



IFIEC EUROPE



JOINT STATEMENT ON THE CHP DIRECTIVE References for Coal and Oil

This is the second joint paper on references for Combined Heat and Power plants by the European Chemical Industries Association (CEFIC), the International Federation of Industrial Energy Consumers (IFIEC) and the European Association for the Promotion of Cogeneration (COGEN Europe)¹ in response to the processes ongoing in the implementation of the European CHP Directive².

The first paper, released on 5 August 2005, dealt with the principles for setting the references for CHP and focussed on references for natural gas and co-produced fuels in industrial processes. This paper deals with references for coal and oil fired CHP plants.

Recommendations

Electricity

For the separate generation of electricity from coal and oil the steam condensing turbine is the best available and economically justifiable technology.

References for coal and oil should also be set using publicly available statistical data. The population of coal-fired power stations is large and spreads across a wide age range. The population of oil-fired power stations is smaller, but equally spread over ages. Thus the data should be filtered to include only power plants that are less than 10 years of age.

This data is not available to the industrial associations in this filtered form. Using the same data source as our earlier paper on natural gas, the Digest of United Kingdom Energy Statistics (DUKES), the efficiency of coal fired power stations are:

| 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 36.5% | 35.5% | 35.8% | 36.2% | 35.8% | 36.3% | 36.5% | 36.2% |

Assuming that older plants are less efficient than modern plants and taking into account variations in plant design, condenser cooling methods, sizing and other factors we believe that a realistic efficiency would be between 42 and 45%. The in-house loads for UK coal fired stations are 4.6% of the gross electricity consumption. However, not all coal-fired power plants are fitted with flue gas treatment for NO_x and SO_x, and so 4.6% too low for in-house loads. A more realistic value would be 6%. This would give a net efficiency of between 39.5% and 42.3%.

The efficiency of oil-fired power stations is the same as for coal-fired power stations.

Heat

As the efficiency of coal-fired and oil-fired boilers is lower than for natural gas-fired boilers, we recommend 84% for oil-fired steam boilers and 83% for coal-fired steam boilers. Current environmental constraints limit the improvement of industrial boiler efficiency, as the boilers

¹ The industrial associations of CEFIC and IFIEC jointly represent the industries that provide over 60% of the current European industrial CHP capacity. Industrial CHP also comprises between 55 and 60% of the total CHP capacity and has substantial growth potential. COGEN Europe is the European umbrella organisation for the CHP sector, representing all sectors, technologies and applications.

² Directive 2004/8/EC of the European Parliament and of the Council of 11 February 2004 on the promotion of cogeneration based on a useful heat demand in the internal energy market and amending Directive 92/42/EEC

have to maintain a minimum flue gas temperature at the outlet of the chimney. Several countries require a minimum flue gas temperature, e.g. 130°C in Austria. In addition the direct use of heat, not through a boiler, in furnaces and dryers reduce the thermal efficiency and the references should be reduced by 3 % points and be respectively 81 % and 80 % for oil and coal.

CEFIC, COGEN Europe and IFIEC are happy to discuss any of these recommendations (and further details in the attached Annex) with the members of the Technical Committee for the CHP Directive, the European Commission, the consultants to the Commission for the CHP Directive and other stakeholders.