cesenergy
Engineering Better Energy Solutions

CERTIFICATION PROCESS FOR HIGH EFFICIENCY CHP CONSULTATION PAPER

RESPONSE SUBMISSION

12.12.11

Included below is the CES Energy response to the 'Certification Process for High Efficiency CHP Consultation Paper' published by Commission for Energy Regulation on 14th November, 2012.

The relevant clause from the consultation paper is first listed with the CES Energy response included directly below the relevant clause in each instance.

CLAUSE 3.4 [REQUIRED INFORMATION FOR ASSESSING USEFUL HEAT]

> **3.4 Required Information for Assessing Useful Heat**
>
> The CER is required under legislation to assess that the heat demand is 'economically justifiable' and acknowledges that this has the potential to be a difficult and detailed task. On the face of it, the requirements in this regard mean that the CER must vet detailed business plans and associated documentation for each applicant in relation the alternative (to CHP) means of meeting the heat demand in order to be satisfied that it would proceed to construction at market conditions. The

CES Energy Response:

The economic justification for a proposed CHP should be based on detailed energy demand profile analyses for both heat and electricity. Energy demand profiles are not only required to establish economic viability but also to accurately size the CHP system.

The economic viability of CHP is then not only heavily dependent on the on-going demand for heat and electricity but also heavily influenced by external factors such as the price of electricity and natural gas.

In our opinion the economic justification for CHP schemes should be initially based on:

a. The preparation of a detailed energy demand profiling analysis for each case in a consistent format
b. The preparation of a payback analysis or discounted cash flow and life cycle costing analyses to achieve a set target and factoring in annual system maintenance costs.

Demand profiling combined with the outcome of economic analyses will create a basis for an economic evaluation of each CHP proposal. Each evaluation should then be based on current market conditions concerning fuel prices etc.

CLAUSE 3.4, CRITERIA (b) [BUSINESS INFORMATION REGARDING THE ALTERNATIVE TO CHP]

CLAUSE 4.3 [OVERALL EFFICIENCY CALCULATION]

> **4.3 Overall Efficiency**
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> Overall efficiency is calculated as the ratio of energy outputs (electricity, mechanical energy and useful heat) to fuel input, both measured over the same defined reporting period.
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> $$Overall\ Efficiency = \frac{Electricity + Mechanical\ Energy + Useful\ Heat}{Fuel\ Input}$$

CES Energy Response:

The calorific value basis for calculating efficiency values should be stated clearly under this clause. The gross calorific value (GCV) of the fuel provides a consistent calculation basis.

If the calculation is to be based on net calorific values (as appears to be the case based on Appendix D, Glossary of terms), consideration should be given to publishing GCV to NCV conversion factors to be applied for consistency for the differing fuel types.

It is worth noting that the CHPQA scheme in the UK is based on the use of gross calorific values.

Irrespective of whether the GCV or NCV is to be used in the calculation process and in the case of natural gas, the calorific value of the fuel supplied varies. This needs to also be considered in the calculation process.

CLAUSE 6.2 [INITIAL APPLICATION PERIOD]

> **6.2 Initial and Annual Application Process**
>
> For initial certification, full details of the design of the CHP plant, detail of useful heat loads and measurement provisions will be evaluated in addition to operational data for the reporting period. In the case where a CHP plant applies for initial certification prior to operation, details on the useful heat loads, the heat load profile and the predicted operating parameters should be provided in place of operational data records.

Consideration should be given to a post-installation 'commissioning period' for a limited period of time during which the certification conformance criteria might be less stringent.

GENERAL COMMENT

The certification process, as it is currently designed, appears to generally apply to applicants who are end users of the energy produced by the CHP system. Consideration should be given to broadening the approach to accommodate alternative energy contracting strategies such as ESCO agreements etc. In such an arrangement for example the certification process should permit an ESCO to apply for system certification.