

From: [McMurray, Stephen](#)
To: [Marten, Lucy](#); [Coyne, Terence](#); [McCann, Brendan](#); [Wightman, Stuart](#)
Subject: FW: RHI addednum - rates of return
Date: 11 January 2017 17:18:19

For info

Stephen McMurray

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From: McMurray, Stephen
Sent: 11 January 2017 16:55
To: Scott, Michelle
Cc: Brennan, Mike; Morelli, Emer; Cousins, Heather; Montgomery, Paul; McNally, Noel; Finlay, Christine; Murphy, Shane; Woods, Michael (DfE); Dukelow, Victor
Subject: RE: RHI addednum - rates of return

Thanks Michelle, your understanding from our recent discussions is correct and I confirm that the October 2015 conclusion on value for money reached by DETI is not undermined by this change in comparator to the 12% figure.

Stephen

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From: Scott, Michelle
Sent: 06 January 2017 16:41
To: McMurray, Stephen
Cc: Brennan, Mike; Morelli, Emer; Cousins, Heather; Montgomery, Paul; McNally, Noel; Finlay, Christine
Subject: RHI addednum - rates of return

Stephen

There has been a helpful engagement between our departments on the rates of return query raised by DoF just before Christmas, and I am grateful for the clarity provided.

As highlighted in previous correspondence, the 2015 addendum had compared a rate of return of between 11.6% and 12.8% for the proposed new tiered tariff to the 12% included in the State Aid Approval notification.

I understand from our recent engagement that this comparator was incorrect, as the 12% is an IRR while the 11.6% and 12.8% figures are simply the payback periods expressed as percentages.

The IRRs for the tiered tariffs which have now been calculated demonstrate that the IRRs achievable under three scenarios range from 11% to 19%, with 19% being the maximum return achievable. Clearly this can only be indicative as movement in any of the underpinning cost assumptions would change the IRR (as has always been the case for calculating the returns achievable on this scheme).

I would be grateful if you could confirm that the October 2015 conclusion on value for money reached by the then DETI is not undermined by this change in comparator to the 12% figure.

Many thanks

Michelle

From: [McMurray, Stephen](#)
To: [Marten, Lucy](#); [Coyne, Terence](#); [Dukelow, Victor](#); [Wightman, Stuart](#); [Smith, Alan](#)
Subject: FW: Non Domestic RHI Business Case
Date: 11 January 2017 17:19:28
Attachments: [Business Case - Action on RHI.PDF](#)
[Business Case re Addressing the Deficiencies in the Non Domestic RHI Sch....docx](#)
[Business Case re Addressing the Deficiencies in the Non Domestic RHI Sch....docx](#)

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Sent: 11 January 2017 16:20
To: Scott, Michelle
Cc: Cousins, Heather; Murphy, Shane; Reid, Victoria; McFarlane, Iain; Montgomery, Paul; McCann, Brendan; Millar, Angela (DoF); Benton, Sarah
Subject: Non Domestic RHI Business Case

Michelle, please find attached non domestic RHI Business case for consideration.

Stephen

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**BUSINESS CASE:
ADDRESSING THE DEFICIENCIES IN THE NON
DOMESTIC RHI SCHEME**

Introduction, Background & Strategic Context

Introduction

- 1.1 The purpose of this business case is to assess the available options to reduce the net cost to the Executive of the Renewable Heat Incentive (RHI) scheme in the 2017-18 financial year as the first stage of a comprehensive programme to ensure the value for money (VfM) and financial sustainability of the scheme going forward. These options are based primarily around changes to the tariff regime so that the return to investors from the additional cost of investing in renewable heat generation facilities is brought closer in line with the original VfM objectives for the RHI.
- 1.2 The need for immediate action can be seen in the projections that the RHI in its current format would be expected to cost the Executive £500,000 for every week it continues to operate in the next financial year. However, the need for a rapid response also reduces the number of available options that can feasibly be implemented for the start of 2017-18. In addition, the information available on future subsidy payments over the entire lifetime of the scheme is not fully complete as for example, there are only a small number of meter readings for a large number of boilers whilst other applications have yet to be formally accredited.
- 1.3 Therefore, it will be important to conduct a more in depth review of the future expenditure projections, particularly the underpinning assumptions, to determine whether an alternative approach would further improve VfM and financial sustainability in 2018-19 and beyond, whilst also ensuring a fair return on investment to scheme participants.
- 1.4 This review will be completed by summer 2017, informing a set of options for consultation with scheme participants and wider stakeholders, before a final decision is taken by the Executive. That review will be informed by a comprehensive inspections programme and related compliance work. Consideration will also be given to the scope to recoup the excess returns that have been achieved by participants to date. In light of the changing circumstances that have been evident in respect of the scheme to date, departmental officials will monitor the implementation of the revised arrangements on an ongoing basis, with formal reviews conducted at least once a year.
- 1.5 Securing VfM and financial sustainability will depend not only on changing the payment system, but also by ensuring that payments are only being made to participants operating in line with the objectives of the scheme. To this end a separate business case will be prepared in respect of the funding (expected to be £3 million) for a comprehensive audit to cover 100% of installations. This will not only provide assurance to the public and RHI participants operating legitimately, but is also expected to reduce the overall cost of the scheme.
- 1.6 Whilst the department is confident that the range of measures proposed will be sufficient to secure the financial sustainability of the RHI, it stands prepared to take further measures if required.

Background & Strategic Context

- 1.7 The primary objective for the Northern Ireland RHI scheme was to increase the uptake of renewable heat to 10% by 2020 (baseline position of 1.7% in 2010). The 10% target for renewable heat equated to 1.6TWh (or an additional 1.3 TWh when considering existing levels). This target was included in the Strategic Energy Framework and an interim target of 4%

renewable heat by 2015 was included in the then Programme for Government. While NI ran a separate scheme, it has its foundations in the GB version of the scheme with the NI Executive have had access to a level of AME funding to develop an approach to incentivise renewable heat.

- 1.8 The RHI aimed to compensate investors for the additional costs of renewable heat compared to traditional fossil fuel. The compensation for the additional costs of choosing renewable technology was to be delivered via ongoing payments linked to heat output produced as opposed to an up-front capital grant.
- 1.9 The tariffs were aimed to bridge the gap between existing heating systems and the renewable heat alternative, with consideration given to the capital costs, operating costs and the non-financial 'hassle' factors that are involved in replacing existing heating systems with renewable heating technologies.
- 1.10 However, concerns around an unsustainable and unaffordable surge in applications subsequently gave rise to a revision of tariffs for those applying to the scheme after November 2015 – in particular within the Medium Biomass Tariff where the spike in applications was centred. Shortly afterwards the entire Non Domestic RHI scheme was closed to new applications. However, despite this action the level of financial commitments inherent within the Non Domestic RHI scheme was projected to significantly exceed its AME allocation for the foreseeable future and this was the focus of the audit of the 2015-16 accounts of the Department of Enterprise, Trade and Investment (the Department) by the NI Audit Office¹. In short the key issues in the identified C&AG's report included that:
 - Commitments under the scheme have exceeded the maximum amount that HM Treasury were prepared to fund. The excess funding will now have to be met from the Northern Ireland Executive block grant. Over the next five years, this additional cost to the NI block was previously estimated to be £140 million and significant costs will continue to be incurred until 2036.
 - The Department failed to obtain required approvals from the Department of Finance and Personnel for £11.9 million of expenditure during a seven month period during 2015-16.
 - The design of the scheme crucially did not introduce 'tiering' of payments as operated in Great Britain where a reduced rate was applied after the equipment had been operated for 15 per cent of hours in a year. This tiering would have helped prevent potential abuse of the scheme by operating the equipment simply to increase the grant received.
 - The scheme in Great Britain also used 'degression' which allowed the amount of subsidy paid to change quarterly for new applicants in response to changes in demand. From 2012 to 2016 the rates paid in Great Britain fell by 50% while the rates in Northern Ireland increased.

¹ https://www.niauditoffice.gov.uk/sites/niao/files/media-files/media_release_rhi_.pdf

- Returns available to claimants under the scheme in Northern Ireland appear to be excessive and are committed to for the next twenty years.

1.11 Work undertaken on behalf of the Department has also indicated significant concerns around the behaviours, motivations and practices of an element of the claimants within the scheme. This gave rise to serious concerns around the eligibility of some of the installations and the usefulness of the heat being produced and claimed for.

1.12 Overall, these have also become matters of significant public concern.

Need for Action

- 2.1 Many of the issues around the existing Non Domestic RHI scheme, introduced in 2012, are well documented following the NIAO report² which highlighted spending on the scheme over and above its AME allocation. Some of the key issues are as follows.

Over Compensation

- 2.2 For individual installations the potential for material over compensation is linked to their boiler size and load factor compared to what was assumed when the tariff was initially set. Back at the outset the specialist consultations that had been appointed to advise the Department (CEPA) assumed a typical boiler size of 50kW running 17% of the time and this drove the setting of the Medium Bio Mass Tariff. However, while CEPA work assumed a 50kW boiler for the Medium Biomass Tariff, the bulk of boilers that came through the scheme were nearly double this size (most often 99kW boilers) with less than 10% of installations being in an around the assumed typical size (ranging between 40kW to 60kW in size). In addition the actual load factor (circa 42%) of those installations claiming RHI payment is nearly 2.5 times that assumed within the CEPA work. Taken together this means that the assumed heat load for the Medium Biomass Tariff is around five times what was envisaged to be typical initially and so the initial Medium Biomass tariff, without any action, will continue to significantly over-reward installations on the pre November 2015 Medium Biomass Tariff – at rates of return that are multiples of the projected typical rate anticipated at the outset.
- 2.3 In addition the Medium Biomass part of the scheme was (and will continue to in the absence of action) delivering compensation and rates of returns well outside the confines of the State Aid notification for this scheme.

Unaffordable Commitments

- 2.4 Weaknesses within the original tariff for the Medium Biomass installations, which went unaddressed until tariff changes came into effect in November 2015, have given rise to a number of financial problems. For this tariff band the level of payments was much too high and, as set out above, many Medium Biomass installations are being over-compensated for the additional capital and operating costs (compared to the equivalent oil installation) associated with such an installation. This is further compounded by the number of installations which have acquired rights to the pre November 2015 Medium Biomass Tariff, in no small part linked to the surge in applications prior to the introduction of that revised tariff structure. In effect the current position is that there are too many installations on too high a tariff and the level of commitments are already well beyond the AME allocation for the NI RHI schemes.
- 2.5 This has lead to a situation where the annual, combined, cost of the Domestic and Non Domestic RHI schemes are running at Circa £50m per annum, far in excess of the current and expected AME Budgets which are as follows;

AME 16/17 £18.3m

AME 17/18 £22.3m

² <https://www.niauditoffice.gov.uk/publication/renewable-heat-incentive-scheme>

AME 18/19 £25.7m

AME 19/20 £28.9m

AME 20/21 £30.0m

- 2.6 Based on a forecasted 3% Barnett share of the allocation for the GB scheme, the projected available budget is £660m over the lifespan of the scheme. Based on those published figures, the Department has estimated that the maximum burden on the Northern Ireland budget could be £490m more than this budget. Clearly, without action, the RHI scheme will continue to exert considerable strain on the DfE Budget and the resources available to the NI Executive.

Undesirable Behaviours

- 2.7 While the unaddressed weaknesses within the original tariff for the Medium Biomass installations have given rise to a number of financial problems, they have also been associated within a poor incentives and questionable behaviours on the part of some participants within the Non Domestic Scheme. In response to this the Department commissioned PWC to provide an opinion on the design of the Scheme, the robustness of the controls in place to ensure that applicants met the scheme eligibility criteria and participants continue to operate within the scheme guidelines and to provide an opinion on whether there is evidence to support or refute the allegations received.
- 2.8 PWC found that in most respects the NI Scheme mirrors the provisions and criteria of the GB Scheme, with two fundamental differences, namely the absence of tiered tariffs to discourage heat waste and a suspension or degression mechanism to act as a cost control measure. PWC concluded that *“the omission of these provisions in the initial design and in particular, the fact that they were not introduced early in the course of the Scheme life, was a critical omission, even when balanced against the need to facilitate and encourage a change of behaviour from non-renewable to renewable heat”*. They also concluded that with the eligibility criteria in the NI Scheme are essentially those in the GB Scheme they noted that *“the general lack of clarity available to participants and administrators as to what constitutes an eligible use of heat is of particular pertinence in Northern Ireland given the clear incentive which existed, due to the absence of tiered tariffs, under the NI Scheme to generate heat over and above that which is ‘useful or usable’”*.
- 2.9 PWC also concluded that there was evidence to support a number of the allegations received by the Department in relation to the NI Scheme. In their work PWC completed site inspections covering circa 14% of installations within the NI Scheme, or circa 20% by value of estimated RHI support payment. Less than half (46.77%) of the total installations inspected were assessed as Category 1 and so generating heat for an eligible purpose within the intentions of the NI Scheme. This raised significant questions around the incentives and prevalence of behaviours that can lead to the production of unnecessary heat or the production of heat for purposes not intended by the scheme.

Classification	Phase 1	Phase 2	Total
Category 1:	70	68	138
Category 2:	29	81	110
Category 3:	17	11	28
Category 4:	10	9	19
Total	126	169	295

Category 1: Participants generating heat for an eligible purpose within the intentions of the scheme. (This category was not in the original Department's brief but was added to create a baseline for compliance)

Category 2: Participants generating heat for an eligible purpose, which does not meet the intentions of the scheme.

Category 3: Participants generating heat for an eligible purpose, but using heat in a way that's not energy efficient.

Category 4: Generating heat which *may* be for an ineligible purpose and therefore *may* be in breach of the scheme.

2.10 Clearly, without action, the RHI scheme will continue to provide incentives associated with undesirable behaviours. The required action is likely to involve both enforcement activity and a dilution or, if feasible, an eradication of some of the financial incentives that may have promoted such behaviours.

Poor VFM

2.11 With the pre November 2015 Medium Biomass Tariff Installations being on a path towards over-compensated to a significant degree, with the prevalence of such installations and the incentives for undesirable and or abusive behaviours there are clearly significant VFM concerns with the continuance of scheme, and its Grandfathered Tariffs, without any amendment to bring it back much more in line with the originally intended outcome of the scheme.

Public Concern

2.12 There is very clearly significant public concern around what has arisen with the Non Domestic RHI scheme, the potential windfall for participants, the association with undesirable behaviours and the potential, if unaddressed, for the excessive cost of the scheme to act as a drain on public funding for the foreseeable future. In addition Ministers have expressed publically their intentions to bring forward a plan of action to redress many of these concerns and bring the scheme back within its original financial parameters.

Objectives & Constraints

- 3.1 The key objective for the Non Domestic Scheme is to undertake a legally defensible course of action that, starting in FY2017-18, can return the overall Domestic and Non Domestic RHI Schemes to a position where they no longer are spending in excess of their combined AME allocations.
- 3.2 Over and above the primary objective to bring the scheme, using legally defensible means, back within its budgetary envelope, there are a range of other objectives, often interlinked, that it will be important to achieve or significantly improve upon within any revised approach.
- **Operational:** A revised approach that targets and endeavours to deal with, insofar as practical, abuse or weaknesses within the original scheme.
 - **Financial Parameters:** A revised approach that brings, insofar as is practical, the returns to beneficiaries back within the broad original intent of the scheme.
 - **Legal:** A revised approach that is sustainable in legal and state aid terms.
 - **Policy:** A revised approach that, insofar as is practical, retains the ability of the scheme to contribute towards environmental policy objectives.
 - **Timing:** An approach which can be implemented in a timely fashion and so best protect public money and the achievement of environmental goals.
- 3.3 **For the avoidance of doubt, the key objective of this business case is to undertake a legally defensible course of action that, starting in FY2017-18, can remove the perverse incentive to produce excessive heat.** The options below would also have the benefit of returning the Domestic and Non Domestic RHI Schemes to a spending position where they are broadly within 10% of their combined AME budget allocations.

Options for Action, and their Costs & Benefits

Approach

- 4.1 **Several options have been examined, and continue to be examined, to address the weaknesses within the original tariff for the Medium Biomass installations, which have given rise to the financial problems associated with the scheme.** While modelling and other work has been undertaken on a number of these options none of the approaches are at a stage where they could be immediately implemented and thus address the financial objectives of this business case. Many of these options will take more time than is available to develop into fully blown, workable, solutions and a range of factors will need to be examined with regard to legal, financial, operational and budgetary considerations before they can be put forward as sound, defensible, enduring and workable ways forward. Not least amongst these factors will be the need to have further evidence on scheme usage.
- 4.2 At a high level the key solutions tend to revolve around one of two broad approaches:
- An approach which reduces the tariff to Medium Biomass installations thereby reducing over-payments and bring them back in line with the returns originally envisaged in the design of the incentive scheme; or
 - An approach which stops future RHI payments but provides compensatory or one-off payments to buy-out the participants' investment and allow them a suitable return on their additional expenditure to install renewable technology.
- 4.3 Within the two high-level options there are a number of variants that have been examined and will continue to be examined to ensure the best value and deliverable approach continues to be taken over the longer term. This business case focuses at this stage on those options that have the capacity to quickly manage the exposure of the Block Grant to payments over and above the AME envelope. However as stated previously, whatever preferred option is recommended for action now, that should be shaped in a manner that, following further review and the capture of improved information on usage, it does not limit achievement of further improvements in VFM should that be identified as possible as part of the ongoing work.
- 4.4 In order to develop these options into concrete, workable proposals, further work will need to be undertaken to determine, inter alia, the impact on individual participants, the appropriate tariff levels to set, whether tariff banding or tiering is required and whether or not the solutions unfairly reward some participants to the detriment of others. Other consideration will need to be examined include the viability of operating the solution (administration and IT requirements), financial/budgetary implications. Legal and state aid issues will also need to be considered in depth. For a robust solution it is likely that individual boilers will need to be inspected to ensure that the chosen option prevents any ongoing malpractice or gaming of the scheme, and that there is a sound linkage between the inspections regimes and the policy solutions.

- 4.5 At this stage, only a limited number of the options could be confidently and immediately enacted as enduring solutions for a scheme that could last for the best part of 20 years. Without immediate action Northern Ireland will continue to hemorrhage over £0.5m a week until such time corrective action of some form or another is in place.
- 4.6 As a result this business case focuses on reasonable courses of action for the 2017-18 financial year that delivers on our key immediate financial objectives for the scheme, while at the same time providing the scope for taking forward alternative/ further refined solutions should they present the opportunities to secure improved value in a way that is fully consistent with good policy making and the appropriate, affordable incentivisation of renewable heat production.
- 4.7 Whichever option is adopted for action, DfE will in any case be developing and implementing new steps to address the risks of fraud and abuse of the scheme, by more rigorous enforcement of the requirements in the regulations that: heat must not be generated simply to secure financial gain; installations should be efficient in their use of heat; and the heat produced should be for a legitimate business purpose (with only secondary eligibility for domestic premises within the non-domestic scheme).
- 4.8 This is being taken forward in two ways:
- Liaison with OfGEM to secure the best possible application of the existing arrangements for audit, inspection and enforcement; and
 - The procurement of a new contract for the functions of audit, inspection and enforcement, so that 100% of non-domestic RHI installations are inspected and subject to rigorous challenge in relation to eligibility and compliance with the Regulations and the intent of the scheme.
- 4.9 It is likely that this programme of audit, inspection and enforcement will eliminate significant illegitimate expenditure and more than pay for the cost of the work over the lifetime of the scheme. It should have the effect of reducing expenditure in 2017-18, though it is difficult to project the scale of such savings: a rough estimate of savings in 2017-18 is perhaps around £1-2 million, given that much of the excess cost will be eliminated by a tariff change depending on which option is chosen.

Financial Year 2017-18

- 4.10 It is clear that without immediate action the scheme has the ability to potentially continue to hemorrhage money in an unintended manner from the Northern Ireland budget. In that regard several options have been identified and examined in respect of the 2017-18 financial year to quickly stem the financial outflow and bring budgets back in line with original policy intentions..
- 4.11 Put simply an immediate move to an enduring solution runs the very real risk that a best value solution is not achieved. For example the approaches involving Compensation and Closure would need more development in a number of ways, including the ability to access AME for the compensation payments and the ability to use or access the ongoing AME streams for the

benefit of Northern Ireland. Also, the options involving imposing a lower or tiered tariff would also require further information to assess them fully, including that which will flow from planned comprehensive boiler inspections, so that the scheme can be returned, as far as possible, to the policy objectives. A comprehensive consultation approach will also be a hallmark of the longer term outcome – ensuring that whatever actions are taken are ones that command clear public confidence and are as legally defensible as possible. Ultimately this sort of policy consideration will need time to properly come together and in the circumstances currently being faced, delays only perpetuate the current unsustainable financial position unless a solution is put in place for 2017-18 while that thinking takes place. Available options for that solution, in line with the core objective of this case, are set out below.

Option 1:

No Action: The Base Case or Status Quo Option where no changes are made to the existing tariffs for Medium Biomass boilers. Pre November 2015 tariffs remain at 6.5p per kWh for all heat output for the durations of the scheme (adjusted for inflation).

Option 2:

Move all the Pre-November 2015 tariff Medium Biomass³ boilers (and also the small numbers on the Small Biomass Tariff) to the tariffs introduced in November 2015. These tariffs are 6.5p for the first 1,314 metered hours per annum then falling to 1.5p. Payments are capped at 4,032 hours per annum after which no payment is made for heat generated. These tariffs were designed to deliver a rate of return (IRR) of Circa 12% to the typical or benchmark new entrant to the scheme based upon the information and assumptions pertaining at that time.

Option 3:

All biomass boilers receive a payment of 1.5p/kWh. Payments are capped at 4,032 hours per annum after which no payment is made for heat generated.

Option 4:

Cease or suspend the scheme and its payments to Medium Biomass boilers until a lasting solution is developed.

Option 5:

This is based upon an arbitrary reduction in tariffs in order to increase the prospects of living within the projected AME Budget in full during 2017-18. These tariffs are 5.1p for the first 1,314 metered hours per annum then falling to 1.5p. Payments are capped at 4,032 hours per annum after which no payment is made for heat generated. These tariffs do not have any origins in a rate of return analysis – rather they are simply budget driven.

- 4.12 All of the proactive options involve a significant reduction in financial commitments via an introduction of “off the shelf” (in the case of Option 2) or arbitrary (in the case of 3, 4 and 5) solutions. Under Option 1 none of the problems with the scheme are addressed at all and the

³ References to Medium Boilers should be taken to mean Medium and Small Non-Domestic Biomass Boilers.

cost of policy inaction is very high. Policy inaction and doing nothing is not considered to be a financially affordable and viable option.

- 4.13 Both options 2 and 3 have the potential to produce winners and losers (to different degrees). Under Option 2 those participants who have already benefitted over and above the remuneration levels envisaged in the initial scheme principles may be able to continue to earn 'super' returns for the 6.5p element of the tariff albeit the extent of those returns could be significantly curtailed. Option 3 may mean that those participants who have not earned enough from the scheme to date to cover their capital outlay may have genuine concern that any long-term solution will not compensate them sufficiently. It also could be considered to be more punitive in that regard and increase associated legal risks. Option 5 has a number of these characteristics also, albeit to a lesser degree given that it is less draconian than Option 3.
- 4.14 Option 4 clearly is unsatisfactory to those participants who entered the scheme in good will and will have invested large sums of money only for anticipated repayments to be suspended. This will evidently lead to cash-flow problems for legitimate participants and the legality of it may be challenged.

Cost of FY2017-18 Options

- 4.15 A high level analysis of the likely costs of funding the options for 2017-18 has been undertaken. In order to make this assessment, actual data on past usage and payments to participants of the scheme have been used. The analysis is somewhat complicated by the fact that different participants entered the scheme at different times over a four year period and therefore metered heat is not available for all participants for the same duration. However, while payment and usage information is available for a large number of installations the database information is not complete and some installations are not yet accredited while others have yet to submit invoices for payment. For example, for around 800 participants only one quarterly invoice has been received/paid to date which only gives one data point on usage. In addition, of the approximately 2100 registered meters, approximately 200 are still at the application stage and we have therefore no actual data on heat production for this group of users.
- 4.16 It is therefore difficult to assess precisely, in all cases, what the 'normal' or expected annual heat load supported by the scheme will be in a typical year and therefore the costs of subsidising the heat generated. As a result some adjustments and assumptions relating to the data have had to be made to gross up the estimates to the full population of installations for the full year. In the case of those who have only submitted a few, one or no meter readings at all, in order to estimate the likely average annual heat load it has been necessary to infer an annual heat load by factoring up actual data where only one, two or three quarters of data are available in any of the four years over which the scheme has been running. In addition costs from the sample of C1800 have been uplifted for the whole C2100 installations on a "pro-rata" type basis, taking account of relative differences in installed capacity etc. Costs have also been uplifted for the likely incoming inflation uplift due in April 2017 and associated with the indexation of RHI payments.

4.17 The analysis below has not made any allowance for a behavioural correction effect associated with tariff changes or the effect of the renewed drive for inspections. Assuming that boilers continue to run at their estimated current annual load factor (as inferred by historic trends and estimation), the following table sets out the estimated cost of running the Non Domestic scheme for FY2017-18 under the current unchanged tariffs, and the alternative courses of action. The projections also exclude two major CHP plants which, although they are in the application system, they are expected to be some time away from commissioning and are not yet being accrued for within AME.

Estimated Cost for FY17-18 Domestic & Non Domestic⁴

	Cost of running scheme for 2017 / 18 (£m)
Option 1: Do Nothing	49.7
Option 2: Introduce November 2015 tariffs	25.3
Option 3: All Medium Biomass 1.5p	14.4
Option 4: Suspend/close/zero medium biomass tariff	5.3
Option 5: Bespoke Tariff to keep within budget (5.1p & 1.5p)	22.3

4.18 For the avoidance of doubt this includes the projected cost of the Domestic Scheme (£3.2m) and, as noted above, no allowance has been made for a behavioural correction effect in reducing usage and payments. In addition, there are significant numbers of applications with the database and system that are not yet live – while the modelling work commenced using a version of the OFGEM data base which has since been updated in the last number of weeks in relation to the number of live and pending accreditations. The modelling to date is grossing up for these (from C1,800 on the database to the C2,100 full population, but some of these application could be rejected – particularly those in the system for quite some time). This factor could have quite a material big influence on the overall estimation if a large number of the remaining applications were rejected. Finally, given the one year approach adopted in this business case an NPV / NPC analysis does not add any value in assessing the difference between options.

4.19 All of the options above which involve moving away from the pre November 2015 Medium Biomass Tariffs have the potential to deliver an interim financial outcome for 2017-18 which is much lower than current commitments and much more in keeping with expected budget ceilings.

4.20 Option 2 is considered to be the best value, practical, approach for 2017-18 and the indications are that this approach would substantially, manage costs back towards the £22.3m AME allocation in that year. Policy inaction and doing nothing (i.e. Option 1) is not considered to be a financially affordable and viable option.

Impact on Benefits

⁴ These calculations are contained with a suite of detailed modelled and spreadsheets.

4.21 Options which involve reducing tariffs will reduce the overall cost of the scheme. It is plausible that it will also lead to a reduction in heat produced which runs the risk of not meeting the Executive's target for renewable heat (albeit some of that heat reduction plausibly will be the eradication of non useful heat production). A reduction in heat produced will also reduce the benefits associated with CO₂ and employment effects. Without knowing the projected reduction in heat produced (and also potentially the proportion between useful and non-useful heat production avoided) it is not possible to estimate the reduction in benefits associated with options above. That being said, of the do something options, Option 2 is likely to have the lowest impact on heat reduction and the associated foregone CO₂ and employment benefits.

Note on Estimation

4.22 This has necessarily been a high level analysis of the costs of the RHI scheme and of the potential options to bring the levels of return to participants' investments within reasonable levels. It should be noted that these results are very dependent on a small number of high impact assumptions regarding actual and projected heat demand. Any small variation in the assumed demand will have a major impact on the projected costs of the scheme.

Non Monetary & Distributional Assessment

Carbon Reductions

- 5.1 Except for the first option, each of the others will result in reduction in the amount of heat produced – a potential non-monetary impact. For heat that was being produced for useful purposes and offsetting heat produced by oil boilers this could result in losses in CO₂ savings if some participants revert to fossil fuels to meet their heating requirements. That said, for the first option, the non-monetary value of some of the heat currently being produced is highly questionable at best.

Maximising Northern Ireland Spending Power

- 5.2 Access to national resources and regional fairness within nationally controlled expenditures is a reasonable expectation and motivation of public representatives within the devolved areas. The options in this regard deliver very different outcomes. In addition outcomes are not symmetrical but instead pivot around the projected AME allocation – so there is a loss to the NI DEL in options which exceed the AME Budget, but there is also a loss to NI plc of options which fail to utilise the AME allocation in full.

	<u>FY17-18 Cost</u>	<u>AME All'n</u>	<u>Loss to NI</u> Figures in () represent under- spend on available budget
Option 1	49.7	22.3	27.4
Option 2	25.3	22.3	3.0
Option 3	14.4	22.3	(7.9)
Option 4	5.3	22.3	(17.0)
Option 5	22.3	22.3	0.0

- 5.3 Options which deliver a cost closest to the AME budget limit objective will tend to do best against this objective. Outside of the budget driven Option 5, the favoured Option 2 gets closest to this objective where as some of the approaches which be considered more draconian diverge to a greater extent.

Distributional Effects

- 5.4 Each of the options has the potential to have different impacts on different participants in the scheme. Different participants will be better or worse off monetarily depending on the option adopted – and some will be more impacted than others by the move.
- 5.5 Under Option 1, the status quo, all of the participants who are being over-compensated will remain so; indeed others may recognise the possibility of gaming the system and could potentially adopt malpractice with regard to excess heating. The significant impact on the public purse would remain and, within the distributional impact, the key loser within this option is ultimately the public purse and those public services that would otherwise have utilised the funding over and above the AME allocation. In effect this involves a continued transfer of resources from the DEL (the block) towards scheme participants.

- 5.6 Options 3 and 4 are likely to result in across the board losers with many or all participants in the scheme being affected. However, the degree of loss will vary. Perversely, a scheme abuser who has artificially inflated their heat output will have built up a much greater financial cushion for these changes compared, for example, to a “genuine” low load factor participant who has not sought to produce beyond the heat required by their commercial need. This is also a distributional aspect which is also displayed, albeit to a much reduced extent, in Option 5. These options do, however, discontinue the transfer of resources from the DEL (the block) towards scheme participants.
- 5.7 Option 2 will result in significant (but not total) curtailment of the winners (i.e. those being over compensated) – projected ongoing returns will be reduced for all those at risk of over-compensation but some (perhaps Circa 200 installations) will remain on track to earn beyond the original parameters of the scheme unless and until the longer term approach introduced a correction. Broadly speaking the majority of the participants should see returns approach those initially envisaged when the scheme was established. Those operating at or below 1314 hours should not be impacted at all. This option may still result in over-rewarding (albeit to a much reduced degree) those producing heat for both appropriate and unfit purposes during the first tier. Option 2, however, is projected to (largely) discontinue the transfer of resources from the DEL (the block) towards scheme participants. It should be noted that differences in rates of return for installation owners, depending on load factors, is also a feature of the GB scheme.
- 5.8 Under all the interim options the action is forward orientated and the arrangements do not involve a retrospective or correction element for previous over-compensation (this might be more capable of being introduced via more sophisticated long-term solutions). This may bring up questions of fairness among the participants who have been acting in good faith and have not been rewarded for malpractice. However a longer-term solution may look to issues of clawback or alternatives that bring about a similar outcome.

Risk Assessment

- 6.1 There are a number of risks associated with the potential courses of action in this business case. At its heart the choices involve a trade off between the budgetary risks of the current position and the legal risks of moving to an approach which, depending on the option, is ultimately less generous to some or all scheme participants within the Medium Biomass Tariff.

Budgetary

- 6.2 As Option 1 is characterised by policy inaction it carries with it the inevitability that the 2017-18 AME budget will again be breached – and the block again will carry a multi million pound adjustment or penalty.
- 6.3 Those options which involve the most dramatic reduction in payments clearly carry the least risk around breaching the AME Budget – albeit they might be considered to carry greater legal risk.
- 6.4 The preferred interim approach would appear to bring the scheme broadly back on track to its AME allocation – however, there are risks both ways. The estimate for 2017-18 is around £25m against an allocation of £22.3. There are some estimation risks, described earlier, which might mean that the actual could be beyond the £25m estimate depending on the actual invoiced heat loads compared to that projected. However, there are also material risks (again described earlier) on the other side around whether or not an appreciable behavioural correction effect occurs with the move to the November 2015 tariffs, and whether there might be a marked reduction in heat and a marked reduction in payments compared to that estimated and budgeted for. Either way, the usage information which will be gleaned from in the coming year will be of significant benefit in terms of developing and assessing any further changes and refinements to the approach.
- 6.5 In addition all options face budgetary uncertainty around the remaining applications that have yet to gain accreditation status. Many of these applications appear to be awaiting accreditation for well in excess of a year now and so it is difficult to gauge precisely how many might now, in the end, gain that accreditation – particularly those there from pre November 2015 cut off point.
- 6.6 Close monitoring will be required during 2017-18 to gauge these various budgetary risks.

Financial Return Risks

- 6.7 As Option 1 is characterised by policy inaction there would be no impact on the Rate of Return for those in the pre November 2015 Tariff for Medium Biomass. Many of those rates of return are on a pathway to be hugely excessive, with three figure IRRs for projected some.
- 6.8 Reducing tariffs to the November 2015 level will substantially reduce the costs of the scheme and may bring it within AME limits, however, there are risks associated with it and the other options. While this Option 2 is preferential to the do nothing option it should be recognised that it makes great inroads into the problem of over compensation, it will not eliminate it in all cases.

The issue of past over-compensation, before 2017-18, will be considered as part of the review considering the approach for 2018-19 and beyond.

- 6.9 By maintaining the 6.5p tariff, even if only for a limited number of hours, the preferred option retains the possibility that some participants (perhaps Circa 200) might still be over-compensated to an extent where both retrospective action (such as clawback) as well as prospective action (such as reducing future payments) might be needed.
- 6.10 For those participants who may not have a valid use for heat, and with investment already committed into a boiler, they may well still be incentivised to produce wasteful heat for 1314 hours per year and still receive payment under this option albeit the commitment to inspect all installations and to tackle abuse of the scheme may itself act to address this issue to some extent.
- 6.11 Option 3 may mean that those participants who have not earned enough from the scheme to date to cover their capital outlay may have genuine concern that any long-term solution will not compensate them sufficiently in line with the original intent of the scheme. This may lead to cash-flow problems for legitimate participants and the legality of it may be challenged. Indeed this approach (as could Option 5 to a lesser extent) could be more financially painful for those who have not displayed abuse or undesirable behaviours through artificially inflating their heat production to maximise their return in the past. In a nutshell this option is likely to involve an overshoot in the Rate of Return correction for a significant number of existing installations – placing them at a material disadvantage compared to the original stated intent of the scheme (again as could Option 5 to a lesser extent).
- 6.12 Option 4 clearly is unsatisfactory to those participants who entered the scheme in good faith and will have invested large sums of money only for anticipated repayments to be suspended. This will evidently lead to cash-flow problems for legitimate participants and the legality of it may be challenged. In a nutshell this option is likely to involve an even greater overshoot in the Rate of Return correction for a significant number of existing installations – placing them at a very material disadvantaged position compared to the original stated intent of the scheme.

Policy Risks

- 6.13 As Option 1 is characterised by policy inaction there would be many policy risks – in particular, setting aside the financial risk there are clear policy risks associated with the continued tacit acceptance of maintain incentives to produce unnecessary heat.
- 6.14 The overcompensation in the current scheme was a result of incorrect tariffs which were based on assumptions relating to typical boiler sizes and running hours. The favoured solution also relies on a tariff based approach albeit significantly less than the original tariff. While lessened there still remains the risk that the tariff levels set will not achieve the policy objective.
- 6.15 As was always the case with a tariff based approach there is a risk that other assumptions underlying the analysis may also change once the tariffs are set. For example the cost of fuel and

of wood pellets can vary over time. If the differential in the cost of oil and wood pellets were to fall below the 1.5p tariff there is the potential that even this tariff would add a little further to any over-compensating. To avert this possibility regular tariff reviews will need to be established going forward.

- 6.16 There are deficiencies (see above) in the data available to undertake accurate assessment of RHI costs. This presents a risk in the reliability of the projected costs of the options. However, given that tariff reductions are likely to lead to a reduction in any unnecessary heat production it is likely that overall heat production will fall under all of the options. The cost of the options may therefore be overstated (see section 7).
- 6.17 The original policy objective was to encourage the uptake of renewable heat to meet the Northern Ireland Executive's renewable energy targets. A reduction in tariffs may result in a decline in the percentage of heat produced from renewable sources inhibiting the ability of the Executive to meet the policy objective of the scheme.

Legal Risks

- 6.18 Each of the proactive options has the ability to create winners and losers. Some are also more draconian and painful for participants than others. If the solution is seen to be discriminatory between participants, for example based on dates of installation of boilers, then some participants may seek legal action. Clearly the status quo option involves no legal risk as it is characterised by inaction on the financial problems associated with the RHI scheme.
- 6.19 The incentive scheme was designed such that tariffs would be 'grandfathered'. The reduction in the tariff to the November 2015 levels for all Medium Biomass boilers effectively removes this grandfathering precedent. Some participants, particularly those with low load factors may argue that they cannot achieve the return they were 'promised' in entering the scheme in good faith and may seek legal redress. However, part of the response to this type of challenge will be to argue that the initial tariffs were well beyond the publicly state intentions of the scheme and the imposition of the Post November Tariffs is a reasonable interim approach as those tariffs were in line with the intent of the scheme on return to applicants (based upon the information available at that time).
- 6.20 The more draconian options (options 3 to 5) involve much greater reductions in compensation and returns to applicants. Those options are not grounded in any logic associated with the publicly stated original intent of the scheme and there would be concern that this source of legal defence would not be available to defend any such courses of action. Formal, written, legal advice is currently awaited on these matters and will be incorporated or appended to this business case in due course
- 6.21 The main legal risks in relation to the interim solution are of challenge on one of two main possible grounds:

- legitimate expectations – i.e. that the applicant responded in good faith to the scheme as implemented under the 2012 Regulations and was guaranteed the tariff for the twenty year period; and
- right to property under Protocol 1 of the European Convention on Human Rights which says:

Protection of property

(1) Every natural or legal person is entitled to the peaceful enjoyment of his possessions. No one shall be deprived of his possessions except in the public interest and subject to the conditions provided for by law and by the general principles of international law.

(2) The preceding provisions shall not, however, in any way impair the right of a State to enforce such laws as it deems necessary to control the use of property in accordance with the general interest or to secure the payment of taxes or other contributions or penalties.

6.22 The key legal arguments that support the proposed intervention include that:

- the expected rates of return were repeatedly and prominently set out at the launch of the scheme, and no one can reasonably argue that the excessive rates of return that are now in place could have been legitimately expected;
- in particular, the rates of return are far in excess of the amounts underlying the approved position under State Aid;
- the payments affected by the change are expected future income – a type of “property” that the Courts are less protective of than current existing assets;
- the reduction in the tariff is clearly and demonstrably in the public interest because otherwise there will be loss of other public benefits from much better use of public expenditure and it cannot conceivably be in the public interest for applicants to be incentivised to generate excessive heat;
- the proposed approach provides a sustained reasonable level of return on the investments made; and
- it is planned that there will be full consultation with all applicants in the course of the next few months to develop a permanent and fair solution – which could if necessary correct any “rough edges” in the approach commenced for 2017-18.

6.23 The favoured approach also involves changing the tariff for a scheme that was notified to the European Commission. The new tariffs also involve aid, albeit much reduced, but this will require a fresh notification to the European Commission. This is currently being taken forward urgently and within the timescale planned for the commencement of the new regulations. However, navigation of the EU process cannot and should not be taken for granted.

Operational Risks

6.24 The scheme is administered by Ofgem on behalf of the Department. Any change in tariff must be able to be implemented on their IT and operational systems and, as a result, there are operational risks in taking forward what is essentially an emergency change to tariff structures. Ofgem has provided the Department with verbal high-level assurances that the existing IT

systems can accommodate calculating the proposed tariff changes to pre November 2015 installations given that it is the same approach already applied to post November medium biomass installations.

6.25 However, a significant challenge will be to determine the precise heat usage of each pre November installation immediately prior to the introduction of the tariff changes. Claimants may be reluctant to provide meter readings as this will be used to determine when they drop to the second tier (after 1314 hours) and cap (after 400k hours). Subject to legal advice, it is proposed to write to claimants requiring them to provide photographic evidence of their meter readings on a specified date (potentially 31 March) within a specified period (1 April – 30 April). This will have resource implications in terms of time and staffing for Ofgem who will be responsible for issuing of the letters to claimants, processing responses from claimants and responding to on any queries from claimants. Ofgem will also be responsible for pursuing claimants who do not respond within the required time limit and for imposing any sanctions or penalties. Ofgem's capacity to receive photographic evidence of this nature has yet to be determined.

Affordability & Budgetary Sensitivity

7.1. The preferred approach Option 2 involves the application of the November 2015 Tariffs for those on the Medium Biomass Tariff prior to that. The budget or spend estimate of that in the earlier analysis is based upon:

- Actual Data on Heat Usage for a large number of installations,
- Adjust, projected or pro rata estimated of Heat Usage for those with incomplete or no data.
- Uplift for Indexation (inflation).
- No allowance for a behavioural correction effect associated with the tariff changes or the effect of drive for inspections.
- No allowance for the new inspection leading to claims being disallowed etc.
- No allowance has been made for a drop off in accreditation for the pending applications within the system.

7.2. As a result, that estimate might be characterised as a central to high estimate because it assumes no behavioural correction or any financial impact from the inspection process being brought forward. A second estimate has also been produced, it is more speculative but it does attempt to make some sort of allowance for a behavioural correction effect associated with the tariff changes. In effect it assumes that the distribution of load factors makes a shift toward the two steps being introduced into the tariff – i.e. there are gravitations in the distribution towards loads around the tier at 1314 hours and the cap at 400,000kWh. The diagram below gives a graphical illustration of this.

