

Benefits and Procedures

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Talk Coverage

- Quick Review (Benefits; Principles, Roles & Responsibilities; Certificates)
- CHPQA Procedures
- CHP Focus

Benefits from GQCHP

- Climate Change Levy (CCL) Exemption
 - on both fuel input and electricity output
- Business Rates Exemption
- Hydrocarbon Oil Duty Relief
- Access to Enhanced Capital Allowance
- EU-ETS Phase II (Allocation based on GQCHP capacity- from *Separate CHP sector pot*)
- EU-ETS Phase III – Allocation to Heat based on Benchmark
- 1 ROC/MWh for electricity from EfW
- 2 ROCs for dedicated biomass CHP (started in 2009)
- Carbon Reduction Commitment (CRC) – Zero Carbon for Heat

To access any of these, need to be GQ CHP

Why CHPQA?

- It is a tool for measuring the Quality of CHP Schemes
- A rigorous system is needed to:
 - ensure that incentives are targeted fairly
 - ensure that it only benefits schemes making significant environmental savings
- CHPQA provides the **methods** and **procedures** needed to assess and certify the quality of the full range of CHP Schemes

Definition of GQCHP

All laid out in the CHPQA Standard.

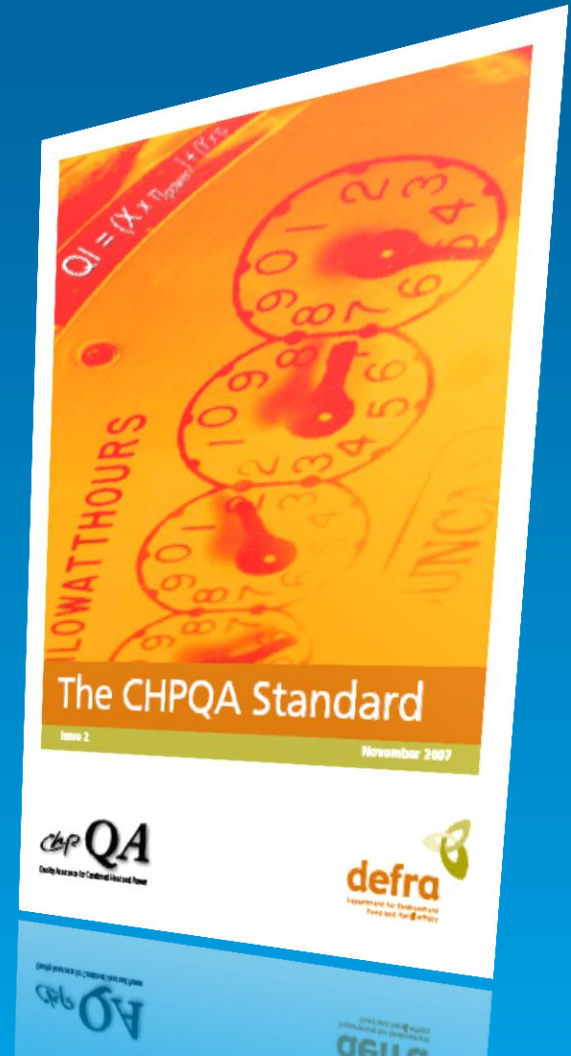
For Existing Schemes:

- Quality Index (QI) ≥ 100 and
- Power generation efficiency of $\geq 20\%$

For Upgraded & New Schemes:

- Quality Index (QI) ≥ 105 and
- Power generation efficiency of $\geq 20\%$.

See Issue 3 Published Jan 2009



CHPQA QI Formulas

The general definition for QI is:

$$QI = (X \times \eta_{\text{power}}) + (Y \times \eta_{\text{heat}})$$

Where:

$$\text{Power Efficiency } (\eta_{\text{power}}) = \text{CHP}_{\text{TPO}} / \text{CHP}_{\text{TFI}}$$

and

$$\text{Heat Efficiency } (\eta_{\text{heat}}) = \text{CHP}_{\text{QHO}} / \text{CHP}_{\text{TFI}}$$

X and Y are parameters which depend on the type of fuel used and size of scheme (MW_e)

QI Formulae for Schemes Registered before Jan '07

Size of Scheme (CHP _{TPC})	QI Definition
≤1MW _e	QI = 230 x η_{power} + 125 x η_{heat}
>1 to ≤10MW _e	QI = 220 x η_{power} + 125 x η_{heat}
>10 to ≤25MW _e	QI = 205 x η_{power} + 125 x η_{heat}
>25 to ≤50MW _e	QI = 190 x η_{power} + 125 x η_{heat}
>50 to ≤100MW _e	QI = 185 x η_{power} + 125 x η_{heat}
>100 to ≤200MW _e	QI = 180 x η_{power} + 125 x η_{heat}
>200 to ≤500MW _e	QI = 170 x η_{power} + 125 x η_{heat}
>500MW _e	QI = 160 x η_{power} + 125 x η_{heat}
Special Cases	QI Definition
Fuel Cell Schemes	QI = 180 x η_{power} + 125 x η_{heat}
Reciprocating Engine Schemes (including use in Combined Cycle Applications) ≤25MW _e	QI = 200 x η_{power} + 125 x η_{heat}
Alternative Fuel Schemes ¹	
Alternative Fuel Gases ²	QI = 240 x η_{power} + 125 x η_{heat}
Biogas, Waste gas or Waste heat	QI = 300 x η_{power} + 140 x η_{heat}
Biomass or solid or liquid Waste	QI = 400 x η_{power} + 140 x η_{heat}

No longer used

QI Formulae for **ALL** Schemes – For Conventional Fuels

Size Of Scheme (CHP _{TPC})	QI Definition
CONVENTIONAL FOSSIL FUELS SCHEMES	
Natural gas (inc. Reciprocating Engines and Fuel Cells)	
≤1MW _e	$QI = 249 \times \eta_{power} + 115 \times \eta_{heat}$
>1 to ≤10MW _e	$QI = 195 \times \eta_{power} + 115 \times \eta_{heat}$
>10 to ≤25MW _e	$QI = 191 \times \eta_{power} + 115 \times \eta_{heat}$
>25 to ≤50MW _e	$QI = 186 \times \eta_{power} + 115 \times \eta_{heat}$
>50 to ≤100MW _e	$QI = 179 \times \eta_{power} + 115 \times \eta_{heat}$
>100 to ≤200MW _e	$QI = 176 \times \eta_{power} + 115 \times \eta_{heat}$
>200 to ≤500MW _e	$QI = 173 \times \eta_{power} + 115 \times \eta_{heat}$
>500MW _e	$QI = 172 \times \eta_{power} + 115 \times \eta_{heat}$
Oil	
≤1MW _e	$QI = 249 \times \eta_{power} + 115 \times \eta_{heat}$
>1 to ≤25MW _e	$QI = 191 \times \eta_{power} + 115 \times \eta_{heat}$
>25MW _e	$QI = 176 \times \eta_{power} + 115 \times \eta_{heat}$
Coal	
≤1MW _e	$QI = 249 \times \eta_{power} + 115 \times \eta_{heat}$
>1 to ≤25MW _e	$QI = 191 \times \eta_{power} + 115 \times \eta_{heat}$
>25MW _e	$QI = 176 \times \eta_{power} + 115 \times \eta_{heat}$

As of Jan. 2011, all existing CHPQA schemes (regardless of CHPQA registration date) should be using the new X & Y values listed on page 19 of the CHPQA Standard (same as Table GN10-2)

QI Formulae for **ALL** Schemes – For Alternative Fuels

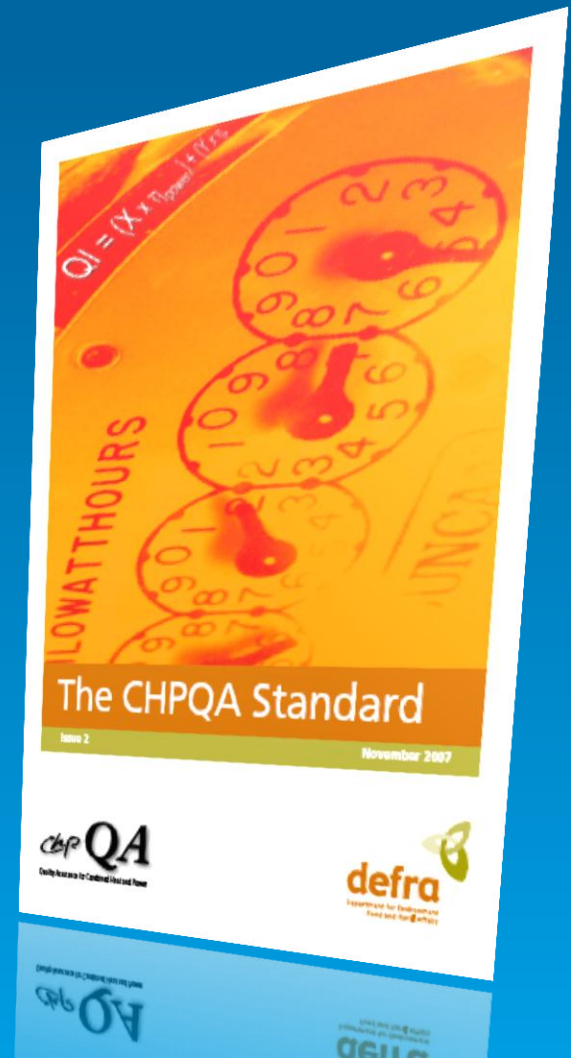
New X & Y values are also available for all existing schemes using alternative fuels

These new X & Y values must be used for 2011 operational data (i.e. 2012 submissions)

Size Of Scheme (CHP _{TPC})	QI Definition
ALTERNATIVE FUEL SCHEMES³	
By-Product Gases	
≤1MWe	$QI = 294 \times \eta_{power} + 120 \times \eta_{heat}$
>1 to ≤25MWe	$QI = 221 \times \eta_{power} + 120 \times \eta_{heat}$
>25MWe	$QI = 193 \times \eta_{power} + 120 \times \eta_{heat}$
Biogas	
≤1MWe	$QI = 285 \times \eta_{power} + 120 \times \eta_{heat}$
>1 to ≤25MWe	$QI = 251 \times \eta_{power} + 120 \times \eta_{heat}$
>25MWe	$QI = 193 \times \eta_{power} + 120 \times \eta_{heat}$
Waste Gas or Heat	
≤1MWe	$QI = 329 \times \eta_{power} + 120 \times \eta_{heat}$
>1 to ≤25MWe	$QI = 299 \times \eta_{power} + 120 \times \eta_{heat}$
>25MWe	$QI = 193 \times \eta_{power} + 120 \times \eta_{heat}$
Liquid Biofuels	
≤1MWe	$QI = 275 \times \eta_{power} + 120 \times \eta_{heat}$
>1 to ≤25MWe	$QI = 191 \times \eta_{power} + 120 \times \eta_{heat}$
>25MWe	$QI = 176 \times \eta_{power} + 120 \times \eta_{heat}$
Liquid Waste	
≤1MWe	$QI = 275 \times \eta_{power} + 120 \times \eta_{heat}$
>1 to ≤25MWe	$QI = 260 \times \eta_{power} + 120 \times \eta_{heat}$
>25MWe	$QI = 176 \times \eta_{power} + 120 \times \eta_{heat}$
Biomass or Solid Waste	
≤1MWe	$QI = 370 \times \eta_{power} + 120 \times \eta_{heat}$
>1 to ≤25MWe	$QI = 370 \times \eta_{power} + 120 \times \eta_{heat}$
>25MWe	$QI = 220 \times \eta_{power} + 120 \times \eta_{heat}$
Wood Fuels	
≤1MWe	$QI = 329 \times \eta_{power} + 120 \times \eta_{heat}$
>1 to ≤25MWe	$QI = 279 \times \eta_{power} + 120 \times \eta_{heat}$
>25MWe	$QI = 220 \times \eta_{power} + 120 \times \eta_{heat}$

QI Definitions for Existing and New Schemes

- In summary
 - QI formulae in Table 1 of the CHPQA Standard (page 18) are no longer in use.
 - ‘ALL Schemes’, must use QI formulae in Table 2 for 2012 submission.
 - Based on 2011 performance data
 - See CHPQA Standard Issue 3



Effect of Change in X and Y Values

We have done quick evaluation to test the effect of new X & Y values on CHPQA schemes

- Approximately 60 schemes affected
- Current QI range at risk: 100 - 107

Fuel Type	Current QI Range	No of Schemes	Drop in QPO (GWh)	% UK QPO (GWh)
Conventional	100 – 105	56	324	1.3
Renewable/ Alternative	100 – 107	4	62	0.25

Self Assessment & Certification



Roles and Responsibilities

- CHPQA Administrator/Managed by the AEA Group
- DECC
- Other Government Departments (HMRC, VOA)
- Ofgem and NIAUR (Northern Ireland Authority for Utility Regulation) - for issuing LECs.

CHPQA Submission

- **A range of forms have been developed :**
 - F1 (contact details);
 - F2 (scheme description);
 - F4 (scheme actual performance in previous calendar year) and
 - F3 (scheme predicted performance for new and upgraded schemes).
- **Simplified procedure and forms for small single reciprocating engine based schemes (<2MWe).**
 - Only have to provide three figures per year.

CHPQA Forms

CHPQA Forms to be submitted:

- **F1**...only if RP or company name has changed
- **F2 and F2(s)**..only if Scheme boundaries or monitoring arrangement have changed
- **F4 & F4(s)** annual submission using actual performance data
- **F3 & F3(s)** annual submission using design data. If no change Submit the same form... Once in IO then F4 or F4(s)

Short Forms for <2MWe CHP Schemes

- **Schemes eligible to use short forms:**
 - Reciprocating Engine Prime Mover
 - Less than 2MWe Total Power Capacity
 - Only a single conventional fuel
 - Only include a single prime mover,
 - No heat only boilers
- **F2(S) > 2 pages**
- **F3(S) > 4 pages**
- **F4(S) > 4 pages**

CHPQA Submission

- Paper forms available to download as both Microsoft Word or PDF
- Electronic submission available (See presentation on ‘CHPQA Electronic Submissions and Forms’).

Certification Timetable

- CHPQA Certificates cover a **calendar year** and expire at the end of December
- SoS (CHP Exemption) certificates are **open ended** ,
- provided that a valid CHPQA certificate is **sent to DECC by no later than end of June every year.**

Where do you go from here?

- All CHPQA Certificates issued in 2011 will expire on 31st of December
- SOS certificates are open ended
- entitling Schemes to continue claiming exemption,
- provided that a valid CHPQA certificate is sent to DECC by the end of June 2012 (together with completed pro-forma).
- New applications should be submitted to the CHPQA Administrator between 1st January and 31 March 2012
- Based on 2011 actual data:
 - Electricity generated
 - Heat utilised (actual)
 - Fuel used
- If all is in order new certificate will be issued no later than middle of June

Certification Status (2002-2011)

Year	Number of Schemes	CHPTPC (MWe)	CHPQPC (MWe)
2002	892	8,016	4,778
2003	897	8,367	5,072
2004	899	8,321	5,056
2005	899	8,871	5,671
2006	950	9,214	5,813
2007	938	9,072	5,693
2008	931	10,744	6,684
2009	1053	11,775	7,013
2010	1132	12,539	7,610
2011	1194	12,218	8,160

The message is.. We are expecting a large number of submission in 2012 so submit as soon as possible, but no later than end of March