



Overview and Interactions of Fiscal Benefits for GQCHP

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Talk Coverage

- ECA: Clarification only
- CCL: 'Main' and 'CPS' rates
- CfD, RHI and RO (introduction)



CHP Enhanced Capital Allowance (ECA)



CHP Enhanced Capital Allowance (ECA) Eligibility

➤ When to apply:

- Application to the CHPQA programme should be made once certain detailed information is available for the Self-Assessment, **when final design details are available**
- Claimants will **not need to have the Certificate before buying equipment** but will need it by the time their tax return is submitted for the year in which expenditure is incurred.

➤ How to apply:

- Completing F3 form and make sure you tick the correct box for requesting an Energy Efficiency certificate.



CHP Qualifying Equipment for ECA

- All equipment within the CHP Scheme boundary.
- Details are given in the CHP Technology list

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/583663/CHPQA_ECA_Note.pdf

- For EfW CHP some additional equipment outside the CHP boundary can also qualify – only if using SRF
- the maximum portion of Qualifying Expenditure eligible for ECA is based $\frac{CHP_{qpc}}{CHP_{tpc}}$



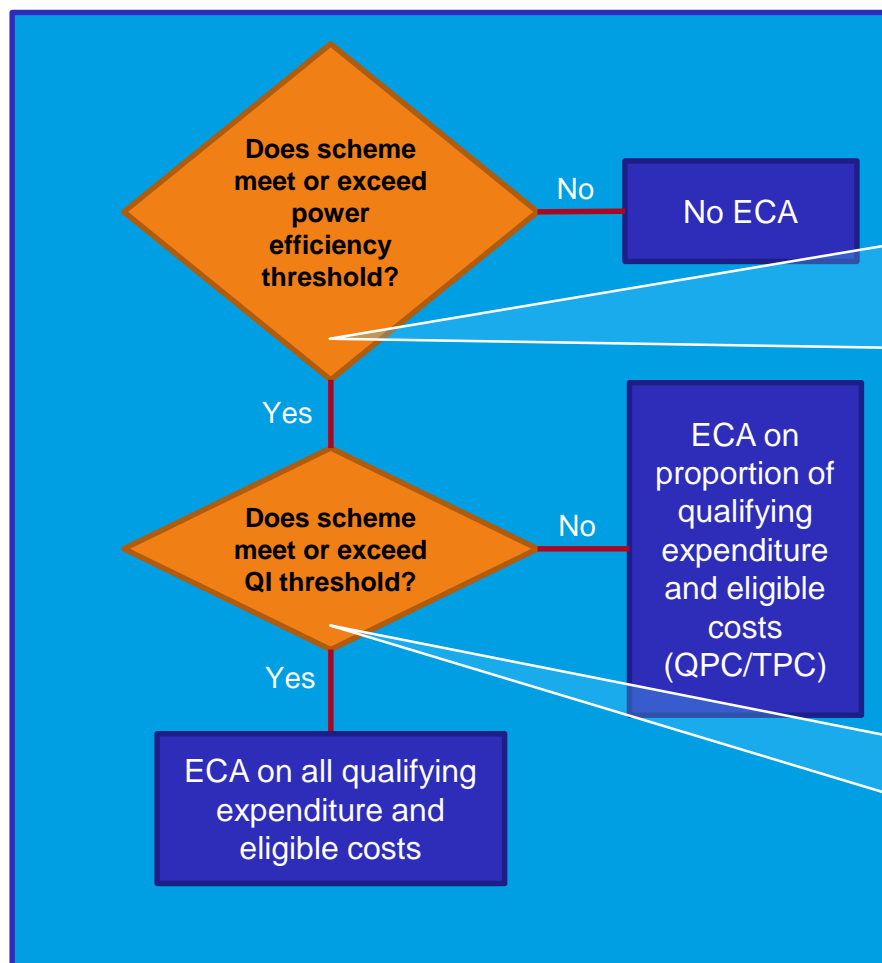
CHP Enhanced Capital Allowance (ECA) Eligibility

- 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



ECA: 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



CHP Enhanced Capital Allowance (ECA) Eligibility

Number of schemes received EE Certificate

These schemes
shouldn't claim
ECA if claiming
RHI.

Fuel Type	2015	2016	2017
Conventional	117	62	33
Renewable	19	13	5
Grand Total	136	75	38



Climate Change Levy (CCL)

- The main rates of CCL are charged on energy supplied to an end user
- Carbon Price Support (CPS) rates are paid by consumers. When a deemed taxable self-supply of fossil fuels is made for use in electricity generation.



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 Support (CPS) to stabilise price signals to investors in low carbon technologies
- Consequently, Carbon Price Support (CPS) rates of CCL were introduced from 1 April 2013 for fuel for electricity generation. (Does not apply where total generation capacity is $\leq 2\text{MW}_e$).
- GQCHP certified by CHPQA is exempt from CPS rates on the fuel that is referable to the Scheme's Qualifying Heat Output (QHO).
- Effective from 1 April 2015, the exemption was extended to fuel referable to Qualifying Power Output (QPO) used on-site or supplied under exemption from a supplier licence.



Main rates of CCL

Taxable commodity	Rate from 1 April 2016	Rate from 1 April 2017	Rate from 1 April 2018	Rate from 1 April 2019
Electricity (£/KWh)	0.00559	0.00568	0.00583	0.00847
Natural gas (£/KWh)	0.00195	0.00198	0.00203	0.00339
LPG (£/kg)	0.01251	0.01272	0.01304	0.02175
Any other taxable commodity (£/kg)	0.01526	0.01551	0.01591	0.02653



CPS Rates of CCL

Equivalent
to £0.0095
/KWh of
electricity

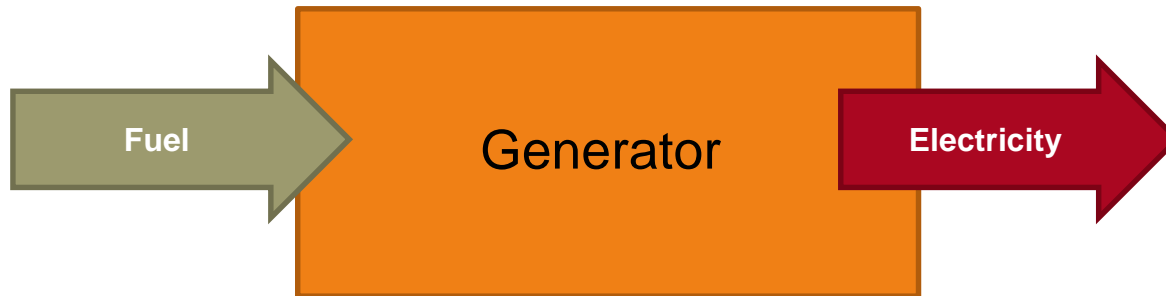
Capped
until 2020

Commodity	Units	1 April 2015-31 March 2016	1 April 2016-31 March 2019
Natural Gas	£/kWh	0.00334	0.00331
LPG	£/kg	0.05307	0.05280
Coal	£/GJ	1.56860	1.54790
Fuel Oil	£/litre	0.05730	0.05711
Gas Oil	£/litre	0.04990	0.04916

➤ The CPS rates do not apply in Northern Ireland



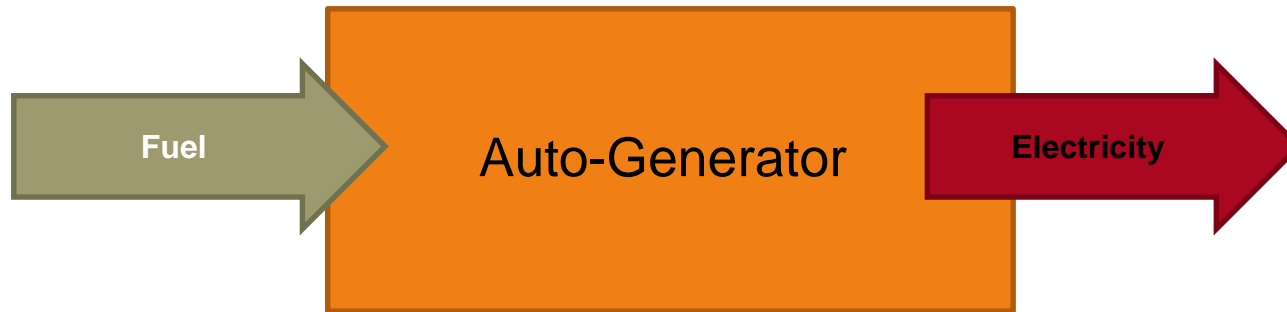
Power Stations



- Fuel input subject to CPS rates
- No CCL on Fuel input but all Electricity output is subject to CCL (CCL paid by consumers)
- **CPS paid by Generators on all conventional fuels used for generating electricity.**



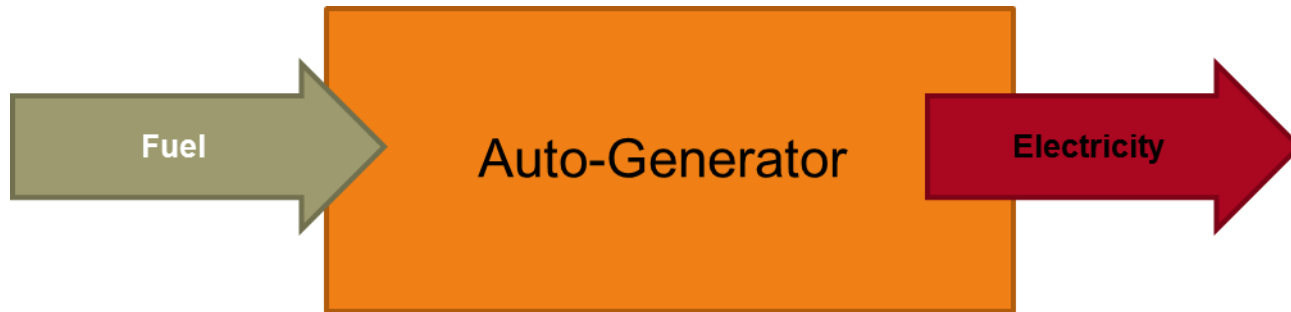
Auto-generators $< 2\text{MW}_e$



- Exempt from CPS
- fuel input subject to 100% CCL,
- electricity consumed on site exempt from CCL



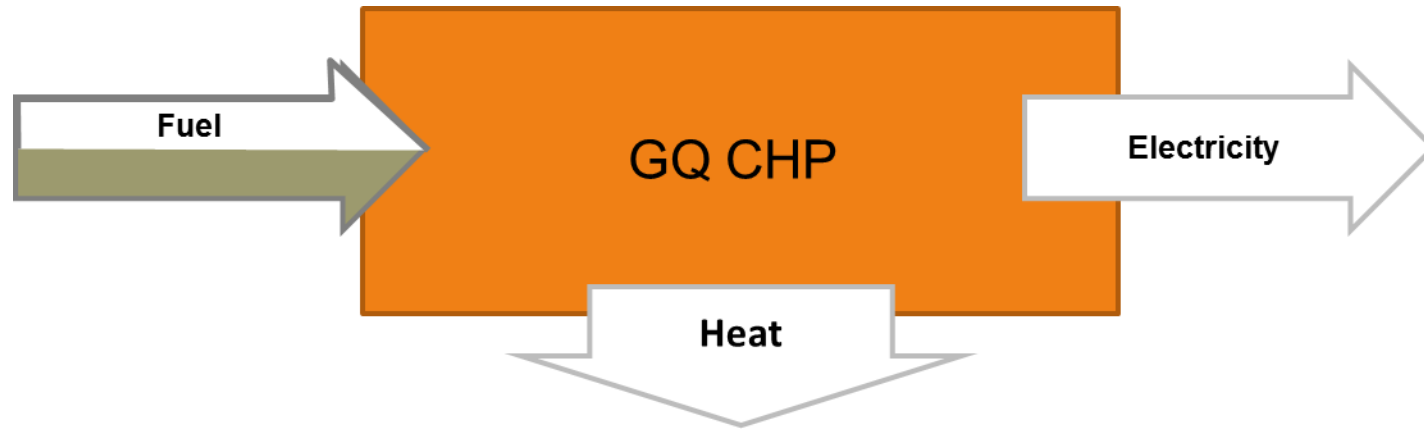
Auto-generators $\geq 2\text{MW}_e$



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



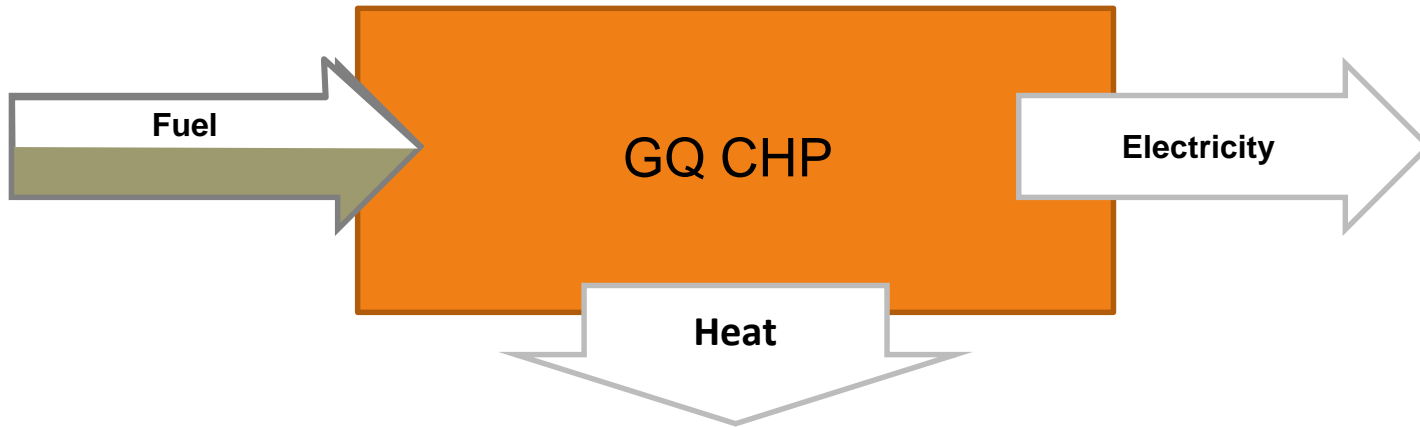
GQCHP – Fully Qualified with Capacity $\leq 2\text{MW}_e$



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



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

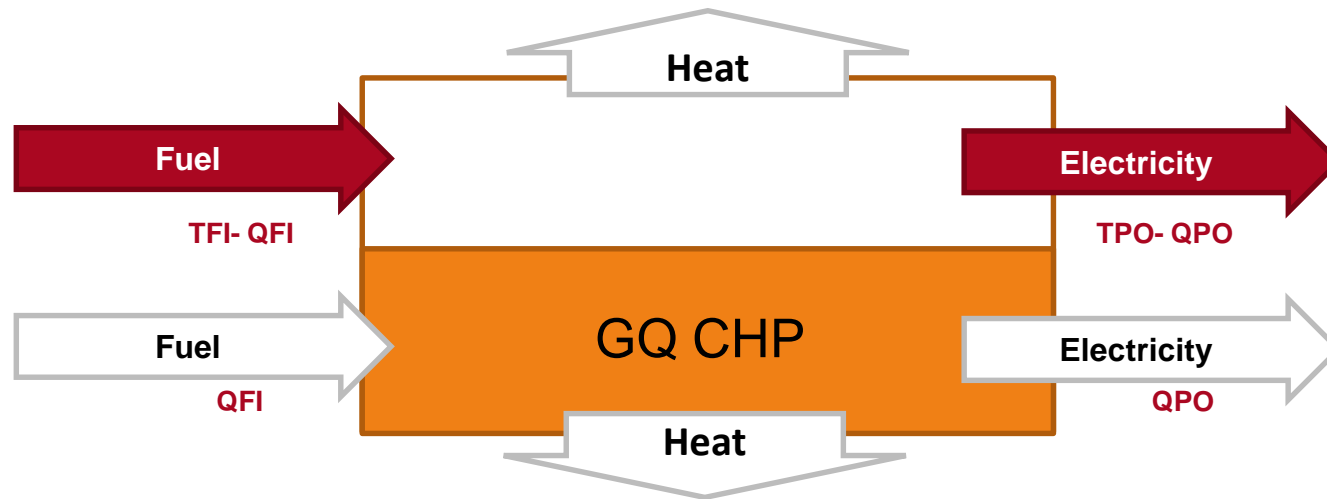


- Fuel input exempt from CCL
- Electricity output exempt from CCL (Direct supply).
- Fuel for heat (QHO) not liable to CPS rates
- Fuel input referable to electricity generation used on site not liable to CPS rates (from April 2015)

In this case No CCL or CPS Liability



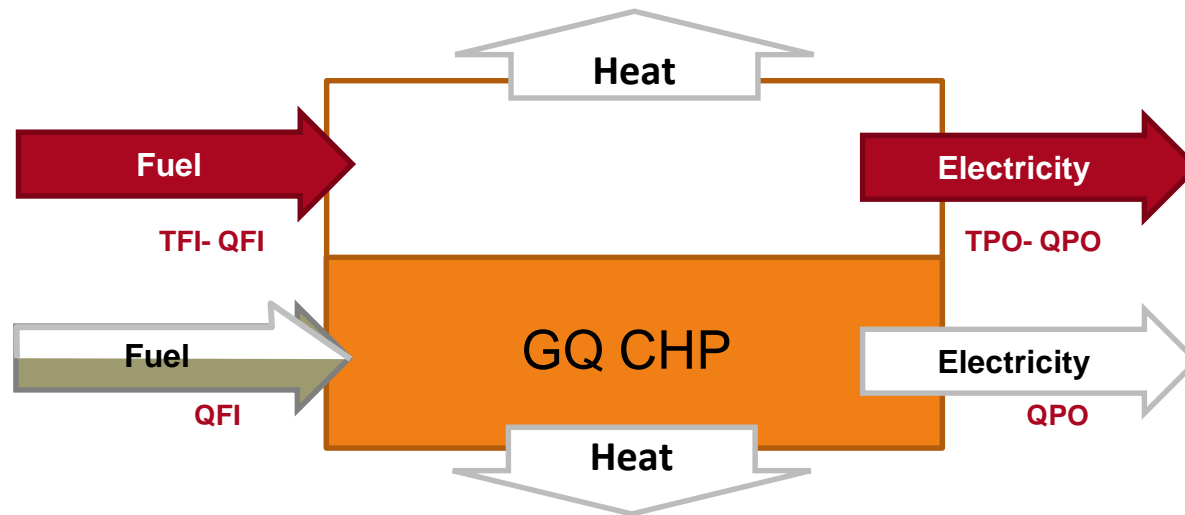
GQCHP – Partially Qualified with Capacity $\leq 2\text{MW}_e$



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



GQCHP – Partially Qualifying with Capacity $>2\text{MW}_e$



- 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



Quality Certification for an existing CHP Scheme

CHPQA

Scheme: CHPQA SITE Z
GEMINI BUILDING
HARWELL
OXFORD
OX11 0QR

6. The Percentage of Fuel Input Referable to Electricity Generation is:	56.22 %
7. The Percentage of Conventional Fuel is:	1.31 %

CHPQA Scheme Reference No: 8760 Z

This is to Certify that the Self-Assessment of the above CHP Scheme undertaken by TEST USER of Scheme performance during the calendar year: 2016 has been Validated under the Combined Heat and Power Quality Assurance programme and that:

1. The Total Power Capacity of this Scheme is:	50,000 MWe
and the Qualifying Power Capacity is:	50,000 MWe
2. The threshold Power Efficiency criterion for this Scheme is:	20 %
and the Power Efficiency of this Scheme is:	25.85 %
3. The Qualifying Heat Output from this Scheme is:	135,461 MWh
and the Heat Efficiency of this Scheme is:	35.46 %
4. The threshold Quality Index criterion for under Annual Operation is:	100
and the Quality Index of this Scheme is:	97.75
5. The Total Fuel Input to this Scheme is:	382,033 MWh
and the Qualifying Fuel Input is:	382,033 MWh
6. The Percentage of Fuel Input Referable to Electricity Generation is:	56.22 %
7. The Percentage of Conventional Fuel is:	1.31 %
8. The Total Power Output from this Scheme is:	98,764 MWh
and the Qualifying Power Output is:	89,049 MWh
9. The fuel supply reference(s) (e.g. TRANSCO/MFR gas meter reference nos. and/or other unique ID descriptors) for this Scheme are:	

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

This certificate is a statement of Scheme performance over the period 01/01/2016 to 31/12/2016 and is valid until 31/12/2017.

Approved by the CHPQA Administrator on behalf of BEIS. Date: 14th November 2017

The CHPQA programme is carried out on behalf of the Department for Business, Energy & Industrial Strategy, the Scottish and Welsh Governments, and the Northern Ireland Department for the Economy.

For the purpose of the Climate Change Levy (General) (Assessment) 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 in item 8 above over the Total Power Output referred to in item 8 above.



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:

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

Where:

Q = Fuel for Electricity

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

MO = Mechanical Power

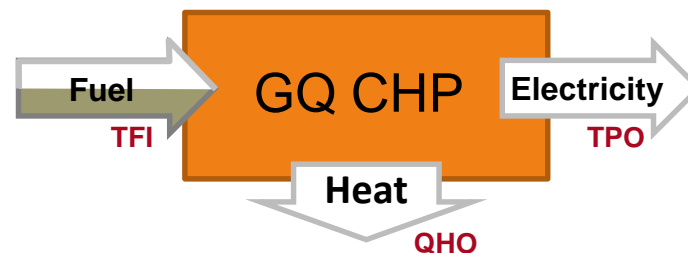
$\eta_{h,ref}$ = Reference boiler efficiency (81%)



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, based on CPS rate of £3.34/MWh of Gas



Example 2: Partial GQCHP >2MWe

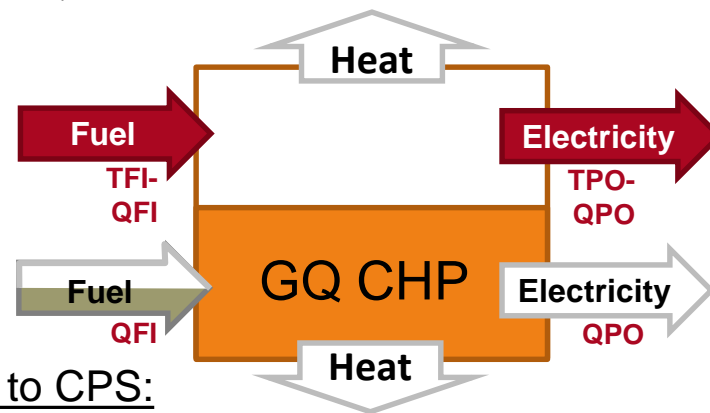
Fuel input referable to electricity production:

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

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 based on CPS rate of £3.34/MWh of gas



Total CPS exemption value

- Currently about 177 large CHP schemes benefit from CPS exemption
- Some with mixed fuel
- The majority are using conventional fuel
- CPS exemption on Fuel for heat is worth in the order £118 million per year.
- The value of CPS exemption on Fuel for QPO is the order of £90 million,
- Any exported electricity doesn't benefit from the exemption



Fiscal Measures for Renewable CHP



Contracts for Difference (CfD)

- The CfD regulations came into force in GB on 1st August 2014*
- Replaces the RO for all new capacity from 1st April 2017.
- The first allocation round was in October 2014
- Second allocation round was in April 2017.
- CHP Schemes 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 (RHI)

- Non-domestic RHI launched in November 2011
- Provides support for variety of renewable heat technologies, including
 - Solid biomass boilers and CHP
 - 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 2.96 p/kWh for Tier 1 and 2.08 p/kWh for Tier 2
- A specific tariff for solid biomass fuelled GQCHP of 4.29 p/kWh (only for heat via engine/turbine).
- **Recent scaling back introduced for schemes with electrical efficiency < 10%.**
- Further details later.....



Renewables Obligation (RO)

- Renewables Obligation closed to new generating capacity on the 1st April 2017
- 18 month grace period for certain schemes
- 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
- All existing Schemes need to have GN44 certificate to continue to claim ROCs. Refer to CHPQA Guidance Note 44 (Issue 6 for new Schemes from 1st January 2016)

Only for schemes certified by CHPQA



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 2018

Thank You