



Commission for Energy Regulation

An Coimisiún um Rialáil Fuinnimh

Assessment of Useful Heat for High Efficiency CHP
Clarification Note

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*The Commission for Energy Regulation,
The Exchange,
Belgard Square North,
Tallaght,
Dublin 24.*

www.cer.ie

1. Background

In March 2012 the Commission for Energy Regulation published its decision paper¹ (CER/12/125) setting out the standardised process for applications from generators to be assessed by the Commission for Energy Regulation (CER) for certification as High Efficiency Combined Heat and Power (HE CHP).

Since March CER has considered several applications for HE CHP certification entailing demand for space heating or water heating for domestic, public and commercial buildings. This clarification note sets out what is needed to satisfy CER that the given heat loads in such cases are *useful heat* for the purpose of the cogeneration Directive 2004/8/EC.

This clarification note should be read in conjunction with CER/12/125, specifically Section 3, which addresses the question of useful heat in the certification process for High Efficiency CHP.

2. Useful Heat

The purpose of Directive 2004/8/EC on the promotion of cogeneration based on a useful heat demand ('the Directive') is to increase energy efficiency and improve security of supply by promoting and developing high efficiency cogeneration of heat and power.

The Directive provides for certification of HECHP when certain conditions are met. These requirements, and the relevant definitions of useful heat and economically justifiable demand, are reflected in CER/12/125. Hence it is determined that in order for the CER to certify that a given heat load is *useful heat* within the definition of the cogeneration Directive 2004/8/EC and relevant Irish legislation², the CER must be satisfied that the heating/cooling demand does not exceed that which would otherwise be satisfied at market conditions by energy generation processes other than cogeneration.

Specifically, the Directive defines *useful heat* as "heat produced in a cogeneration process to satisfy an economically justifiable demand for heat of cooling".

The Directive defines *economically justifiable* demand as "the demand that does not exceed the needs for heat or cooling and which would otherwise be satisfied at market conditions by energy generation processes other than cogeneration".

¹ [CER/12/125](#) Certification Process for High Efficiency CHP, Decision Paper, March 2nd 2012

² Please refer to CER/12/125

Where there is a clear need for space and/or water heating for either residential, public or commercial buildings, which would normally be met in the absence of CHP at prevailing climatic and market conditions,, the CER considers that there is a *prima facie* case for treating such heat as useful heat. Here, the intent of the Directive is deemed to be satisfied in that there is a genuine need for heat.

The application of CER/12/125, should not serve to frustrate outcomes that are in line with the purpose and aims of that Directive. A strict application of the criteria set out in relation to useful heat in section 3 of CER/12/125, notably those set out in relation to the techno-economic feasibility study for the business that will use the heat, could serve to do so in the case of space/water heating normally provided for human comfort and health reasons.

The CER's advisors on this issue support the above position and the CER understand that this is the approach taken to this issue in a number of other Member States.

To ensure that the purpose and intent of the Directive is met, information requirements in relation to space/water heating as above are set out in section 3 below. As is the case with all applications, given the specific nature of projects and the complex nature of this issue, applications which include provision of space/water heating for human comfort/health reasons will be assessed on a case by case basis.

For the avoidance of doubt, section 3 of CER/12/0125 applies in full for all other heat loads.

3. Information Required from the Application

CER/12/125 distinguishes between cases where:

- Existing heat demand is served by non-CHP ("other than CHP")
- Existing heat demand is served by CHP
- Future heat demand

For all of the above cases, where the heat load is space heating or water heating used in domestic, public and commercial buildings as above the following information is required:

- the nature and use of the premises (e.g. hotel, office, retail, school, apartments, etc.) and occupancy rates,
- the year of construction,
- the floor area,

- a statement regarding compliance with relevant Building Regulations and setting out the Building Energy Rating(s) (BER) of the buildings. For buildings not yet constructed, a statement that relevant Building Regulations will be complied with and a statement regarding the minimum BER(s) that will be attained.³ For public buildings, in addition to a statement regarding compliance with relevant Building Regulations, provision of statement included in most recent annual report describing actions it is taking or has taken to improve its energy efficiency and assessment of energy savings arising from those actions.⁴ For public buildings that hold a BER Certificate or Display Energy Certification, these should be provided or, alternatively, relevant information regarding energy audits carried out in accordance with governing legislation.⁵
- reference to benchmark data on typical heat loads (e.g. CIBSE Guide F), and
- where the useful heat is used in conjunction with an absorption chiller to provide a cooling load, the above information should be provided for the cooling load together with details of the absorption chiller (rated capacity, output, range of operating temperatures).

For district heating the following information is required:

- nature of end uses and occupancy rates;
- method of metering and billing of end users. Details of heat metering system and data collection system used;
- demonstration that the cost of heat supplied is comparable to the cost of heat provided by alternative fuels or processes at market conditions;
- state whether the CHP plant operator has or shares a commercial interest with any of the heat customers or procures goods or services from any of the heat customers, and;
- for existing systems records of total heat delivered to the district heating scheme and billing to end users.

The applicant is required to provide evidence that the claimed heat is compatible with the nature, use and size of the premises and is appropriate for the prevailing climatic conditions.

³ Building Regulations can be found on www.environ.ie. Information regarding Building Energy Ratings can be found in S.I. No. 666 of 2006 and at http://www.seai.ie/Your_Building/BER/.

⁴ Please see Regulation 12.(2) of S.I. No. 542 of 2009.

⁵ Please see Regulation 13.(1) of S.I. No. 542 of 2009.

In addition the CER requires that the applicant demonstrates to CER that the heat provided by the CHP can be supplied at a sufficient discount to market prices for heat to ensure that the CHP developer is likely to capture the claimed portion of the available or prospective domestic or commercial heat market. Therefore, it needs to be demonstrated that the cost of heat supplied/to be supplied by the CHP plant is less than the cost of heat provided by alternative fuels or processes at market conditions.

In the case of *appropriate* space heating or water heating used in domestic, public and commercial buildings applicants are not required to submit the economic information regarding the techno-feasibility study in relation to the business that will use the heat as set out in Section 3 of CER/12/125.⁶

The CER understands that heat from HECHP plants may be available to end users at a reduced cost/price relative to heat from non HECHP sources. Here, there is a potential for end users to be incentivised to use more heat than they need in such cases. An incentive could also arise to heat buildings that are only occupied/ visited periodically on a continuous basis. Please note that the CER considers that only heat that is needed for space/water heating for human health/comfort reasons under normal climatic conditions and appropriate for the space and use/occupancy of the building(s) in question is *bona fide* useful heat. The CER is of the view that heat that is not needed as above is not useful given the objectives of the Directive. The CER will monitor the heat from certified HECHP projects used for space/water heating in that context to ensure that the core underlying objective of energy efficiency is at all times upheld.

⁶ Please see paragraphs one to three of page 18 of CER/12/125