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By email to: paget.fulcher@cepa.co.uk

18th October 2017

Dear Sir

Re: The Independent Public Inquiry into the Non Domestic Renewable Heat Incentive (RHI) Scheme
Provision of a Section 21 Notice requiring the provision of evidence in the form of a written statement

I am writing to you in my capacity as Solicitor to the Independent Public Inquiry into the Non Domestic Renewable Heat Incentive (RHI) Scheme (known as 'the RHI Inquiry') which has been set up under the Inquiries Act 2005 ('the Act').

I enclose a copy of the RHI Inquiry's Terms of Reference for your information.

You will be aware that the RHI Inquiry is conducting its investigations into the matters set out in its Terms of Reference. The Inquiry is continuing with the process of gathering all of the relevant documentation from relevant departments, organisations and individuals as well as requiring individuals who have been, or who may have been, involved in the range of matters which come within the Inquiry's Terms of Reference to provide written evidence to the Inquiry Panel.

In this context, it would be of assistance to the Inquiry to have a statement from you setting out your involvement, whilst a servant or agent of Cambridge Economic Policy

Associates Ltd ('CEPA'), with the Non Domestic Renewable Heat Incentive Scheme in Northern Ireland ('the RHI Scheme'). In particular, the Inquiry wishes to know the extent to which you agree with, or wish to supplement, the detailed account of CEPA's involvement with the Scheme already provided on its behalf by Mark Cockburn in each of the following: his witness statement dated 5 July 2017, his letter to the Permanent Secretary of the Department for the Economy ('DfE') dated 4 November 2016, his evidence to the Public Accounts Committee ('PAC') on 23rd November 2016, and his subsequent letter to the PAC dated 2 December 2016.

In light of this, and in keeping with the approach we are taking with others, the RHI Inquiry is now issuing to you a Statutory Notice (known as a 'Section 21 Notice') pursuant to its powers to compel the provision of evidence in the form of a written statement in relation to the matters falling within its Terms of Reference.

The Section 21 Notice enclosed with this letter requires you to provide evidence to the RHI Inquiry Panel in the form of a written statement addressing the matters identified in the Schedule to the Section 21 Notice. As the text of the Section 21 Notice explains, you are required by law to comply with it.

For the avoidance of doubt, the statement which is required of you by virtue of the enclosed Notice is a statement setting out your involvement in relation to the Scheme. The Inquiry understands that CEPA will ensure that you have access to any relevant information in order to provide the witness statement required. Should you consider that not to be the case, please advise the Inquiry of that as soon as possible.

The Schedule to the enclosed Section 21 Notice provides further detail as to the matters which should be covered in the written evidence which is required from you.

Please also bear in mind that, although the RHI Inquiry now has a good working knowledge of the RHI Scheme, the witness statement required by the enclosed Notice is likely (in common with others) to be published by the RHI Inquiry in due course. It should therefore ideally be written in way which is as accessible as possible in terms of public understanding.

You will also find attached to the Section 21 Notice a Guidance Note explaining the nature of a Section 21 Notice and the procedures that the RHI Inquiry has adopted in relation to such a notice. In particular, you are asked to provide your evidence in the form of the template witness statement which is also enclosed with this correspondence.

As you are aware, receipt of this correspondence and its enclosures places you under a duty of confidentiality to the RHI Inquiry in respect of them. You may share the correspondence and the enclosed Notice with your legal representative(s), but neither you nor they may show, communicate the contents of, nor provide this correspondence or the Notice to any other person or organisation without the express permission of the RHI Inquiry. Any breach of this duty of confidentiality is actionable at the suit of the Inquiry Chairman. In addition, a similar restriction is contained in Restriction Order No 2 of 2017 made by the Inquiry Chairman and available on the RHI Inquiry website.

Given the tight time-frame within which the RHI Inquiry must operate, the Chairman of the Inquiry would be grateful if you would comply with the requirements of the Section 21 Notice as soon as possible and, in any event, by the date set out for compliance in the Notice itself.

Finally, I would be grateful if you could acknowledge receipt of this correspondence and the enclosed notice by email to Patrick.Butler@rhiinquiry.org.

Please do not hesitate to contact me to discuss any matter arising.

Yours faithfully



Patrick Butler

Solicitor to the RHI Inquiry

02890408928

SCHEDULE

[No 520 of 2017]

General / background information

1. Provide a summary of the following background information of relevance to your involvement in the Northern Ireland Non Domestic Renewable Heat Incentive Scheme ('the RHI Scheme'):
 - a. your experience (if any) of renewable heat incentive schemes, and/or other analogous incentive schemes in the energy sector, prior to your involvement in the RHI Scheme (including the name of each such scheme, the date of your first involvement in it, the duration of your involvement in it, the role(s) performed by you in respect of it, and any key similarities and differences between each such scheme and the RHI Scheme);
 - b. your precise involvement in the RHI Scheme, including details of when and how you were involved.

Mark Cockburn's account of CEPA's involvement in the RHI Scheme

2. The Inquiry refers you to copies of the following documents, served herewith, with which you may already be familiar:
 - a. The witness statement of Mark Cockburn, made on behalf of CEPA, dated 5 July 2017 (Inquiry reference WIT-105001 to WIT-107708);
 - b. Mark Cockburn's letter to the Permanent Secretary of the Department for the Economy ('DfE') dated 4 November 2016 (Inquiry reference WIT-33855 to WIT-33872);
 - c. The Hansard transcript of Mark Cockburn's evidence to the Public

Accounts Committee ('PAC') on 23 November 2016 (Inquiry reference PAC-06017 to PAC-06042);

- d. Mark Cockburn's letter to the PAC dated 2 December 2016 (Inquiry reference CEP-83118 to CEP-83196);

In respect of each of the said documents, please address the following issues:

- i. Set out whether, and if so in what precise respects and for what precise reasons, you disagree with any portion of Mr Cockburn's account of CEPA's involvement with the RHI Scheme (and providing, where appropriate, your alternative version of events);
- ii. Set out whether, and if so in what precise respects, you believe that Mr Cockburn's account is incomplete or non-comprehensive in some material respect (ensuring that you provide, where appropriate, the details which you believe to be missing from his account).

Tiering of biomass tariffs

- 3. In respect of tiering of biomass tariffs under renewable heat incentive schemes such as the RHI Scheme in Northern Ireland or the RHI Scheme in Great Britain, please address the following points:
 - a. Confirm that the tier 2 tariff should be set at or below the *net* cost of the renewable fuel i.e. the amount (if any) by which the cost of renewable fuel exceeds the cost of the counterfactual fuel;
 - b. In the event that you are not prepared to offer the confirmation sought in the preceding sub-paragraph, please set your understanding of how, and at what level, the tier 2 tariff should be

set as well as any evidence upon which you rely in support of that understanding (e.g. DECC tariff-setting methodology).

The CEPA 2011 Report for DETI and the Model Provided by CEPA in 2011

4. Without prejudice to any of the foregoing questions, please confirm the following points in respect of the 2011 CEPA Report for DETI and the 2011 RHITM Model created by CEPA:
 - a. Confirm that the only written guidance for using the Model was provided to DETI alongside a copy of the Model on 8 July 2011 in an email from Iain Morrow (Supporting Documents 27 and 28 to Mark Cockburn's 5 July 2017 Statement, WIT-106187 to 106200);
 - b. Confirm that the 2011 Report did not identify or explain that the reference installation (for the small commercial biomass tariff) was calculated using a 16% discount rate for a domestic 12kW biomass boiler with 2014 costs (in 2010 prices) using bagged pellets in a rural detached property;
 - c. Confirm that Table 6.43 (WIT-106283) of the 2012 Addendum Report identified the reference boiler for the 2011 Report as having been 20kW and that this information was repeated in Mark Cockburn's letter of 4 November 2016 (WIT-33857 to 33872);
 - d. Confirm that, without clarity as to the reference boiler, it would be extremely difficult to derive the 4.5p/kWh tariff for small biomass;
 - e. Confirm that the 2011 Model included a test in the Tiering Calculation section of the 'Rates' sheet which flagged whether tiering was needed if the fuel expense was less than the average subsidy and that, in the '050711' model, this showed 'FALSE' (CEP-51346 and 51347);

- f. Confirm that the 2011 Model was created by you.
- 5. Clarify whether CEPA provided or undertook a Model Training Session with DETI and, if it did, clarify when and where it occurred, who was involved (both for CEPA and for DETI), what the training entailed, and what (if any) materials were used in the training.
- 6. Clarify whether (and, if so, how and when) you ever became aware of DETI experiencing difficulties operating the 2011 Model.

The CEPA 2012 Addendum Report for DETI and the Model Created by CEPA in 2012

- 7. Please confirm the following points in respect of the Model created by CEPA in 2012:
 - a. Confirm that the 2012 Model was the model originally provided to DETI in 2011, but substantially modified by CEPA for the Addendum in various respects including as follows:
 - i. To accommodate the inclusion of ongoing hassle costs;
 - ii. To make changes to the tariff bandings;
 - iii. To prevent the Model choosing a future reference year when the capital costs might be lower;
 - iv. To fix the reference year to 2011/2012;
 - v. To update the costs;
 - vi. To rerun the model with the new assumptions;
 - b. Confirm that no copy of the full 2012 Model was provided to DETI;

- c. Confirm that DETI could not have replicated the changes made by CEPA to the 2011 Model without significant help;
- d. Confirm that the following differences or discrepancies existed between the information set out in the 2012 Addendum Report and the 2012 Model:
 - i. Table A.76 (WIT-106308/9) shows the up-front barrier costs to be £3,951 whereas the Model uses £5,364;
 - ii. Table A.76 shows the biomass fuel cost to be 4.39p/kWh whereas the Model uses 4.56p/kWh;
 - iii. Table A.76 shows the oil fuel cost to be 4.86p/kWh whereas the Model uses 5.08p/kWh;
 - iv. Table A.76 shows single year values for the biomass and oil fuel costs whereas the Model uses a value representing the assumed lifetime fuel costs;
 - v. Table A.77 (WIT-106309) shows the biomass capital costs to be £4,073 (which equates to an annuity factor of 7.46) whereas the Model uses costs of £3,632 and an annuity factor of 8.37;
 - vi. Table A.77 shows the oil capital costs to be £710 (which equates to an annuity factor of 6.83) whereas the model uses a capital cost of £636 and an annuity factor of 7.63;
 - vii. Table A.77 shows the annuitized barrier costs to be £718 (which equates to an annuity factor of 7.46) whereas the model uses barrier costs of £641 and an annuity factor of 8.37;

- viii. Summing the differences in Table A.77 and dividing by the output of the biomass boiler gives a tariff of 6.6p/kWh;
 - ix. The model, using these different inputs, produces a tariff of 5.9p/kWh;
- e. Confirm that it is not possible to derive the 5.9p/kWh tariff from the data provided in the 2012 Addendum Report;
 - f. Confirm that the 2012 Model, like that of 2011, included the test in the Tiering Calculation section of the 'Rates' sheet for whether tiering was needed but now flagged this as 'TRUE';
 - g. Confirm that the copy of the 2012 Model provided to the Inquiry (served herewith under Inquiry reference CEP-51348) shows Tier 1 and Tier 2 tariffs for the small commercial biomass boiler;
 - h. Confirm that the work done to create the 2012 Model (as distinct from the 2011 Model) was not done by you and, if that is the case, clarify by whom the work was done and the status of that person / those persons within CEPA at the relevant time.

Models Generally

- 8. Clarify whether, to the best of your knowledge, NERA ever prepared for DECC a model similar to or analogous with either of CEPA's 2011 or 2012 Models and, if it did, whether (and if so when) such a model was ever made available to CEPA by NERA and/or DECC.

(If it was made available, please provide a copy of same to the Inquiry)

Generally

9. Confirm that the outcome of CEPA's analysis in 2011 was that a Challenge Fund was a better option than an ongoing support mechanism (such as the RHI Scheme) because it delivered a greater amount of renewable heat at a significantly lower cost.

10. Clarify whether you are aware of the reason(s) why DETI chose the RHI Scheme ahead of a Challenge Fund and, if you are so aware, set out the said reason(s) and state whether you agreed or disagreed with the decision.

11. Provide any further evidence within your knowledge which is relevant to the matters which the RHI Inquiry is investigating as set out in its Terms of Reference.

NOTE:

It is important for the efficiency of the RHI Inquiry that the issues identified above are addressed as fully as possible and by reference, where available, to the dates and locations of specific incidents to which reference is made. The statement should be broken down into paragraphs, which should be numbered sequentially from '1' to the end. The use of appropriate section headings or sub-headings is also encouraged. A template witness statement is provided with this Notice for your assistance and should be used as the format for your response.



INQUIRY INTO THE RENEWABLE HEAT INCENTIVE SCHEME

RHI REF: Notice 520 of 2017

DATE: 3rd November 2017

**Witness Statement of: Paget Fulcher, Cambridge Economic
Policy Associates Ltd.**

I, Paget Fulcher, will say as follows: -

Herewith, I provide my response to the Northern Ireland Non Domestic Renewable Heat Incentive Inquiry's (the 'RHI Inquiry') Section 21 Notice 520 of 2017, dated 18th October 2017, requiring the provision of evidence in the form of a written statement. I make my statement subject to the following points:

1. My answers below are based on my recollection of the events which occurred, for the most part, a number of years ago, nearly seven years in some cases. My answers provide my best view based on my personal recollection of the events. I have identified details where my personal recollection is particularly limited.
2. While a substantial amount of information was made available to me by CEPA, with the approval of the Inquiry, I have not had an opportunity to review the entirety of that information. I therefore reserve my ability to supply further comment on any of the points set out in this statement should new matters come to my attention through my ongoing review.
3. While I have endeavoured to supply all documentation within my possession that is responsive to the Inquiry's Disclosure Notice 521 of 2017, there are information gaps in CEPA's records, the closure of which may bring further clarity to my understanding of matters being reviewed by the Inquiry. Pending further production of such material either by the Inquiry or directly from the Department itself, I reserve my ability to supply further comment on any of the points set out in

this statement should new matters come to my attention through my ongoing review.

4. There are some matters upon which I cannot provide comment because i) I was not assigned to work on the NI RHI Scheme project at the requisite period of CEPA's engagement by the Department and therefore have no recollection of particular matters, and/or ii) I undertook work as part of a team of employees and was not familiar with every aspect of CEPA's engagement by the Department.

As set out in the covering letter from the Solicitor to the RHI Inquiry, Mr Patrick Butler, I take the intent of the questions contained in the schedule to the Section 21 notice to be to set out:

- my involvement, while an employee of Cambridge Economic Policy Associates Ltd ('CEPA'), with the Non Domestic Renewable Heat Incentive Scheme in Northern Ireland ('the NI RHI Scheme'); and
- the extent to which I agree with or wish to supplement the detailed account of CEPA's involvement with the NI RHI Scheme already provided by Mark Cockburn in a set of documents indicated in the letter.

In light of that, where appropriate, I have sought to avoid repetition of responses to similar or identical questions already provided by Mark Cockburn, on behalf of CEPA. In those cases, I set out clear cross-references and make additional remarks as I see appropriate.

General / background information

1. *Provide a summary of the following background information of relevance to your involvement in the Northern Ireland Non Domestic Renewable Heat Incentive Scheme ('the RHI Scheme'):*
 - a. *Your experience (if any) of renewable heat incentive schemes, and/or other analogous incentive schemes in the energy sector, prior to your involvement in the RHI Scheme (including the name*

RENEWABLE HEAT
INCENTIVE INQUIRY

of each such scheme, the date of your first involvement in it, the duration of your involvement in it, the roles(s) performed by you in respect of it, and any key similarities and differences between each such scheme and the RHI Scheme);

Information on my prior experience was provided in Annex A “Curricula Vitae” of the Proposal submitted by CEPA and AEA to DETI on 6th December 2010 (WIT-105404 to WIT-105407). That description neither contains any details of experience of renewable heat incentive schemes nor contains details of experience of any incentive scheme in the energy sector I would consider analogous to a renewable heat incentive scheme.

I believe that prior to my involvement in the NI RHI Scheme I neither had experience with any renewable heat incentive scheme nor of any analogous incentive scheme in the energy sector. At that point in time, I had recently completed two years with CEPA, my first, and only, employment since leaving full time education in 2008.

b. your precise involvement in the RHI Scheme, including details of when and how you were involved.

In providing my response, I take this question as being limited to my involvement with (i) CEPA’s corporate experience (ii) of the NI RHI (iii) for which CEPA’s “involvement” was a contracted instruction. For the avoidance of doubt, I can confirm that I have had no involvement with the NI RHI Scheme outside my employment with CEPA. As such, my precise involvement in the NI RHI Scheme was as set out in response to Question 3 of the Mark Cockburn’s witness statement of 5th July 2017 (WIT-105047 to WIT-105054).

I was involved in CEPA’s first contracted engagement with DETI regarding the NI RHI Scheme, which ran between January 2011 and July 2011: the Economic Appraisal of the Northern Ireland non domestic Renewable Heat Incentive Scheme. I was also involved in CEPA’s third and final contracted engagement with DETI regarding the NI RHI scheme, which ran between February 2013 and June 2013: the Phase 2 Development of a RHI for Northern Ireland.



Given the passage of time, I cannot recall full details of my involvement in these engagements but in each case I provided support primarily on modelling and cost-benefit analysis, working as part of the CEPA team under the supervision and instruction of the Project Manager, Iain Morrow.

For the avoidance of doubt, I was not involved in CEPA's second contracted engagement with DETI regarding the NI RHI scheme, which occurred between December 2011 and February 2012: the Addendum to the Economic Appraisal. I was on a full time secondment to another client from 1st November 2011 to 5th April 2012, working onsite at their office. The only correspondence related to CEPA's Addendum work that I am aware of having was in November 2011, before the work started: an email from Iain Morrow to me on 16th November 2011, asking if anything in the scope of work looked particularly difficult (previously disclosed by CEPA as "2011-11-16 - 08-52 - DETI Renewable Heat Incentive - follow-up.pdf"); and some other internal emails in November related to timing and budget, where I was CC'd (previously disclosed by CEPA as "2011-11-17 - 14-02 - RE- Northern Ireland RHI - Follow-up work_32.pdf" and "2011-11-17 - 16-11 - Re- Northern Ireland RHI - Follow-up work_25.pdf"). As such, in providing a response to the questions that follow, beyond the abovementioned correspondence, it is not possible for me to offer a recollection of events related to CEPA's Addendum work that would allow me to contradict or supplement other evidence that might be available to the RHI Inquiry.

Mark Cockburn's account of CEPA's involvement in the RHI Scheme

2. *The Inquiry refers you to copies of the following documents, served herewith, with which you may already be familiar:*
 - a. *The witness statement of Mark Cockburn, made on behalf of CEPA, dated 5 July 2017 (Inquiry reference WIT-105001 to WIT-107708);*
 - b. *Mark Cockburn's letter to the Permanent Secretary of the Department for the Economy ('DfE') dated 4 November 2016*

RENEWABLE HEAT
INCENTIVE INQUIRY

(Inquiry reference WIT-33855 to WIT-33872);

- c. The Hansard transcript of Mark Cockburn's evidence to the Public Accounts Committee ('PAC') on 23 November 2016 (Inquiry reference PAC-06017 to PAC-06042);*

- d. Mark Cockburn's letter to the PAC dated 2 December 2016 (Inquiry reference CEP-83118 to CEP-83196);*

In respect of each of the said documents, please address the following issues:

- i. Set out whether, and if so in what precise respects and for what precise reasons, you disagree with any portion of Mr Cockburn's account of CEPA's involvement with the RHI Scheme (and providing, where appropriate, your alternative version of events);*

- ii. Set out whether, and if so in what precise respects, you believe that Mr Cockburn's account is incomplete or non-comprehensive in some material respect (ensuring that you provide, where appropriate, the details which you believe to be missing from his account).*

In responding to these questions, I take CEPA's involvement with the RHI Scheme to be limited to (i) its corporate experience (ii) of the NI RHI (iii) for which its "involvement" was a contracted instruction. Furthermore, my response is limited to my own recollection of events, which is necessarily limited in scope given that I was not involved in all aspects or periods of CEPA's involvement, as noted in response to Question 1 b.

I have reviewed the four abovementioned documents (within the limits of time available) and can confirm that I have not identified any aspects of Mark Cockburn's



account of CEPA's involvement with the RHI Scheme that are inconsistent with my recollection of events or that omit material events I am aware of, except the following:

- **WIT-105001 to WIT-107708**

- Paragraph 2.4.24 on p61 (WIT-105077) and Paragraph 2.15.1 on p106 (WIT-105122) of Mark Cockburn's Witness Statement of 5th July 2017 indicated that 20kW was the size of reference boiler in the <45kW biomass band in the 2011 report when in fact it was the size of the commercial boiler analysed in that band. This point was later clarified in the response to Question 24 c (p35) of Mark Cockburn's statement of 19th October 2017.
- Paragraph 2.19.2 on p122 (WIT-105138) notes that *"The rate of return and the determination of tis appropriate level of was nothing to do with CEPA. In fact, the 12% rate was communicated to CEPA by DETI, the rate being that used by DECC."* While I do not recall how 12% was ultimately selected as the non-domestic discount rate, CEPA did at least analyse what discount rates had been used in other studies. This can be seen in an internal working document that CEPA previously disclosed to the Inquiry: *"2011-03-15 - Cost of capital and hassle costs - Approach.pdf."*

- **WIT-33855 to WIT-33872**

- Pages 4 and 6 (WIT-33860 and WIT-33862) indicated that 20kW was the size of reference boiler in the <45kW biomass band in the 2011 report when in fact it was the size of the commercial boiler analysed in that band. This point was later clarified in the response to Question 24 c (p35) of Mark Cockburn's statement of 19th October 2017.
- The response on page 11 (WIT-33867) to a question regarding the rationale for using a 50kW boiler size for the 20kW to 100kW band in the



2012 Addendum provided a description of the methodology for selecting the reference boiler from a number of “segments” but not why 50kW was selected as the capacity size that was be modelled in that band, as indicated in Table 3.1 “Proposed biomass boiler bandings” on p11 of the 2012 Addendum (WIT-106380). Some further detail to clarify this point was provided in an email from Mahmoud Abu-ebid to Mark Cockburn on 4th November 2016, previously disclosed to the Inquiry: “2016-11-04 - 14 - 34 - RE- Non-Domestic Renewable Heat Incentive_4.pdf.”

- The abovementioned description of the methodology to select the reference installation (WIT-33867) also erroneously noted a feature that had been phased out in the 2012 model: using potential from multiple years to identify the reference installation, instead of a single one. That change, noted on page 9 of the 2012 Addendum (WIT-106378), was however, acknowledged in response to Question 26 a (p36) of Mark Cockburn’s statement of 19th October 2017.

- **PAC-06017 to PAC-06042**

- Responses on p13 (PAC-06030) indicated that CEPA’s involvement with the non-domestic scheme ended in 2012. However, while CEPA’s Phase 1 involvement with the non-domestic scheme may have ended at that point, the Phase 2 work in 2013 did cover some topics related to the extension of the non-domestic scheme in addition to the domestic scheme. Paragraph 2.20.2 on p123 of Mark Cockburn’s statement of 5th July 2017 (WIT-105139) does acknowledge that wider scope, as well as providing a number of supporting documents related to that work: Supporting Documents 40-47 listed on WIT-105167. However, CEPA was not engaged to undertake a review of the Phase 1 work in 2013. This can be seen from a review of the Terms of Reference for the Phase 2 work, previously disclosed by CEPA to the Inquiry as “*Final Terms of Reference Project 11182.docx.*”



- CEP-83118 to CEP-83196

- Not applicable

Tiering of biomass tariffs

3. *In respect of the tiering of biomass tariffs under renewable heat incentive schemes such as the RHI Scheme in Northern Ireland or the RHI Scheme in Great Britain, please address the following points:*

- a. *Confirm that the tier 2 tariff should be set at or below the net cost of the renewable fuel i.e. the amount (if any) by which the cost of renewable fuel exceeds the cost of the counterfactual fuel;*

See below.

- b. *In the event that you are not prepared to offer the confirmation sought in the preceding sub-paragraph, please set your understanding of how, and what level the tier 2 tariff should be set as well as any evidence upon which you rely in support of that understanding (e.g. DECC tariff-setting methodology).*

Please see the response to Question 3 b of Mark Cockburn's Witness statement of 20th October 2017, which provides a response to this question on behalf of CEPA. I am not currently aware of any points that would lead me to contradict or to supplement his response.

The CEPA 2011 Report for DETI and the Model Provided by CEPA in 2011

4. *Without prejudice to any of the foregoing questions, please confirm the following points in respect of the 2011 CEPA Report for DETI and the 2011 RHITM Model created by CEPA:*



- a. *Confirm that the only written guidance for using the Model was provided to DETI alongside a copy of the Model on 8 July 2011 in an email from Iain Morrow (Supporting Documents 27 and 28 to Mark Cockburn's 5 July 2017 Statement, WIT106187 to 106200);*

Please see the response to Question 24 a of Mark Cockburn's Witness statement of 20th October 2017, which provides a response to this question on behalf of CEPA. I am not currently aware of any points that would lead me to contradict or to supplement his response.

- b. *Confirm that the 2011 Report did not identify or explain that the reference installation (for the small commercial biomass tariff) was calculated using a 16% discount rate for a domestic 12kW biomass boiler with 2014 costs (in 2010 prices) using bagged pellets in a rural detached property;*

Please see the response to Question 24 b of Mark Cockburn's Witness statement of 20th October 2017, which provides a response to this question on behalf of CEPA. I am not currently aware of any points that would lead me to contradict or to supplement his response.

- c. *Confirm that Table 6.43 (WIT-106283) of the 2012 Addendum Report identified the reference boiler for the 2011 Report as having been 20kW and that this information was repeated in Mark Cockburn's letter of 4 November 2016 (WIT-33857 to 33872);*

Please see the response to Question 24 c of Mark Cockburn's Witness statement of 20th October 2017, which provides a response to this question on behalf of CEPA. I am not currently aware of any points that would lead me to contradict or to supplement his response.

- d. *Confirm that, without clarity as to the reference boiler, it would be extremely difficult to derive the 4.5p/kWh tariff for small biomass;*



Please see the response to Question 24 d of Mark Cockburn's Witness statement of 20th October 2017, which provides a response to this question on behalf of CEPA. I am not currently aware of any points that would lead me to contradict or to supplement his response.

- e. Confirm that the 2011 Model included a test in the Tiering Calculation section of the 'Rates' sheet which flagged whether tiering was needed if the fuel expense was less than the average subsidy and that, in the '050711' model, this showed 'FALSE' (CEP-51346 and 51347).*

Please see the response to Question 24 e of Mark Cockburn's Witness statement of 20th October 2017, which provides a response to this question on behalf of CEPA. I am not currently aware of any points that would lead me to contradict or to supplement his response.

- f. Confirm that the 2011 Model was created by you*

As noted in response to Question 1 b, I was involved in CEPA's first contracted engagement with DETI regarding the NI RHI scheme: the Economic Appraisal of the Northern Ireland non domestic Renewable Heat Incentive Scheme.

During that period, I provided support primarily on modelling and cost-benefit analysis, working as a junior member of the CEPA team under the supervision and instruction of the Project Manager, Iain Morrow.

I was the member of the team that spent most time working on the model during that period. However, I do not believe that it would be accurate to say that the 2011 Model was created solely by me.

My work on the model was under the supervision and instruction of the Project Manager, and the development both of the specification and implementation of calculations in the model was discussed within the team.



Furthermore, certain aspects of the model were developed by other members of the team. For example, I recall Iain Morrow working on some Visual Basic code, used to automate certain aspects of the model.

5. *Clarify whether CEPA provided or undertook a Model Training Session with DETI and, if it did, clarify when and where it occurred, who was involved (both for CEPA and for DETI), what the training entailed, and what (if any) materials were used in the training.*

I believe I provided DETI a remote training session on the 2011 Model.

In line with the response to Question 25 in Mark Cockburn's witness statement of 20th October 2017, I understand that the session was held on 14th June 2011 via teleconference with a version of the 2011 Model provided for attendees in advance. An email related to this was provided as Annex 37 to Mark Cockburn's witness statement of 20th October, also showing that a teleconference was used as DETI's videoconference facilities were not available.

I cannot recall with certainty who from DETI attended the training session but understand that Peter Hutchinson and Sam Connolly attended. I do not recall any other members of the CEPA team joining the session.

I do not recall the details of the session but expect that it may have covered a number of the steps later covered in the model guide provided on 8th July 2011 (WIT-106188 to WIT-106200), such as how to use the functionality of the model to look up information for a single segment, record tariff levels and complete a full run of the model outputs. It may have also included a sheet-by-sheet walk-through of the model.

6. *Clarify whether (and, if so, how and when) you ever became aware of DETI experiencing difficulties operating the 2011 Model.*

I do not recall ever becoming aware of DETI experiencing difficulties operating the 2011 Model.



The CEPA 2012 Addendum Report for DETI and the Model Created by CEPA in 2012

7. Please confirm the following points in respect of the Model created by CEPA in 2012:

- a. Confirm that the 2012 Model was the model originally provided to DETI in 2011, but substantially modified by CEPA for the Addendum in various respects including as follows:
 - i. To accommodate the inclusion of ongoing hassle costs;
 - ii. To make changes to the tariff bandings;
 - iii. To prevent the Model choosing a future reference year when the capital costs might be lower;
 - iv. To fix the reference year to 2011/2012;
 - v. To update the costs;
 - vi. To rerun the model with the new assumptions;

Please see the response to Question 26 a of Mark Cockburn's Witness statement of 20th October 2017, which provides a response to this question on behalf of CEPA. I am not currently aware of any points that would lead me to contradict or to supplement his response.

- b. Confirm that no copy of the full 2012 Model was provided to DETI;

Please see the response to Question 26 b of Mark Cockburn's Witness statement of 20th October 2017, which provides a response to this question on behalf of CEPA. I am not currently aware of any points that would lead me to contradict or to supplement his response.



- c. Confirm that DETI could not have replicated the changes made by CEPA to the 2011 Model without significant help;*

This question asks me to provide a view on the relative competency of DETI and its employees' and other advisors' ability to perform different technical tasks and functions which is a matter that is i) beyond my understanding and ii) something I am not qualified to speculate on.

Please see the response to Question 26 c of Mark Cockburn's Witness statement of 20th October 2017, which provides a response to this question on behalf of CEPA. I am not currently aware of any points that would lead me to contradict or to supplement his response.

- d. Confirm that the following differences or discrepancies existed between the information set out in the 2012 Addendum Report and the 2012 Model:*

- i. Table A.76 (WIT-106308/9) shows the up-front barrier costs to be £3,951 whereas the Model uses £5,364;*

Please see the response to Question 26 d i of Mark Cockburn's Witness statement of 20th October 2017, which provides a response to this question on behalf of CEPA. I am not currently aware of any points that would lead me to contradict or to supplement his response.

- ii. Table A.76 shows the biomass fuel cost to be 4.39p/kWh whereas the Model uses 4.56p/kWh;*

Please see the response to Question 26 d ii of Mark Cockburn's Witness statement of 20th October 2017, which provides a response to this question on behalf of CEPA. I am not currently aware of any points that would lead me to contradict or to supplement his response.



- iii. *Table A.76 shows the oil fuel cost to be 4.86p/kWh whereas the Model uses 5.08p/kWh;*

Please see the response to Question 26 d iii of Mark Cockburn's Witness statement of 20th October 2017, which provides a response to this question on behalf of CEPA. I am not currently aware of any points that would lead me to contradict or to supplement his response.

- iv. *Table A.76 shows single year values for the biomass and oil fuel costs whereas the Model uses a value representing the assumed lifetime fuel costs;*

Please see the response to Question 26 d iv of Mark Cockburn's Witness statement of 20th October 2017, which provides a response to this question on behalf of CEPA. I am not currently aware of any points that would lead me to contradict or to supplement his response.

- v. *Table A.77 (WIT-106309) shows the biomass capital costs to be £4,073 (which equates to an annuity factor of 7.46) whereas the Model uses costs of £3,632 and an annuity factor of 8.37;*

Please see the response to Question 26 d v of Mark Cockburn's Witness statement of 20th October 2017, which provides a response to this question on behalf of CEPA. I am not currently aware of any points that would lead me to contradict or to supplement his response.

- vi. *Table A.77 shows the oil capital costs to be £710 (which equates to an annuity factor of 6.83) whereas the model uses a capital cost of £636 and an annuity factor of 7.63;*

Please see the response to Question 26 d vi of Mark Cockburn's Witness statement of 20th October 2017, which provides a response to this question on behalf of CEPA. I am not currently aware of any points that would lead me to contradict or to supplement his response.



- vii. *Table A.77 shows the annuitized barrier costs to be £718 (which equates to an annuity factor of 7.46) whereas the model uses barrier costs of £641 and an annuity factor of 8.37.*

Please see the response to Question 26 d vii of Mark Cockburn's Witness statement of 20th October 2017, which provides a response to this question on behalf of CEPA. I am not currently aware of any points that would lead me to contradict or to supplement his response.

- viii. *Summing the differences in Table A.77 and dividing by the output of the biomass boiler gives a tariff of 6.6p/kWh;*

Please see the response to Question 26 d viii of Mark Cockburn's Witness statement of 20th October 2017, which provides a response to this question on behalf of CEPA. I am not currently aware of any points that would lead me to contradict or to supplement his response.

- ix. *The model, using these different inputs, produces a tariff of 5.9p/kWh;*

Please see the response to Question 26 d ix of Mark Cockburn's Witness statement of 20th October 2017, which provides a response to this question on behalf of CEPA. I am not currently aware of any points that would lead me to contradict or to supplement his response.

- e. *Confirm that it is not possible to derive the 5.9p/kWh tariff from the data provided in the 2012 Addendum Report;*

Please see the response to Question 26 e of Mark Cockburn's Witness statement of 20th October 2017, which provides a response to this question on behalf of CEPA. I am not currently aware of any points that would lead me to contradict or to supplement his response.



- f. *Confirm that the 2012 Model, like that of 2011, included the test in the Tiering Calculation section of the 'Rates' sheet for whether tiering was needed but now flagged this as 'TRUE';*

Please see the response to Question 26 f of Mark Cockburn's Witness statement of 20th October 2017, which provides a response to this question on behalf of CEPA. I am not currently aware of any points that would lead me to contradict or to supplement his response.

- g. *Confirm that the copy of the 2012 Model provided to the Inquiry (served herewith under Inquiry reference CEP-51348) shows Tier 1 and Tier 2 tariffs for the small commercial biomass boiler.*

Please see the response to Question 26 g of Mark Cockburn's Witness statement of 20th October 2017, which provides a response to this question on behalf of CEPA. I am not currently aware of any points that would lead me to contradict or to supplement his response.

- h. *Confirm that the work done to create the 2012 Model (as distinct from the 2011 Model) was not done by you and, if that is the case, clarify by whom the work was done and the status of that person / those persons within CEPA at the relevant time.*

As noted in response to Question 1 b above, I can confirm that I did not participate in CEPA's work undertaken in the development of the 2012 Model (as distinct from the 2011 Model).

As I was neither involved in the work, nor based in the CEPA office at the time, I have no personal recollection regarding the composition of the team members who were engaged in the 2012 modelling work. However, I note that the response to Question 3 of the CEPA witness statement of 5th July 2017 (WIT-105047 to WIT-105054) provides details of the team members whom I understand were involved at that point in time.

**Models Generally**

8. *Clarify whether, to the best of your knowledge, NERA ever prepared for DECC a model similar to or analogous with either of your 2011 or 2012 Models and, if it did, whether (and if so when) such a model was ever made available to CEPA by NERA and/or DECC.*

Please see the response to Question 27 of Mark Cockburn's Witness statement of 20th October 2017, which provides a response to this question on behalf of CEPA. I am not currently aware of any points that would lead me to contradict or to supplement his response.

(If it was made available, please provide a copy of same to the Inquiry)

Not applicable

Generally

9. *Confirm that the outcome of CEPA's analysis in 2011 was that a Challenge Fund was a better option than an ongoing support mechanism (such as the RHI Scheme) because it delivered a greater amount of renewable heat at a significantly lower cost.*

I do not recall details of discussions of this point during 2011 so must rely on the information set out in CEPA's 2011 Report as the basis for this response.

CEPA's 2011 report shows that the 2011 analysis left it partially open as to whether a Challenge Fund was a better option than an ongoing support mechanism.

The report set out that if certain qualitative factors were determined to outweigh the results of the cost-benefit analysis, then the Northern Ireland specific RHI should be pursued. The report did not include analysis of whether those conditions held or not.

This is set out in Section 12 "*Summary, conclusions and recommendations*" of that report, the following extracts from which are particularly relevant:



“Based on the cost-benefit analysis, a capital grant or Challenge Fund scheme appears to be more attractive than an RHI. However, there are other pros and cons of these two options, which we set out below in Table 12.1.”

Table 12.1: Pros and Cons of RHI and capital grants

	Pros	Cons
Grants (Administered and Challenge Fund)	<ul style="list-style-type: none"> • Removes upfront capital barriers • Cheaper, on a lifetime basis 	<ul style="list-style-type: none"> • Major proportion of renewable heat capex must be subsidised upfront (which can be challenging if available subsidy is limited relative to uptake targets). • Can be difficult to ensure continued use of renewable heat equipment, once grant is paid. • Can be seen as short term measure
RHI (payment stream)	<ul style="list-style-type: none"> • Payments made for renewable heat production, not simply installation • Requires less subsidy upfront • Consistent with GB approach 	<ul style="list-style-type: none"> • More expensive in the long term • May not be the optimal approach for households, because of the financing constraints.

“Given that the amount of grant is sufficient to meet the desired target, the best value for money seems to be in the grant approaches, especially the Challenge Fund. There are, however, reasons as to why a Northern Ireland RHI, in particular, might be preferred, which include:

- *“the non-cost additional benefits of the RHI as set out in Table 12.1;*
- *“administrative simplicity – in terms of being better able to “piggy-back” what is happening in the rest of the UK and at a lower costs; and*
- *“alignment with UK policies, so as being better able to capture any learning from those experiences, which might be slightly more difficult to adopt in the instance of pursuing a “go it alone” policy.*

“In providing an overall recommendation it is, however, useful to distinguish between the commercial and domestic sectors. In terms of the former, if it is determined that the factors set out above outweigh the results of the cost-benefit analysis, then the Northern Ireland specific RHI should be pursued.”



Please note that paragraphs 2.2.8 to 2.2.10 of Mark Cockburn's witness statement of 5th July 2017 (WIT-105062 to WIT-105063) provide a response to a similar question on behalf of CEPA.

10. Clarify whether you are aware of the reason(s) why DETI chose the RHI Scheme ahead of a Challenge Fund and, if you are so aware, set out the said reason(s) and state whether you agreed or disagreed with the decision.

I do not recall ever being told why DETI chose the RHI Scheme ahead of a Challenge Fund. I do understand that the report prepared by CEPA for DETI would have been but one of the many considerations taken into account by the Government of Northern Ireland in making its decision.

11. Provide any further evidence within your knowledge which is relevant to the matters which the RHI Inquiry is investigating as set out in its Terms of Reference.

Not applicable

Statement of Truth

I believe that the facts stated in this witness statement are true.

Signed:  _____

Dated: 3rd November 2017