



Department  
for Environment  
Food & Rural Affairs

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# Consultation on the transposition in England and Wales of Articles 14(5)-(8) of the energy efficiency Directive (2012/27/EU)

February 2014



Llywodraeth Cymru  
Welsh Government

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## Contents

Scope of the consultation.....	4
Basic Information .....	4
1. Introduction.....	6
The Energy Efficiency Directive .....	6
Article 14.....	<b>Error! Bookmark not defined.</b>
Articles 14(5)-(8) .....	7
2. Transposing Article 14(5)-(8) .....	9
The Environmental Permitting Regulations (“the EPR”).....	9
Reasons for choice of EPR for the transposition .....	10
Thermal input.....	11
District heating/cooling networks .....	12
Thresholds for exemption .....	13
Detailed commentary on proposed transposition.....	14
3. The Exemption Thresholds.....	14
What are the thresholds?.....	14
Development of the thresholds .....	15
4. Impact assessment.....	18
Consultation Questions.....	19
Annex 1 – Commentary on paragraph to be added to EPR Schedule 7A .....	22
6. Annex 2 – Commentary on paragraphs to be added to EPR Schedule 8 .....	31

## Scope of the consultation

<b>Topic of this consultation:</b>	Transposition of Articles 14(5)-(8) of the energy efficiency Directive (2012/27/EU) through amendment of the Environmental Permitting (England and Wales) Regulations 2010
<b>Scope of this consultation:</b>	[tba]
<b>Geographical scope:</b>	England and Wales. (The administrations in Scotland and Northern Ireland are making separate arrangements for transposition)
<b>Impact Assessment:</b>	A draft impact assessment accompanies this consultation paper: views on it are sought.

## Basic Information

<b>To:</b>	Operators of combustion installations with a total rated thermal input exceeding 20 MW, and anyone with an interest in how those installations are regulated.
<b>Body/bodies responsible for the consultation:</b>	Department for Environment, Food and Rural Affairs and the Welsh Government
<b>Duration:</b>	Monday, 10 February to Friday 21 March 2014
<b>Enquiries:</b>	<a href="mailto:Control.Pollution@defra.gsi.gov.uk">Control.Pollution@defra.gsi.gov.uk</a>

<p><b>How to respond:</b></p>	<p>Online using Citizen Space:  <a href="https://consult.defra.gov.uk/atmosphere-local-environment-team/eed_consultation">https://consult.defra.gov.uk/atmosphere-local-environment-team/eed_consultation</a></p> <p>By E-mail to <a href="mailto:Control.Pollution@defra.gsi.gov.uk">Control.Pollution@defra.gsi.gov.uk</a> .</p> <p>By post to Defra, Industrial Pollution, Area 2B, Nobel House  17 Smith Square, London SW1P 3JR.</p>
<p><b>Additional ways to become involved:</b></p>	<p>As this is a largely technical issue with largely specialist interests, this is a written exercise, although we shall be happy to respond to any questions you may have about it.</p>
<p><b>After the consultation:</b></p>	<p>When this consultation ends, we intend to hold a copy of the responses, subject to any request for which confidentiality is justified, at Nobel House, London.</p> <p>The responses will help us draft the amending Regulations for which we shall seek Parliamentary approval in the spring of 2014. The responses will also help us finalise the impact assessment.</p>

# 1. Introduction

## The Energy Efficiency Directive

- 1.1. Energy Efficiency is one of the headline targets of the European Union's new strategy for jobs, and smart, sustainable and inclusive growth - the 'Europe 2020 Strategy'. On 8 March 2011, the European Commission adopted its Communication on an Energy Efficiency Plan 2011. The Communication confirmed that the European Union (EU) is not on track to achieve its energy efficiency targets.
- 1.2. The Energy Efficiency Directive (EED – 2012/27/EU) was adopted on 25 October 2012. It updates the EU's legal framework for energy efficiency, pursuing the target of saving 20% of the EU's primary energy consumption by 2020, and of making further energy efficiency improvements after 2020. The Directive also repeals and replaces the Energy Services Directive (ESD – 2006/32/EC) as well as the Cogeneration Directive (2004/8/EC).
- 1.3. The EED provides specific actions to implement some of the proposals included in the Energy Efficiency Plan 2011, and establishes a common framework of measures for the promotion of energy efficiency within the EU. It lays down rules designed to remove barriers in the energy market and overcome market failures that impede efficiency in the supply, transformation, transmission, distribution and consumption of energy. It also provides for the establishment of indicative national energy efficiency targets for 2020.
- 1.4. This consultation concerns the transposition of Article 14(5)-(8) of the EED in England and Wales. Article 14 extends the scope and replaces the substantive provisions of the Cogeneration Directive (Directive 2004/8/EC) relating to cogeneration, or 'CHP' as it is more commonly known in the UK.
- 1.5. The overall objective of Article 14 is to encourage the identification of cost-effective potential for delivering energy efficiency, through the use of cogeneration, efficient district heating and cooling and the recovery of industrial waste heat or, when these are not cost-effective, through other efficient heating and cooling supply options, and the delivery of this potential. Article 14(1) and (3) require Member States to identify the potential for high-efficiency cogeneration and efficient district heating and cooling and to analyse the costs and benefits of the opportunities that may exist.
- 1.6. The EED defines high-efficiency cogeneration, efficient district heating and cooling and efficient individual heating and cooling supply options. Efficient heating and cooling includes the use of heat from cogeneration and renewable energy sources, the

recovery of waste heat from industrial processes to meet demand for heating and cooling, and all those heating and cooling options that achieve cost effective primary energy savings. It is therefore a comprehensive concept that covers all heating and cooling options in line with the general definition of energy efficiency provided in the Directive.

## Articles 14(5)-(8)

- 1.7. The objective of Articles 14(5)-(8) is to promote efficiency in heating and cooling through requirements on developers of certain installations (above a specified size in terms of thermal input) to consider the opportunities for developing as co-generation, recovering waste heat and supplying heat to district heating and cooling networks. Where cost effective opportunities exist, Article 14(7) allows national authorities to grant permits only to installations developed as co-generation installations or using waste heat recovery.
- 1.8. The proposal is to transpose the requirements of Article 14(5)-(8) via amendments to the Environmental Permitting Regulations<sup>1</sup> (“EPR”), The EPR already contain similar requirements for installation operators to consider CHP and waste heat recovery opportunities as part of best available techniques (BAT)<sup>2</sup> for energy efficiency.
- 1.9. Article 14(5) makes the following requirements:

‘14(5) - Member States shall ensure that a cost-benefit analysis in accordance with Part 2 of Annex IX is carried out when, after 5 June 2014:

(a) a new thermal electricity generation installation with a total thermal input exceeding 20 MW is planned, in order to assess the cost and benefits of providing for the operation of the installation as a high-efficiency cogeneration installation;

(b) an existing thermal electricity generation installation with a total thermal input exceeding 20 MW is substantially refurbished, in order to assess the cost and benefits of converting it to high-efficiency cogeneration;

(c) an industrial installation with a total thermal input exceeding 20 MW generating waste heat at a useful temperature level is planned or substantially refurbished, in order to assess the cost and benefits of utilising the waste heat to satisfy economically justified demand, including through

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<sup>1</sup> The Environmental Permitting (England and Wales) Regulations 2010, SI 2010 No. 675, as subsequently amended.

<sup>2</sup> BAT is the foundation of the system of regulation for activities listed in Part 2 of Schedule 1 to the EPR. It is defined in Article 3(10) of the industrial emissions Directive (2010/75/EU)

cogeneration, and of the connection of that installation to a district heating and cooling network;

(d) a new district heating and cooling network is planned or in an existing district heating or cooling network a new energy production installation with a total thermal input exceeding 20 MW is planned or an existing such installation is to be substantially refurbished, in order to assess the cost and benefits of utilising the waste heat from nearby industrial installations.'

- 1.10. The Article also states that the 'fitting of equipment to capture carbon dioxide produced by a combustion installation with a view to its being geologically stored as provided for in Directive 2009/31/EC<sup>3</sup> shall not be considered as refurbishment for the purpose of points (b), (c) and (d) of this paragraph.
- 1.11. Article 14(5) refers to Part 2 of Annex IX of the Directive. This provides the scope for the Cost-Benefit Analysis (CBA) studies in question. Part 2 provides the principles upon which the information used in Articles 14(5) should be based. In summary, it states the following.
- If an electricity only installation or installation without heat recovery, the planned installations or refurbishments will be compared with an equivalent installation producing the same amount of electricity/heat, but recovering it and supplying heat through co-generation and/or District heating and cooling networks.
  - The assessment should take into account the planned installation and any appropriate (i.e. technically and economically feasible) demand points that could be supplied from it.
  - The assessment should consider planned installation and the heat loads (e.g. building(s) or industrial processes) including existing heat loads. In urban areas this should include the heat loads/costs if certain city areas/buildings were connected to a new district heating network. The total cost of providing heat should be determined.
  - The CBA should include a description of the planned installation and comparison installation(s). This should cover: thermal/electrical capacity and demand, fuel type, planned usage, annual planned operating hours; the location of the installation and infrastructure costs. Financial analysis including cash flow should be included.

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<sup>3</sup> Directive on the Geological Storage of Carbon Dioxide. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0114:0135:EN:PDF>



- Member States should set time horizons for the analysis and provide guidance on methodology and other assumptions. This may require responsible, companies providing data to enable the CBA to be prepared.

1.12. Article 14(6) provides for potential exemptions from the above requirements for particular plant types. These include: peak load or back up installations planned to operate less than 1,500 hours per year<sup>4</sup>; nuclear power stations; or installations that need to be close to a geological storage site approved under Directive 2009/31/EC. Member States may also lay down thresholds for exempting individual installations (including industrial installations and district heating/cooling networks) from the provisions of paragraph 14(5). Article 14(7) sets out requirements to ensure Article 14(5) is fulfilled.

1.13. Article 14(8) allows Member States to exempt individual installations where benefits are shown to outweigh costs in certain circumstances, if there are other reasons (e.g. ownership, legal or financial). In these cases the Member State must submit a reasoned notification to the Commission.

## 2. Transposing Article 14(5)-(8)

### The Environmental Permitting Regulations (“the EPR”)

2.1. The EPR require operators to obtain environmental permits for certain facilities and technologies, to register others as exempt from the requirements of obtaining a permit, and provide for general on-going supervision by regulators. The aims of the EPR are to:

- protect the environment so that statutory and Government policy environmental targets and outcomes are achieved;
- deliver permitting and compliance with permits and certain environmental targets effectively and efficiently in a way that provides increased clarity and minimises the administrative burden on both the regulator and the operators;
- encourage regulators to promote best practice in the operation of regulated facilities; and
- to transpose European legislation fully.

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<sup>4</sup> This is based on a rolling average over a five year period and based on a verification criteria established by the relevant Member State.

## Reasons for choice of EPR for the transposition

2.2. Environmental Permitting is an established process for regulating the operation and refurbishment of industrial installations in England and Wales. Nearly all of the installations subject to Article 14(5) are already subject to the EPR. That is because:

- combustion installations with a rated<sup>5</sup> thermal input (“RTI” hereinafter) of 50 MW or more require<sup>6</sup> a permit from the Environment Agency or from Natural Resources Wales which embodies the integrated pollution prevention and control requirements now set out in Chapter II of the industrial emissions Directive (2010/75/EU);
- combustion installations burning fuel in a boiler, furnace, gas turbine or compression ignition engine with a RTI of between 20 MW and 50 MW require<sup>7</sup> a permit from the local authority in which they are situated, embodying controls upon significant pollutant emissions to air<sup>8</sup>; and
- permits for installations incinerating or co-incinerating waste also have to embody the stringent requirements now set out in Chapter IV of the industrial emissions Directive<sup>9</sup>. There is no RTI threshold for these requirements. The Environment Agency or Natural Resources Wales is generally the regulator for incineration/co-incineration installations with a capacity equivalent to 20 MW or more<sup>10</sup>.

2.3. So installations in any of those categories which are new after 5 June 2014 will in any case need to apply for an environmental permit. The permit application process requires the operator to supply a range of information about the installation’s technical characteristics. The EPR amendments proposed in this paper would add to that the supply of a CBA in fulfilment of the requirements of Article 14(5). The

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<sup>5</sup> Note that Article 14(5) of the EED uses ‘total thermal input’, not “rated thermal input”. See paragraph 2.6 of this consultation paper.

<sup>6</sup> Required because they carry out the activity described in Part A(1) of Section 1.1 of Part 2 of EPR Schedule 1.

<sup>7</sup> Required because they carry out the activity described in paragraph (a) of Part B of Section 1.1 of Part 2 of EPR Schedule 1.

<sup>8</sup> This requirement stems from long-standing national legislation.

<sup>9</sup> Schedule 13A of the EPR requires regulators to apply these requirements.

<sup>10</sup> Local authorities regulate small waste incineration plants which are those with a capacity of less than 10 tonnes/day for hazardous waste or 3 tonnes/hour for non-hazardous waste. However, plants below those thresholds are unlikely to reach the 20 MW threshold unless they are burning waste with a high calorific value.

regulator is already required to determine, from the information provided with the application, whether a permit can be granted and, if so, with what conditions. With the proposed amendments, the regulator would determine from the CBA whether the installation can be permitted only on the basis of incorporating high efficiency co-generation or district heating and cooling.

2.4. Similarly, an already-existing installation in those categories will have a permit which would in any case need to be varied if the installation were to be substantially refurbished after 5 June 2014. Article 2(44) of the EED states that "substantial refurbishment" means 'a refurbishment whose cost exceeds 50 % of the investment cost for a new comparable unit'. Although the word "unit" is not further defined, we take it as synonymous with "installation" which is the word used in the context of substantial refurbishment in Article 14(5). That scale of investment would almost certainly involve changes to the technical characteristics of the installation which would necessitate a variation in the environmental permit. The operator would be expected to apply for the permit variation, although the regulator would initiate variation if the operator were unwilling. In either case, the EPR amendments proposed in this paper would have the effect of requiring the supply of a CBA in fulfilment of the requirements of Article 14(5)<sup>11</sup>.

2.5. We therefore believe that use of the existing permitting process enables the Article 14(5) requirements to be met satisfactorily without the construction of a separate process and the attendant burden upon operator and regulator in operating it. **Do you have any comments on this approach?** Note that it would operate in the same way as the existing process in relation to the separate requirements of planning legislation and, for electricity generation installations, for consent under section 36 of the Electricity Act 1989.

## Thermal input

2.6. Article 14(5) of the EED refers to 'total thermal input'. The relevant activity descriptions<sup>12</sup> in Part 2 of EPR Schedule 1 refer to "rated thermal input". European Commission guidance<sup>13</sup>, finalised on 6 November 2013, states that 'Member States

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<sup>11</sup> In respect of electricity generating installations with an aggregate thermal input above 50 MW, the Environment Agency already regards CHP as a best available technique where economically viable opportunities exist from the outset. It also requires installations for which CHP is technically viable and which may in time become economically viable to be made ready for the addition of CHP ("CHP-ready"). Therefore, for such installations where the CBA under Article 14 shows there are no economic opportunities for CHP, the operator would nevertheless have to carry out a CHP-Ready assessment.

<sup>12</sup> See footnotes 6 and 7.

<sup>13</sup> Guidance note on Directive 2012/27/EU on energy efficiency, amending Directives 2009/125/EC and 2010/30/EC, and repealing Directives 2004/8/EC and 2006/32/EC Article 14: Promotion of efficiency in

are free to follow their national definitions taking into account their definitions established under [amongst others] the Industrial Emissions Directive (2010/75/EU)'. "Rated thermal input" is the term used in that Directive and hence already in the EPR. We therefore propose to regard "rated thermal input" as synonymous with "total thermal input", except in the context of the lower threshold.

2.7. The exception arises because the EPR currently apply, in the rated thermal input (RTI) range of 20 to 50 MW<sup>14</sup>, only to single units whereas the EED Article 14(5) refers to installations with a **total** thermal input exceeding 20 MW<sup>15</sup>. We therefore consider it necessary to transpose Article 14(5) in such a way that it applies to installations where, although no single unit exceeds 20 MW RTI, the presence of more than one combustion unit operated on the same site by the same operator brings the aggregate RTI of the installation to above 20 MW. Paragraph 2.8 describes how the draft amendments to the EPR achieve that. **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?**

2.8. The draft amendments apply Article 14(5) to installations with an aggregate RTI exceeding 20 MW by inserting into the 'Interpretation and application of Part B' of Section 1.1 of Part 2 of EPR Schedule 1 a paragraph which requires aggregation of the RTI of all combustion appliances on a site. On its own, this would extend the air pollution controls to installations with an aggregate RTI of more than 20 MW. To avoid that, the draft amendments add paragraphs at the beginning of Schedule 8 which have the effect of applying only the inserted paragraph 9 of that Schedule to installations which are Part B only because of the aggregation. **Do you foresee any practical difficulty in making that distinction?**

## District heating/cooling networks

2.9. The first part of Article 14(5)(d) is somewhat ambiguously worded:

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*heating and cooling.* Available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=SWD:2013:0449:FIN:EN:PDF> .

<sup>14</sup> For appliances with a RTI of 50 MW or more, paragraph 1 of the 'Interpretation and application of Part A(1)' of Section 1.1 of Part 2 of EPR Schedule 1 makes it clear that the 50 MW threshold applies to the aggregate RTI of appliances on the same site.

<sup>15</sup> Paragraph 57 of the Commission Guidance (see footnote 13) states that 'when calculating the total thermal input of an installation the rated thermal inputs of all technical units which are part of it and in which fuels are combusted within the installation should be added together'.

‘a new district heating and cooling network is planned or in an existing district heating or cooling network a new energy production installation with a total thermal input exceeding 20 MW is planned or an existing such installation is to be substantially refurbished,’

2.10. We consider it has to be read in the following way:

2.10.1. Carry out a CBA where a new district and heating cooling network is planned, in order to assess the cost and benefits of utilising the waste heat from nearby industrial installations.

2.10.2. Carry out a CBA where, in an existing district heating or cooling network, a new >20 MW thermal input energy installation is planned, in order to assess the cost and benefits of utilising the waste heat from nearby industrial installations.

2.10.3. Carry out a CBA where, in an existing district heating or cooling network, an existing >20 MW thermal input energy installation is to be substantially refurbished, in order to assess the cost and benefits of utilising the waste heat from nearby industrial installations.

2.11. In the draft amending Regulations, components (2) and (3) are covered by the added paragraphs 10(6) and 10(7) respectively of Schedule 7A and the corresponding added paragraphs in Schedule 8. In respect of component (1), we consider that any new DH&CN is likely to include a combustion unit with an aggregate thermal input of at least 20 MW. **Do you agree?** Furthermore, with Articles 14(5)-(8) otherwise clearly focussed on installations with a total thermal input of at least 20 MW, it would be inconsistent for an unspecified threshold to apply in the particular case of new DH&CNs.

## Thresholds for exemption

2.12. Article 14(6) states that ‘Member States may also lay down thresholds, expressed in terms of the amount of available useful waste heat, the demand for heat or the distances between industrial installations and district heating networks, for exempting individual installations from the provisions of points (c) and (d) of [Article 14(5)]’. Section 3 of this paper sets out how UK thresholds have been derived. **Do you agree with this approach?** Those thresholds have been incorporated in the draft amending Regulations.

## Detailed commentary on proposed transposition

2.13. The previous paragraphs have set out particular points upon which you may wish to comment. To aid your further consideration, Annex 1 sets out the paragraph which would be added to Schedule 7A in order to achieve transposition in respect of “Part A” installations<sup>16</sup>. Interpolated within that text is commentary describing how each provision works to transpose Article 14(5)-(8). Annex 2 does the same with the paragraphs which would be added to Schedule 8 in respect of “Part B” installations<sup>17</sup>. **Do you have any comments about the way in which these paragraphs would achieve transposition of Articles 14(5)-(8)?**

# 3. The Exemption Thresholds

## What are the thresholds?

3.1. The exemption applies in two of the situations covered by Article 14(5):

- Article 14(5)(c) - An industrial installation with a total thermal input greater than 20MW is either planned or is substantially refurbished. The purpose of the CBA is to address the possibility of using waste heat to satisfy economically justified demand, including through cogeneration or connection of the installation to a district heating/cooling network.
- Article 14(5)(d) - A new district heating/cooling network is planned or an existing network has an energy production installation with a total thermal input greater than 20MW that is either new or substantially refurbished. The purpose of the CBA is to address the cost and benefits of utilising the waste heat from nearby industrial installations.

3.2. Under Article 14(6), Member States may lay down thresholds, expressed in terms of the amount of available useful waste heat, the demand for heat or the distances between industrial installations and district heating networks, for exempting individual installations as detailed in Articles 14(5)(c) and (d) from the requirements of having to conduct a cost-benefit analysis to assess the potential of operating as CHP.

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<sup>16</sup> “Part A” installations are those which the EPR subjects to the integrated pollution prevention and control requirements now set out in Chapter II of the industrial emissions Directive.

<sup>17</sup> “Part B” installations are those which the EPR subjects to BAT-based controls on air pollutant emissions.

## Development of the thresholds

3.3. The proposed exemption thresholds were developed by DECC's contractor Ricardo-AEA. The methodology used to derive the thresholds is set out in detail in their report accompanying this consultation. The thresholds have been developed in terms of the following:

- **What is the maximum appropriate distance between a heat source and a heat load?** If the distance identified between the installation and the heat demand is beyond this maximum distance, then it will not have to conduct a CBA. This distance is referred to as 'search radius' and is 'threshold 1'.
- **What is the minimum amount of heat demand that would be considered appropriate to warrant connecting a heat source to a district heating/cooling network?** If this demand does not exist, the installation will be exempt from conducting a CBA. This is 'threshold 2'.
- **What is the minimum amount of available heat that is considered worth recovering and supplying from that installation?** If the installation does not provide at least that amount of 'useful' heat, then it will not have to conduct a CBA. This is 'threshold 3'.

3.4. The report sets out the methodology used to derive the thresholds above. The threshold values have been derived to represent the point at which a network supplying heat, in the form of steam or hot water, would cease to be economically viable even under the most favourable conditions. As such, any schemes that exceed threshold 1 or lie below thresholds 2 or 3 can be considered to be highly unlikely to be economically viable. While schemes outside these thresholds may also not be economically viable due to project-specific reasons, it would not be appropriate to require the more in-depth analysis represented by the CBA to establish this.

3.5. The threshold values are demonstrated in the tables below.

- Threshold value 1 - search radius
  - The search radius (threshold value 1) is determined based on the capacity of the heat source/heat demand and is given in
  - **Table 1** below, which is based upon the limiting distances for economic viability derived from the Discounted Cash Flow (DCF) analysis performed.

**Table 1: Proposed values for threshold 1 (search radius)**

Grade of Heat	Capacity of Heat	Max Search
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	Source / Heat Demand [ $\text{kW}_{\text{th}}$ ]	Radius [km] (Threshold 1)
Water	>100kW and $\leq$ 500kW	2
	>500kW and $\leq$ 1MW	4
	>1MW and $\leq$ 2.5MW	9
	Greater than 2.5MW	15
Steam	>500kW and $\leq$ 2.5MW	3
	>2.5MW and $\leq$ 5MW	6
	>5MW and $\leq$ 10MW	12
	Greater than 10MW	15

- Threshold value 2 (minimum heat demand) and threshold value 3 (minimum available waste heat)
  - The proposed values for thresholds 2 and 3 were both determined based on the capacities at which heat links would be economically viable only over very short distances (less than 1km). These values are presented in Table 2.



**Table 2: Proposed values for thresholds 2 and 3 (minimum heat demand/minimum available waste heat)**

	Water	Steam
Minimum Heat Link Capacity (Thresholds 2 and 3)	100kW <sub>th</sub>	500kW <sub>th</sub>

**Criteria for identifying suitable heat users/sources**

3.6. The exemption procedures set out both refer to the need for the party seeking the exemption to determine if any suitable heat users/sources exist within the search area.

3.7. A key consideration in determining suitability of a heat source/heat user will be confirming the compatibility of the grade of heat required by the user with that produced by the heat source. In doing so it is important to recognise that while water-based heat sources can only supply water-based heat users, steam-based heat sources will be able to supply both steam and water-based heat users. In cases where steam-based heat sources are supplying water-based users, the heat link can also be expected to be water-based. For this reason, steam-based waste heat sources seeking an exemption under Article 14(5)(c) will need to be assessed against the threshold criteria for both water and steam-based heat links.

3.8. In performing the exercise it is apparent that size of the user relative to the heat source is not critical to the economic viability of the scheme as the heat link is sized according to the demand presented by the heat user. Instead, the principal criteria for establishing whether a user is suitable would be the size of the user and its proximity to the heat source.

**3.9. In respect of the thresholds, please address any or all of the following questions, submitting evidence in support of your responses:**

3.9.1. Are the assumptions used to derive the thresholds appropriate?

3.9.2. Is the proposed threshold on maximum appropriate distance between a heat source and a heat load, ‘the search radius’, appropriate?

3.9.3. 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?

- 3.9.4. 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?
- 3.9.5. Is the proposed procedure for identifying a suitable heat load appropriate?
- 3.9.6. Is the assumed cost for the heat distribution pipework appropriate?

## 4. Impact assessment

- 4.1. Accompanying this consultation paper is a draft impact assessment largely prepared by AMEC under a Defra consultancy contract. It is self-explanatory in addressing the proposed transposition. **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?**

## 5. Consultation Questions

1. Do you have comments on the use of the Environmental Permitting Regulations to transpose Articles 14(5)-(8)? (See paragraph 2.5.)
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.)
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.)
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.)
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.)
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:
  - 6.1. Are the assumptions used to derive the thresholds appropriate?
  - 6.2. Is the proposed threshold on maximum appropriate distance between a heat source and a heat load, ‘the search radius’, appropriate?
  - 6.3. 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?
  - 6.4. 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?
  - 6.5. Is the proposed procedure for identifying a suitable heat load appropriate?
  - 6.6. Is the assumed cost for the heat distribution pipework appropriate?

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.)

### **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)
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.)
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.)
11. Have you any evidence of the likely costs of the CBAs, based on similar analyses you have undertaken? (See IA paragraph 44.)
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.)
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.)
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.)
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.)
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.)

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.)
18. What cost of capital do you consider appropriate for cogeneration investment? (See IA paragraph 58.)
19. Have you any further evidence on possible benefits? (See IA paragraph 59.)

# Annex 1 – Commentary on paragraph to be added to EPR Schedule 7A

## Schedule 7a

### Part A Installations: Industrial Emissions Directive

This document sets out in regular font a **draft** of a paragraph which, as part of the transposition of Articles 14(5)-(8) of the energy efficiency Directive, would be added to Schedule 7A of the Environmental Permitting (England and Wales) Regulations 2010<sup>18</sup>. Interpolations, marked #, describe briefly how the various provisions relate to the Articles' provisions.

#### Energy Efficiency Directive: promotion of efficiency in heating and cooling

**10.** (1) The regulator must ensure that, in relation to an application made after 5 June 2014 for the grant of a permit for a new installation in accordance with this Schedule and carrying on, for the purposes of electricity generation, an activity described in –

- (a) Part A(1) of Section 1.1 of Part 2 of Schedule 1; or
- (b) Part A(1) of Section 5.1 of Part 2 of Schedule 1

#These activities are respectively:

(a) Burning any fuel in an appliance with a rated thermal input of 50 or more megawatts;

(b) - The incineration of hazardous waste in a waste incineration plant or waste co-incineration plant with a capacity exceeding 10 tonnes per day.

- The incineration of non-hazardous waste in a waste incineration plant or waste co-incineration plant with a capacity exceeding 3 tonnes per hour.

- The incineration, other than incidentally in the course of burning landfill gas or solid or liquid waste, of any gaseous compound containing halogens.

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<sup>18</sup> As amended, most recently by SI 2013 No. 390 through which the industrial emissions Directive was transposed. Those amendments added Schedule 7A.

Note that sub-paragraph (13)(h)(iii) limits (b) to installations with a RTI of more than 20 MW: most installations carrying out that activity will, depending on the nature of the waste they are burning, have a lower RTI.

a cost-benefit analysis is carried out, in order to assess the cost and benefits of providing for the operation of the installation as a high-efficiency cogeneration installation.

#This delivers Article 14(5)(a) in respect of Part A installations. Note that “cost-benefit analysis”, “high-efficiency cogeneration” and “cogeneration” are defined respectively in sub-paragraphs 13(b), 13(e) and (13)(a) below.

(2) The regulator must exercise its relevant functions to ensure that a cost-benefit analysis is carried out when, after 5 June 2014, an installation carrying on, for the purposes of electricity generation, an activity described in-

(a) Part A(1) of Section 1.1 of Part 2 of Schedule 1; or

(b) Part A(1) of Section 5.1 of Part 2 of Schedule 1,

is substantially refurbished, in order to assess the cost and benefits of converting it to high-efficiency cogeneration.

#This delivers Article 14(5)(b) in respect of Part A installations. Note that “substantially refurbished” is defined in sub-paragraph (13)(f) below.

(3) Sub-paragraphs (1) and (2) do not apply to peak load and back-up electricity generating installations for which the application states that operation for less than 1,500 operating hours per year as a rolling average over a period of five years is planned. The regulator must ensure that, if a permit is granted in such cases, the permit includes conditions ensuring that operating hours remain within that constraint.

#This delivers Article 14(6)(a). Plainly, it will be for the operator to state unequivocally in the application that operation in that way is envisaged. Although it will be for them to decide, regulators may verify operation within the ‘constraint’ in much the same way as they already do for plants using the “2000 hours derogation” under the large combustion plants Directive (which for existing plants will become 1500 hours from 1 January 2016 under the industrial emissions Directive).

(4) The regulator must ensure that, in relation to an application made after 5 June 2014 for the grant of a permit for a new installation, in accordance with this Schedule, other than an installation falling within sub-paragraph (1), and generating waste heat at a useful temperature level, a cost-benefit analysis is carried out in order to assess the cost and

benefits of utilising the waste heat to satisfy economically justified demand, including through cogeneration, and of the connection of that installation to a district heating and cooling network.

#This delivers Article 14(5)(c) in respect of any new (after 5 June 2014) Part A installation other than those covered by sub-paragraph (1) above. Note that “economically justified demand” is defined in sub-paragraph (13)(c) below. It will be for the regulator, in pre-application discussions with the operator, to determine whether any new installation will generate waste heat at a useful temperature, in line with existing Government guidance.

(5) The regulator must exercise its relevant functions to ensure that a cost-benefit analysis is carried out when, after 5 June 2014, an installation other than an installation falling within sub-paragraph (1) or (4) is substantially refurbished, in order to assess the cost and benefits of utilising the waste heat to satisfy economically justified demand, including through cogeneration, and of the connection of that installation to a district heating and cooling network.

#This delivers Article 14(5)(c) in respect of any Part A installation, other than those covered by sub-paragraph (1) above, which is substantially refurbished after 5 June 2014. It will be for the regulator, in discussions with the operator prior to the latter seeking a permit variation, to determine whether the substantially refurbished installation will generate waste heat at a useful temperature, in line with existing Government guidance.

(6) The regulator must ensure that in relation to an application made after 5 June 2014 for the grant of a permit for an installation in accordance with this Schedule and carrying on the activity described in -

- (a) Part A(1) of Section 1.1 of Part 2 of Schedule 1; or
- (b) Part A(1) of Section 5.1 of Part 2 of Schedule 1,

and which forms part of a new district heating and cooling network or existing district heating or cooling network, a cost-benefit analysis is carried out, in order to assess the cost and benefits of utilising the waste heat from nearby industrial installations.

#This delivers Article 14(5)d) in respect of new Part A installations. It will be for the regulator to determine what constitutes ‘nearby’, although it is expected that all regulators will take the same approach.

(7) The regulator must exercise its relevant functions to ensure that a cost-benefit analysis is carried out when, after 5 June 2014, an installation carrying on the activity described in–

- (a) Part A(1) of Section 1.1 of Part 2 of Schedule 1; or



(b) Part A(1) of Section 5.1 of Part 2 of Schedule 1,

and which forms part of a district heating and cooling network is substantially refurbished, in order to assess the cost and benefits of utilising the waste heat from nearby industrial installations.

#This delivers Article 14(5)(d) in respect of existing Part A installations which form part of an existing district heating or cooling network. It will be for the regulator to determine what constitutes 'nearby'.

(8) From 31<sup>st</sup> December 2015, when considering applications or otherwise exercising its functions under sub-paragraphs (1), (2), (4), (5), (6) and (7), the regulator shall take into account both the outcome of the cost-benefit analyses required by those sub-paragraphs and the outcome of the comprehensive assessment referred to in Article 14(1) of the Energy Efficiency Directive.

#This assessment will be prepared by Government.

(9) Where a cost benefit analysis carried out in accordance with sub-paragraphs (1), or (4) shows that benefits exceed costs, the regulator may only grant the permit application subject to the inclusion of conditions that will ensure the operation of the installation in the manner shown by that analysis to be cost beneficial.

#This delivers Article 14(7) in respect of Article 14(5)(a) and, for new installations, Article 14(5)(c)

(10) Where a cost benefit analysis carried out in accordance with sub-paragraphs (2) or (5) shows that benefits exceed costs, the regulator must exercise its relevant functions to ensure the inclusion of permit conditions that will ensure the operation of the installation, in the manner shown by that analysis to be cost beneficial.

#This delivers Article 14(7) in respect of Article 14(5)(b) and, for substantially refurbished installations, Article 14(5)(c)

(11) Where a cost benefit analysis carried out in accordance with sub-paragraph (6) shows that benefits exceed costs, the regulator may only grant the permit application subject to the inclusion of conditions that will ensure the operation of the installation, in conjunction with the utilisation of the waste heat from nearby industrial installations, in the manner shown by that analysis to be cost beneficial.

#This delivers Article 14(7) in respect of Article 14(5)(d) for new installations.

(12) Where a cost benefit analysis carried out in accordance with sub-paragraph (7) shows that benefits exceed costs, the regulator must exercise its relevant functions to ensure the inclusion of permit conditions that will ensure the operation of the installation, in

conjunction with the utilisation of the waste heat from nearby industrial installations, in the manner shown by that analysis to be cost beneficial.

#This delivers Article 14(7) in respect of Article 14(5)(d) for substantially refurbished installations.

(13) In this paragraph –

(a) “cogeneration” means the simultaneous generation in one process of thermal energy and electrical or mechanical energy;

#This is the definition in EED Article 2(30)

(b) “cost-benefit analysis” means a cost-benefit analysis in accordance with Part 2 of Annex IX of the Energy Efficiency Directive;

#This is as stated in the first sentence of EED Article 14(5)

(c) “economically justifiable demand” means demand that does not exceed the needs for heating or cooling and which would otherwise be satisfied at market conditions by energy generation processes other than cogeneration;

#This is the definition in EED Article 2(31)

(d) “electricity from cogeneration” means electricity generated in a process linked to the production of useful heat and calculated in accordance with the methodology laid down in Annex II of the Energy Efficiency Directive;

#This is the definition in EED Article 2(33)

(e) “high-efficiency cogeneration” means cogeneration meeting the criteria laid down in Annex II of the Energy Efficiency Directive;

#This is the definition in EED Article 2(34)

(f) “substantially refurbished” means, subject to sub-paragraph (13)(g), a refurbishment whose cost exceeds 50 % of the investment cost for a new comparable unit;

#This accords with the definition in EED Article 2(44)

(g) the fitting of equipment to carry out the activity described in Part A(1) of Section 6.10 of Part 2 of Schedule 1 shall not be considered as refurbishment for the purposes of sub-paragraphs (2), (5) or (7);

#This delivers the penultimate paragraph of Article 14(5) which refers to carbon capture.

(h) for the purposes of this paragraph –

(i) the interpretation of “offshore platform” in paragraph 3 of Part A(1) of Section 1.1 shall also include any structure where the principal purpose of the use of the structure is the establishment of the existence of petroleum or the appraisal

of its characteristics, quality or quantity or the extent of any reservoir in which it occurs; and

(ii) the interpretation of “petroleum” in paragraph 4 of Part A(1) of Section 1.1 shall also include coal or bituminous shales or other stratified deposits from which oil can be extracted by destructive distillation; and

(iii) the reference to an installation in sub-paragraphs (4) or (5) or Part A of Section 5.1 of Part 2 of Schedule 1 means an installation or an activity which has a net thermal input exceeding 20 megawatts,

#These provide clarifications

(14) This paragraph does not apply to any activity described in –

(a) Part A(1) of Section 1.1 of Part 2 of Schedule 1; or

(b) Part A(1) of Section 5.1 of Part 2 of Schedule 1

which is carried on within a nuclear site, within the meaning given in paragraph 1 of Part 2 of Schedule 23, which is dedicated to the production of nuclear power.

#This delivers Article 14(6)(b).

(15) This paragraph does not apply to installations that need to be located close to a geological storage site approved under Directive 2009/31/EC.

# This delivers Article 14(6)(c)

#The following sub-paragraph delivers the final paragraph of Article 14(6). It incorporates the thresholds which are set out section 3 of this consultation paper and so may be modified in the light of responses to the questions posed in paragraph 3.9 of this consultation paper.

(16) Sub-paragraphs (4), (5), (6) and (7) do not apply to individual installations with-

(a) available waste heat of -

(i) less than 100 kW for waste heat available as hot water; or

(ii) less than 500 kW for waste heat available as steam;

(b) available waste heat, with no suitable source of heat demand ;

(i) greater than 100 kW in the case of water-based heat demand sources and within the relevant radius from the centre of the installation given in Table 1; or

(ii) greater than 500 kW in the case of steam-based heat demand sources and within the relevant radius from the centre of the installation given in Table 1.

(c) a heat demand of –

(i) less than 100 kW for hot water heat demands; or

- (ii) less than 500 kW for steam heat demands;
- (d) a heat demand, with no suitable source of available waste heat;
  - (i) greater than 100kW in the case of hot water heat demands and within the relevant radius from the centre of the installation given in Table 1; or
  - (ii) greater than 500 kW in the case of steam heat demands and within the relevant radius from the centre of the installation given in Table 1.

**Table 1**

Grade of Heat	Capacity of Heat Source / Heat Demand [kW <sub>th</sub> ]	Radius [km]
Water	>100kW and ≤500kW	2
	>500kW and ≤1MW	4
	>1MW and ≤2.5MW	9
	Greater than 2.5MW	15
Steam	>500kW and ≤2.5MW	3
	>2.5MW and ≤5MW	6
	>5MW and ≤10MW	12
	Greater than 10MW	15

(17) For the purposes of sub-paragraph (15), “suitable source” shall mean;

- (i) In the case of hot water heat demands either a water-based or steam-based source of heat; or
- (ii) In the case of a steam heat demand a steam-based source of heat.

(18) Sub-paragraphs (9), (10), (11) and (12) do not apply if, in individual cases, the regulator decides that there are imperative reasons of law, ownership or finance for it not to apply. In such cases, within two months of its decision the regulator shall submit a reasoned notification of it to the appropriate authority.

#This delivers Article 14(8).



## 6. Annex 2 – Commentary on paragraphs to be added to EPR Schedule 8

### Schedule 8

#### Part B Installations: Industrial Emissions Directive

This annex sets out:

- in regular font a **draft** of a paragraph which, as part of the transposition of Articles 14(5)-(8) of the energy efficiency Directive, would be added to Schedule 8 of the Environmental Permitting (England and Wales) Regulations 2010<sup>19</sup>. Interpolations, marked #, describe briefly how the various provisions relate to the Articles' provisions; and
- in regular font a **draft** of paragraphs making other adjustments so as to apply only Articles 14(5)-(8) to installations with an aggregate thermal input exceeding 20 MW.

#### Schedule 8

##### Energy efficiency Directive: promotion of efficiency in heating and cooling

9. (1) The regulator must ensure that, in relation to an application made after 5 June 2014 for the grant of a permit for a new installation in accordance with this Schedule and carrying on, for the purposes of electricity generation, an activity described in –

- (a) paragraph (a) of Part B of Section 1.1 of Part 2 of Schedule 1; or
- (b) a small waste incineration plant operation,

a cost-benefit analysis is carried out, in order to assess the cost and benefits of providing for the operation of the installation as a high-efficiency cogeneration installation.

#This delivers Article 14(5)(a) in respect of Part B installations. Note that “cost-benefit analysis”, “high-efficiency cogeneration” and “cogeneration” are defined respectively in sub-paragraphs 13(b), 13(e) and (13)(a) below. Note also that the interpretation of Part B of Section 1.1 would be amended as shown at the end of this document so that installations where the aggregate thermal input of combustion ‘appliances’ exceeds 20 MW are drawn in.

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<sup>19</sup> As amended, most recently by SI 2013 No. 390 through which the industrial emissions Directive was transposed. Those amendments included a replacement Schedule 8.

(2) The regulator must exercise its relevant functions to ensure that a cost-benefit analysis is carried out when, after 5 June 2014, an installation carrying on, for the purposes of electricity generation, an activity described in –

- (a) paragraph (a) of Part B of Section 1.1 of Part 2 of Schedule 1; or
- (b) a small waste incineration plant operation,

is substantially refurbished, in order to assess the cost and benefits of converting it to high-efficiency cogeneration.

#This delivers Article 14(5)(b) in respect of Part B installations. Note that “substantially refurbished” is defined in paragraph (13)(f) below

(3) Sub-paragraphs (1) and (2) do not apply to peak load and back-up electricity generating installations for which the application states that operation for less than 1,500 operating hours per year as a rolling average over a period of five years is planned. The regulator must ensure that if a permit is granted in such cases, it shall include conditions ensuring that operating hours remain within that constraint.

#This delivers Article 14(6)(a). Plainly, it will be for the operator to state unequivocally in the application that operation in that way is envisaged. It will be for regulators to decide how to verify operation within the ‘constraint’, although they would be expected to take the same approach and in alignment, as far as possible, with that used by regulators of Part A installations.

(4) The regulator must ensure that, in relation to an application made after 5 June 2014 for a permit for a new installation, in accordance with this Schedule, other than an installation in sub-paragraph (1), and generating waste heat at a useful temperature level, a cost-benefit is carried out in order to assess the cost and benefits of utilising the waste heat to satisfy economically justified demand, including through cogeneration, and of the connection of that installation to a district heating and cooling network.

#This delivers Article 14(5)(c) in respect of any new (after 5 June 2014) Part B installation other than those covered by sub-paragraph (1) above. Note that “economically justified demand” is defined in sub-paragraph (13)(c) below. It will be for the regulator, in pre-application discussions with the operator, to determine whether any new installation will generate waste heat at a useful temperature, in line with existing Government guidance.

(5) The regulator must exercise its relevant functions to ensure that a cost-benefit analysis is carried out when, after 5 June 2014, an installation other than an installation falling within sub-paragraph (1) or (4) is substantially refurbished, in order to assess the cost and



benefits of utilising the waste heat to satisfy economically justified demand, including through cogeneration, and of the connection of that installation to a district heating and cooling network.

#This delivers Article 14(5)(c) in respect of any Part B installation, other than those covered by sub-paragraph (1) above, which is substantially refurbished after 5 June 2014. It will be for the regulator, in discussions with the operator prior to the latter seeking a permit variation, to determine whether the substantially refurbished installation will generate waste heat at a useful temperature, in line with existing Government guidance.

(6) The regulator must ensure that in relation to an application made after 5 June 2014 for the grant of an environmental permit for an installation in accordance with this Schedule and carrying on, for the purposes of electricity generation, an activity described in –

- (a) paragraph (a) of Part B of Section 1.1 of Part 2 of Schedule 1; or
- (b) a small waste incineration plant operation,

and which forms part of a new district heating and cooling network or existing district or cooling network, a cost-benefit analysis is carried out, in order to assess the cost and benefits of utilising the waste heat from nearby industrial installations.

#This delivers Article 14(5)d) in respect of new Part B installations. It will be for the regulator to determine what constitutes ‘nearby’, although it is expected that all regulators will take the same approach.

(7) The regulator must exercise its relevant functions to ensure that a cost-benefit analysis is carried out when, after 5 June 2014, an installation carrying on the activity described in-

- (a) paragraph (a) of Part B of Section 1.1 of Part 2 of Schedule 1; or
- (b) a small waste incineration plant operation,

and which forms part of a district heating and cooling network is substantially refurbished, in order to assess the cost and benefits of utilising the waste heat from nearby industrial installations.

#This delivers Article 14(5)(d) in respect of existing Part B installations which form part of an existing district heating or cooling network. It will be for the regulator to determine what constitutes ‘nearby’.

(8) From 31<sup>st</sup> December 2015, when considering applications or otherwise exercising its functions under in sub-paragraphs (1), (2), (4),(5), (6) and (7), the regulator shall take into account both the outcome of the cost-benefit analysis required by those sub-paragraphs and the outcome of the comprehensive assessment referred to in Article 14(1) of the Energy Efficiency Directive.

#This assessment will be prepared by Government.

(9) Where a cost benefit analysis carried out in accordance with sub-paragraphs (1) or (4) shows that benefits exceed costs, the regulator may only grant the permit application subject to the inclusion of conditions that will ensure the operation of the installation in the manner shown by that analysis to be cost beneficial.

#This delivers Article 14(7) in respect of Article 14(5)(a) and, for new installations, Article 14(5)(c)

(10) Where a cost benefit analysis carried out in accordance with sub-paragraphs (2) or (5) shows that benefits exceed costs, the regulator must exercise its relevant functions to ensure the inclusion of permit conditions that will ensure the operation of the installation, in the manner shown by that analysis to be cost beneficial.

#This delivers Article 14(7) in respect of Article 14(5)(b) and, for substantially refurbished installations, Article 14(5)(c)

(11) Where a cost benefit analysis carried out in accordance with sub-paragraph (6) shows that benefits exceed costs, the regulator may only grant the permit subject to the inclusion of conditions that will ensure the operation of the installation, in conjunction with the utilisation of the waste heat from nearby industrial installations, in the manner shown by that analysis to be cost beneficial.

#This delivers Article 14(7) in respect of Article 14(5)(d) for new installations.

(12) Where a cost benefit analysis carried out in accordance with sub-paragraph (7) shows that benefits exceed costs, the regulator must exercise its relevant functions to ensure the inclusion of permit conditions that will ensure the operation of the installation, in conjunction with the utilisation of the waste heat from nearby industrial installations, in the manner shown by that analysis to be cost beneficial.

#This delivers Article 14(7) in respect of Article 14(5)(d) for substantially refurbished installations.

(13) In this paragraph –

(a) “cogeneration” means the simultaneous generation in one process of thermal energy and electrical or mechanical energy;

#This is the definition in EED Article 2(30)

(b) “cost-benefit analysis” means a cost-benefit analysis in accordance with Part 2 of Annex IX of the Energy Efficiency Directive;

#This is as stated in the first sentence of EED Article 14(5)

(c) “economically justifiable demand” means demand that does not exceed the needs for heating or cooling and which would otherwise be satisfied at market conditions by energy generation processes other than cogeneration;

#This is the definition in EED Article 2(31)

(d) “electricity from cogeneration” means electricity generated in a process linked to the production of useful heat and calculated in accordance with the methodology laid down in Annex II of the Energy Efficiency Directive;

#This is the definition in EED Article 2(33)

(e) "high-efficiency cogeneration" means cogeneration meeting the criteria laid down in Annex II of the Energy Efficiency Directive;

#This is the definition in EED Article 2(34)

(f) “substantially refurbished” means, subject to sub-paragraph (13)(g), a refurbishment whose cost exceeds 50 % of the investment cost for a new comparable unit;

#This accords with the definition in EED Article 2(44)

(g) the fitting of equipment to carry out the activity described in Part A(1) of Section 6.10 of Part 2 of Schedule 1 shall not be considered as refurbishment for the purposes of sub-paragraphs (2), (5) or (7);

#This delivers the penultimate paragraph of Article 14(5) which refers to carbon capture.

(h) reference in this paragraph to an installation in sub-paragraph (4) or (5) or to a small waste incineration plant operation means an installation or an operation which has a net thermal input exceeding 20 megawatts.

#Clarification

(14) This paragraph does not apply to any activity described in –

- (a) paragraph (a) of Part B of Section 1.1 of Part 2 of Schedule 1; or
- (b) a small waste incineration plant operation,

which is carried on within a nuclear site, within the meaning given in paragraph 1 of Part 2 of Schedule 23, which is dedicated to the production of nuclear power.

#This delivers Article 14(6)(b).

(15) This paragraph does not apply to installations that need to be located close to a geological storage site approved under Directive 2009/31/EC.

#This delivers Article 14(6)(c).

#The following sub-paragraph delivers the final paragraph of Article 14(6). It incorporates the thresholds which are set out section 3 of this consultation paper and so may be modified in the light of responses to the questions posed in paragraph 3.9

(16) Sub-paragraphs (4), (5), (6) and (7) do not apply to individual installations with -

(a) available waste heat of -

(i) less than 100 kW for waste heat available as hot water; or

(ii) less than 500 kW for waste heat available as steam;

(b) available waste heat, with no suitable source of heat demand ;

(i) greater than 100 kW in the case of water-based heat demand sources and within the relevant radius from the centre of the installation given in Table 1; or

(ii) greater than 500 kW in the case of steam-based heat demand sources and within the relevant radius from the centre of the installation given in Table 1

(c) a heat demand of –

(i) less than 100 kW for hot water heat demands; or

(ii) less than 500 kW for steam heat demands;

(d) a heat demand, with no suitable source of available waste heat;

(i) greater than 100kW in the case of hot water heat demands and within the relevant radius from the centre of the installation given in Table 1; or

(ii) greater than 500 kW in the case of steam heat demands and within the relevant radius from the centre of the installation given in Table 1.

**Table 1**

Grade of Heat	Capacity of Heat Source / Heat Demand [kW <sub>th</sub> ]	Radius [km]
Water	>100kW and ≤500kW	2
	>500kW and ≤1MW	4
	>1MW and ≤2.5MW	9

	Greater than 2.5MW	15
Steam	>500kW and ≤2.5MW	3
	>2.5MW and ≤5MW	6
	>5MW and ≤10MW	12
	Greater than 10MW	15

(17) For the purposes of sub-paragraph (15) “suitable source” shall mean;

- (i) In the case of hot water heat demands either a water-based or steam-based source of heat; or
- (ii) In the case of a steam heat demand a steam-based source of heat.

(18) Sub-paragraphs (9), (10), (11) and (12) do not apply if, in individual cases, the regulator decides that there are imperative reasons of law, ownership or finance for it not to apply. In such cases, within two months of its decision the regulator shall submit a reasoned notification of it to the appropriate authority.

#This delivers Article 14(8).

## Part 2 of Schedule 1

The following paragraph would be added in Section 1 to the ‘Interpretation and application of Part B’:

3. For the purpose of Part B(a) of this Section, where 2 or more appliances with an aggregate rated thermal input of 20 megawatts or more are operated on the same site by the same operator those appliances must be treated as a single appliance with a rated thermal input of 20 megawatts or more.

#This draws in installations where the aggregate thermal input of combustion ‘appliances’ exceeds 20 MW. However, to avoid such

installations being subject to the air pollution control requirements which are set out in the rest of Schedule 8, the following paragraphs would be added at the beginning of paragraph 1 of Schedule 8:

1.—(1) In England and Wales, this Schedule applies in its entirety in relation to every Part B installation except those which are Part B solely because of the aggregation of the rated thermal input of 2 or more appliances in accordance with paragraph 3 of the interpretation and application of Part B of Section 1.1 of Part 2 of Schedule 1.

(2) In England and Wales, only paragraph 9 of this Schedule applies to installations which are Part B solely because of the aggregation of the rated thermal input of 2 or more appliances in accordance with paragraph 3 of the interpretation and application of Part B of Section 1.1 of Part 2 of Schedule 1.