Transposition of EED Articles 14(5)-(8)

MPA Response to the Consultation on the Transposition in England and Wales of Articles 14(5)-(8) of the Energy Efficiency Directive (EED) (2012/27/EU)

SUPPLEMENTARY NOTE submitted 2nd April 2014

In addition to the response (copied below) submitted on 21st March 2014, MPA would like to add the following information to the response to question 6(II).

The Impact Assessment that accompanied the consultation paper quotes that CBA's would cost operators in the region of £10-25k. This is a significant cost if it is then found that cogeneration or connection to a district heating or cooling network is not feasible. MPA suggest that rather than making operators undertake a full CBA, this should be conducted in stages. Firstly a cheaper preliminary assessment should be conducted to determine if cogeneration or connection to a district heating or cooling network is physically feasible. If the preliminary assessment determines that it is feasible, only then should the more costly and detailed CBA be undertaken.

MPA Response submitted 21st March 2014

The Mineral Products Association (MPA) is the trade association for the aggregates, asphalt, cement, concrete, dimension stone, lime, mortar and silica sand industries. With the recent addition of The British Precast Concrete Federation (BPCF) and the British Association of Reinforcement (BAR), it has a growing membership of 480 companies and is the sectoral voice for mineral products. MPA membership is made up of the vast majority of independent SME companies throughout the UK, as well as the 9 major international and global companies. It covers 100% of GB cement production, 90% of aggregates production, 95% of asphalt and ready-mixed concrete production and 70% of precast concrete production. Each year the industry supplies £9 billion of materials and services to the £120 billion construction and other sectors. Industry production represents the largest materials flow in the UK economy and is also one of the largest manufacturing sectors[1].

MPA recognises that the requirements of the EED must be transposed into UK law. In doing so HM Government should not 'gold plate' any of the requirements in the Directive or implement its conditions at a faster rate than is necessary. The UK's history in EU Directive transposition has often seen UK operators placed at a disadvantage, albeit sometimes temporarily as other Member States catch up with implementation, compared to other nations. The levels of investment necessary to deliver Articles 14(5)-(8) of the EED could be substantial and may serve to deter investment in UK manufacturing if overzealous EED implementation is promoted in the UK with this in mind MPA wishes to make the specific following comments.

1. **Do you have comments on the use of the Environmental Permitting Regulations to transpose Articles 14(5)-(8)? (See paragraph 2.5.)**

[1] For more information visit: www.mineralproducts.org

MPA agree with the proposal to use existing EPR legislation to transpose Articles 14(5)-(8) of EED rather than creating a new permitting scheme. Incorporating the requirements into an established process has the potential to minimise the burden on operators compared to setting up an entirely new system. However, it is important that the requirements of Articles 14(5)-(8) only apply to new or substantially refurbished installations and does not start to apply when installations have to undertake a statutory periodic permit review.

Some issues arise when considering EPR for the EED transposition. Currently sites with a total aggregated thermal input of 20MW or less do not require EPR permits. However, new or substantially refurbished sites will be required to meet the requirements of Article 14(5)-(8). This implies that all sites which currently meet the aggregate 20MW Rated Thermal Input (RTI) threshold which do not have EPR permits will have to apply for permits immediately following transposition. It also implies that if the permit application is done after 5th June 2014 that this would automatically trigger a CBA even though the site is not new or refurbished. Urgent clarification is required on this point. MPA believes that this circumstance should not trigger a CBA. Furthermore, MPA believes that a pragmatic transposition would require that >20MW plants that meet the combustion threshold by virtue of their aggregate combustion should only be captured by the new requirements when they are new or substantially refurbished. Additionally, combustion plants that only exceed the 20MW threshold by virtue of their aggregate combustion, should not receive EPR permits with any conditions that are not required by this EED transposition because additional permit requirement would represent ‘gold plating’. Further details on the charging scheme for these new Part B permits would also need to be consulted upon.

2. **Do you agree that —rated thermal input can be regarded as synonymous with —total thermal input except in relation to the meaning of the 20 MW threshold above which EED Article 14(5) applies? (See paragraph 2.7.)**
   Net RTI is defined in EPR as “the rate at which fuel can be burned at the maximum continuous rating of the appliance multiplied by the gross calorific value of the fuel and expressed as megawatts thermal”. Often this is taken from the manufacturers rated input for the plant and in some cases may overstate the capacity utilisation by some considerable margin. Nevertheless, RTI is the most practical way of identifying operators, not least because that is the terminology used in the EPR legislation. However this capacity might be significantly underutilised. In these cases operators should be able to apply for a derogation from the EPR EED Article 14(5)-(8) requirements so as not to place unnecessary burdens on operators that are operating significantly below capacity.

3. **Do you foresee any practical difficulty in making the distinction between the 20 MW threshold applying on an aggregated basis for the purposes of EED Article 14(5) and on a unit basis for Part B purposes? (See paragraph 2.8.)**
   The difficulty in the distinction will come in making it clear to installations, that are not currently regulated in EPR but have a total thermal input of greater than 20MW, that there are requirements they will need to meet after 5th June 2014 if they are new or substantially refurbished. Clear guidance will be required for these sites and this raises a problem in itself as the Environment Agency are planning to reduce and minimise the guidance that they produce.

4. **We consider that any new district heating and cooling network is likely to include a combustion unit with an aggregate thermal input of at least 20 MW. Do you agree? (See paragraph 2.11.)**
   No comment

5. **Do you have any comments about the way in which the paragraphs proposed for addition to EPR Schedules 7A and 8 would achieve transposition of Articles 14(5)-(8)? (See paragraph 2.13.)**
   Schedule 7a, Part A Installations: industrial Emissions Directive comments:
   - 10(4) and 10(5): "useful temperature" requires a definition or corresponding guidance with clear criteria to be considered in determining what constitutes a 'useful temperature'. The criteria will also need to be future proofed as technology develops.
   - 10(6) and 10(7): A definition is required for "nearby" or at least guidance on the criteria to be considered in determining this.
   - 10(13)(f): A definition is required for "unit" that sets it out as the 'installation' as described in the consultation document i.e. unit=installation. Guidance will be required to set out criteria to help determine if a refurbishment is 'substantial'. This should include information on determining the boundaries for a comparable unit and what is in and out of scope for consideration.
   - 10(16): As set out in the responses below, MPA suggest that either a chart is used in place of Table 1 or the width of the bands is reduced. Currently the maximum radius for the lower limits of each band is too high.

   Schedule 8, Part B Installations: industrial Emissions Directive comments:
   - 9(1)(b) and throughout: The definition of a "small waste incineration plant" is required.
   - 9(4), (5), (6) and (7): As with Schedule 7a, a definition is required for "useful temperature" and "nearby" or a set of criteria that can be used to determine this.

6. **In respect of the thresholds set out in Section 3, please address any or all of the following questions (see paragraph 3.9), submitting evidence in support of your responses:**

   I. **Are the assumptions used to derive the thresholds appropriate?**
   Ricardo-AEA paper[2] states that:

   "the modification costs consist of costs for the installation of heat recovery equipment (e.g. heat exchangers) and circulation pumps, which could be installed incrementally to match the capacity of the heat link. However, it is possible that some processes may require further modification works, requiring the modification/ replacement of major plant items so that the costs of modification would be dictated by the size of the heat source, potentially making them substantially higher. However, this assumption was not adopted in the DCF analysis as it may not apply to all processes and would not represent the most favourable conditions for development."

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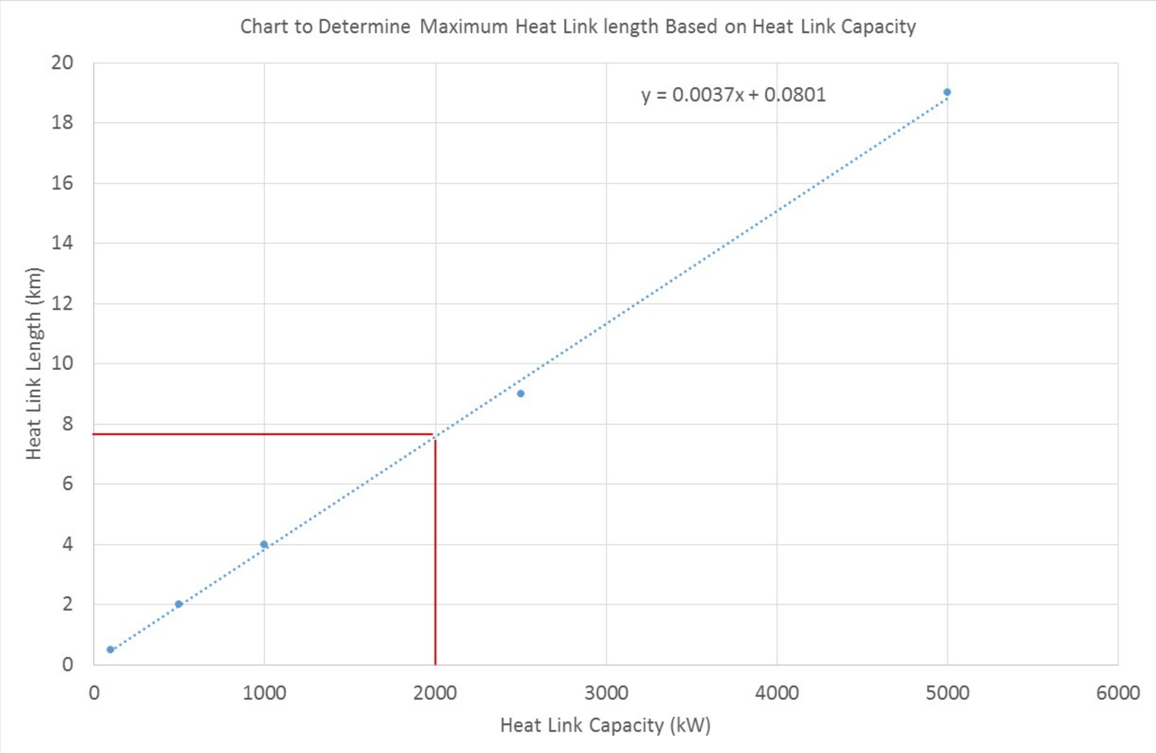
[2] "Development and review of cost benefit analysis exemption thresholds as required by Article 14(6)", Ricardo-AEA, 2014.

For plant where these further modifications are required to major plant items and the cost is increased substantially above that in Figure 3 of the paper[2], exemption from the full cost benefit should be granted.

II. Is the proposed threshold on maximum appropriate distance between a heat source and a heat load, ‗the search radius', appropriate?

The proposed thresholds would be better presented as a chart (example chart provided below) rather than broad boundaries. For example, the maximum search radius for water as the heat transfer medium for >100kW and ≤500kW is given as 2km. However, Figure 7 in the Ricardo-AEA paper[2] shows that for 100kW the net present value is 0 at 400m and at 2km the NPV is negative, which means a distance of 2km is clearly not viable at this capacity. Likewise at 2000kW the chart indicates the maximum radius is closer to 7 or 8 km rather than the 9km quoted. A chart would enable the maximum radius to be more accurately determine for each specific heat capacity.



Exemption from the full cost benefit analysis should also be granted where it can be shown that it is not technically possible to install high-efficiency cogeneration or recover waste heat or doing so would compromise energy efficiency. For example, where removing heat from exhaust emissions would negatively impact performance of the plant and lead to noncompliance with environmental legislation or fluctuations in waste heat output would require the users to turn on/off back up combustion to the extent where overall efficiency is impacted.

III. Is the proposed threshold on minimum amount of heat demand (from a load) to warrant connecting a heat source to a district heating/cooling network, appropriate?

The minimum threshold appears low and economically optimistic. In some cases the exemption for distance between heat source and heat may avoid unnecessary cost from a low minimum heat demand threshold, but not all.

IV. **Is the proposed threshold on minimum amount of available heat that is considered worth recovering from a heat source, and then supplying to a heat load, appropriate?**
The minimum threshold appears low and economically optimistic. In some cases the exemption for distance between heat source and heat may avoid unnecessary cost from a low minimum heat demand threshold, but not all.

V. **Is the proposed procedure for identifying a suitable heat load appropriate?**
Identification of sources may require consultant input and potentially lead to increased costs on what may already be marginal projects. Furthermore the procedure does not account for the complexities of the heat load, for example it's production related, seasonal related variability and the potential unplanned interruption which may have contractual consequences for the heat provider. The identification also lacks simple but important aspects such as accessibility of getting the heat to those users and the full cost of pipework etc.

VI. **Is the assumed cost for the heat distribution pipework appropriate?**
The costs for the steam distribution network are estimated and should be updated once more evidence is available on the actual costs.

7. **Do you have any further quantitative information which you consider should be taken into account in finalising the impact assessment? Do you have any other comments on the assessment? (See paragraph 4.1.)**
No comment.

Questions within the accompanying impact assessment

8. **Do you agree that the stated barriers to uptake of cogeneration may be encountered? Are there other barriers to uptake of these energy efficiency measures, or to the conduct of a cost-benefit analysis of potential cogeneration schemes? (See IA paragraph 9)**
There are many barriers to the uptake of cogeneration that are likely to be encountered that include, practical, process, financial and policy.

One area not considered is the potential cost from the carbon price support tax in deriving electricity from fossil fuel combustion. The Carbon Price Support tax is a clear deterrent to the recovery of waste heat for electricity.

The manufacture of mineral products, for example cement, requires combustion of a large amount of fuel in a kiln used for direct heating of mineral raw materials. The use of fuel in this way is not always conducive to also generating electricity.

Industries such as the cement industry have, over many years, been optimised to maximise the use of waste heat. Waste heat generated in the manufacture of cement, is used to dry raw materials, making cement manufacture an efficient user of waste heat. Secondly, many cement plants are located in rural locations away from potential users of the waste heat in district heating schemes. Furthermore, the UK and European examples of heat networks often rely on heat from waste incineration as their energy source. MPA does not believe that incineration is the Best Available Technique for the use of combustible waste. The UK cement industry replaces 40% of its thermal energy demand with waste derived fuels. There is a double dividend from using waste to replace fossil fuels in cement manufacture as it not only preserves finite fossil fuels but the elemental content contained in the ash from combustion is recycled in the cement product so there is no additional burden on landfills.

9. **Do you expect transposition of Articles 14(5)-(8) to result in additional activity and cost, above what is already incurred given the existing requirements of the consenting regime and BAT assessments? In the absence of this policy, do you think you would have considered cogeneration anyway for any new or refurbished installations? (See IA paragraph 33.)**
   This relates specifically to electricity generating plant and is therefore not applicable to MPA members.

10. **Have you any further evidence that could inform our projections for the number of new and refurbished plants? In what proportion of cases do you believe operators will be considering cogeneration or waste heat recovery options already? (See IA paragraph 42.)**
    The average cement plant has a lifetime of around 35-40 years and a new plant costs around £250m. Following the recession there is unutilised capacity available at current plants to meet any growing market demands. It is therefore unlikely that there will be any new plants built in the foreseeable future.

11. **Have you any evidence of the likely costs of the CBAs, based on similar analyses you have undertaken? (See IA paragraph 44.)**
    No comment.

12. **Can you provide any evidence to inform our assumptions of the time requirements for operators or regulators to review and process the CBAs? (See IA paragraph 48.)**
    No comment.

13. **Are there any other non-quantified costs, or have you any views on the potential significance of the costs identified here? In particular, how significant might be the deterrence of development that might arise from a requirement to include cogeneration in a capital-constrained scheme? Can you estimate the costs to business of such deterrence? (See IA paragraph 51.)**
    A further non-quantified cost relates to time. If the CBA indicates that cogeneration is viable then it will take the operator more time to plan, design and build the plant for cogeneration compared to without cogeneration. It is possible that this then prevents growth of the business happening as quickly and that incurs a cost to the business.

    In a capital constrained scheme the cost of the CBA itself could be particularly prohibitive, particularly for smaller installations. Every effort should be made to reduce the cost to operators. If an operator has recently undertaken analysis on cogeneration or district heating then the Regulator should allow this to be used rather than insisting on a further full CBA.

14. With regard to the CBA itself, are there any costs or benefits that you consider potentially significant but difficult to monetise? Please provide details. (See IA paragraph 51.)
No comment.

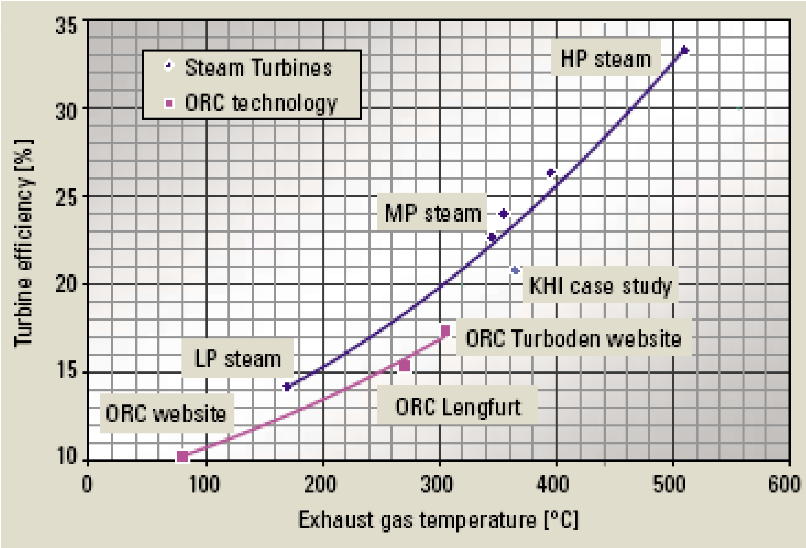
15. Have you any additional evidence on the likely costs of the proposed transposition- for instance, concerning the cost and time associated with conducting or commissioning a CBA? (See IA paragraph 53.)
MPA note that the cost to operators is the most significant. It is therefore important that the regulator review of CBA analysis does not further increase this cost unnecessarily.

16. Have you any information on the marginal cost of developing cogeneration rather than single generation installations greater than the 20MW total thermal input? (See IA paragraph 58.)
No comment.

17. Have you any information on the annual savings that can be achieved from cogeneration or waste heat recovery measures for installations with thermal input greater than 20MW? Have you any evidence to inform the likely proportion of installations for which such measures could be found to be cost-effective? (See IA paragraph 58.)
Heidelberg Cement at Lengfurt is one of few European plants where a waste heat recovery system has been installed on a cement plant. In this case much of the capital expenditure was provided by the state to demonstrate the feasibility of the technology, without this funding the installation would not have been possible. The Lengfurt kiln is a 3000tpd preheater kiln with a clinker cooler operating at around 280°C, the 15MW thermal in the exhaust gas is capable of producing around 1MW electricity net. The investment cost at Lengfurt was over €4M in 1999, which would be around €7M today. Assuming 7000 operating hours per year, 1MW output and £80/MWh, the payback on this investment would be 12 years without considering the operational costs such as repair and maintenance.

Given that UK kilns are smaller and operate at a lower exhaust gas temperature the expected power output will be significantly lower, estimated to be around 600kW. The figure below illustrates the declining efficiency of waste gas heat recovery systems with declining exhaust gas temperature.

Relationship between efficiency of waste gas heat recovery and exhaust gas temperature.



Published data (Nobis Cement international 5/2009 vol 7 p) indicates that waste heat recovery, in countries such as China, with high electricity costs and poor grid reliability but with low investment and capital cost, can be cost effective but only in cement plants with greater than 5,000 tonne per day clinker capacity and with raw material moisture lower than 3%.

What cost of capital do you consider appropriate for cogeneration investment? (See IA paragraph 58.)
It is the payback period for this cost that is important. In current economic conditions the payback period must be less than 3 years for operators to consider the investment. Consideration must also be made to the ongoing operational cost and maintenance as this can often add considerable cost burden to operators and is not assessed in the same way as the up- front capital cost.

18. **Have you any further evidence on possible benefits? (See IA paragraph 59.)**
No comment.