



Department
of Energy &
Climate Change



Introduction to CHPQA Programme & Good Quality CHP

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Talk Coverage

- Quick Review
- CHPQA Procedures



Why CHPQA?

- In 2001 the Government introduced the Climate Change Levy (CCL) on fuel and electricity
- Decided to exempt CHP from CCL
- Needed 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

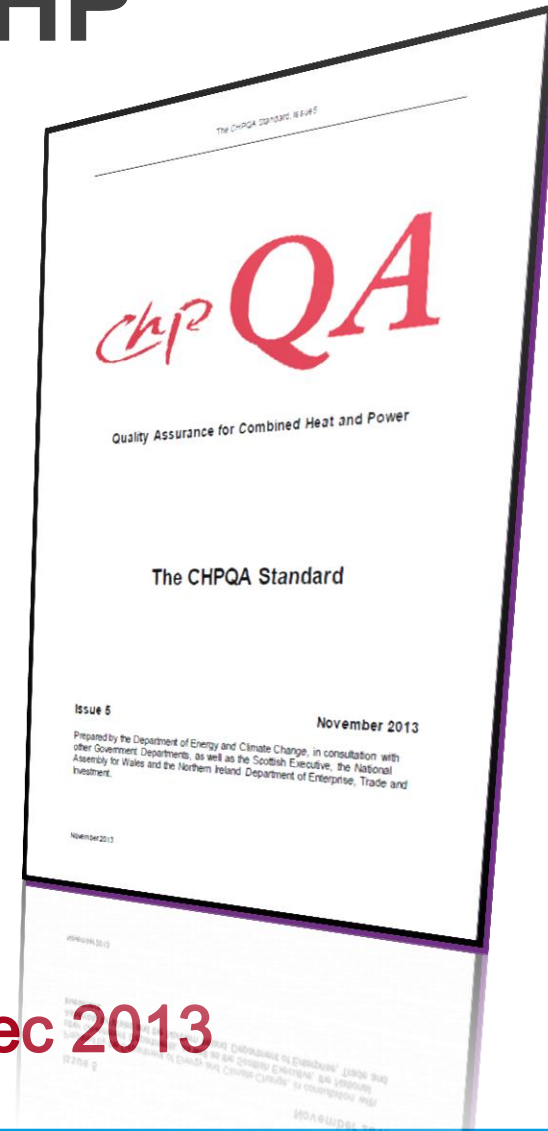
- It is based on Quality Index NOT overall efficiency
- Is a function of electricity and heat delivered
- **All laid out in the CHPQA Standard**

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 $\geq 20\%$.



Issue 5 was published in Dec 2013



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 **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	$QI = 176 \times \eta_{power} + 115 \times \eta_{heat}$

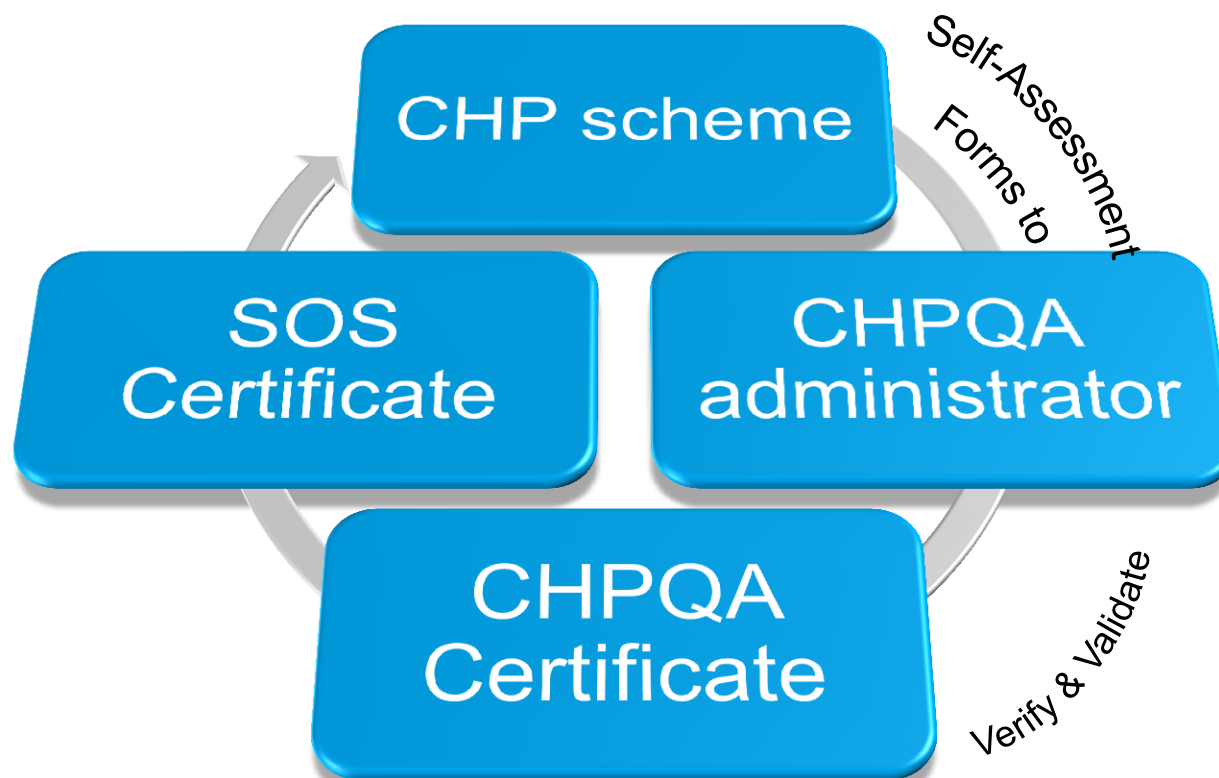


QI Formulae for **ALL** Schemes – For Alternative Fuels

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	$QI = 220 \times \eta_{power} + 120 \times \eta_{heat}$



Self Assessment & Certification





Roles and Responsibilities

- CHPQA Administrator/Managed by Ricardo-AEA
- DECC's Programme
- Other Government Departments (HMRC, VOA)
- Ofgem and NIAUR (Northern Ireland Authority for Utility Regulation) - for issuing LECs.....**LECs system closed in April 2013.**



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 (<2MW_e).**
 - Only have to provide three figures per year.



CHPQA Submission

1. Paper forms available to download as both Microsoft Word or PDF
2. Electronic submission available with on line calculation



chp QA Contact Numbers

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