



Energy Efficiency Directive (EED) & impact on CHPQA

**Mahmoud Abu-Ebid
CHPQA Programme Director**



Energy Efficiency Directive “2012/27/EU”

High-efficiency Cogeneration shall fulfil the following (see Annex II):-

- Units with generating capacity ≥ 1 MWe to deliver **PES of at least 10%** compared with the reference values for separate production of heat and electricity
- Units with generating capacity < 1 MWe to **deliver PES $> 0\%$** compared with the reference values for separate production of heat and electricity
- When compared with the **harmonised efficiency reference values** for separate generation of electricity and heat
- These reference values are developed by the Commission, to represent the **best available cost effective technologies**.



Efficiency Reference Values

- These reference values (for separate generation of heat and electricity) are reviewed every 4 years.
- First in 2007, second in 2011 and
- The latest review carried out in 2015
- We anticipate these revised Reference Values to be published by the Commission in December 2015/January 2016.



Impact on CHPQA

- The PES values are incorporated within the CHPQA's QI formulas
- CHPQA Standard was reviewed in 2007 to incorporate changes to the Reference Values.
- In 2011 there were no changes to the Reference Values
- 2015 review resulted in a number of changes to these reference values. These will come into force from January 2016.
- The CHPQA Standard and GN44 will have to be revised to incorporate these changes. Will only apply to new Schemes.



Key findings of review provided

➤ Changes to Fuel List

- Total of 18 categories: 6 solid, 3 liquid, 4 gas and 5 other,
- New fuel categories were added (e.g. nuclear, solar thermal, geothermal),
- Waste heat (including high temperature process exhaust gases and heat from exothermic chemical reactions) was presented as a standalone category,
- The 'Wood fuels' and 'Agricultural biomass' categories were renamed as 'Dry biomass' and 'Other solid biomass',



Key findings of review provided

➤ Changes to some electrical reference efficiency

- Most categories were **kept at the same reference** electrical efficiency,
- Natural gas went up from **52.5% to 53%**,
- ‘Dry biomass’ (previously wood fuels) went up from **33% to 37%**,
- ‘Other solid biomass (previously agricultural biomass) went up from **25% to 30%**,
- Waste liquid (covering biodegradable and non-renewable waste) went up from **25% to 29%**,
- Nuclear set at 33% and geothermal at 19.5%,
- Waste heat and solar thermal set at 30%



Reference Values for Electricity

Category		Type of fuel	Year of construction		
			Before 2012	2012-2015	From 2016
Solids	S1	Hard coal including anthracite, bituminous coal, sub-bituminous coal, coke, semi-coke, pet coke	44.2	44.2	44.2
	S2	Lignite, lignite briquettes, shale oil	41.8	41.8	41.8
	S3	Peat, peat briquettes	39.0	39.0	39.0
	S4	Dry biomass including wood and other solid biomass including wood pellets and briquettes, dried woodchip, clean and dry waste wood, nut shells and olive and other stones	33.0	33.0	37.0
	S5	Other Solid Biomass including all wood not included under S4 as well as black and brown liquor	25.0	25.0	30.0
	S6	Municipal and industrial waste (non-renewable) and renewable/bio-degradable waste	25.0	25.0	25.0
Liquids	L7	Heavy fuel oil, gas/diesel oil, other oil products	44.2	44.2	44.2
	L8	Bio-liquids including bio-methanol, bioethanol, bio-butanol, biodiesel, other bio-liquids	44.2	44.2	44.2
	L9	Waste liquids including biodegradable and non-renewable waste (including tallow, fat and spent grain)	25.0	25.0	29.0
Gaseous	G10	Natural gas, LPG and LNG and biomethane	52.5	52.5	53.0
	G11	Refinery gases hydrogen and synthesis gas	44.2	44.2	44.2
	G12	Biogas produced from anaerobic digestion, landfill, and sewage treatment	42.0	42.0	42.0
	G13	Coke oven gas, blast furnace gas, mining gas, and other recovered gases (excluding refinery gas)	35.0	35.0	35.0
Other	O14	Waste heat (including high temperature process exhaust gases and product from exothermic chemical reactions)	-	-	30.0
	O15	Nuclear	-	-	33.0
	O16	Solar thermal	-	-	30.0
	O17	Geothermal	-	-	19.5
	O18	Other fuel not mentioned above	-	-	30.0



Next steps for CHPQA

- Reference values to be published by the Commission mid-December 2015
- These will come into force as of 1 January, 2016
- Over the next 3 months we will be reviewing the X and Y values for some of the CHPQA fuels to reflect changes to the reference values.