



Overview and Interactions of Fiscal Benefits for GQCHP

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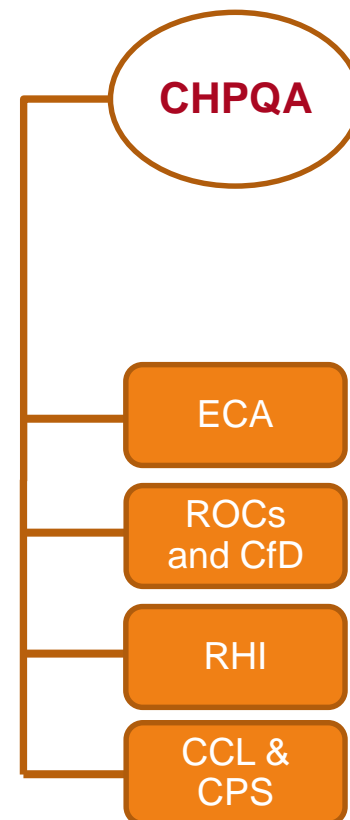
Fiscal Measures and GQCHP

- **CCL Exemption (on fuel input and electricity output where directly supplied)**
- Business Rates Exemption (embedded schemes)
- Hydrocarbon Oil Duty Relief
- Carbon Allocation for Heat under EU-ETS Phase III
- Enhanced Capital Allowance
- **1ROC/MWh for EfW CHP, 2 ROCs/MWh dedicated biomass CHP (April 2009)**
- **CPS:-**
 - Schemes > 2 MWe:- Exemption to fuel for heat
 - Schemes ≤ 2 MWe:- Full exemption from CPS
- **CPS – Exemption to fuel attributable to QPO used on site (new benefit from April 2015)**
- **Specific RHI tariff for biomass fuelled GQCHP**
- **CHP specific CfDs applicable to biomass and waste fuelled CHP.**



Talk Coverage

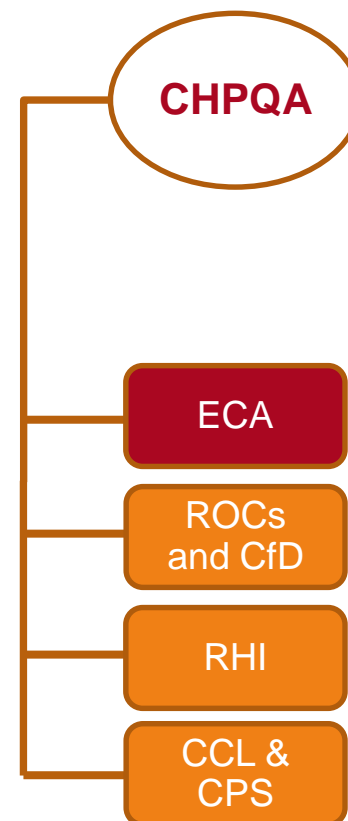
- ECA: Clarification only
- ROCs and CfD (introduction)
- RHI: GQCHP benefits (introduction)
- CCL: 'Standard' and 'CPS'





CHP ECA Eligibility

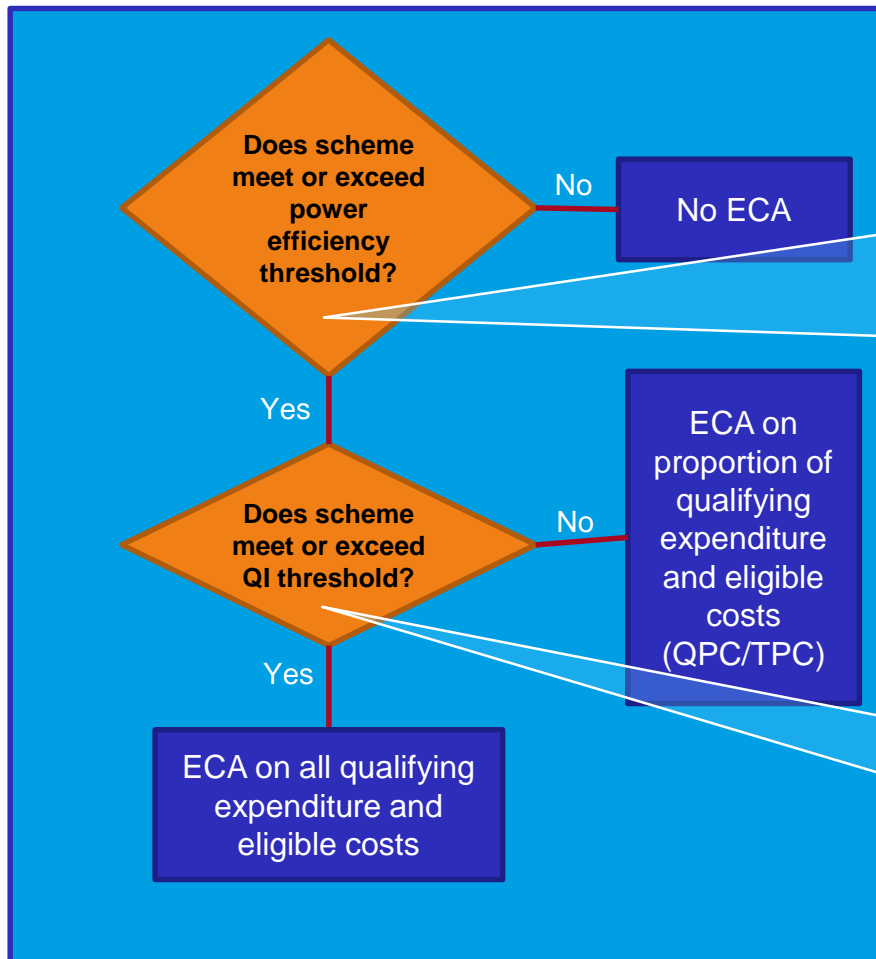
- CHP scheme operators need to demonstrate that they comply with the following eligibility criteria:
 - *Main intended business to provide heat and power for clearly identified users on site or to known third parties, and not to generate power for sale to or via unspecified third parties.*
 - *Not available for companies whose core business is electricity production.*



- This is likely to impact on renewable schemes, sized for exporting electricity, that intend to sell the majority of their electricity to the grid
- Would need to provide further information on ownership and revenue streams



Calculation of ECA value to a CHP Scheme



Power Efficiency Threshold

- 20% for conventional fuels
- 10% for wholly biomass or solid/liquid waste
- Between 20% and 10% for partly biomass or solid/liquid waste (dependent on fuel mix)

Quality Index (QI) Threshold

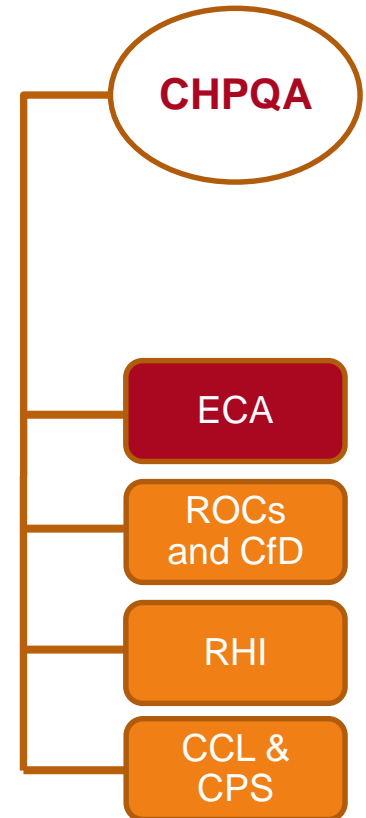
- ≥ 105 under MaxHeat conditions



Non compliance

Certificate will be revoked:

- If the original design has changed after certification and a new EE certificate has not been obtained from CHPQA, or
- If no heat customer(s) present at time of commissioning (i.e. not operating as CHP)

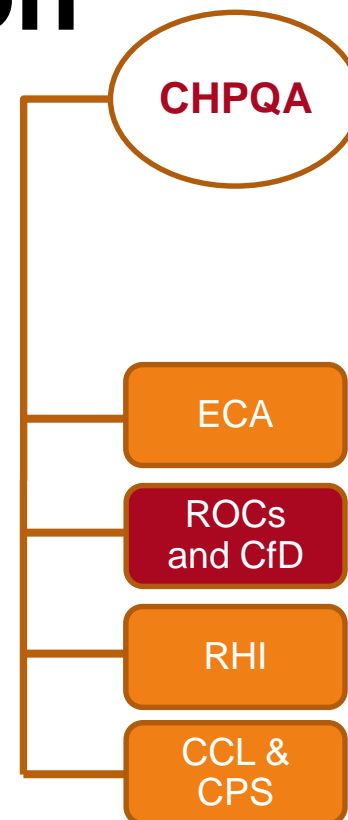


If certificate is revoked, applicant will have to contact HMRC to return any claimed benefits



Renewables Obligation

- Renewables Obligation closes to new generating capacity from 31 March 2017
- CHP 'uplift' not available now to Schemes eligible for the RHI
- 1.0 ROC/MWh for EfW Good Quality CHP
- CHP uplift for co-firing, bioliquid and station conversion from co-firing CHP
- Need to have GN44 certificate to qualify. Refer to CHPQA Guidance Note 44 (Issue 6 for new Schemes from 1 Jan. 2016)



Only for schemes certified by CHPQA



Contracts for Difference (CfD)

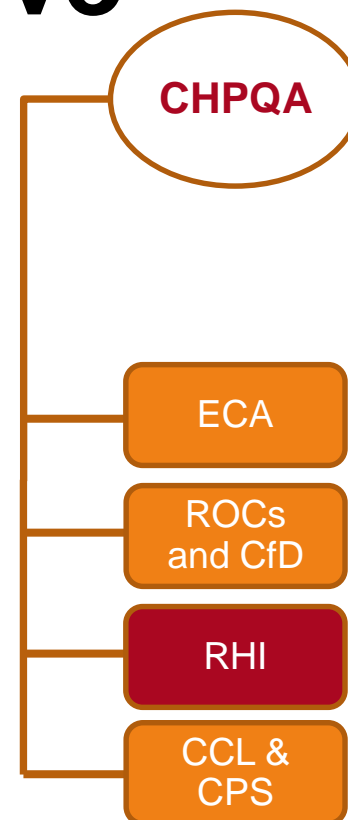
- The CfD regulations came into force in GB on 1st August 2014*
- Replaces the RO for all new projects from 1st April 2017.
- The first allocation round was in October 2014
- Second allocation round just been announced (opening in April 2017).
- For '*with CHP*' technologies need to have CHPQA Standard Certificate and GN44 certificate to meet the CfD terms. Refer to CHPQA Guidance Note 44 (Issue 6).
- Further details later.....

- *A decision has yet to be made on the introduction of CfDs in Northern Ireland



Renewable Heat Incentive

- Non-domestic scheme launched in November 2011
- Provides support for variety of renewable heat technologies, including
 - Solid biomass
 - Solid biomass in waste
 - Biogas
 - Geothermal
 - Heat pumps,
 - Solar thermal
- Support only for eligible heat (see Ofgem RHI guidance)
- Current* tariff for large solid biomass boilers ($\geq 1\text{MW}_{\text{th}}$) is 2.05 p/kWh
- A specific tariff for solid biomass fuelled GQCHP of 4.22 p/kWh (only for heat via engine/turbine).
- Recent scaling back introduced for schemes with electrical efficiency $< 20\%$.
- Further details later.....

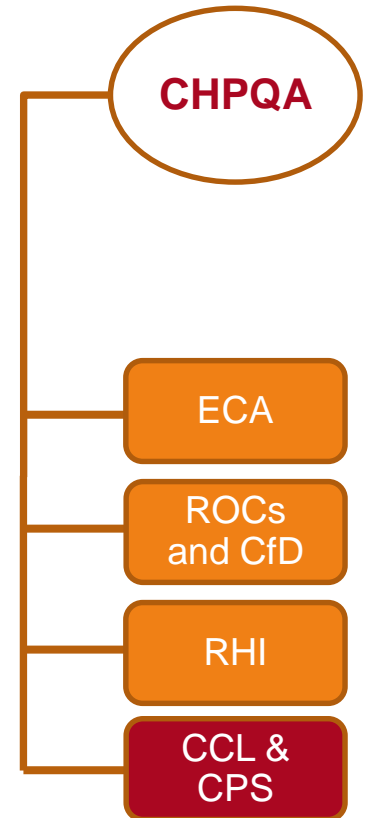


* Tariff for Schemes accredited to the RHI on or after 1st October 2016



CCL: 'Main' and 'CPS' rates

- GQCHP is exempt from the main rates of CCL on fuel and on electricity used on site or directly supplied
- Government introduced the carbon price floor (CPF) to stabilise price signals to investors in low carbon technologies
- Consequently, CPS rates of CCL and of fuel duty were introduced from 1 April 2013 for fuel for electricity generation
- GQCHP certified with CHPQA is exempt from CPS rates on the fuel that is attributable to the scheme's Qualifying Heat Output (QHO) and any mechanical power
- Effective from 1 April 2015, the exemption was extended to fuel attributable to Qualifying Power Output (QPO) used on-site or supplied under exemption from a supplier licence.





CPS Rates

Capped
until 2020

Commodity	Units	2013/14	2014/15	2015/16	2016/17
Natural Gas	£/kWh	0.00091	0.00175	0.00334	0.00331
LPG	£/kg	0.01460	0.02822	0.05307	0.05280
Coal	£/GJ	0.44264	0.81906	1.56860	1.54790
Fuel Oil	£/litre	0.01568	0.03011	0.05730	0.05711
Gas Oil	£/litre	0.01365	0.02642	0.04990	0.04916



Power Stations

Previous Arrangement



- Fuel input exempt from CCL
- Electricity output is subject to CCL (charged on to consumer)

Under CPF Regime

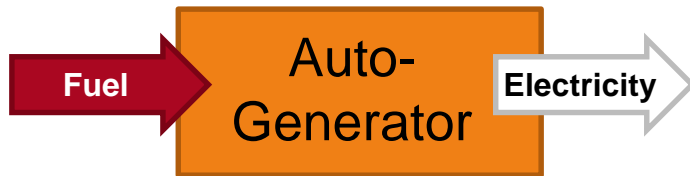


- Fuel input subject to CPS rates
- No change for Electricity output (CCL paid by consumers)
- **Additional costs to generators due to CPS rates.**
- **Can be expected to be passed on to consumers in the form of higher electricity tariffs.**



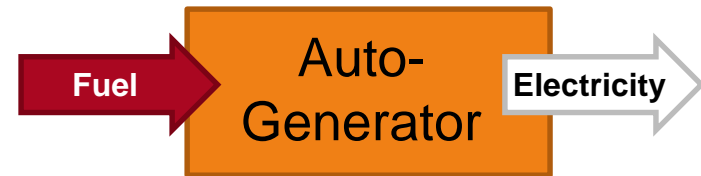
Auto-generators $< 2\text{MW}_e$

Previous Arrangement



- Fuel input subject to 100% CCL
- Electricity output consumed on site exempt from CCL

Under CPF Regime

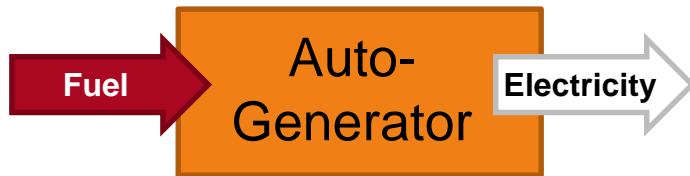


- Exempt from CPS
- No change on CCL (fuel input subject to 100% CCL, and electricity consumed on site exempt from CCL)



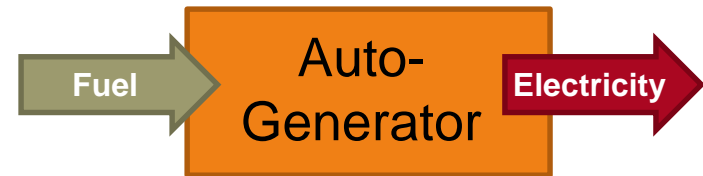
Auto-generators $\geq 2\text{MW}_e$

Previous Arrangement



- Fuel input subject to 100% CCL
- No CCL on Electricity output consumed on site

Under CPF Regime

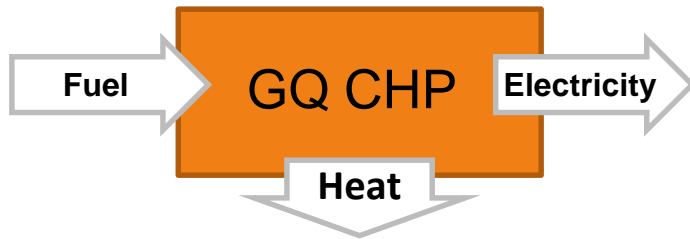


- No CCL on fuel input
- Fuel input subject to 100% CPS rates
- All electricity output subject to 100% CCL - **same as grid electricity**



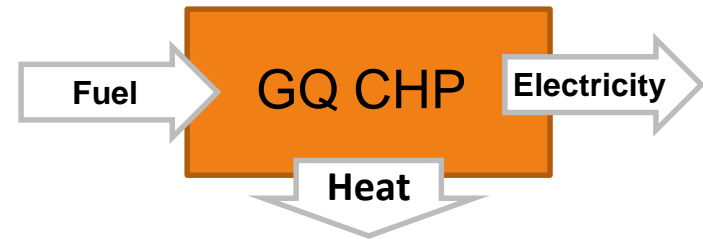
GQCHP – Fully Qualified with Capacity $\leq 2\text{MW}_e$

Previous Arrangement



- Fuel input exempt from CCL
- Electricity output exempt from CCL (Direct supply)

Under CPF Regime



- Fuel input exempt from CPS
- Exempt from CCL on fuel input
- Electricity output exempt from CCL (Direct Supply)



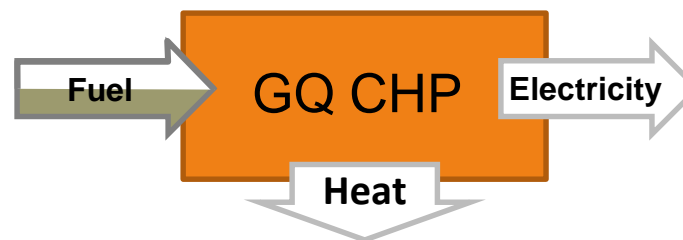
GQCHP – Fully Qualified with Capacity $>2\text{MW}_e$

Previous Arrangement



- Fuel input exempt from CCL
- Electricity output exempt from CCL (Direct Supply)

Under CPF Regime



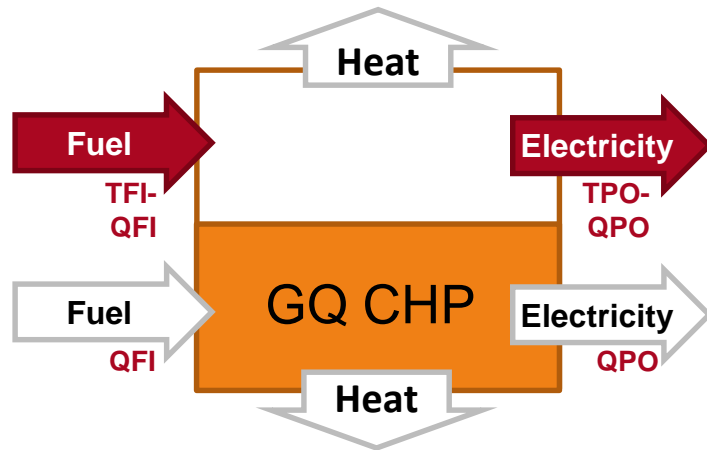
- Fuel input exempt from CCL
- Electricity output exempt from CCL (Direct supply).
- Fuel for heat (QHO) not liable to CPS rates
- Fuel input attributable to electricity generation used on site not liable to CPS rates (from April 2015)

In this case No CCL or CPS Liability



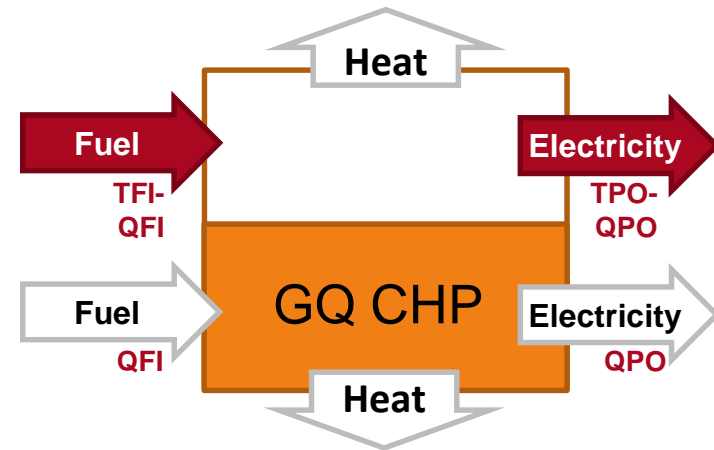
GQCHP – Partially Qualified with Capacity $\leq 2\text{MW}_e$

Previous Arrangement



- Qualifying fuel input (QFI) exempt from CCL
- Qualifying power output (QPO) exempt from CCL where directly supplied

Under CPF Regime

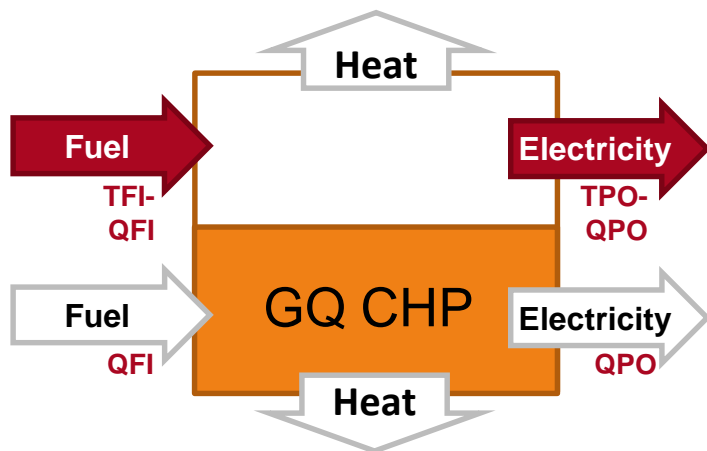


- No CPS
- Qualifying fuel input (QFI) exempt from CCL
- Qualifying power output (QPO) exempt from CCL where directly supplied



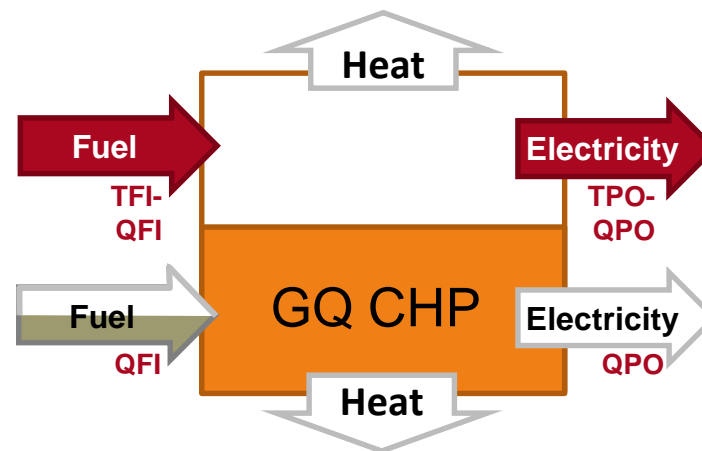
GQCHP – Partially Qualifying with Capacity >2MW_e

Previous Arrangement



- Qualifying fuel input (QFI) exempt from CCL
- Qualifying power output (QPO) exempt from CCL **if directly supplied**

Under CPF Regime



- Qualifying fuel input (QFI) exempt from CCL
- Qualifying power output (QPO) exempt from CCL **if directly supplied**
- Fuel for heat (QHO) not liable to CPS rates
- Fuel attributable to QPO **used on site** is not liable to CPS rates.

(Electricity used on site means....if it is self-supplied or supplied to a consumer by an exempt unlicensed electricity supplier)



Advising CPS Liability for GQCHP

CHPQA 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: 2012 has been Validated under the Combined Heat and Power Quality Assurance programme and that:

1. The Total Power Capacity of this Scheme is:	[REDACTED] MWe
and the Qualifying Power Capacity is:	[REDACTED] MWe
2. The threshold Power Efficiency criterion for this Scheme is:	20 %
and the Power Efficiency of this Scheme is:	17.45 %
3. The Qualifying Heat Output from this Scheme is:	[REDACTED] MWh
and the Heat Efficiency of this Scheme is:	46.06 %
4. The threshold Quality Index criterion for under Initial Operation is:	95
and the Quality Index of this Scheme is:	83.52
5. The Total Fuel Input to this Scheme is:	[REDACTED] MWh
and the Qualifying Fuel Input is:	[REDACTED] MWh
6. The Percentage of Fuel Input Referable to Electricity Generation is:	43.06 %
7. The Percentage of Conventional Fuel is:	100.00 %
8. The Total Power Output from this Scheme is:	[REDACTED] MWh
and the Qualifying Power Output is:	[REDACTED] MWh
9. The fuel supply reference(s) (e.g. TRANSCOMPR, gas meter reference nos. and/or other unique ID descriptors) for this Scheme are:	

This certificate is a statement of Scheme performance over the period 01/01/2012 to 31/12/2012 and is valid until 31/12/2013.

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 QP0 limit shall be equal to the actual output of the station multiplied by the following ratio: the Qualifying Power Output referred to at item 6 above over the Total Power Output referred to at item 8 above.

6. The Percentage of Fuel Input Referable to Electricity Generation is: **43.06 %**

7. The Percentage of Conventional Fuel is: **100.00 %**

See HMRC Excise Notice CCL1/6:
a guide to carbon price floor
(updated 20 April 2016)



CPS liability Calculation

- Fuel referable to the production of electricity is determined by:

$$Q = \left(TFI - \frac{QHO}{\eta_{h,ref}} \right) \times \left(1 - \frac{MO}{TPO} \right)$$

- Percentage of fuel input referable to Electricity Generation is given on the CHPQA certificate
- For fuel input referable to non-GQ CHP electricity it was decided not to incorporate this into the CHPQA certificate (**See HMRC document CCL1/6 - a guide to carbon price floor**)
- Fuels referable to the production of non-qualifying electricity use the following formula:

$$\text{Fuel Subject to CPS,} \quad R = Q \times \left(1 - \frac{ES}{TPO - MO} \right)$$

Where:

Q = Fuel for Electricity

ES = Electricity used on site ($\leq QPO$)

MO = Mechanical Power

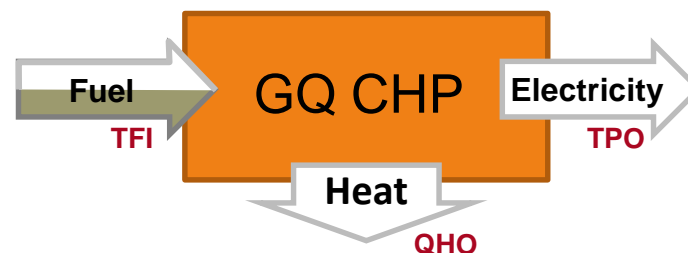
$\eta_{h,ref}$ = Reference boiler efficiency (81%)



Example 1: Full GQCHP >2MWe

Fuel input referable to electricity production:

$$Q = \left[\text{TFI} - \left(\frac{\text{QHO}}{81\%} \right) \right] \times \left[1 - \left(\frac{\text{MO}}{\text{TPO}} \right) \right]$$



Fuel Subject to CPS:

$$R = Q \times \left[1 - \left(\frac{\text{ES}}{\text{TPO} - \text{MO}} \right) \right]$$

$$R = 715 \times \left\{ 1 - \left(\frac{439 \times 0.9}{439 - 0} \right) \right\}$$

$$R = 71.5 \text{ GWh}$$

$$R/\text{TFI} = 71.5/1,234 = \underline{5.8\%}$$

TPC	-	150 MWe
TFI	-	1,234 GWh
TPO	-	439 GWh
QHO	-	420 GWh
η_p	-	35.6% ✓
QI	-	102.87 ✓
MO	-	0
10% of electricity exported		

$$\text{Fuel for electricity, } Q = \text{TFI} - \left(\frac{\text{QHO}}{81\%} \right)$$

$$= 1,234 - \left(\frac{420}{81\%} \right)$$

$$= 715 \text{ GWh} = \underline{58\% \text{ of TFI}}$$

This means 94.2% of TFI is exempt from CPS,
worth in the order of £3.9M pa



Example 2: Partial GQCHP >2MWe

Fuel input referable to electricity production:

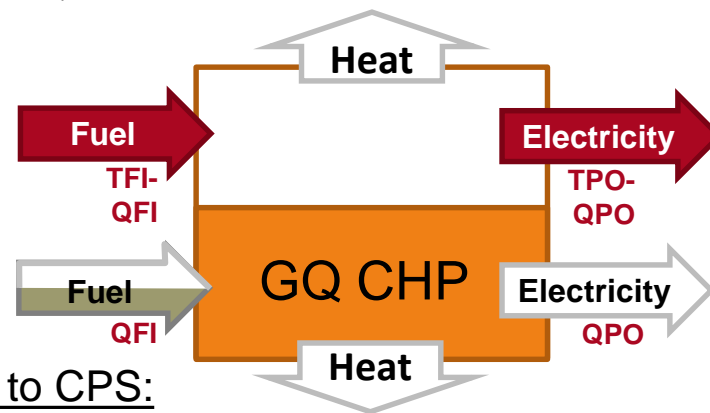
$$Q = \left[TFI - \left(\frac{QHO}{81\%} \right) \right] \times \left[1 - \left(\frac{MO}{TPO} \right) \right]$$

TPC	-	7.2 MWe
TFI	-	57 GWh
TPO	-	9.5 GWh
QHO	-	21 GWh
η_p	-	16.6% ✗
QI	-	73.97 ✗
QFI	-	48 GWh
QPO	-	5.8 GWh

All QPO used on site

$$\text{Fuel for electricity, } Q = 57 - \left(\frac{21}{81\%} \right)$$

$$= 31 \text{ GWh} = \underline{54.4\% \text{ of TFI}}$$



Fuel Subject to CPS:

$$R = Q \times \left[1 - \left(\frac{ES}{TPO - MO} \right) \right]$$

$$R = 31 \times \left\{ 1 - \left(\frac{5.8}{95 - 0} \right) \right\}$$

$$R = 12.1 \text{ GWh}$$

$$R/TFI = 12.1/57 = \underline{21.2\%}$$

This means 78.8% of TFI is exempt from CPS,
worth in the order of £150k pa



To summarise...

To obtain any of the fiscal benefits available for GQCHP the Scheme must be certified by CHPQA and must have a valid Certificate

Submission any time from 1 Jan 2017

Thank You