

Table 3: QI Formulae For Advanced Conversion Technology Producing Syngas To Be Used In Reciprocating Engines Or Gas Turbines.

Syngas	
≤1MWe	$QI = 285 \times \eta_{power} + 120 \times \eta_{heat}$
>1 MWe	$QI = 251 \times \eta_{power} + 120 \times \eta_{heat}$

In the above cases the biogas/syngas will be considered as the input fuel to the scheme and not the biomass/waste that is supplied to the ACT plant

RO Banding Review

- Concerns banding to be applied 2013-2017
- Currently under consultation
- Changes relating to CHP include:
 - Withdrawal of CHP uplift after April 2015
 - Choice of either **RO (inc. uplift)** or **RO + RHI** up to 2015
 - Reduced support for EfW with CHP
- Consultation open until January 2012

CHPQA Contact details

Contact the Administrator:

Mail: CHPQA Programme
The Gemini Building
Fermi Avenue
Harwell
Didcot
OX11 0QR

e-mail: chpqainfo@chpqa.com

Tel: 0870 190 6196

Fax: 0870 190 6334

Website: www.chpqa.com