Combined Heat & Power Association

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Combined Heat & Power
Sustainable Energy Services
District Heating & Cooling

The IED/ELVs as seen through the Eyes of a User of Combustion Plant

DISCLAIMER
"The figures in the tables should not be relied upon for investment or other decisions",

Dr Tim Rotheray

Summary

- Introduction
- Key areas of the IED for CHP operators
- Chapter 3 – Combustion
- Emission Limit Values
- Transitional National Plan
- Limited Life Derogation
- District Heating Plants
- Conclusions

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Introduction

- IED result of a 2005-7 review by the EU Commission of pollution legislation
  - Integrates 7 pollution control Directives
  - Increases compliance monitoring and enforcement
  - Addresses concerns that Large Combustion Plant were not employing BAT
- Does NOT cover CO2 (see EUETS)
- CHPA support principles of
  - Harmonising regulations
  - Ensuring BAT deployment

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Key areas of IED for CHP operators
Chapter 3 - Combustion

- Applicable to most industrial CHP plant
  - Input of greater than 50MW thermal
  - Does not include combustion for direct heating
    - E.g. Kiln drying

- Aggregation Rules
  - Use of a Common Stack

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Use of a common stack

- Article 29 – all plants
  - Over 15MWth
  - Using a common stack
  - OR if commissioned after 1-July 1987 could discharge thorough a common stack in the view of the competent authority (the EA)
  - Will be aggregated and considered a single plant
- Comment
  - Interpretation of ability to use a common stack will be key

Emission Limit Values (ELVs)

- The central issue for large combustion plant
- Article 30 –
  - Vital derogations on compliance for
    - – SO_x - 6 months if no low sulphur fuel available
    - – All Emissions - 10 days if gas supply interrupted for security of supply reasons
- Summary Charts follow:

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Fuel & Technology Type	Input	NO_x	SO_2	CO	Dust
	MW_{th}	mg/Nm^3	mg/Nm^3	mg/Nm^3	mg/Nm^3
Pulverised Lignite	50 – 100	450	400		30
Coal and Lignite and other Solid fuels	50 – 100	300	400		30
Coal and Lignite and other Solid fuels	100 – 300	200	250		25
Coal and Lignite and other Solid fuels	>300	200	200		20
Biomass	50 – 100	300	200		30
Biomass	100 – 300	250	200		20
Biomass	>300	200	200		20
Peat	50 – 100	300	300		30
Peat	100 – 300	250	300		20
Peat	>300	200	200		20
Liquid fuels (General)	50 – 100	450	350		30
Liquid fuels (General)	100 – 300	200	250		25
Liquid fuels (General)	>300	150	200		20
Liquid (Distillate) (G.T.)	50 – 100	90	350	100	
Liquid (Distillate) (G.T.)	100 – 300	90	250	100	
Liquid (Distillate) (G.T.)	>300	90	200	100	
Nat. Gas (General)	50 – 100	100	35	100	5
Nat. Gas (General)	100 – 300	100	35	100	5
Nat. Gas (General)	>300	100	35	100	5
Nat. Gas (G.T. not for mech. drive) note (2)	N/A	50	N/A	100	
Nat. Gas (G.T. & Eff. > 35%) note (2)	N/A	Note (1)	N/A	100	
Nat. Gas (G.T. for mech. drive) note (2)	N/A	75	N/A	100	
Nat. Gas (C.C.G.T. & Eff. > 55%) note (2)	N/A	75	N/A	100	
Nat. Gas (G.T. & CHP & Eff. > 75%) note (2)	N/A	75	N/A	100	
Nat. Gas (Gas Engines)	N/A	100	N/A	100	

Our interpretation

Annex V: part 1

plants granted a permit before 07/01/13
or
applied for a permit before 07/01/13
and operating before 07/01/14.

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Fuel & Technology Type	Input	NO_x	SO_2	CO	Dust
	MW_{th}	mg/Nm^3	mg/Nm^3	mg/Nm^3	mg/Nm^3
Pulverised Lignite	50 – 100	400	400		20
Coal and Lignite and other Solid fuels	50 – 100	300	400		20
Coal and Lignite and other Solid fuels	100 – 300	200	200		20
Coal and Lignite and other Solid fuels	>300	150	150		10
Pulverised Lignite	>300	200	150		10
Coal and Lignite and other Solid fuels using fluidized bed combustion	>300		200		10
Biomass	50 – 100	250	200		20
Biomass	100 – 300	200	200		20
Biomass	>300	150	150		20
Peat	50 – 100	250	300		20
Peat	100 – 300	200	300		20
Peat using fluidized bed combustion	100 – 300	200	250		20
Peat	>300	150	150		20
Peat using fluidized bed combustion	>300	150	200		20
Liquid fuels (General)	50 – 100	300	350		20
Liquid fuels (General)	100 – 300	150	200		20
Liquid fuels (General)	>300	100	150		10
Liquid (Distillate) (G.T.)	50 – 100	50	350	100	
Liquid (Distillate) (G.T.)	100 – 300	50	200	100	
Liquid (Distillate) (G.T.)	>300	50	150	100	
Nat. Gas (General)	50 – 100	100	35	100	5
Nat. Gas (General)	100 – 300	100	35	100	5
Nat. Gas (General)	>300	100	35	100	5
Nat. Gas (G.T.) note (2)	N/A	50	N/A	100	
Nat. Gas (G.T. & Eff. > 35%) note (2)	N/A	Note (1)	N/A	100	
Nat. Gas (Gas Engines)	N/A	75	N/A	100	

Our interpretation

See Annex V: part 2

plants exempt under Art 4(4) of 2001/80/EC
and operating after 01/01/16.

Plants not included in part 1
(see previous table)

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Transitional National Plan (TNP)

- Allows for a limited NOx trading platform if Member State puts a system in place
- Applicable to plants that had been granted a permit (to generate?) before 27th November 2002 or had applied for a permit and was operational before 27 Nov 2003
- GT only covers NOx emissions
- Volumes of NOx available for trading and “price discovery” could be problematic

Limited Life Derogation

- Plant can apply via Member State Competent Authority (EA in UK)
- Max 17,500 hours operation between 1st January 2016 and 31 December 2023
- Must cease operation after 31-12-2023
- Limited applicability for industrial plant other than back-up
- May have significant impact on UK Gov designs for a capacity mechanism under the Electricity Market Reform (EMR)

District heating plants

- Where operational before 11-2003
  - With a permit before 11-2002
- With 50% useful heat to a public network
- below 200MW_{th}
- MAY be exempted from ELV and desulphurisation rates until 31st December 2022

- Exemption appropriate as DH competes directly with individual solutions
  - Costly retrofitting can increase costs of supply

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Conclusions

- Operators must plan NOW for 1st Jan 2016
  - Typical lead time for new plant means project investigations and / or request for derogation must be launched very soon
- Should drive lower emissions
- Harmonisation of existing policy is welcome
- May add significant costs to some operators
  - wider energy policies are also increasing costs
- Wider UK Gov policy should be considered within the context of ALL regulations in place

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Thank you

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