

From: [Scott, Michelle](#)
To: [Morelli, Emer](#); [Millar, Angela \(DFP\)](#); [McNally, Noel](#); [Finlay, Christine](#)
Subject: Fw: RHI
Date: 26 October 2015 20:41:32
Attachments: [RHI Business Case Addendum \(V4\).docx](#)
[RHI Business Case Addendum \(V4\) - Tracked Changes.DOCX](#)
Importance: High

All

Our turnaround time on this is pretty tight given DETI's intention to introduce changes next week.

I therefore propose we consider this in two stages - initially focusing on prospective approval request.

I know leave arrangements will make even this challenging.

I will send round some comments tomorrow and we can take it from there

Michelle

Sent from my BlackBerry 10 smartphone.

From: Cooper, Trevor <Trevor.Cooper@detini.gov.uk>
Sent: Monday, 26 October 2015 18:45
To: Scott, Michelle
Cc: Rooney, Eugene; Wightman, Stuart
Subject: FW: RHI

Michelle

Attached revised version of business case in tracked and untracked change mode. Hopefully the changes reflect the points that were covered from your perspective in last week's meeting.

I do propose to send a formal covering letter that should be read alongside the business case addendum – unfortunately time means that im unable to provide tonight but this will follow shortly.

The key points that the letter will cover are:-

- 1) Assurance that there have been changes to ensure that there will be no reoccurrence of an omission to recognise the time limited nature of an approval. This is on the basis of changes that we are introducing to our assurance statement process whereby divisions will explicitly confirm that they have reviewed all of their expenditure and that none falls outside of any DFP approval that was given on a time limited basis and that if there are such approvals in place and it is intended to continue expenditure beyond the approval date that work is underway within timelines that will ensure that appropriate approval is in place prior to further spend.

- 2) Background on the basis on which the Department's firm view is that the decisions taken following on from a review undertaken in 2013 were reasonable in light of Executive commitments on renewable heat, information on scheme performance and forecast demand, available resources, and Ministerial priorities and that there was in fact no real sign of a sustained uplift in demand in regard to the non-domestic scheme until 2015.
- 3) That even with cost control measures in place the timelines for changing legislation meant that the counterfactual position is such that there would be little difference between the current forecast demands on the Scheme and that which would have happened with change being effected before now as demand would in effect have been pulled forward.
- 4) The note will also confirm that the most recent update received from Ofgem is that October applications are now in excess of that forecast within the business case addendum (current actual circa 400 versus forecast for October of 100). This reinforces point 3 above as it reflects demand reacting to a signal of tariff changes. This change would add additional expenditure in the period 2015/16 of circa £3m, and total costs over the twenty years of the scheme of £130m. Our analytical services unit has confirmed that this additional expenditure would not change the conclusion that spend in this period in total is VFM on the basis that the VFM analysis is "scaleable".
- 5) A **broad brush** estimation of the impact of the changes proposed on the basis of the NPV analysis completed for both 'before' and 'after' tariff changes for 3 months of applications (apr-jun2015) is that savings would equate to just over £1.82m for three months (or £36.5m over 20 years) . Factoring this up to 14 months of applications (Nov15-Dec16), the estimated savings attributed to the tariff changes are £8.5m and £170m over 20 years.
- 6) Confirmation that the DETI Casework Committee is content to endorse the proposals.

If you wish to discuss further tonight you can get me on  up to around nine o'clock.

Trevor



Michelle Scott
DFP
Supply Division
Rathgael House
Bangor
BT19 7PR

27 October 2015

Dear Michelle

BUSINESS CASE ADDENDUM FOR THE NORTHERN IRELAND NON-DOMESTIC RENEWABLE HEAT INCENTIVE

1. I am writing to you to seek urgent consideration by DFP regarding approval for expenditure on the Northern Ireland Non Domestic Renewable Heat Incentive (RHI) Scheme. I enclose a Business Case Addendum which presents the analysis of the position and proposed changes being made to the scheme to improve value for money and introduce new controls on costs.
2. We are seeking DFP approval specifically both retrospectively from 1 April 2015 to the date of approval, and prospectively to 31 December 2016 on the basis that:-
 - Expenditure is unavoidable as accreditations during this period constitute binding legal commitments;
 - The scheme provides continuing value for money;
 - Legislation will be brought forward in early November 2015 to introduce tariff tiers and an annual payment cap for all new biomass installations (subject to prospective DFP approval for the Non Domestic Scheme); and
 - The Department will complete a review of the scheme in 2016 on the effectiveness of controls to manage future expenditure.
3. For legislation to proceed in early November, approval is needed on the scheme expenditure.

Background

4. The original Business Case for the Non Domestic RHI Scheme was approved by DFP in April 2012 on the basis that:
 - *Whilst the scheme is envisaged to be open to new installations until 2020, approval is given for the period 1 July 2012 to 31 March 2015, representing the period for which HMT funding has been secured. Any decision to continue the scheme beyond 2015 would require further/separate DFP approval; and*
 - *As outlined in Section 7.53 of the Business Case, arrangements are put in place for scheduled reviews to allow the progress of the scheme to be monitored, assessed and if necessary, changes implemented. It is noted that the first review is scheduled to start in 2014 and that the reviews will be carried out by DETI.*

Approvals

5. The Renewable Heat Team which in the run up to April 2015 had different personnel in place than those who secured approval for the scheme, assumed that further approvals were not needed. Whilst Energy Division keeps a Divisional register of approvals unfortunately this did not include ongoing schemes. This has since been altered and all existing DFP approvals in place with Energy Division have been checked and are still in force.
6. Further control measures are being implemented to ensure that there will be no reoccurrence of an omission to recognise the time limited nature of an approval. This is on the basis of changes that we are introducing to our Assurance Statement process. Going forward divisions will explicitly confirm that they have reviewed all of their expenditure and that none falls outside of any DFP approval that was given on a time limited basis. If there are such approvals in place and it is intended to continue expenditure beyond the approval date Divisions will be required to confirm that work is underway within timelines that will ensure that appropriate approval is in place prior to further spend.

Review of Non-Domestic Scheme and Introduction of Domestic Scheme

7. There are some exceptional and complicating factors in regard to the development and implementation of the Renewable Heat Incentive in NI following its introduction in the rest of the UK. It has two elements: Domestic and Non-Domestic Schemes. Following the introduction of the Non-Domestic scheme in 2012 priority was given to the development and introduction of the Domestic scheme which was launched in December 2014.
8. The business case addendum sets out in detail the background to the information available at the time decisions were taken on the Department's priorities in regard to amending the Non-Domestic scheme and developing a Domestic scheme.
9. A Phase 2 Review of the RHI was completed in 2013. This included proposals for a new Domestic scheme, extension of the Non Domestic scheme and Cost Control measures. With low levels of uptake in previous years and large under spends against allocation, implementation of the Domestic scheme and scheme promotion were given precedence over other proposals which it was planned would then follow on.

10. Following on from the Review the Department was in a position whereby the existing scheme was underperforming in regard to uptake and spend. The decision on prioritising the introduction of the Domestic scheme and scheme promotion was taken against this backdrop and with no information that there would be any significant increase in demand on the non-domestic side. Implementing all of the proposals within the Review immediately would have caused significant delays in the introduction of the Domestic scheme (which was introduced in December 2014). Therefore the department's firm view is that the prioritisation of the Domestic scheme was reasonable given:

- information at that time on the scheme underperformance and forecast demand;
- the absence of any signs of a sustained uplift in demand on the Non-Domestic scheme;
- the PFG target on Renewable Heat;
- the very significant resources that would have been required to implement all of the proposals immediately, versus the perceived risks of proceeding with the Domestic scheme, and following on with the balance of the Phase 2 Review proposals.

11. As regards reacting sooner to increased uptake, the Business Case Addendum confirms that the Department could not have reasonably acted sooner. A sustained increase in application numbers was not achieved until March and April 2015. The Department then acted to address this through policy development in May/June and is now bringing legislation forward. There is a minimum notice period of 2-3 months required for making changes to the scheme (accepting reasonable legal risk). In any event, evidence from other similar schemes (such as the NIRO) is that deadlines for changes engender rapid industry reactions which are not dependent on timing (unless, at increased risk of legal challenge, no warning is given). The counterfactual position regarding an earlier change to tariffs is therefore likely to have resulted in a similar outcome, with applications being brought forward in advance of the tariff change.

Impact of tariff changes

12. A **broad brush** estimation of the impact of the changes proposed on the basis of the NPV analysis completed for both 'before' and 'after' tariff changes for 3 months of applications (apr-jun2015) is that savings would equate to just over £1.82m for three months (or £36.5m over 20 years). Factoring this up to 14 months of applications (Nov15-Dec16), the estimated savings attributed by Energy Division to the tariff changes are £8.5m and £170m over 20 years.

Forward Forecasts

13. Our most recent update from Ofgem is that October applications are now in excess of that forecast within the business case addendum (current actual circa 400 versus forecast for October of 100). This reinforces the points made at 11 above as it reflects demand reacting to a signal of tariff changes. This change will add additional expenditure in the period 2015/16 of circa £3m, and total costs over the twenty years of the scheme of £130m. Our Analytical Services Unit has confirmed

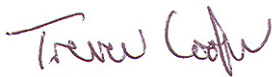
that this additional expenditure would not change the conclusion that spend in this period in total is VFM on the basis that the VFM analysis is “scaleable”.

14. The administration costs for the scheme are met by the Department from Resource DEL. The administration estimates are included in the Business Case. Clearly there will be administration costs for as long as commitments exist. The Department is also seeking DFP approval for the costs associated with the scheme as part of the overall Business Case. Administration costs are based on 3% of total administration costs for both the GB and NI Non Domestic RHI Schemes.

15. I can confirm that the DETI Casework Committee is content to endorse the proposals.

16. Please contact me if you have any further queries or questions on the attached case.

Yours sincerely



TREVOR COOPER
Head of Finance Division

cc Eugene Rooney
Chris Stewart
John Mills
Bernie Brankin
Iain McFarlane
Stuart Wightman

BUSINESS CASE ADDENDUM FOR THE NI RENEWABLE HEAT INCENTIVE

1. INTRODUCTION

- 1.1 In its Programme for Government (PfG) the Executive has a target of achieving 4% renewable heat by 2015. This is an interim milestone to achieving 10% renewable heat by 2020 in line with the Executive endorsed Strategic Energy Framework (SEF). In pursuit of these targets, the interim Renewable Heat Premium Payment (RHPP) and the Non Domestic Renewable Heat Incentive (RHI) schemes were introduced in May and November 2012 respectively. The full Domestic RHI Scheme was introduced in December 2014 to replace the RHPP. The proposed tariffs for both RHI schemes were developed on behalf of DETI through an external consultancy exercise carried out by Ricardo-AEA. Copies of these reports are attached at **Annexes A & C**.
- 1.2 This Business Case Addendum seeks DFP approval to continue the Non Domestic RHI scheme for 21 months from 1 April 2015 to 31 December 2016 to provide time for RHI budget clarification to be secured from DECC/HMT and for further budgetary controls to be introduced if the scheme is to be extended beyond December 2016. This paper is structured as follows:

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8	<i>ANNEXES</i>	<i>Page 28</i>
	<i>A - Original CEPA Report (2011)</i> <i>B - Non-domestic Business Case (2012)</i> <i>C – Revised CEPA Report (2013)</i> <i>D – Phase 2 Consultation Document</i> <i>E - DSO Advice on Scheme Suspension</i> <i>F – VFM Analysis: Non Domestic RHI Scheme</i> <i>G – VFM Analysis: Domestic RHI Scheme</i> <i>H – DARD Paper on Poultry Shed Heating Requirements</i> <i>I – Non Domestic Expenditure Forecasts (October 2015)</i>	

2. BACKGROUND

The Northern Ireland Renewable Heat Incentive (RHI)

- 2.1 The EU Renewable Energy Directive (2009/28/EC) set a binding target that 20% of the EU's energy consumption should come from renewable sources by 2020. The UK share of this target commits the UK to increasing the share of renewable energy to 15% by 2020 and Northern Ireland is expected to contribute to this share. The Department of Energy and Climate Change (DECC) has indicated that renewable heat levels of around 12%, coupled with 30% renewable electricity consumption are required for the UK to meet its requirements.
- 2.2 Heating energy accounts for around half of all total energy consumed within Northern Ireland with over 98% of our heating fuels coming from imported fossil fuels. Renewable heat is heat produced from renewable sources such as solar radiation, biomass materials, heat pumps, geothermal energy and waste materials. The Executive's 2010 Strategic Energy Framework (SEF) includes a target of 10% renewable heat by 2020 against a 2010 base of 1.7%.
- 2.3 In order to achieve the UK renewable heat target, DECC introduced a GB Renewable Heat Incentive for the non-domestic market in November 2011. Northern Ireland (NI) was not included within that scheme because of the differences in the two heat markets. In GB the natural gas market is prevalent and accounts for 68.8% of heating demand with oil only accounting for 10%. This is very different from the NI situation where refined oil products account for over 70% of the overall heat demand.
- 2.4 A separate assessment on the level of incentive (tariff) for the NI RHI was completed (**Annex A**) to inform the final business case (**Annex B**). This was approved by DFP in April 2012 and the interim RHPP (domestic) and Non Domestic RHI schemes were introduced in May and November 2012 respectively. A revised assessment was also completed in 2013 to inform the Phase 2 Review of the RHI (**Annex C**).
- 2.5 The NI Non Domestic Scheme commenced 1 year after the GB scheme. But unlike the experience with the GB scheme where considerably higher tariffs triggered high levels of uptake from the outset, the performance of the NI scheme was poor. The high uptake on the GB scheme led DECC to consult on cost control measures in Spring 2012 by which point the GB scheme had already received 533 applications (in 6 months) and forecast expenditure for 2012/13 was £42m. The NI scheme on the other hand had only received 21 applications in its first 7 months. There was therefore no immediate need to follow DECC's proposals for budgetary control. In any event the "budgetary controls" only related to deferral of applications and the measures were subsequently withdrawn by DECC. After two years DECC did introduce expenditure control measures in the form of digression arrangements. In the interim DETI had consulted on cost control measures but, with continued under use of the budget available and no information that this trend of underperformance

would not continue, Ministers prioritised introduction of the domestic RHI including deferring other measures which would have slowed down its introduction. Not only does DETI not have the resources to match DECC's but it also, unlike DECC, administers the domestic scheme. The GB domestic scheme is administered by Ofgem on DECC's behalf.

- 2.6 £860 million was made available from central Government funding to support the introduction of a Renewable Heat Incentive (RHI) in GB over the period 2011-2015. £25 million of funding was made available by HMT for a NI RHI over the same period. However, due to the poor levels of uptake with the NI RHI schemes, only £2m of this funding was spent during the first 3 years. The priority was therefore to try and improve uptake. This led to DETI's 2013 Phase 2 RHI consultation (**Annex D**) which included proposals for a new Domestic Scheme, new tariffs and technologies for the Non Domestic Scheme and proposals for cost control (similar to DECC's 2012 proposals).
- 2.7 Uptake of the Non Domestic Scheme improved in 2014/15 and a further £8m was spent, leaving an under spend of £15m against the 4 year allocation. A further allocation of £11.6m was made available for 2015/16 in line with the Department's AME forecast submitted in November 2014. However due to a significant increase in uptake of the NI Non Domestic RHI scheme over the past 12 months, an increased 2015/16 AME forecast requirement of £23m was submitted in June 2015 which is now confirmed in our AME profile.
- 2.8 The Non Domestic RHI supports the uptake of renewable heat technologies (biomass, heat pumps, solar thermal) by providing regular incentive payments over the lifetime (20 years) of the technology for actual heat energy generated. The level of tariff is dependent on the size and type of technology and is calculated to cover capital costs, operating costs and non-financial 'hassle' costs over the lifetime of the technology. To date, the NI RHI schemes have increased renewable heating to around 3½% and the Executive's interim target of 4% is expected to be achieved before the end of 2015. The RHI is expected to continue to increase the level of renewable heat in line with the longer term targets set by the EU and by the Executive.

Previous DFP Approval (Non Domestic RHI Scheme)

- 2.9 The interim domestic Renewable Heat Premium Payment (RHPP) and the Non Domestic RHI schemes were introduced in May and November 2012 respectively. The full Domestic RHI Scheme was introduced in December 2014 to replace the RHPP. The proposed tariffs for the Non Domestic RHI and RHPP schemes were developed on behalf of DETI through an assessment carried out by Ricardo-AEA (**Annex A**). This assessment informed the business case for both schemes (**Annex B**). This was approved by DFP in April 2012 on the basis that:

- *Whilst the scheme is envisaged to be open to new installations until 2020, approval is given for the period 1 July 2012 to 31 March 2015, representing the period for which HMT funding has been secured. Any decision to continue the scheme beyond 2015 would require further/separate DFP approval;*
- *As outlined in Section 7.53 of the Business Case, arrangements are put in place for scheduled reviews to allow the progress of the scheme to be monitored, assessed and if necessary, changes implemented. It is noted that the first review is scheduled to start in 2014 and that the reviews will be carried out by DETI.*

2.10 With low levels of uptake and under spends with both RHI schemes, the Department undertook its first review of the RHI in 2013 to improve scheme performance. This Phase 2 Review included proposals to:

- extend the Non Domestic scheme to further renewable heating technologies;
- introduce a full Domestic RHI Scheme with annual tariff payments (to replace the RHPP scheme);
- introduce biomass sustainability and emission standards; and
- introduce annual cost control measures.

The proposals were subject to public consultation in October 2013 (**Annex D**) and informed by a further detailed assessment carried out by Ricardo-AEA (**Annex C**).

2.11 Following the public consultation (with uptake of the Non Domestic RHI and RHPP schemes still low and under spends continuing) the Minister prioritised introduction of the full Domestic Scheme over Phase 2 Non Domestic RHI proposals. This involved securing EU State Aid and DFP approval and putting in the place the necessary Domestic RHI legislation. Rather than increasing the non domestic tariffs to stimulate demand the Department decided to promote both schemes through public awareness campaigns. Two campaigns were completed in 2013/14 and 2014/15.

Need for further DFP Approval for the Non Domestic RHI Scheme

2.12 Regrettably, with the focus on implementing the domestic scheme, the need to secure further DFP approval to continue the Non Domestic RHI scheme beyond 31 March 2015 was overlooked and not sought. DETI Energy officials had wrongly assumed that like the domestic scheme, approval for the Non Domestic RHI scheme had been secured until scheme closure in March 2020. Given this position on approvals for the non domestic scheme, the Department has been assessing options to prevent ongoing, irregular funding. This concerns committed expenditure (over 20 years) for new non domestic applications approved from 1 April 2015. Committed expenditure (over 20 years) for applications approved prior to 1 April 2015 is covered by the original Business Case approval in 2012.

- 2.13 The basis for the scheme is statutory. It is therefore not possible to cease, suspend or otherwise delay applications whilst approvals are sought. This has been confirmed by DSO (**Annex E**). Effecting legislative change requires affirmative resolution of the NI Assembly and can take many months to complete. The Department is taking work forward legislative proposals to reduce tariffs for new biomass installations (which make up 97% of all applications) from November 2015. This is covered in more detail in Section 4.
- 2.14 The Department is seeking DFP approval to regularise the position in relation to expenditure under the Non Domestic RHI scheme (both RHI payments and administration costs) both retrospectively from 1 April 2015 and prospectively to 31 December 2016 on the basis of the scheme's continuous and continuing provision of value for money which is assessed in Section 3. The approval sought would also cover forward commitments under the Scheme. This is further detailed in Sections 6.6 (Administrations Costs) and 7.2 (AME costs).
- 2.15 Before seeking further DFP approval for a scheme extension beyond December 2016, the Department proposes to review the Scheme in light of the likely level(s) of future RHI allocations for NI, and whether there will be any NI DEL consequences that would result from forecast uptake of a viable Scheme over the longer term (in relation to tariffs attracting applications to increase the uptake of renewable technology). Subject to clarification on availability of future funding, the Department will complete a review of the non domestic RHI and submit a further Business Case to either close or extend the scheme. A scheme extension would be predicated on ensuring further budgetary controls are put in place to manage future expenditure. More information on this is covered in Section 4.

3. RHI SCHEME PERFORMANCE AND AFFORDABILITY (BOTH SCHEMES)

- 3.1 Both RHI schemes are demand led. It is therefore difficult to predict and manage future uptake and expenditure. For this reason HMT agreed to fund the RHI through Annual Managed Expenditure (AME). £25m of AME was initially allocated to the NI RHI for the 4 year 2011-15 period. This initial allocation was based on a Barnett type formula with NI receiving 2.98% of the DECC allocation of £860m.
- 3.2 A delay in securing EU State Aid approval meant that the Non Domestic RHI scheme wasn't introduced until November 2012. This delay together with low levels of initial uptake generated an under spend of around £15m during the first 4 years. This was investment that the NI economy had effectively lost out on. The Department's focus over the past 12 months was therefore focussed on trying to improve the performance of the RHI to achieve the Executive's PfG target of 4% renewable heat in 2015 and ensure that the renewable heating sector and the wider NI economy benefitted from this investment. This included introducing the full Domestic RHI Scheme in December 2014 and completing extensive advertising campaigns during 2013/14 and 2014/15.

Non Domestic RHI Scheme Performance

- 3.3 Table 3.3 shows how the Non Domestic RHI has performed over its first 4 years in terms of application numbers, expenditure and the amount of renewable heat incentivised. Despite a sustained reduction in oil prices, the Department has successfully increased scheme uptake over the last 12 months.

Year	Average Application Nos		Committed RHI Expenditure			Incentivised Renewable Heat (GWhr)		
	Monthly	Total	Committed Monthly Expenditure (at year start)	Average Monthly Increase	Financial Year Total	Annual Increase	Total	% of total NI Heat Demand
2012/13	3	9	£0	£6k	£19k	3.5	3	2.04%*
2013/14	10	119	£19k	£21k	£650k	46.1	50	2.32%
2014/15	36	435	£267k	£75k	£6.5m	168.7	218	3.33%
2015/16** (Apr-Oct)	53	371	£1.3m	£110k	£21.5m	143.9	362	4.19%
2015/16*** (Nov-Mar)	40	200		£83k		77.6	440	4.65%

*Includes base levels of 300GWh (1.7%) in 2010 and 37GWh incentivised through Domestic RHI / RHPP by 30/9/15.

**Based on actual application numbers from April to Sep.

***Estimated figures for quarters 3 & 4 reflect proposed tariff changes in Autumn 2015.

- 3.4 The total number of renewable heating installations under the scheme has increased from 263 to 800 during the 12 months from September 2014 to August 2015. Over 50 applications are currently being received every month. If these uptake levels are

retained, the PfG 4% target will be achieved before the end of the calendar year. This recent increase in applications has been driven by a move in the NI poultry sector away from LPG to biomass heating systems for its broiler houses. Table 3.4 shows the technology mix of applications received to date.

Ground Source Heat Pump	< 20 kw	9.0p	3 (0.37%)
	20 – 99 kw	4.6p	3 (0.37%)
	> 100 kw	1.3p	0
Solar Thermal	< 200 kw	9.1p	3 (0.37%)
Biomass	< 20 kw	6.7p	3 (0.37%)
	21 – 99 kw	6.4p	775 (96.9%)
	> 100 kw	1.5p	13 (1.6%)
Biomethane Combustion & Injection	All sizes	3.3p	0
Total			800

- 3.5 Biomass heating systems in the 21-99 kw banding make up 775 (or 97%) of all applications received to date. Most of these current biomass applications are for 99kw installations for the poultry sector. Conversion to biomass heating not only provides the NI poultry industry with a cost effective, low carbon alternative to liquid petroleum gas (LPG), but more importantly keeps chicken litter drier, reducing ammonia levels, boosting bird growth and improving bird welfare. The Non Domestic RHI scheme has an important role to play in the future performance of the poultry industry which forms an essential part of the NI economy in terms of jobs and investment. However, it is essential that the Non Domestic RHI scheme remains affordable and provides the right level of incentive. **Annex D** outlines the Department's potential Phase 2 proposals for the Non Domestic RHI Scheme which include introducing a number of new technologies and tariffs.

Domestic RHI Scheme Performance

- 3.6 The Domestic RHI scheme provides an upfront capital payment towards the installation costs followed by 7 years of technology based tariff payments based on the deemed heat requirement of a property based on its Energy Performance Certificate. The scheme also includes an annual payment cap of £2,500. Therefore, unlike the Non Domestic scheme, where tariff payments for a given installation can significantly change from quarter to quarter, annual domestic RHI payments for individual households are effectively fixed for the 7 years. This makes managing the Domestic RHI Scheme budget much easier than the non domestic scheme. A total of 1760 domestic renewable heating insulations have been incentivised under the Domestic RHI and RHPP schemes. Biomass is still the most popular renewable heating technology in the domestic scheme making up 43% of all installations.

¹ Based on Ofgem figures at 27/8/15.

However, unlike the Non-domestic scheme, a mix of technologies are been installed as demonstrated in Table 3.7 below.

Ground Source Heat Pump	< 100 kw	£3,500	8.3p	219	12%
Air Source Heat Pump	< 100 kw	£1,700	3.6p	245	14%
Solar Thermal	< 100 kw	£320	13.7p	541	31%
Biomass	< 100 kw	£2,500	5.7p	755	43%
Total				1760	

3.7 An average of 40 applications per month has been received since the Domestic RHI Scheme opened in December 2014. Table 3.8 shows how the Renewable Heat Premium (RHPP) and full Domestic RHI schemes have performed in terms of application numbers, expenditure and the amount of renewable heat incentivised. Despite a sustained reduction in oil prices, the Department has successfully managed to sustain scheme uptake over the last 12 months.

Year	Number of Installations	Committed RHI Expenditure		Incentivised Renewable Heat (GWhr)*		
		Capital Payments £	Estimated** RHI Payments (7yr total)	Annual Increase	Total	% of total NI Heat Demand
2012/13	326	307,900	N/A	6.84	6.84	0.04
2013/14	588	1,033,680	N/A	12.34	19.18	0.11
2014/15 (Apr-Dec)	376	842,720	N/A	7.89	27.07	0.16
2014/15*** (Dec-Mar)	151	255,440	12,104,400	3.17	30.24	0.16
2015/16 (Apr-Sep)	319	589,240	2,679,600	6.69	36.93	0.22
Total	1760	3,028,980	14,784,000		37	0.22

*Based on average domestic heat requirement of 21,000 Kwh / year

** Assumed average annual payment of £1,200 per installation.

***Domestic RHI Scheme started in Dec 14 and includes tariff payments for 1,231 installations transferred from RHPP.

RHI Scheme Affordability

3.8 The recent increase in uptake has seen committed monthly Non Domestic RHI expenditure rise by over £1m over the last 12 months. Forecast expenditure for both RHI schemes in 2015/16 is now over £23m. However with previous under spends total forecast scheme expenditure during the 2011 to 2016 period is still within the 5 year AME allocation of £37m (£25m + £12m). The initial 4 year AME allocation of £25m (£2m/£4m/£7m/£12m) was profiled to reach £12m by 2014/15. The original 2012 business case (**Annex B**) then assumed that the 10% renewable heat target could be achieved by 2020 by continuing to increase the annual allocation by £5m to reach a maximum of £42m in 2020/21. However, the revised CEPA / Ricardo-AEA

assessment completed in 2013 (**Annex C**) concluded that the 1,000 GWh of additional renewable heat needed to achieve the 10% target in 2020 could not be achieved within a £42m funding constraint in 2020/21.

3.9 To incentivise 1,000 GWh of renewable heat within these assumed allocations, the average heat costs (tariffs) for both RHI schemes would have to be 4.2p/KWh or less for all technologies. Experience with both the GB and NI RHI schemes has shown that rates of 4.2p/KWh or less would not provide the investment returns necessary to attract investors into a new industry and generate sufficient levels of uptake to meet UK and EU targets. Apart from the sharp increase in biomass applications over the last 12 months, uptake of the Non Domestic RHI scheme for other technologies has been low even with rates significantly higher than 4.2p/KWh. Low oil prices make switching to renewable less attractive and have impacted on uptake. A fine balance therefore exists between providing an incentive/tariff that is high enough to attract applications and uptake but is low enough to be affordable and provide value for money. Section 4 provides an assessment of the scheme's continuous and continuing provision of value for money.

3.10 The Department's most recent AME forecast of total RHI expenditure in October 2015 is set out in **Annex I** (first Tab). This assumes both schemes remain open until March 2020. Table 3.10 below compares this forecast against the profile approved by DFP as part of the Domestic RHI business case in September 2014. It also includes a profile based on the "Barnett consequential" (2.98%) of DECC's most recent forecasts for the GB RHI. There has been no change between the current Domestic RHI forecast and that approved in September 2014 therefore at this point in time Domestic RHI expenditure is forecast to remain within existing approvals.

Table 3.10 – RHI AME Forecasts (both schemes remaining open until March 2020)							
Forecast	14/15	15/16	16/17	17/18	18/19	19/20	Total
Domestic Capital	1,140,000	1,015,000	1,560,000	2,760,000	3,510,000	3,802,500	13,787,500
Domestic Resource	245,085	1,877,000	2,580,000	3,180,000	5,436,000	7,248,500	20,566,585
Non Domestic Resource	6,540,280	21,470,985	31,609,727	36,445,177	39,925,052	42,295,247	178,286,466
Oct 2015 AME Forecast	7,925,365	24,362,985	35,749,727	42,385,177	48,871,052	53,346,247	212,640,551
Included in Domestic RHI Business Case	6,500,000	9,500,000	13,500,000	18,500,000	24,500,000	31,000,000	103,500,000
"Barnett's" % of GB RHI Forecast	6,496,400	13,976,200	19,966,000	26,283,600	36,236,800	49,170,000	152,129,000

3.11 The October 2015 forecast factors in the Department's proposed legislation to reduce Non Domestic RHI incentives for biomass from the autumn 2015 and assumes that new application numbers and associated expenditure will reduce as a result. The forecast also allowed for a significant increase in applications during September and October as investors try to beat the deadline. Total forecast RHI expenditure for the 6 year 2014-20 period is now £212.6m - over twice the profiled amount (£103m)

included in the Domestic RHI business case last year. This is attributed to the unprecedented increase in non domestic applications and committed monthly payments over the last 12 months.

- 3.12 Forecast expenditure is also significantly higher than the figure of £152.1m based on the “Barnett consequential” of the DECC forecast. In order to bring future RHI expenditure back down to within the Barnett envelope, it is likely that the Non Domestic RHI scheme (which currently accounts for over 85% of total forecast RHI expenditure) would have to close much sooner than the original planned closure date of March 2020. This of course will mean that the Executive’s 10% renewable heat target will not be achieved. A strong reaction could be expected to such an announcement.
- 3.13 A case can be made for increasing NI RHI funding above the Barnett allocation. Despite the difference in populations, application numbers for the NI RHI scheme are currently running at 5% of the GB scheme. As highlighted in Section 2, the GB RHI and NI RHI are different schemes targeting significantly different heating markets with oil accounting for 70% of the NI heating market (unlike GB where natural gas is prevalent). Traditionally oil is more expensive than gas so there should be more scope for incentivising NI households and businesses to switch to renewable heating technologies. The rural nature of NI also makes it more suitable for renewable technologies such as biomass and Combined Heat and Power (CHP). In addition, the poultry sector in NI, currently the largest convert to renewable heating (biomass), with 800 broiler houses is four times the size of that in England (with 200 houses). Moy Park’s current expansion will see the number of NI poultry houses (and biomass applications) increase even further.
- 3.14 Nonetheless, previous correspondence between with HMT officials in 2012, indicated that RHI funding may not be treated as normal AME and that there may be NI DEL consequences / penalties of “overspending”. In regard to the longer term operation of the Scheme, clarification is needed from DFP/HMT on future funding and whether there could be any NI DEL consequences of ongoing provision of an RHI scheme. If there are penalties or consequences for the NI Block of spending more than the “Barnett” allocation, both RHI schemes may need to be closed in 2016.
- 3.15 One option that we have explored with DECC is that HMT would only have concerns about the overall budget for UK RHI schemes. Should DECC find that available funding is not being fully utilised in GB they might agree that NI would come within an overall envelope. However, DECC do not anticipate a shortfall in 2015/16.
- 3.16 With the Department’s latest expenditure forecast in October 2015, it estimated that 8% renewable heat can be achieved by 2020. It is hoped however, that the Department’s Phase 2 RHI proposals for the non domestic scheme will improve scheme uptake and increase the number of renewable heating technologies

installed. **Annex D** sets out the Phase 2 proposals for the Non Domestic Scheme which include:

- introducing a number of new tariffs and technologies including Combined Heat and Power (CHP) and Air Source Heat Pumps;
- increasing the tariffs for poor performing technologies such as biogas injection/combustion to stimulate interest; and
- introducing a system of annual cost control (including the ability to adjust tariffs in year without legislation).

3.17 However, the Phase 2 proposals alone are unlikely to be enough to achieve the NI Executive's current 10% target for 2020. Even with the Phase 2 proposals, it will be a challenge to achieve 10% renewable heat within the current AME forecast. It is likely that higher tariffs and increased expenditure will be needed to deliver the necessary levels of uptake to achieve the 10% target. Achieving 8% renewable heat from a 2010 baseline of 1.7% would however, still be a significant achievement.

3.18 Therefore, once the future RHI budgetary position has been clarified by DFP/HMT, the Department will complete a more detailed review of the RHI to assess the levels of renewable heat currently in place and how much additional heat can realistically be afforded going forward.

3.19 To enable this review to take place, approval is sought to extend the Non Domestic Scheme to 31 December 2016. Table 3.19 below provides a forecast of the additional expenditure associated with a further 21 months of Non Domestic RHI commitments. It is set out in detail in **Annex I** (2nd tab). Due to the long term nature of support provided by the RHI scheme it should be noted that the 21 month extension generates an additional £104m of Non Domestic RHI expenditure over the 6 year 2015-21 period. This equates to over £386m of commitments over the lifetime of the scheme.

Table 3.19 – Non Domestic RHI Expenditure (for commitments up to 31 Dec 2016) £,000								
Non Domestic Forecast	15/16	16/17	17/18	18/19	19/20	20/21	6 Year Total	20 Year Total
Previous Commitments (Nov12 – March15)	13,058,742	13,058,742	13,058,742	13,058,742	13,058,742	13,058,742	77,229,074	261,174,840
New Commitments (Apr15-Dec16)	8,412,243	18,271,625	19,359,965	19,359,965	19,359,965	19,359,965	104,123,726	386,134,869
Revised AME Forecast (Oct15)	21,470,985	31,330,367	32,418,707	2,418,707	32,418,707	32,418,707	182,476,178	647,309,709

3.20 Following the RHI review in 2016, the DETI Minister and NI Executive will then have to either agree a reduced 2020 RHI target (possibly 8%) or make a case to HMT / DECC for increased funding for the NI RHI. The Department's ongoing review of the Strategic Energy Framework (SEF) provides an opportunity for the RHI target to be revised and included in the NI Executive's next Programme for Government (PfG) in 2016.

4. VALUE FOR MONEY ASSESSMENT (BOTH SCHEMES)

NPV Assessment - Non Domestic RHI Expenditure up to 31 March 2015

- 4.1 The Non Domestic RHI scheme provides financial support for renewable heat technologies for the lifetime of the installation (to a maximum of 20 years). Payments are made on a quarterly basis and determined by the actual metered heat output of the system. A cost benefit analysis of the non domestic scheme was undertaken in the original business case for the scheme by the consultants CEPA and Ricardo-AEA (**Annex A**). They developed an economic model which assessed the expected uptake of renewable heat together with the displacement of oil and gas that this implied. The analysis found that the NPV for the scheme was £-242m assessed against a do nothing approach.
- 4.2 CEPA and Ricardo-AEA also undertook an assessment of the development of Phase 2 of the Renewable Heat Incentive in 2013 (**Annex C**) which included development of the Domestic RHI Scheme and a number of new technologies/tariffs for the non domestic scheme. Quantifiable benefits identified again related to carbon emissions with the costs made up of the subsidy payments plus an allowance for administration costs. The consultants' conclusion was that none of the options had a positive NPV purely on a quantitative basis. They did conclude that the net effect of renewable heat on employment would be positive but did not attempt to quantify this. While concluding that the costs appear to outweigh the benefits for all options they calculated the cost-effectiveness of the options. It was concluded that introducing a seven year tariff for the Domestic RHI together with a number of new non domestic tariffs / technologies (e.g. CHP, District Heating, large biomass, etc) was the most cost-effective option. The full Domestic RHI Scheme was introduced in December 2014. The Phase 2 Non Domestic RHI proposals are outlined in **Annex D**.

NPV Assessment – Non Domestic RHI Expenditure from 1 April 2015

- 4.3 As mentioned in Section 2.13, the Department is legally bound to continue accrediting new Non Domestic RHI installations at the current tariff levels until legislative changes can be made. Expenditure for new commitments during this period is therefore unavoidable. However, to assess the scheme's continuous and continuing provision of value for money in achieving the Executive's sustainable energy objectives, we have calculated the costs and benefits of new installations accredited onto the scheme since March 2015. The costs of the scheme relate to the actual payments made or anticipated to be made for the projects assisted. In addition to the carbon benefits, we have attempted to quantify the employment benefits for the first time. This is more consistent with the approach taken in assessing the cost-benefit of other renewable schemes.
- 4.4 Three months of actual application data from April to June 2015 was used. This was doubled to give an estimate of scheme expenditure for the 6 month period from April

to September. Tariff changes are planned for November 2015. Total committed annual expenditure for the 6 months of new applications is estimated to be £7.16m. This expenditure is then forecast to be paid for 20 years. The total estimated costs and carbon benefits for the 6 months of applications provide a NPC of £56.8m over 20 years.

- 4.5 The previous consultants' studies did mention employment benefits but did not attempt to quantify them. However, in a separate piece of analysis for the Department in relation to the costs and benefits of the Executive's 40% renewable electricity target, consultants Ricardo-AEA estimated the job-years created by different renewable technologies and the gross value added to the NI economy that this employment would bring. We have applied the same methodology to estimate the benefits of the RHI scheme to NI. Using the estimate of 74.5 job-years per MW of biomass installed and an average NI gross value added (GVA) per job of £51,092, it is estimated that the 6 month tranche of RHI installations generates an annual benefit of £5.1m². This figure takes account of likely displacement of jobs from the home heating oil business. The Department's analysis has shown that GVA in the heating oil business is typically 5% of turnover in NI. We have estimated the volume of heating oil displaced based on the CO2 savings identified and estimated the turnover displaced, this represents by using GCC's long term average cost of NI heating oil. The calculations show an annual GVA displacement from the home heating oil sector of £333k due to this 6 month tranche of RHI support
- 4.6 The overall NPV of the 6 months of Non Domestic RHI support, taking into account the subsidy costs together with the environmental and employment benefits (including displacement offset) is **£1.85m**. An assessment was also completed on the same 6 months of data to demonstrate how the scheme's value for money improves after the proposed tariff changes are made. The NPV increases to **£41.3m** once the changes are applied. These assessments are summarised below and detailed in **Annex F**.

Cost / Benefit Description	Current Tariffs Total (£m) 20 years	Proposed Tariffs Total (£m) 20 years
Cost of Non Domestic RHI for projects Apr-Sept 15	(150.38)	(73.87)
Carbon reduction benefits (£m)	50.22	50.22
Estimated Jobs GVA (£m)	107.16	107.16
Net Cost-Benefit (£m)	7.00	83.5
NPV (£m)	1.85	41.3

² Source of figures: 'Ricardo AEA review of the Costs and Benefits of the Northern Ireland Executive's 40% Renewable Electricity Target'- Report for DETI, May 2015. With 74.5 job-years per MW, biomass is one of the highest energy employers. For example, Solar PV is estimated to create 16.7 job-years per MW. The higher biomass jobs figure is likely to be explained by ongoing cultivation of fuel and greater O&M needs. Ricardo has calculated the GVA figures based on NI average GVA published by NISRA. Ricardo's GVA estimate aligns with the estimate for Northern Ireland by the Centre for Economics and Business Research Ltd in their June 2010 report on "The economic value of the woodfuel industry to the UK economy by 2020" for the Forestry Commission.

4.7 Previous studies have shown that the RHI has a net present cost to the economy and the most cost-effective tariff scheme was chosen for both sectors (Non Domestic / Domestic) to attempt to meet the 10% target for renewable heat delivered in 2020. The analysis for the six months tranche of assistance also shows a negative NPV. However when the employment benefits are quantified the cost-benefit analysis becomes positive. It was always anticipated that the RHI scheme would have to be ‘pump primed’ and have higher tariffs in the early years to generate sufficient uptake. As uptake levels grow and more businesses switch to renewable heating, it was expected that the capital and running costs of these technologies would reduce and that tariffs could be reduced accordingly. Although the NPV is relatively small at £1.85m, the higher tariffs have been needed to generate the current levels of uptake. Because of this, the Department can now reduce tariffs (and improve the NPV) going forward but still hopefully maintain a reasonable level of uptake.

Assessment of Counterfactual of Implementing Tariff Changes Sooner

4.8 As mentioned in Sections 2.13 and 4.3, the Department is legally bound to continue with the scheme at the current tariffs until legislative changes can be made. With the difference in NPVs above, the question arises whether the Department could have reacted sooner and saved money. As set out in Section 3, initial uptake of the scheme was very slow and at the end of July 2014, only 227 applications had been received in the first 20 months of the scheme. There was no indication that there was to be any rapid increase in applications and in fact a promotional campaign was designed under the EnergyWise banner to promote uptake of the scheme and this was undertaken in late 2014 into early 2015. The table below sets out the pattern of applications month on month from the July 2014 base line.

Month	Applications Received
August 2014	36
September 2014	24
October 2014	34
November 2014	47
December 2014	33
January 2015	51
February 2015	22
March 2015	69
April 2015	85
May 2015	66
June 2015	49
July 2015	42
August 2015	55
September 2015	90

- 4.9 By the end of March 2014, only £2m out of a three year £15m RHI budget had been spent. The Department's priority during 2014/15 was therefore to introduce the Domestic RHI Scheme and promote both schemes to improve uptake. Implementation of the Domestic Scheme was prioritised over the Phase 2 proposals to extend the Non Domestic Scheme and introduce additional cost control measures. This was a reasonable position given the large under spends that were occurring. Introducing measures that include suspending the scheme at short notice could have made the scheme less attractive to potential investors at a time when the Department was trying to increase uptake. Up until November 2014, an average of 30 applications was being received each month. Apart from a couple of spikes in demand in November 2014 and January 2015, this trend continued. Decisions to progress legislation for tariff changes or cost control (which is resource intensive and can take many months to complete) cannot be taken lightly and based on one or two months of data. Average application numbers from August 2014 to February 2015 were still averaging 35 / month.
- 4.10 It was in early May 2015, after 2 exceptionally high months (and following market intelligence which identified the poultry industry as the driving force behind the increased applications) that the Department started to develop policy proposals to address what it concluded was a new situation (in a demand led scheme it is hard to see how a reaction can be developed so there is no lag between evidence of changed circumstances and any response). These proposals were developed in May/June and submitted for approval in July. Following consideration, in September, the Minister and ETI Committee approved policy proposals to introduce a tiered biomass tariff. The Department is urgently taking forward development of the legislation and hopes to bring it before the Assembly on 3 November subject to DFP approval of this Business Case Addendum. Legislation cannot be brought forward without certainty on budget cover and financial approval to continue the scheme.
- 4.11 There is therefore no evidence from either the application numbers or the timeframe to suggest that the Department could have reacted more quickly and made the tariff changes sooner to save money. In fact, by separating the proposed tariff changes from wider cost control measures, the Department has avoided the need for full public consultation and a further delay in implementation. Experience with the NIRO would suggest that a 3 month notice period for tariff changes is normal. Anything less leaves the Department open to legal challenge from businesses who have committed investment on the basis of a particular tariff level. The Department will have provided a reduced 2 month notice period if the legislation for the proposed biomass tariff changes is passed by the NI Assembly in early November.
- 4.12 Even if the Department had been able to predict future take-up in January and tried to progress legislation, with the required notice period, it is unlikely that the changes could have been made before July. Experience with the NIRO and GB RHI schemes indicate that there would have been an even larger increase in applications to beat

the deadline for tariff changes and that a similar number of total applications would have been received but over a shorter period. Receiving all the applications sooner (i.e. before July) would have increased the annual expenditure for 2015/16 as there would have been many more months of heat to fund for the new applications. Therefore evidence is lacking that the value for money of the counterfactual position of introducing the changes earlier would have resulted in any material difference.

Rate of Return Assessment – Non Domestic RHI Scheme

4.13 The Non Domestic RHI Scheme's continuous and continuing value for money has been assessed in sections 4.3 - 4.12 above but it is also important that the rate of return that the scheme provides for investors is in line with its EU State Aid notification/approval and that it isn't overly generous. The vast majority of non domestic RHI applications are for biomass technology and most of these are for 99kW boilers in the poultry sector. To inform this assessment, the Department asked the Department of Agriculture and Rural Development (DARD) to complete an assessment of the heating needs of a typical poultry house. This is provided at **Annex H**.

4.14 The original biomass tariffs were based on providing a Rate of Return of 12% with the initial capital outlay for installing the renewable heating system paid back within 7-8 years. The DARD report shows that 388,000kWh of biomass heat is the upper limit of the expected annual heat requirement for a typical poultry shed. Taking the 99kW boiler as the main provider of heat in most situations and 90% efficiency, this equates to some 4,355 annual hours of operation ($388000 / (99 \times 0.9)$). The DARD report shows that a maximum incentive of 1.5p/kWh is required over a comparable LPG heating system to cover the difference in fuel and running costs. If fuel/running costs (1.5p/kWh) are deducted from the current tariff of 6.4p/kWh, this leaves a tariff of 4.9p/kWh for determining the Rate of Return. If 90% boiler efficiency is assumed, the maximum estimated annual payment for a typical poultry house is:-

$$\text{Total Annual Payment} = 388,000 \times 90\% \times 0.064 = \text{£}22,349$$

$$\text{Annual Payment (towards capital)} = 388,000 \times 90\% \times 0.049 = \text{£}17,111$$

4.15 The capital cost of a typical 99kW biomass heating system is £50,000. The current RHI tariffs are therefore currently delivering payback in around 3 years (or 33%). However, it must be emphasised that the Rate of Return for other sectors with different boiler sizes or lower operating hours will be much lower. For example, the Rate of Return for a 99kW boiler with 2,000 annual hours (typical for other sectors) is just under 6 years (or 17%). Given that the expected payback for capital investments of this nature would be 7 – 8 years (or 12%), the position above reflects the reduction over time in biomass technology costs.

Proposed Tariffs Changes in November 2015

4.16 The increased rate of return plus the issue of affordability going forward requires the biomass RHI tariffs to be reduced whilst still maintaining a sufficient incentive to ensure uptake of the technology. To address this, the Department is currently progressing legislation to reduce biomass tariffs for future applicants. The final policy for these changes has been approved by the Minister and ETI Committee and can be viewed on the DETI website via the link below³. Subject to Assembly clearance, it is hoped these initial changes can be implemented in November 2015. These changes are outlined below:

- **Proposed Changes to Biomass Tariff:** the current tariff banding, (20-99kW), has resulted in a large number of applications for 99kW boilers. It is proposed to widen this banding up to 199kW (as is the position in GB), to encourage larger more efficient installations.
- **Two Tier Tariff System:** a two tier tariff system will also be introduced. The standard tariff will apply to the first 1314 peak hours (15% of total possible hours). This is in line with the position introduced by DECC for the GB scheme. Hours over and above these peak hours will be paid at the reduced tariff rate of 1.5p/kWh. The rationale for introducing a tiered tariff is that the RHI uplift for the peak hours is towards the capital repayment, whilst the 1.5p/kWh is towards running costs. Using the example as quoted above the revised annual figures would be:-

Tier 1: $1314 \times 99 \times 90\% \times 0.049 = \text{£}5,737$ (contribution towards capital)

Tier 2: $4,355 \times 99 \times 90\% \times 0.015 = \text{£}5,820$ (contribution towards running costs)

Total Annual Payment = $\text{£}11,557$

This example shows the total annual payment is effectively halved by the tariff changes and that capital payback (at $\text{£}5,737/\text{yr}$) would be achieved in 8.7 years (or 11.5%). The Rate of Return will be the same for all boilers of the same size if the operating hours are 1314 or higher. Evidence from the poultry industry would suggest that 99kW biomass boilers don't meet all the heating requirements of a poultry house during certain stages of chicken development or during periods of colder weather. LPG is used to meet the additional heating requirements during these periods. Extending the 6.4p/kWh tariff to biomass plants up to 199kW in size is therefore likely to incentivise the poultry industry to install boilers significantly larger than 99kW to meet all its heating needs and remove the need for LPG. Using 388,000 kWh as the maximum heat requirement of a typical poultry house and assuming 90% boiler efficiency, the annual incentives for a 150kW and 199 kW are shown below:-

³ http://www.detini.gov.uk/final_policy_paper_on_rhi_proposals__september_2015_.pdf

Boiler Size	150 kW	199 kW
Assumed Capital Cost	£75,000	£90,000
Annual Operating Hours	$388,000 / (150 \times 90\%) = 2,874$ hours	$388,000 / (199 \times 90\%) = 2,166$ hours
Tier 1 Payment (capital return)	$1314 \times 150 \times 90\% \times 0.049 = £8,692$	$1314 \times 199 \times 90\% \times 0.049 = £11,531$
Rate of Return	11.6% (8.6 years)	12.8% (7.8 years)
Tier 2 Payment (running costs)	$2874 \times 150 \times 90\% \times 0.015 = £5,820$	$2166 \times 199 \times 90\% \times 0.015 = £5,819$
Total Annual Payment	£14,512	£17,350

- Annual Payment Cap:** the proposals to extend the 6.4p/kWh biomass tariff banding up to and including 199 kW boilers and to introduce a tiered tariff of 1.5p/kWh will provide a reduced Rate of Return of between 11.6% (8.6 years) and 12.8% for new applications from the poultry industry depending on boiler size. This would align Non Domestic RHI tariffs with the 12% Rate of Return included in the EU State Aid approval. The introduction of the tiered tariff will also reduce the risk of ‘gaming’ and installations being operated over and above the required kilowatt hours just to generate RHI income. However, the Department also proposes to introduce an annual cap on eligible kilowatt hours above which no further incentives will be paid. DARD has determined the maximum annual heat requirement for a typical poultry house to be 388,000 kWh. Allowing for 12,000 kWh of additional heat for exceptionally cold years, the Department proposes to introduce a cap of 400,000 kWh (or 2,233 hours for 199kW boiler). As shown below, the maximum possible annual payment under this cap would be £17,530.

Tier 1: $1314 \times 199 \times 90\% \times 0.049 = £11,531$ (capital return)

Tier 2: $2233 \times 199 \times 90\% \times 0.015 = £5,999$ (running costs)

Total Annual Payment = £17,530

NPV Assessment – Domestic RHI Expenditure to date

4.17 Given that the NI RHI budget allocation must cover both schemes, for affordability purposes it is important the Domestic RHI scheme is also examined. The 2013 economic assessment for Phase 2 of the RHI (**Annex C**) concluded that introducing a seven year tariff for the Domestic RHI together with a number of new non domestic tariffs / technologies (e.g. CHP, District Heating, large biomass, etc) was the most cost-effective option. The business case for the Domestic RHI Scheme was approved by DFP in September 2014 and introduced in December 2014 on the basis of a total 6 year RHI funding profile (for both schemes) of £103m as shown in Table 4.17 below.

Table 4.17 – Previous RHI Expenditure Forecast (included with Domestic RHI Business Case)							
Forecast	14/15	15/16	16/17	17/18	18/19	19/20	Total
Total RHI	6,496,511	9,472,380	13,501,980	18,590,580	24,495,180	31,341,780	103,898,411

4.18 Table 4.18 sets out the Department's most recent forecast for Domestic RHI expenditure which has not changed from the levels forecast within the DFP approved profile. The Capital/Resource split is shown at Table 3.10. The detailed forecast is included in **Annex I** (4th tab)

Table 4.18 – Current RHI Expenditure Forecast							
Forecast	14/15	15/16	16/17	17/18	18/19	19/20	Total
Domestic RHI	1,385,085	2,892,000	4,140,000	5,940,000	8,946,000	11,051,000	34,354,085

4.19 To demonstrate the Domestic RHI scheme's continuous and continuing provision of value for money we have calculated the costs and benefits of installations accredited onto the new scheme since it was introduced. The costs of the scheme relate to the actual upfront payments made together with committed future expenditure associated with the 7 years of annual tariff payments. The benefits include the monetary CO2 savings together with job creation. The same methodology was applied to calculate job benefits associated with biomass installations (section 4.5 above). No job benefits were included for either heat pump or solar thermal installations. Although it is expected that both renewable technologies would create added job benefits and improve the NPV. The overall NPV of the first 9 months of the Domestic RHI scheme, taking into account the subsidy costs together with the environmental and employment benefits (including displacement offset), is **£5.96m**. The analysis is summarised in the table below and detailed in **Annex G**.

Cost / Benefit Description	Total (£m) 20 years
Cost of Dom RHI for approvals (Dec 14 – Sep 15)	(4.87)
Carbon reduction benefits	3.93
Estimated Jobs GVA (for Biomass only)	15.56
Net Cost-Benefit	14.62
NPV (£m)	5.96

Rate of Return Assessment – Domestic RHI Scheme

4.20 There is no evidence through the levels of uptake since the Domestic RHI Scheme was introduced 10 months ago to suggest that the RHI tariffs need reduced. Unlike the Non Domestic scheme, the annual payments are fixed and based on the individual heat requirements of a property as assessed through its Energy Performance Certificate (EPC). There is also an annual payment cap of £2,500. However, the rate of return provided through the scheme has still been assessed to demonstrate that tariff changes aren't yet needed.

4.21 The assessment below is based on a typical domestic biomass installation. Biomass is currently the most popular renewable heating technology under the Domestic RHI accounting for 43% of all accredited installations. The fuel figures in SAP 2009⁴ which is currently used for Energy Performance Assessments in NI are 5.45p/kWh for biomass pellets and 4.06p/kWh for heating oil. However, the biomass tariff of 5.7p / kWh has to cover the extra running (fuel/maintenance) costs of biomass over oil. Based on the DARD assessment (**Annex H**), this requires an additional 0.65p/kWh. This makes the running costs of biomass 2.04 p/kWh more expensive than oil. Deducting this 2.04 p/kWh from the RHI Biomass tariff leaves 3.66 p/kWh towards the capital costs. Based on these figures, the Rate of Return is 10.2% (or 9.8 years) which is line with the proposed Non Domestic tariff changes. No tariff changes are therefore proposed.

Assumed Capital Cost	£10,000
Upfront Grant	£2,500
Outstanding Costs	£7,500
Typical Annual Heat Demand	21,000 KWh
Annual Payment (towards capital)	$21,000 \times (0.0366) = £768.60$
Rate of Return	$7500 / 768.6 = 9.8 \text{ years (or 10.2\%)}$

4.22 On the basis that current actual and forecast expenditure on the Domestic RHI Scheme for the 5 year (2015/21) period remains within the original approval, and that the current analysis demonstrates that it remains value for money, subject to future budget availability the Department does not propose any amendments to the Domestic Scheme at this point in time. The operation of the Domestic Scheme in the longer term will be a part of the review that the Department will carry out in light of forecast longer term funding availability.

⁴ The Government's Standard Assessment Procedure for Energy Rating of Dwellings 2009 edition - http://www.bre.co.uk/filelibrary/SAP/2009/SAP-2009_9-90.pdf.

5. NEED FOR FURTHER BUDGET MANAGEMENT / COST CONTROL MEASURES**Background**

5.1 As set out in Section 4, the Department is currently drafting legislation to reduce biomass tariffs for future applicants to address the recent surge in Non Domestic RHI applications and committed expenditure. However, making legislative changes can take many months to complete depending on the complexity. This makes it very difficult to react quickly to large increases in uptake. In the longer term, the Department's current view is that it plans to legislate for an annual system of digression where tariffs for both RHI Schemes can be changed if in-year expenditure or application triggers are reached.

Need for More Flexibility to Make Tariff Changes

5.2 One of the biggest challenges with forecasting future Non Domestic RHI scheme expenditure is that uptake levels and individual payments fluctuate month by month. Estimated quarterly payments for accredited heating installations must be accrued until such time as the individual businesses submit their meter readings online to Ofgem. This can take many months. There can also be quite a variation on the payment amount depending on the type of business and of course the weather/temperature. This is what happened with the large increase in biomass applications from the poultry industry. Forecast payments for new applications had been based on the average operating hours of previously accredited installations which had typically been around 2000 hours / year generating a payment of around £12,700. The poultry installations subsequently proved to have average operating hours of over 4000 and annual payments of up to £30,000.

5.3 Similar variations can arise when forecasting expenditure for new Non Domestic RHI applications. The current forecast assumes £100k of additional monthly expenditure based on receiving 50 applications. If more or less applications are received in any given month, this can have a significant impact on financial year expenditure particularly if it occurs early in the year. For example, if expenditure associated with new applications proves to be £150k (i.e. £50k more) in April, this increases the annual expenditure by £600k (i.e. 12 x £60k). Tariff changes can also generate significant over/under spends. If new tariffs are too low, poor uptake will lead to under spends. If tariffs are too high, there could be over spends.

5.4 To provide assurance for potential investors, the RHI tariff changes are set out in legislation. This means that tariff changes can take 6 months or more to implement whilst ongoing over/under spends will continue to grow. Drafting and preparing legislation on the other hand requires a significant resource so any decisions around tariff changes must not be taken lightly and should be based on robust evidence and not on one or two months of high applications which could prove to be a blip. A balance therefore needs struck between having the flexibility to change tariffs quickly

but still encourage investment in renewable heating technologies. Investment decisions for larger renewable heating installations (>200kW) are often taken over a year before the installation is completed, by which time tariffs could have changed.

Proposals for Automatic Tariff Digression

- 5.5 DECC have introduced a system of automatic tariff digression for the GB domestic and non domestic RHI schemes where scheme expenditure is reviewed every 3 months and if budgetary triggers are breached for individual technologies, tariffs are automatically reduced by a certain percentage. The digression triggers and reduction (%s) are set out in the legislation. The GB non domestic scheme also includes a system of advanced preliminary accreditation where tariffs can be guaranteed for large scale installations that have completed a preliminary accreditation process with Ofgem. This ensures that the digression system doesn't prevent such installations coming forward.
- 5.6 To provide much more flexible in-year budgetary controls, the Department currently plans to introduce a system of automatic tariff digression for both RHI schemes as part of the Phase 2 proposals in 2016 where tariffs will automatically be changed to address low or high levels of uptake and remain within forecast budget availability. Unlike GB, the NI Non Domestic RHI scheme has had very limited uptake from technologies other than biomass so introducing individual budgetary triggers for each technology is unlikely to be appropriate. A quarterly trigger based on additional overall scheme expenditure or applications might be more appropriate. However, this will be examined as part of the RHI review later this year and any proposals will be put out to public consultation. Advanced preliminary accreditation for large scale installations will also have to be considered.
- 5.7 In order for a system of automatic tariff digression to work effectively, the Department will need to set clear budgetary constraints for both RHI schemes which will inform the triggers for reduction. Therefore, clarity is needed from DFP/HMT around future RHI allocations before such a system can be implemented. The Department plans to consult on the digression proposals in early 2016 so budget clarification will be needed before then. These AME allocations might also need to be included in the scheme legislation.
- 5.8 All the difficulties around Non Domestic RHI forecasting and cost control are why DECC produce 3 different forecasts (low / medium / high) for the GB RHI scheme. The Domestic RHI scheme on the other hand is much easier to predict with fixed upfront payments and annual payments determined by the Energy Performance Certificate (EPC) for the property. The domestic scheme also includes an annual payment cap of £2,500 per household. However, the Domestic RHI Scheme currently only accounts for around 15% of forecast RHI expenditure.

- 5.9 To manage the difficulties around forecasting non domestic expenditure, rather than seeking approval for a specific expenditure profile which will no doubt continue to increase or reduce to reflect in-year changes to scheme uptake, it would be much more practical to forecast a longer term expenditure range like DECC based on the future cost of incentivising renewable heat. Even with DECC's system of automatic tariff digression in GB, there can still potentially be 4 months of over spend before any tariffs can be reduced which could still generate a significant annual overspend. Similarly, a drop in scheme demand after a tariff reduction could generate under spends.
- 5.10 If budget approval for the Non domestic RHI scheme could be provided for a future expenditure range rather than a fixed profile, a future system of automatic digression could be deployed to ensure expenditure stays within the range. Experience in GB suggests that monthly application numbers and new expenditure can significantly increase/decrease month by month. As an illustration Table 5.10 provides an example of a possible expenditure range for the non domestic scheme. It includes three different forecasts of the expenditure needed to achieve the 10% target based on incentivising new installations at average rates of 4p/KWh, 2½ p/KWh and 1½ p/KWh. The Department's October 2015 Non Domestic RHI expenditure forecast falls in between the medium and high range.

Table 5.10 – Proposed Forecast Range for Non Domestic RHI Expenditure						
Year	Proposed Forecast Range			Incentivised Renewable Heat (GWhr)		
	Low (1p/KWh)	Medium (2.5p/KWh)	High (4p/KWh)	Annual Increase	Running Total	% NI Heat Demand
2015/16	£21,071,364	£21,071,364	£21,071,364	93.1	435	4.62%
2016/17	£25,908,467	£27,411,592	£28,914,717	185.0	620	5.73%
2017/18	£27,758,467	£32,036,592	£36,314,717	185.0	805	6.84%
2018/19	£29,608,467	£36,661,592	£43,714,717	185.0	990	7.94%
2019/20	£31,458,467	£41,286,592	£51,114,717	185.0	1,175	9.05%
2020/21	£32,306,384	£43,406,384	£54,506,384	-	1,175	9.05%
Estimated Future Domestic RHI Contribution				114	1,289	9.73%
Estimated NIRO (CHP) Contribution				50	1,339	10.03%

- 5.11 If expenditure increases towards the high profile, quarterly digression can be used to bring the profile back towards the middle range. Similarly, if low levels of uptake push scheme expenditure towards the low profile, tariffs could be increased for poorly performing technologies. The Department would continue to submit RHI AME forecasts within this range as part of the in year monitoring rounds.
- 5.12 Subject to budget clarification and DFP approval, the Department will develop a future system of tariff digression for the RHI scheme(s) based on a forecast expenditure range as part of the RHI Review over the next 12 months.

6. NON DOMESTIC RHI SCHEME ADMINISTRATION

6.1 Under Section 114 of the Energy Act 2011⁵, the Department can directly administer the RHI or outsource this function to either NIAUR⁶ or Ofgem⁷. The Domestic RHI scheme is currently administered inhouse within the Department's Energy Division. The Non Domestic RHI has been administered by Ofgem since 2012. Ofgem has considerable experience in managing large scale renewable energy grant schemes and in addition to the NI Non Domestic RHI currently administers: the Renewable Obligation in GB and the NIRO; the Feed-in-tariff in GB; and the GB commercial and domestic RHI schemes. An Administration Agreement is in place between the Department and Ofgem.

Value for Money

- 6.2 The Domestic RHI scheme calculates annual tariff payments based on a property's heating requirements set out in its Energy Performance Certificate (EPC), only a percentage of properties need to be checked for audit purposes. The Non Domestic RHI Scheme on the other hand requires that all installations to be metered and payments are calculated accordingly. Neither the Department nor NIAUR have the resource or expertise available to effectively carry out these functions. To outsource the scheme's administration to another private or public sector organisation (other than Ofgem or NIAUR) would require primary legislation which could take up to 12 months to put in place. In addition, Ofgem operates an online application and metering facility where owners of accredited plants record their quarterly metered readings. Developing a similar web based IT system specifically for the NI Non Domestic RHI scheme wouldn't be a cost effective use of public funding.
- 6.3 The Department is charged 3% of Ofgem's total administration costs for the GB and NI non domestic schemes. This is despite the fact that NI application numbers are currently running at 6% of the GB total. Any GB specific costs (legal, IT, etc) are removed before the NI costs are calculated. Similarly, any NI specific costs are added at the end and not charged to DECC for the GB scheme.
- 6.4 In 2015/16, Ofgem is expected to process over £23m of RHI payments for the NI scheme at a cost of £239k (or 1.1%). Administration costs for government grant schemes are typically between 8-10% of total grant expenditure. The Department therefore benefits from the economies of scale of being treated as a small addition to the much larger GB Scheme. Similarly, the Department also benefits from administrative changes already made by Ofgem for the GB Scheme. Whenever DECC make changes to the GB Scheme such as tariff changes, new technologies, etc, Ofgem have to upgrade their IT systems and processes. They charge DECC development costs for this work. Once these changes are made for the GB scheme, similar changes can be introduced for the NI scheme for much less cost. For

⁵ <http://www.legislation.gov.uk/ukpga/2011/16/contents/enacted>

⁶ Northern Ireland Authority for Utility Regulation

⁷ Office of Gas and Electricity Markets

example, to implement the administrative changes (IT, staff, etc) needed for the Phase 2 proposals set out in Annex D, Ofgem's development costs will be between £80k - £100k. DECC paid over £300k for similar changes for the GB scheme.

Future Administration Costs

6.5 It is proposed that Ofgem are given continued responsibility for the administration of the NI Non Domestic RHI. Ofgem were identified for this role because of their experience in effectively and efficiently developing and administering other government environmental programmes, including the GB RHI and the Northern Ireland Renewables Obligation, (NIRO). Ofgem would continue to administer the NI Non Domestic RHI alongside the GB RHI, and thereby provide significant savings to DETI. Ofgem's actual administration costs for the NI RHI scheme will continue to be based on 3% of the actual costs for administering both GB and NI schemes. An estimate of Ofgem's annual administration costs for the next 5 years is set out in Table 6.5.

Table 6.5 – Estimated Non Domestic RHI Administration Costs (2015-21)						
Year	Forecast of Total GB/NI Scheme Costs (£)	NI Annual Administration Costs (3% of GB/NI Total)	Additional NI Specific Costs (£)			Total NI Costs (£)
			Admin ⁸	Development ⁹	Audit Checks	
2015/16	7,300,000	218,700	5,350	15,000	25,000	239,050
2016/17	9,735,921	292,107	30,000	100,000	50,000	422,107
2017/18	13,897,931	416,980	30,000	-	50,000	446,980
2018/19	14,564,850	436,989	30,000	100,000	50,000	566,989
2019/20	14,840,815	445,269	30,000	-	50,000	475,269
2020/21	14,983,831	449,560	30,000	-	50,000	479,560
Total	75,323,348	2,259,605	155,350	215,000	275,00	2,904,955

6.6 Total administration costs for the 6 year 2015-2021 period are estimated to be **£2.9m** and to remain at between 1 and 2% of forecast annual RHI expenditure. This includes £215k of development costs to allow for future changes to the scheme including the Phase 2 proposals and tariff digression. £30k / year of NI specific administration costs are included to cover legal advice and specific changes for the NI scheme. The GB/NI scheme costs allow for a fixed number of audit inspections. However, an additional £275k is included to allow for an increased programme of audit inspections for the NI scheme.

⁸ The NI RHI scheme has specific administration costs associated with legal advice, and NI specific changes.

⁹ Development costs relate to any IT/system changes needed to implement any NI policy such as tariff changes.

7. WAY FORWARD

Non Domestic RHI Scheme Approval

7.1 The Department seeks DFP approval to regularise the position in relation to Non Domestic RHI scheme expenditure (both RHI payments and administration costs) both retrospectively from 1 April 2015 and prospectively to 31 December 2016 on the basis that:

- the scheme's continuous and continuing provision of value for money has been demonstrated (Section 3); and
- the Department has reacted as soon as practicably possible to introduce legislation to reduce incentives for new biomass installations from November 2015.

7.2 To inform this Business Case Addendum, the Department completed revised forecasts of Non Domestic Scheme expenditure for previous commitments (pre April 2015) and new commitments from April 2015 to December 2016. These are included at **Annex I** and summarised in Table 7.2 below. Total estimated scheme expenditure (20 years) for new commitments over the 6 year 2015-21 period is £104m. Over the lifetime of the scheme, the additional expenditure for these commitments is estimated to be in the region of £386m. Previous commitments entered into before 1 April 2015 are covered by the original 2012 Business Case approval.

Table 7.2 – Non Domestic RHI Expenditure (for commitments up to 31 Dec 2016) £,000								
Non Domestic Forecast	15/16	16/17	17/18	18/19	19/20	20/21	6 Year Total	<u>20 Year Total</u>
Previous Commitments (Nov12 – Mar15)	13,058,742	13,058,742	13,058,742	13,058,742	13,058,742	13,058,742	77,229,074	261,174,840
New Commitments (Apr15-Oct15)	7,377,576	11,412,108	11,412,108	11,412,108	11,412,108	11,412,108	64,438,116	227,664,029
New Commitments (Nov15-Mar16)	1,034,667	3,382,067	3,382,067	3,382,067	3,382,067	3,382,067	17,945,000	67,434,400
New Commitments (Apr16-Dec16)	-	3,477,450	4,565,790	4,565,790	4,565,790	4,565,790	21,740,610	91,036,440
Total New Commitments (Apr15-Dec16)	8,412,243	18,271,625	19,359,965	19,359,965	19,359,965	19,359,965	104,123,726	386,134,869
Revised AME Forecast (Oct15)	21,470,985	31,330,367	32,418,707	32,418,707	32,418,707	32,418,707	182,476,178	647,309,709

7.3 Total Non Domestic RHI expenditure in 2015/16 is currently forecast to be £21.5m, of which £7.4m relates to new commitments entered into during the period April –

October 2015, and which would be covered by the retrospective approval. Just over £1m of forecast expenditure in 2015/16 relates to new commitments after October 2015 and would be covered by the prospective approval. The remaining £13.1m of expenditure in 2015/16 relates to previous commitments made before April 2015 and is covered by the original 2012 business case approval. Total Non Domestic RHI expenditure in 2016/17 is currently forecast to be £31.3m, of which £11.4m relates to commitments entered into between April 2015 and Oct 2015, and £6.9m relates to commitments between November 2015 and December 2016.

- 7.4 Subject to DFP approval to continue the scheme for 21 months, the Department will:
- (i) Complete a detailed review of the RHI to assess the levels of renewable heat currently in place and how much additional heat can realistically be incentivised within the current forecast - the NI Executive will then have to either agree a reduced 2020 RHI target or a case will have made to HMT / DECC for increased funding for the NI RHI;
 - (ii) Subject to this Review / Decision, and budget clarification, the Department will approach DFP for further scheme approval beyond 31 December 2016; and
 - (iii) develop and consult on proposals for an automatic system of tariff digression for both RHI schemes based on an expenditure forecast range (Low, Med, High) and implementation of the Phase Non Domestic proposals.
- 7.5 Non Domestic RHI payments will need to continue to be processed and audit requirements implemented even if the scheme closes to new applications from 31 December 2016. It should be noted that there will be ongoing administration costs associated with the scheme for a further twenty years following any decisions to close the scheme to new applications. As regards administration costs, DFP approval is in place for 2015/16 administration costs of £249k. The current forecast (Table 6.5) is £239k. Administration costs in 2016/17 are forecast to total £422k and are based on 3% of total forecast UK administration costs. The 3% level is deemed to be value for money given the level of NI applications has historically been exceeding this. DFP approval for costs at this ongoing level is sought on this basis.

8. ANNEXES

- A. *Original CEPA Report (2011)* [DT1/15/0147730]
- B. *Non-domestic Business Case (2012)* [DT1/15/0147732]
- C. *Revised CEPA Report (2013)* [DT1/15/0147736]
- D. *Phase 2 Consultation Document* [DT1/15/0147773]
- E. *DSO Advice on Scheme Suspension* [DT1/15/0147740]
- F. *VFM Analysis: Non Domestic RHI Scheme* [DT1/15/0147720]
- G. *VFM Analysis: Domestic RHI Scheme* [DT1/15/0147725]
- H. *DARD Paper on Poultry Shed Heating Requirements*
[DT1/15/0147750]
- I. *RHI Expenditure Forecasts (October 2015)* [DT1/15/0159813]