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Subject: Northern Ireland RHI Review - Updated Ricardo Scope and Meeting Notes (20/5/16) [OFFICIAL]
Date: 10 June 2016 18:45:34
Attachments: [Letter proposal for NDRHI NI audits v2.docx](#)
[NI RHI Review - Meeting Notes of 20 May 2016 and subsequent audit sample selection.docx](#)

All

Further to our discussion on Tuesday, and in advance of our meeting on Monday, please find attached:

1. An updated quote from Ricardo E&E

- Note that this now includes the provision of an interim report.
- As drafted, the **interim report would be based on audits finalised up to the end of July** and would be available by third week of August – this would allow for an estimated 30-40 audits to be in the scope of the report.
- Should there be an earlier date required for the interim report, **this date could be advanced (at the expense of reporting on a smaller sample)** – so you may wish to consider if an earlier date is preferred based on your reporting timetable.
- Note also that Ricardo will **endeavour to further reduce the suggested auditing time “by campaigning the team** i.e. we endeavour that several auditors will undertake their visits on a same week.”

2. Meeting notes of 20 May 2016

These summarise the approach taken to **audit stratification and sample selection**. For reference, the document also provides a breakdown of installations by type, technology (including 7 non-biomass – apologies, I think I referred to 6 in our meeting but this still represents less than 10% of sites) and capacity.

I am still progressing outstanding actions from our meeting on Tuesday to circulate proposed specific questions to be addressed by auditors regarding relevant allegations, and to feedback with a Deloitte phase 2 proposal or to provide a timeframe for receiving this. I will update at our meeting on the status of these, if not before.

Kind regards
Edmund

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Issue Number 2

10 June 2016

Re: With reference to Request for Proposal on auditing of renewable heat generating installations under the Non-Domestic Renewable Heat Incentive (RHI) Scheme in Northern Ireland

Dear Edmund,

We are delighted to provide this brief proposal in response to your e-mail to us on May 23, 2016, taking into account your further email to us on June 8, 2016. Please find enclosed a brief description of our methodology and relevant expertise.

Our estimated price for completing the audits and associated reporting is [REDACTED]. This price is indicative, it includes travel cost that is charged based on actual incurred.

I hope our proposal is of interest and looking forward to hearing from you.

Best regards,

Mahmoud Abu-Ebid

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1 Introduction

The Department of Enterprise, Trade, and Investment (DETI) launched the Northern Ireland Renewable Heat Incentive (NI RHI) in 2012. The NI RHI is available for domestic and non-domestic generators of renewable heat technologies and provides long term financial support for eligible renewable heat technologies <1MWh.

In February 2016 DETI however announced that the NI RHI for non-domestic installations will be suspended to new applicants from 29 February 2016 as the target for the renewable heat had been exceeded and the budget available exhausted. In order to help assessing the credibility of the high volumes of applications received prior to scheme closure and also whistle-blower allegations, Ofgem E-Serve (Ofgem) has approached Ricardo Energy & Environment for undertaking a number of audits of non-domestic RHI installations in Northern Ireland.

It is expected that 72 non-domestic RHI installations will be audited in Northern Ireland. This audit estimate covers all technologies, a mix of pre/post-accredited sites and a mix of small/medium/large capacity bands. This estimate may however be slightly adjusted in light of any emerging evidence or ongoing discussions with the Department for the Economy (DfE). Our proposal for the delivery of the audits is below.

2 Our Proposed Methodology

Our approach will be based upon our established methodology for the current non-domestic RHI audit programme for Great Britain (GB), which is delivered for Ofgem.

2.1 Auditing

As agreed at a meeting with Ofgem on 20 May 2016, the same approach to site inspection, report generation and sign-off will be employed as for the current GB non-domestic RHI audit programme to ensure consistency in approach. At the start of the auditing, Ofgem will advise us of the sites to be audited in Northern Ireland. We will review Ofgem's list and create an outline plan giving our suggestions for selection of auditors and scheduling, including any proposals to campaign audits for efficiency purposes. As for the current GB audit programme, the sites will be notified of the audit visit within 10 working days prior to the audit (5 working days prior in the case of pre-accreditation audits).

In order to increase the efficiency of the use of resources we suggest campaigning the site audits in Northern Ireland. Based on the estimated split of audits between pre- and post-accreditation, as indicated in the email of Edmund Ward dated 23 May 2016, we suggest one campaign of audits last for one week, during which 6 audits will be undertaken with one day in the middle allocated for audit report write up. On assumption that 72 non-domestic NI RHI audits will be required, we expect to undertake 12 campaign visits to Northern Ireland. The actual number of visits will however depend on the final number of audits selected and also their distribution in Northern Ireland, while using resources as efficiently as possible.

Our approach will allow us to deliver to the same deadlines achieved under the GB RHI audit programme. Therefore a draft report will be submitted to Ofgem within 15 working days of completing an audit (5 days for pre-accreditation audits). Our review team, all of whom have RHI experience, will review all audit reports before they are submitted to Ofgem to confirm all requirements have been met. Individual audits will be reported separately. We suggest that the site selection be uploaded to the IT Portal, developed for the current GB RHI audit programme, where the progress could be tracked.

As agreed at a meeting with Ofgem on 20 May 2016, we will be utilising existing audit report templates developed for the current GB RHI audit programme noting that no additional checks would be warranted. Audits in Northern Ireland to date have only been on solid biomass installations. It is however expected that the new round of audits in Northern Ireland will also include a selection from the following technologies: ground source heat pump, water source heat pump and solar thermal. We will therefore review the existing audit reports templates used for audits in GB for the technologies to accommodate the specifics of the Northern Ireland RHI Regulations. The updated templates will be sent to Ofgem for their approval.

2.2 Reporting

An interim report will be delivered regarding all individual audits completed by end of July 2016. After the completion and their approval by Ofgem of all individual audit reports, a final overview report will be delivered to Ofgem. The reports are expected to be at a similar scope to the lessons learnt reports for GB under the current non-domestic RHI audit programme. The interim report will provide a summary of the audits undertaken in Northern Ireland by end of July 2016, the final overview report will provide an overview of all audits undertaken under this proposal in Northern Ireland. The reports will also contain an overview of the identified non-compliances and up to three lessons learnt case study examples on the most common non-compliances or serious issues with eligibility. It is expected that there will be 10-15 pages to the reports, including any figures, tables and photos.

The interim and final overview reports will be accompanied with a spread-sheet providing outcomes for each audit for the purposes of identifying compliance trends. We suggest that the spread-sheet include the following data fields for each installation audited: RHI installation number, location, technology, complexity, capacity, economic sector, assurance rating and non-compliances identified.

2.3 Project Plan

As discussed above, we anticipate 12 audit visits will be undertaken to Northern Ireland. We suggest a 3-month (12-week) auditing period to complete these audits. The auditing period will be preceded by a two week long audit allocation and notification period. We do however our best to reduce the suggested auditing time by campaigning the team i.e. we endeavour that several auditors will undertake their visits on a same week.

The interim report will be submitted to Ofgem in one week after the approval of all audit reports for audits undertaken by end of July 2016, the final overview reports will be submitted in one week after approval of all Northern Ireland reports.

The following Gantt chart summarises our anticipated scheduling of the project tasks.

Figure 1: Gantt chart

Task	Weeks																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Refining audit report templates	■																			
Audit allocation	■																			
Audit notification	■	■	■	■	■	■	■	■	■	■	■	■	■							
Auditing			■	■	■	■	■	■	■	■	■	■	■	■						
Individual audit reports				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
Report summarising findings											■									■

2.4 Team members

We have assembled a team of experienced non-domestic RHI auditors from Ricardo Energy & Environment. Our auditors have all the relevant experience required for successful delivery of all the different systems and technologies indicated. The auditors will be supported by a team of experienced RHI report reviewers and admin team, as used under the current GB RHI auditing programme. We also expect no changes to the management of the work as compared to the current GB RHI audit programme - our project manager and primary contact point for Ofgem will be Anna-Liisa Kaar, Mahmoud Abu-ebid will be our project director, offering high level guidance.

We propose to use a core team of five auditors who have extensive experience on the current GB RHI audit programme. In addition to this core group of auditors we will also be able to draw resources from a wider pool of auditors from within Ricardo Energy & Environment. We confirm that the selection of auditors will be limited to those that have been approved by Ofgem for the current RHI audit programme.

All members of the proposed core team have at least 18 months' experience and several team members also have prior auditor experience on the Northern Ireland programme also. The audit experience of individual core team members is set out in the following table.

Table 1: Experience matrix for core auditor team

Auditor	GB Programme Auditor Since	NI Audits	Pre accreditation audits	Complex Sites	Large Sites	Technologies			
						Biomass	Ground Source Heat Pumps	Water Source Heat Pumps	Solar Thermal
Jackie Elenjickal	2014	✓		✓		✓	✓	✓	✓
John Harvey	2014			✓		✓			✓
Michael Morrell	2013		✓	✓	✓	✓	✓	✓	✓
Simon Morris	2012	✓	✓	✓	✓	✓	✓	✓	✓
Seamus Rooney	2013	✓	✓	✓	✓	✓	✓	✓	✓

3 Financial and commercial offer

3.1 Price and invoicing

3.1.1 Auditing price

Ofgem estimates there to be 72 non-domestic RHI installations audited in Northern Ireland. This audit estimate covers all technologies, a mix of pre/post-accredited sites and a mix of small/medium/large bands. We acknowledge the estimate may be slightly adjusted in light of any emerging evidence or ongoing discussions with the DfE.

The cost of Northern Ireland audits will be based on the fixed price per audit methodology employed for the GB RHI audit programme. The table below provides the breakdowns of the suggested split of the Northern Ireland audits by Ofgem and our suggested price for the audits based on the split.

Table 2 Breakdown of auditing price

Type ¹	Base No of Audits (A)	Fixed Price Per Audit (B)	Total Cost (A*B)
Large Simple	0	Sensitive commercial information redacted by the RHI Inquiry	
Large Complex	6		
Medium Simple	20		
Medium Complex	42		
Small Simple	3		
Small Complex	1		
Total	72		

¹ Provided based on the following complexities of the installations: small (0-19kW), medium (20kW-199kW) and large (200kW - 999kW).

3.1.2 Travel

In accordance with the current practice we will also invoice for the cost of **travel time** and **travel and subsistence (T&S)** in addition to the cost of the audits. These will be charged based on actual number of visits undertaken and T&S incurred during these visits.

We will charge Ofgem for travel time to Northern Ireland at rate of [redacted] (senior consultant day rate) per visit on the basis of a half-day for an outbound or return journey. Our estimate for the total cost of travel time is [redacted], based on an assumption that there will be 12 visits to Northern Ireland. The travel time will however be charged based on actual number of visit undertaken.

T&S will be charged on actual costs incurred. Indicative T&S cost per visit to Northern Ireland is [redacted], which is inclusive of flights, accommodation, car hire, fuel and meals. This indicative T&S is our best estimate based on our auditing experience. We however note that the indicative site selection includes a good selection of pre-accreditation sites that have reduced notification period (5 working days). Travel would therefore need to be arranged at short notice, resulting in increased T&S costs. We are however willing to confirm the travel with Ofgem, where the T&S exceeds the indicative budget by x% (to be determined), if Ofgem so wish. On assumption that 12 visits will be undertaken to Northern Ireland, an indicative T&S budget is [redacted].

3.1.3 Reporting & Project Management

We assume that five days of senior consultant time [redacted] will be spent on reporting – 1 days for compiling the spread-sheet, 2 days for the interim report and 2 days for the final overall report, as discussed in section 2.2. Therefore the total cost for reporting is [redacted]. We also expect there to be an additional 2 days spent by our project manager for allocating audits, arranging the audits and the team and liaising with Ofgem. The total cost for project management activities is [redacted] (2 days at senior consultant rate [redacted]).

1 day of senior consultant time will be provided free-of-charge for updating the audit report templates for heat pumps and solar thermal.

3.1.4 Total price

Taking into account the cost elements mentioned in the sections above, **the total indicative price for the 72 audits is** [redacted]. This price can however vary on the actual number and type of audits undertaken and T&S occurred.

This price does not include a discount of 20% that we offer for the sites with multiple installations of 3 or more at one site and also 10% discount for solar thermal audits (both applied on the audit fixed price), in accordance with the current GB non-domestic RHI audit programme.

Table 3 Breakdown of the total price

Activity	Price
Auditing	[redacted]
Travel time	[redacted]
T&S	[redacted]
Reporting	[redacted]
Project management	[redacted]
Total	[redacted]

Invoices for the auditing, travel and T&S shall be submitted on the satisfactory completion of and acceptance of the audit reports by Ofgem. T&S claims will be accompanied by spread-sheets explaining the costs occurred. The final payments for reporting will be submitted on the acceptance of the individual reports by Ofgem.

Meeting Notes

NI NDRHI Joint Review – Site audit strategy workshop

20 May 2016

Attendees: Tahlee Fong (Deloitte); Mahmoud Abu-ebid, Anna-Liisa Kaar (Ricardo E&E); Shaneigh Turner, Mark George, Edmund Ward (Ofgem E-Serve, NDRHI)

1. Context, specific referrals/findings to date (EW)

- We discussed context including referrals and whistle blower allegations, and discussed headline findings to date as part of the Department for Economy (DFE)/E-Serve Joint Review
- We noted a number of distinctions between policy and administration areas, and clarified that the evidence derived from any audit programme might be relevant to both areas

2. Population available for audit (MG/ST)

2.1. Number of sites by technology and size

- c. 2,129 applicants/participants, of which 1414 approved/704 being processed/11 cancelled or rejected
- Technology split: 2,103 biomass, 19 GSHP, 1 WSHP, 6 solar

2.2. Pre/post approval split

- See 3.2 below

2.3. Any sites already flagged for audit

- See 3.2 below

3. Risk factors and site selection (All)

3.1. Number of sites

- We agreed to utilise a monetary unit sampling (MUS) approach to generate a statistical sample of audits
- We agreed that in addition, it would be appropriate to add targeted sites based on risk factors (see 3.2) to ensure the sample could also address specific concerns as defined in the scope of the review

3.2. Stratification of sites

- The following factors were identified as needing to be appropriately represented across the combined (statistical + targeted) audit sample

Factor	Minimum representation in Phase 2 audit sample	Comments/Rationale
Statistical sample	Sufficient to draw conclusions on overall population	To be proposed using Monetary Unit Sampling as per NDRHI approach developed previously by Grant Thornton
Multiple installations on one site	Audits of at least 5 sites having multiple installations present	To address experience where some practices (e.g. related to boiler sizing/system separation) may be prevalent
High operating hours/high load factor [>85% load factor]	Some sites operating at high loads	To address potential concerns around high usage patterns/artificially high load factors
Capacity close to tariff band boundary	Some sites close to tariff band boundary	To address concerns regarding boiler over/under-sizing
Technology and tariff bands	Some installations in each technology and each tariff band	To ensure the final report can comment on all technologies and is not restricted to certain scales

Referrals	As per assessment of referrals from E-Serve operations teams and to include referrals from whistle blower or suspected fraud allegations where there are specific installations indicated	To address concerns and align with overall review scope
Fuel records	[This is a requirement for all biomass sites]	As this has been a frequent non-compliance identified in audits to date
Heat loss assessments	Some installations likely to be utilising a heat loss assessment/calculation	As this has been a frequent non-compliance identified in audits to date
Heat use/industry sector	Some representation across key industry sectors	To address concerns and align with overall review scope
Prior to approval or post application approval ('pre-accreditation'/'post-accreditation' audits)	A mixture of pre- and post-accreditation audits	We agreed that the other factors should lead any sample, and that we would expect and tolerate a mixture of pre/post-accreditation audits

4. Site audit approach (R- E&E)

4.1. Level of checks required to address risk factors

- Having discussed a number of individual areas, we noted that NI-specific templates would be required for heatpump and solar thermal audits, but that no additional checks would be warranted based on the agreed scope

4.2. High-level programme/approach

- We agreed that: (i) to maximise the possibility for actions arising from any audits conducted/compliance areas found; and (ii) to ensure consistency and approach with previous, current and future years' audit programmes; the same approach to site inspection, report generation and sign-off would be employed
- We noted that based on the projected time to deliver a full programme of audits, it might be necessary to consider delivering in multiple tranches, with interim reporting being provided – but that the initial approach should be to generate a proposal based on required scope, assuming a single tranche of audits and a single overall report summarising outcomes

4.3. Approach to contract

- We confirmed that we would plan on a contract variation, under the terms of the 2016/17 framework contract, to reflect this audit project
- An impact of this would be that our forecast number of Northern Ireland site audits under the existing NDRHI framework will be reduced to zero (but with a possibility that we would seek some increase)
- We agreed that to maximise delivery and value for money, some appropriate re-scheduling across GB/NI NDRHI site audits by Ricardo would be acceptable provided that the milestone of completing GB statistical audits by September was not deferred by more than 2 months

5. Reporting approach (All)

5.1. Outcomes of individual audits

- As noted above, individual audits would be reported on separately
- We noted the opportunity to realise some efficiencies in the report template/questions asked
- Anna-Liisa/Shaneigh will share current proposals for template changes that could be implemented for this project, while noting that this will need to be consistent with any wider

package of changes that may be effected on a slower timescale relating to all NI (and potentially GB) NDRHI audits

5.2. Summary report on all audits

- This would be provided by Ricardo, and would be expected to follow a similar scale/scope/format as the current lessons learned reports
- In addition, Ricardo would summarise outcomes of each individual audit in a spreadsheet to facilitate further interrogation/statistics/findings to be considered

5.3. Relationship with Deloitte overall report

- Deloitte would summarise the findings from the Ricardo site audit report and the Deloitte Phase 1 report into an overall Review report, with a scope to be agreed by E-Serve in discussion with DFE
- Deloitte and Ricardo would need to provide for suitable contractual agreements to facilitate the report writing and sharing process

6. Next steps (All)

6.1. Programme and scope for Ricardo Audits

- Ricardo to provide summary proposal setting out costs/timings

6.2. Draft phase 2 scope for Deloitte review

- Deloitte to consider approach to consolidation into an overall Review report

7. AOB

- Ricardo offered the opportunity for possible attendance of a DFE attendee at one/several of the site audits in Northern Ireland

Results of sample selection exercise:

- Based on the agreed approach, the following is our proposed split of audits. This results in **72** audits to incorporate both statistical and targeted audits
- We acknowledge this may be adjusted slightly in light of any emerging evidence or as we discuss factors/spread/resources with DFE, but please use this to baseline site audit proposal.
- This selection covers all technologies and a mix of pre/post-accredited sites.
- There are 9 installations suggested by E-Serve operations teams, spread across 5 sites covering off the multiple installations category.
- This also covers a mix of small/medium/large biomass bands.

Statistical selection

33 post-accreditation installations

17 pre-accreditation installations

Tech type	Capacity (kW)	Number Selected
Solid Biomass Boiler	32	2
Solid Biomass Boiler	48	1
Solid Biomass Boiler	49	1
Solid Biomass Boiler	60	1
Ground source heat pump	84	1
Solid Biomass Boiler	90	1
Solid Biomass Boiler	95	2

Solid Biomass Boiler	99	33
Solid Biomass Boiler	199	7
Solid Biomass Boiler	560	1

Targeted**19 post-accreditation installations****3 pre-accreditation installations**

Targeted type	Tech type	Capacity (kW)
Suggested by ops	Biomass	56
Suggested by ops	Biomass	99
Suggested by ops	Biomass	99
Suggested by ops	Biomass	99
Suggested by ops	Biomass	99
Suggested by ops	Biomass	99
Suggested by ops	Biomass	99
Suggested by ops	Biomass	99
Suggested by ops	Biomass	99
Suggested by ops	Biomass	99
Special referral	Biomass	32
Special referral	Biomass	99
Technology type	WSHP	17
Technology type	Solar Thermal	35
Technology type	Solar Thermal	5
Technology type	GSHP	71
Technology type	GSHP	16
Technology type	GSHP	11
Large capacity	Biomass	999
Large capacity	Biomass	990
Large capacity	Biomass	630
Large capacity	Biomass	580
Large capacity	Biomass	580