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Northern Ireland Audit Office

Report by the Comptroller and Auditor General for Northern Ireland

Department of Enterprise, Trade and Investment

Resource Accounts

2015-16

Introduction

1 The Department of Enterprise, Trade and Investment (the Department) had responsibility for a range of functions including economic development policy, economic advice and research, business regulation, research and statistic services, health and safety at work and mineral development (these responsibilities transferred to the new Department for the Economy (DfE) on 8 May 2016). In 2015-16 the Department spent a total of £291 million (2014-15 - £228 million). Of this total expenditure around £35 million was spent promoting the use of and providing support for the use of renewable heating technologies.

2 My report below reviews the results of my audit of the Department's 2015-16 financial statements and sets out why I have decided to qualify my regularity audit opinion in relation to two issues:

- expenditure amounting to £11.9 million which was incurred without the necessary approvals in place for the non-domestic Renewal Heat Incentive (RHI) scheme (paragraphs 5 to 17) and is therefore irregular; and
- because I was unable to obtain enough evidence to be assured that expenditure on the non-domestic RHI scheme amounting to £30.5 million had been incurred for the purposes intended (paragraphs 18 to 28). This was due to the fact that I did not consider that the systems in place to prevent or detect abuse of the scheme were adequate.

3 The report also highlights general concerns in relation to the operation of the scheme and the circumstances surrounding the large increase in demand in October and November 2015 which will result in a significant cost to the Northern Ireland block grant for many years (paragraphs 29 to 54).

Qualified opinion due to expenditure incurred without the necessary approvals in place

4 I am required under the Government Resources and Accounts Act (Northern Ireland) 2001 to report my opinion as to whether the financial statements give a true and fair view. I am also required to report my opinion on regularity, that is, whether in all material respects the expenditure and income have been applied to the purposes intended by the Northern Ireland Assembly and the financial transactions conform to the authorities which govern them.

5 The Department of Finance and Personnel (DFP) did not approve £11.9 million expenditure incurred in a seven month period during 2015-16 on the non-domestic RHI scheme and as a result, this expenditure is irregular. Consequently, I have qualified my opinion on the 2015-16 Departmental Resource Accounts on the regularity of expenditure incurred on the non-domestic RHI scheme as this expenditure has been incurred without conforming to the authorities which govern it.

Background to the Audit Qualification

6 In its Programme for Government 2011-2015, the Executive set a target of achieving 4 per cent of Northern Ireland's heat consumption from renewable sources by 2015 and 10 per cent by 2020. In pursuit of these targets the non-domestic RHI scheme was introduced in Northern Ireland in November 2012, following the introduction of a parallel scheme in the rest of the UK. The RHI scheme was a financial incentive scheme designed to increase the uptake of renewable heat technologies and for approved installations pays a fixed amount for every kilowatt of heat energy produced by various renewable technologies for a period of twenty years after installation. The main methods of generating heat included biomass heating systems (mostly burning wood pellets), solar thermal and heat pumps. A similar RHI scheme for domestic properties was introduced in December 2014.

7 RHI is administered on behalf of the Department by the Office of Gas and Electricity Markets (OFGEM). Anyone wishing to join the scheme was required to purchase a suitable system from an approved installer and once installed apply to OFGEM, who would review the claim and once approved would manage quarterly payments to the applicant and then recover these payments from the Department. Once the scheme had been approved by OFGEM, the subsidy is paid to the applicant at a fixed rate each year, increasing in line with inflation. Each applicant has to submit quarterly meter readings to OFGEM.

8 The Department is made aware of new applications and their progress through weekly updates from OFGEM. However, given the design of the scheme it is difficult to manage demand – in hindsight, this was a flaw in the system as the scheme in both NI and in GB was designed as a demand led scheme whereby applicants install their renewable heating system before making an application.

9 RHI was also intended to have a number of other wider benefits in terms of fuel security, lower emissions and 'green jobs.' The Department had approval from DFP for a total budget of £25 million for the period 2011-12 to 2014-15. However, because of a delay in introducing the scheme until late 2012 together with the low initial levels of uptake, there was a considerable under spend totalling around £15 million up to 2014-15 as can be seen in the table below. As a result of the low uptake, a lot of the Department's focus at this time was on identifying ways to increase demand.

Table 1: Under spending on the RHI scheme 2011-12 to 2014-15

	2011-12	**2012-13**	**2013-14**	**2014-15**	**Total**
	£'000	**£'000**	**£'000**	**£'000**	**£'000**
Budget Allocation	2,000	4,000	7,000	12,000	25,000
Total spend	0	(470)	(1,650)	(7,925)	(10,045)
Under spend	**2,000**	**3,530**	**5,350**	**4,075**	**14,955**

Source: Department

10 The Department was due to seek re-approval of the scheme from DFP from 1 April 2015. However this was overlooked. It was only in May 2015 that the Department identified that DFP approval had expired and it then had to urgently begin the process

of achieving approval and securing the necessary budget both for 2015-16 and the following years. Had the need to receive re-approval from DFP been identified when it should have been, then this would have provided an important opportunity to review the scheme and amend it to include cost control measures. As it was, this potential opportunity was missed.

11 I asked the Department why it had not sought approval to continue the scheme from DFP well before the original approval expired. The Department has told me that their explanation lies in a combination of staff changes and an administrative oversight. Subsequent to the requirement for re-approval being put in place, there were multiple staff changes, and the key information was not passed on from departing staff to their successors. The Department recognises that administrative arrangements ought to have been in place to trigger an application for re-approval at the appropriate time. They were not; and the matter came to light only when budget confirmation was sought.

12 As well as the expiry of the DFP approvals in April 2015, around that time it also became clear that the number of applications was beginning to increase significantly. The Department reviewed this over the summer months and decided that changes would be required to the tariffs under the scheme to manage the demand.

13 The amended scheme proposed a much lower second tier tariff once the heating equipment had been used for 15 per cent of the total hours in a year. This followed a similar two tier approach that had been used in Great Britain since the RHI scheme began there, with the intention of the higher rate providing a return on the capital cost while the lower second tier rate minimised any incentive to unnecessarily generate heat just to claim under the scheme.

14 The timescale for approving and making the legislation using normal procedures meant that the new arrangements did not come into force until 18 November 2015. There was a very large spike in demand during the 10 week period between the announcement of the new arrangements on 8 September 2015 and their coming into operation. The impact of this increase in demand is discussed in more detail later in this report.

15 Based on the revised tariff approach, DFP approved the business case for the scheme on 29 October 2015 but did not give retrospective approval for the 788 non-domestic RHI applications with an annual estimated cost of £11.9 million that had been completed between 1 April 2015 and 29 October 2015. Because of this non-approval, the estimated current year expenditure of £11.9 million expenditure incurred by applications which were approved in this period is irregular and my audit opinion has been qualified this year in respect of this.

16 It is likely that an estimated £19.4 million of expenditure will continue to be incurred annually on these 788 applications for the next twenty years. Unless the Department is able to obtain retrospective approval from DFP, this expenditure will continue to be irregular in the future and I will consider the impact of this irregular expenditure on my audit opinion in future years. I asked the Department what it is doing to regularise this expenditure and it told me it will be considering all possibilities for future options around the scope to introduce additional cost controls and will advise the new Minister accordingly.

Qualified opinion arising from weaknesses in control

17 I was also unable to obtain sufficient evidence to be satisfied that the controls over the spending incurred on the non-domestic RHI scheme were adequate to prevent or detect abuse of the scheme. As discussed later in this report there have been allegations of significant abuses of the scheme from an anonymous whistleblower and while these are still under investigation it appears to me that the controls in the scheme would not have prevented the alleged abuses.

18 The non-domestic RHI scheme was intended to be similar to that which operated in Great Britain. In the GB scheme there were some important controls built into the scheme which were not included in the NI scheme. These were:

- Tiering of payments – a reduced rate (tier 2 rate) applied in Great Britain after the equipment had been operated for 15 per cent of the hours in a year. This prevented abuse of the scheme by operating the equipment simply to increase the grant received. This was because the reduced tier 2 rate was significantly lower than the cost of fuel required to claim the grant. In Northern Ireland there was no tiering until November 2015 and the single tariff was higher than the cost of fuel; and

- Degression – this was a means by which the tariff in Great Britain changed quarterly in response to changes in demand. This helped to ensure that excessive profits were not made by applicants.

19 The Department largely left the administration of the scheme to OFGEM. OFGEM were responsible for receiving claims from applicants who had installed relevant equipment using approved installers. OFGEM reviewed the applications, approved them and then managed payments to the applicants based on the amount of heat they had generated and recorded on meters attached to their equipment.

20 OFGEM also carried out physical inspections of the equipment installed to ensure it met the scheme requirements. However I understand that the rate of inspection in Northern Ireland has been very low at around 0.86 per cent of applications (compared to around 1.86 per cent in Great Britain).

21 I asked the Department why these rates of inspection were so low. The Department has explained that this was a result of site audits being planned on the basis of anticipated application rates. Based on the number of applications in the first 6 months of the scheme, the inspection rate was 4 per cent, which decreased to 1.5 per cent from scheme launch in November 2012 until September 2015. The significant and unprecedented increases in application volumes in the period to February 2016 saw the rate fall further to 0.86 per cent. The Department also told me that it and OFGEM have regularly discussed the approach to audit as the numbers of applications increased, as part of the developing audit strategy for 2016-17 and beyond. The Department has said that it and OFGEM are already engaged in a joint review, which in addition to considering an approach to applications received in 2015-16 will inform the audit strategy for 2016-17 and beyond. In addition the Department is in the process of procuring a service provider to deliver a programme of additional audits as part of this strategy.

22 The low rate of inspection is compounded by the fact that when issues are identified by the inspection process it is very unclear if anything is done about it – particularly by the Department. In 2015-16 of the four scheme inspections that had been completed at the time of this report, compliance issues were identified in three. The Department has told me that it views the non-compliance issues in the three cases as being minor.

23 The Department has also told me that it is routinely provided with an indication of the kind of issues that are identified and it is OFGEM's responsibility to escalate and act on any material non-compliance issues. The Department has regular meetings with OFGEM at which operational issues or trends are raised as appropriate and note that there are a large number of eligibility requirements and ongoing obligations relating to the Non-Domestic RHI scheme. The Department believes that while OFGEM rightly and properly records and actions these issues where identified and where appropriate, in many cases these do not have a material impact. OFGEM uses the results of its audit programme, not only to take action on individual cases, but to consider the wider approach to non-compliance, and this includes administrative/operational changes (such as via updating guidance or processes) to focus on preventative measures.

24 Another important control operated by OFGEM to prevent abuse of the scheme is that it will query any increase in heating equipment hours used which is more than 25 per cent higher than had been predicted in the original application. However it is unclear how OFGEM challenges the veracity of the explanations received and in any case the Department does not routinely get to see the explanations. The Department told me that individual responses to requests for information are assessed on a case-by-case basis by OFGEM who will not release payments if it has evidence or reasonable grounds such that it is not satisfied that ongoing obligations have been met. Outcomes of this review includes referral of individual installations for further investigations, either by compliance teams or via inclusion in the site audit programme.

25 When OFGEM requests payments from the Department to the applicants, it provides a unique reference number for each installation, the amount to be paid and details on what sector the applicant works in e.g. Agricultural sector. Names of applicants are not included, which the Department has told me is for data protection reasons, although names can be provided on request. As a result at the time this report was written, the Department was unable to provide any details of the names of companies in receipt of grants.

26 I am concerned that the design of the NI non-domestic RHI scheme and the way that the Department operated and monitored it has made it vulnerable to abuse. The high level of applications received in the current year and the specific whistleblower allegations (discussed later in this report) that the Department is currently investigating have further added to these concerns. As a result of these concerns I have qualified my regularity opinion on the non-domestic RHI scheme because I was unable to obtain enough evidence to be satisfied that these grants paid during the year amounting to £30.5 million had been incurred for the purposes intended.

27 I asked the Department why it left the monitoring of the non-domestic RHI scheme almost entirely to OFGEM and why it had not been involved to a greater extent in the monitoring of these schemes. The Department told me it is in regular contact with OFGEM regarding application queries and that OFGEM provide weekly reports

outlining the latest position regarding application numbers and their status (i.e. pending, approved, refused). In addition, the Department said that from August 2014, it has held formal meetings[1] with OFGEM by conference call, where operational, policy and budgetary issues are discussed and addressed.

Other issues relating to the non-domestic RHI scheme

28 As well as the fact that irregular expenditure has been incurred due to non-approval by DFP, I also have significant concerns in relation to;

- the amount of expenditure that has been committed to in the future;
- the future impact on the Northern Ireland block grant; and
- the allegations that have been received from a whistleblower.

Background to non-domestic RHI

29 Non-domestic RHI aimed to provide long term financial support for those with heating systems in commercial, public or industrial premises wishing to switch from conventional heating to renewable heating solutions, such as biomass (mostly wood pellets), heat pumps and solar thermal. The scheme was intended to be a long term approach to developing the renewable heat market by providing consistent, secure, long term payments for renewable heat generation.

30 The Department set the level of tariff (in the form of pence per kilowatt hour (p/kwh) for heat generated) which was dependent on the size and type of technology and was calculated to cover capital costs, operating costs and non-financial hassle costs (e.g. removal of ash) over the lifetime of the technology. However these calculations were made in 2012 when the scheme was initially established and were not reviewed until Autumn 2015.

31 The Great Britain (GB) non-domestic scheme had two tiers of payment from the outset - a higher Tier 1 rate payable for the first 1,314 hours of use (representing 15 per cent of total hours in the year) and then a lower Tier 2 rate for the remaining hours. The Tier 1 payment was considered to be sufficient to cover most of the installation costs and the lower Tier 2 rate was to discourage users from simply running the heating system to generate the tariff benefit.

32 When the scheme was first considered in 2011 the Department decided that the GB scheme could not be simply taken across to Northern Ireland because of significant differences between the two areas, mainly as a result of the wider availability of natural gas in GB compared to a more general dependence on oil for heating in Northern Ireland. Consultants were engaged to suggest appropriate rates in Northern Ireland and in their report they recommended that the Department should consider using the GB rates before also going on to suggest various Northern Ireland specific rates.

33 The suggested rate for biomass boilers below 100kw (which became by far the most popular heat generating method in Northern Ireland) was recommended at 4.5 pence per kwh based on a 20kw biomass boiler reference case. At this rate the consultants noted that there was no need for tiering as at that time the proposed rate was less than the cost

[1] These meetings have been formally minuted from November 2015.

of wood pellets and therefore there was no incentive to excessively use the boilers just to claim the subsidy.

34 The consultants were asked to reconsider the rates following feedback from the consultation process, and in February 2012 the consultants produced a new paper which increased the rates available to take into account a larger reference point boiler. The rate proposed in this paper for biomass boilers less than 100kw was increased to 5.9 pence per kwh but there was no mention of the need for tiering or that this was not in excess of the cost of wood pellets. The final business case, approved by the Department and DFP in mid 2012 included the 5.9 pence subsidy rate which has subsequently been increased in line with inflation to 6.4 pence per kwh.

35 In the business case to DFP the Department states that there was no need to consider tiering because the rate proposed was lower than the cost of fuel and therefore there would be no incentive to abuse the system by generating heat just to claim the subsidy. However in the case of biomass boilers this was not the case and appears to have been copied from the July 2011 consultant's report without thought. In fact the cost of wood pellets was shown in the same business case as being 4.39 pence per kwh compared to the proposed subsidy rate of 5.9 pence per kwh. In hindsight the failure to adequately consider the tiering of rates similar to the GB scheme was a critical mistake.

Table 2: Development of NI Non-domestic RHI rates*

	Pence/Kwh
June 2011 (Consultants – original report)	4.5p
Feb 2012 (Consultants – revised following consultation)	5.9p
June 2012 Department business case	5.9p
Cost of wood pellets in 2012 (per Department business case)	4.39p

*based on rate for a biomass boiler up to 100kw

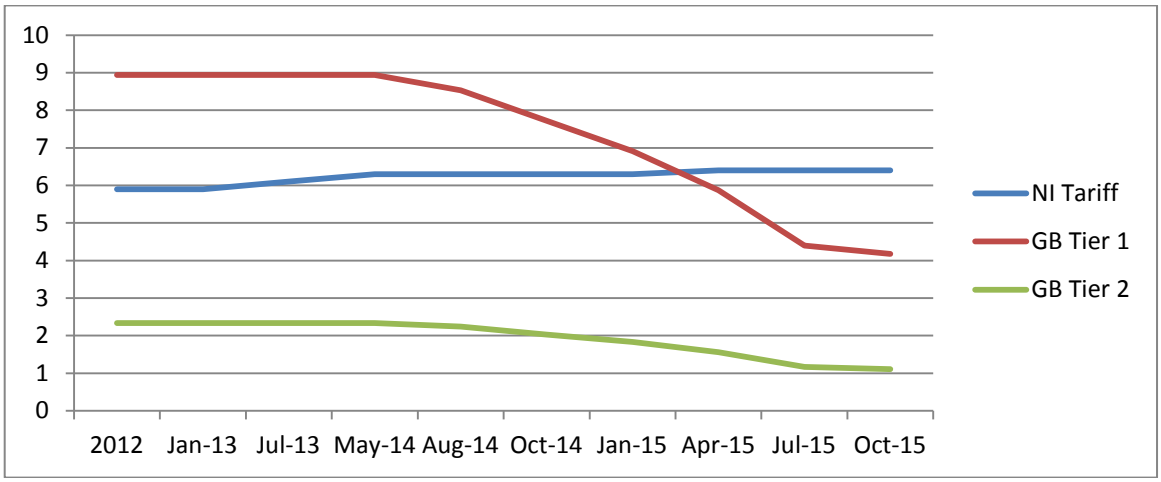
Source: Department

36 The GB scheme also had a system (known as degression) built in from April 2013 to allow the tariff paid to reduce in response to an increase in demand. This meant that the tariff paid was reviewed each quarter and revised (with a month's notice) according to the level of demand for the scheme. Degression was introduced in GB to ensure affordability and value for money.

37 At the time degression was introduced in GB in April 2013, demand for RHI was very low in Northern Ireland, thus creating a significant under spend for the Department (see Table 1). The Department has told me that its priority at that time was in identifying ways to increase demand and also on the introduction of a similar scheme for domestic applicants. As a result the degression system (or an alternative cost control system) was not introduced in Northern Ireland and the tariff rate was unchanged (other than being increased by inflation) for a long period of time. Once it became apparent that demand was increasing significantly the Department was unable to react quickly due to legislative constraints.

38 The graph below shows a comparison (in pence) between the Northern Ireland tariff and both GB tariffs. The Northern Ireland single tariff increased from 5.9 pence in 2012 to 6.4 pence in 2015, while the two tariffs in GB halved over the same period.

Graph 1: Comparison of Northern Ireland and GB RHI non-domestic tariffs from 2012 to 2015 in pence (based on a typical 99kw biomass boiler) *



*the 99kw biomass boiler was the main source used in NI non-domestic RHI claims

Source: Department

39 This meant that typical returns were much higher for applicants in Northern Ireland than in GB, especially since 2015. The tables below show that the annual Northern Ireland RHI grant for a typical boiler installed in May 2015 could have been almost twice as much as for the same boiler in GB and when this continues to be paid over 20 years, those recipients in Northern Ireland stand to receive a substantial amount more than those in GB.

40 A comparison of the returns achieved by a typical wood pellet boiler operating for 12 hours a day, 5 days a week and achieving 93 per cent efficiency in Northern Ireland and in Great Britain is shown in Table 3 below.

Table 3: Comparison between NI and GB – Biomass boiler used 60 hours per week

	Northern Ireland £	**Great Britain £**
Annual profit by using biomass	**15,484**	**6,795**
Profit over 20 years	309,680	135.900
Initial capital cost to install biomass boiler	(45,000)	(45,000)
Net Profit over 20 years	**264,680**	**90,900**
Annual return on investment	**30%**	**10%**

The detail and sources behind these calculations is shown in Annex A, Example 1

41 As there was no tiering of tariff rates in Northern Ireland for installations approved before November 2015, even greater amounts of grant could be obtained by running the boiler for up to 24 hours a day as there is no upper limit on the amount of energy that

would be paid for. The more heat that is generated, the more is paid. Indeed with the cost of running a biomass boiler estimated at around 4.01p/kWh[2] and the RHI grant at 6.4p/kWh it would appear to benefit those in receipt of a grant approved prior to November 2015 to use the boiler 24 hours a day, even if the heat generated is not being used.

42 In some cases such as in the Poultry industry, it is possible that a biomass boiler could be used almost all of the time in order to replace an oil boiler. In an extreme case of the boiler being operated 24 hours a day and only being stopped for servicing, as shown in Table 4 below, very large profits could be realised, even though the use of the biomass boiler would still be in line with the spirit of the scheme.

Table 4: Biomass boiler used 24 hours a day all year round, replacing an oil boiler

	Northern Ireland	**Great Britain**
	£	**£**
Annual profit by using biomass	**43,179**	**9,621**
Profit over 20 years	863,580	192,420
Capital costs (including replacement every 5 years)	(126,000)	(126,000)
Net Profit over 20 years	**737,580**	**66,420**
Annual return on investment	**82%**	**7%**

The detail and sources behind these calculations is shown in Annex A, Example 2

43 Alternatively it has been alleged by a whistleblower that the scheme's inherent weaknesses have led to abuse of the scheme, with biomass boilers purchased just to collect the subsidy, while not replacing any previous heating and just heating empty space for no legitimate business reason. This can also generate significant returns as can be seen in the example below, which is also based on the extreme assumption of virtually continuous use.

Table 5: Biomass boiler used 24 hours a day, heating empty space, not replacing oil boiler

	Northern Ireland	**Great Britain**
	£	**£**
Annual profit/(loss) by using biomass	**19,146**	**(14,412)**
Profit/(loss) over 20 years	382,920	(288,240)
Capital costs (including replacement every 5 years)	(135,000)	(135,000)
Net Profit/(loss) over 20 years	**247,920**	**(423,240)**
Annual return on investment	**27%**	**n/a**

The detail and sources behind these calculations is shown in Annex A, Example 3

44 Each of these examples show an unacceptably high rate of return for businesses taking advantage of the non-domestic RHI scheme in Northern Ireland. The potential for these types of returns should have been identified and prevented when the scheme was being designed.

[2] College of Agriculture, Food and Rural Enterprise – May 2016

Domestic Renewable Heat Incentive

45 RHI was extended to homes in the domestic sector in December 2014 to encourage people to switch renewable heating systems and reduce carbon emissions. Similar to the non-domestic scheme, the main methods of generating heat included biomass (burning wood pellets), air and ground source heat pumps and solar thermal. The benefits to applicants are less lucrative, with an upfront payment to a maximum of £3,500 and up to £2,500 a year for seven years, depending on heat requirements. Uptake for the domestic scheme is comparable to the non-domestic scheme but the costs are considerably less with the total cost of the scheme being estimated at around £30 million compared to £1.15 billion for the non-domestic scheme.

Demand for the non-domestic scheme

46 By May 2015 it was apparent that demand for the non-domestic scheme was increasing and coupled with the need to receive DFP approval for future budget cover, meant that the level of support for the scheme and the scheme legislation urgently had to be reviewed. During July and August 2015 it was decided to introduce a two tier tariff system, similar to GB and also to review the legislation for the scheme. The reduced tariff rate was publicly announced on 8 September 2015 but there was a ten week period before the legislative changes came into effect on 18 November 2015. The table below shows the old and new tariffs for a typical 99kw boiler, which was the most popular boiler used in the scheme.

Table 6: Comparison of non-domestic tariffs before and after 18 November 2015 in Northern Ireland

	Boilers installed before 18 November 2015	Boilers installed after 18 November 2015
Tier 1	6.4p/kWh	6.4p/kWh
Tier 2*	N/A	1.5p/kWh

*Tier 2 applied in the revised scheme for all hours after the first 1,314 hours (representing 15 per cent of total hours in the year) of use in the year and up to a maximum of 400,000kWhth. There is no maximum number of hours that can be claimed for in the original scheme.

Source: Department

47 Following the announcement of the tariff change in September 2015, during October and the first half of November 2015, there was a huge spike in applications with almost as many applications being received in those seven weeks as had been made in the previous 34 months since the scheme began. The expected cost of the applications made during this seven week period will be around £24 million annually for each of the next twenty years. The numbers of applications and expected costs of both schemes are shown in the table below.

Table 7: RHI Applications and associated costs 2012 to 2016

Period	Application Numbers	Annual Cost	Total 20 Year cost[3]
		£m	£m
Non-domestic schemes			
Nov 2012 – March 2015	564	13.2	285
April to September 2015 *	359	6.4	195
October 2015 *	429	5.5	250
November 2015	452	4.8	235
December 2015 – March 2016	324	0.6	185[4]
Total non-domestic	**2,128**	**30.5**	**1,150**
Domestic schemes	2,721	4.6	30
Total commitment to 31 March 2016	**4,849**	**35.1**	**1,180**

* 788 non-domestic RHI applications costing £11.9 million that had been completed between 1 April 2015 and 29 October 2015 for which DFP did not give approval.

Source: Department

48 In early 2016 it was decided that in view of the significant financial risk to the Northern Ireland block grant for the next twenty years, legislation should be introduced to suspend the non-domestic and domestic RHI schemes. This was announced and the schemes were formally closed on 29 February 2016.

Funding for the scheme

49 The RHI scheme has been demand led from the beginning and was intended to be funded as Annually Managed Expenditure (AME). For most categories of AME spending, HM Treasury provides the amount required to fulfil defined policies and obligations (e.g. social security benefits), and the budget provided is adjusted annually (up or down) without affecting the Northern Ireland block grant – in essence the risk of the amounts required exceeding the budget is borne by HM Treasury, not the NI Executive.

50 However, in the case of RHI, there was a limit to the amount of AME funding that would be paid from HM Treasury, though there was some lack of clarity as to how this would be applied. It later became clear that HM Treasury intended to cap the amount

[3] The 20 year forecast figure can only be an indication at this point and hence is rounded to the nearest £5m. A number of uncertainties remain over such a long time frame – the figure shown is the best estimate of the worst case scenario and has been prepared on the basis of the 2016/17 estimates going forward. The 20 year figure has been adjusted for inflation at a rate of 1.6 per cent annually and no drop out rate has been assumed. It is likely that the figure could be less than shown.

[4] Assumes that 2 large CHP (combined heat and power) plants with preliminary accreditation will proceed in 2018-19

of AME and under the Barnett formula, this was set at 3 per cent of the funding available to the GB RHI scheme. Any excess would then have to be paid from the Northern Ireland block grant.

51 The approach to the setting of budgets for the Northern Ireland non domestic RHI scheme, and in particular the AME allocations, was clarified in an email from HM Treasury and two letters to the Department from the Department of Energy and Climate Change (DECC):

- In April 2011, an email from HM Treasury officials stated that RHI spending was not being treated as standard AME, where the Exchequer takes on all risks of overspend, but instead there would be a risk-sharing arrangement. The email pointed out that the NI share of funding would be around 3 per cent of the GB funding and if RHI spending in one year exceeded the profile set in the Spending Review, then the Department would need to repay this in future years and would incur a Departmental Expenditure Limit (DEL) penalty likely to be of the order of 5 per cent. This informal information was never confirmed by HM Treasury. However, DETI officials, in an exchange of emails in May 2011, noted that the implication of the Treasury position was that it would be necessary to consider having controls in place to limit expenditure: there is no record of subsequent attention to this point;

- In November 2013, a letter drawing attention to the changes made to the GB scheme to ensure affordability and value for money (including the degression changes); and

- In January 2014, a letter confirming that the NI allocation of AME funding would be based on a Barnett formula share (3 per cent) of the GB RHI budget.

52 The Department has told me that although it was aware from January 2014 that the 2015-16 allocation would be a Barnett consequential share, officials did not know until December 2015 that the rate of increase in the DECC budget on which that share was based was to be much lower than in the plans previously communicated by HM Treasury, and that all overspend after 2016-17 would have to be met from resource DEL.

53 When demand increased dramatically between September and November 2015 this greatly increased the costs of the scheme. HM Treasury did not impose a DEL penalty in relation to the excess expenditure in 2015-16, but has ruled out any increase in the AME allocation to the NI Executive for the years from 2016-17 onwards to assist with the increased costs the Department has incurred. Because the increased costs are committed for twenty years, the excess will now have to be met from the Northern Ireland block grant. It is difficult to estimate the total amount that will have to be met from the block grant because it will depend on the AME allocation from GB in the future. However over the next five years the Department estimate a cost to the NI Block of around £140 million, if no action is taken, as shown in Table 8 below.

Table 8: Projected deficit in AME funding from 2016-17 to 2020-21

	16-17	17-18	18-19	19-20	20-21	Total
	£'000	£'000	£'000	£'000	£'000	£'000
Total cost	50,700	51,700	54,800	55,700	56,600	269,500
AME allocation	18,300	22,300	25,700	28,900	34,300	129,500
Deficit	**(32,400)**	**(29,400)**	**(29,100)**	**(26,800)**	**(22,300)**	**(140,000)**

Source: Department

Whistleblower allegations

54 In January 2016, the Office of the First Minister, Deputy First Minister (OFMDFM) received an anonymous whistle blowing letter, alleging abuse of the scheme by businesses who are not working within the intended guidelines. The allegations include:

- the scheme is not being monitored and it is left to the installer to vet whether suitable businesses can avail of the scheme;
- there is no comparison made between the cost of the current heating system and the heating generated by the new system;
- large factories with no previous heating have installed three biomass boilers with the intention to run them all year round in order to collect approximately £1.5 million over the next 20 years; and
- a farmer who has no need for a biomass boiler is aiming to collect approximately £1 million over the next 20 years for heating an empty shed.

55 I asked the Department how they are going to investigate these allegations. The Department told me that it has jointly commissioned with OFGEM an independent review of the scheme to assess whether its operation is in compliance with the Scheme Regulations and if there is any evidence of the Northern Ireland RHI scheme having been abused or if eligible scheme participants have failed to operate within the Scheme Regulations. The review is to be conducted in a two-part process:

- Phase 1 – an assessment of OFGEM's processes and controls to administer the Northern Ireland RHI scheme in accordance with the Regulations, to assess whether the scheme is operating in compliance with the legislation and highlight any areas of concern warranting further investigation; and
- Phase 2 - site inspections of a sample of (a) current applicants awaiting award; (b) scheme participants with multiple installations; and (c) scheme participants.

56 The Department told me that this independent review is still ongoing. The Phase 1 work has been largely completed and it is anticipated that the findings of this review will be finalised at the end of July 2016. The Department also advised me that, on further consideration, it has decided to supplement the work done to date through OFGEM with a new independent review, which is due to be completed in September 2016.

57 The Department has also said that it intends to respond to the large spike in demand by initiating procurement of additional auditing and checks. A business case is under development to procure an independent audit assurance body which will undertake a range of site audits on both the NI non domestic and domestic schemes. The Department has secured additional funding for extra audits in 2016/17. This will

supplement the OFGEM programme of audits under the non domestic scheme. It is planned that around 1 in 10 installations will be audited annually under both schemes, (around 500 audits each year).

58 I would expect the Department to ensure any recommendations are acted upon and any necessary action is taken. I will closely monitor the outcomes of the reviews instigated by the Department.

Conclusions

59 The operation of this scheme over the last few years and its future budgetary implications give rise to a number of significant concerns. These include that the scheme:

- was not designed to include any viable cost controls despite the clear indication in April 2011 that this would not be funded without limit by HM Treasury;
- did not take the opportunity in 2013 to mirror the GB scheme and introduce some cost control measures at that time;
- did not take account of changes to underlying costs since 2012 and therefore was over-generous in incentivising renewable heat;
- couldn't be changed quickly when it became apparent that demand was rising quickly;
- wasn't approved by DFP after April 2015 and resulted in irregular expenditure. If the need for this approval had been identified at the right time then it could have been the catalyst for a wider review of the scheme;
- has at least facilitated the possibility of funding that is at best not in line with the spirit of the scheme and at worst possibly fraudulent (though there is no *prima facie* evidence of fraud at present);
- was not properly monitored and controlled by the Department who solely relied on the work being done by OFGEM; and
- did not identify the risks of overspending at an earlier stage even though AME allocations had been previously advised. This has led to an impact on the Northern Ireland block grant which is likely to be measured in hundreds of millions of pounds.

60 This scheme has had serious systemic weaknesses from the start. The fact that the Department decided not to mirror the spending controls in Great Britain has led to a very serious ongoing impact on the NI budget and the lack of controls over the funding has meant that value for money has not been achieved and facilitated spending which was potentially vulnerable to abuse. I am very concerned about the operation of this scheme and it is an area which I expect to return to in the very near future.

KJ Donnelly
Comptroller and Auditor General
June 2016

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Annex

Example 1

Based on a 99kw biomass boiler running for 12 hours a day, 5 days a week and achieving 93% efficiency.

This boiler would create: 12 hours x 99kw = 1,188kwh per day
1,188kwh x 5 days = 5,940 kwh per week
5,940 kwh x 52 weeks = 308,880 kwh per year
308,880 kwh x 93% efficiency = 287,258 kwh actual per year

The cost per kwh of energy produced (including pellet costs, increased electricity cost, servicing and remedial works) would be around 4.01 pence per kwh (based on figures produced by CAFRE Greenmount campus, May 2016) giving an annual cost of 287,258 x 4.01 pence = £11,519.

The comparative cost of oil (based on its cost of 30 pence per litre in May 2016) is a cost per kwh of 3.0 pence. The annual cost of oil which has been saved is therefore 287,258 x 3.0 pence = £8,618.

The cost of a 99kw wood pellet boiler would be about £45,000 (per Department).

Using these figures it is possible to calculate the annual return from the use of the wood pellet boiler:

	Northern Ireland[5]	Great Britain[6]
	£	£
Annual cost of operating wood pellet boiler (wood, servicing etc)	11,519	11,519
Annual oil cost not incurred	(8,618)	(8,618)
Annual net cost of supplying fuel to biomass boiler	**2,901**	**2,901**
RHI Annual subsidy in NI – 287,258 kwh x 6.4 pence per kwh	18,385	
RHI Annual subsidy in GB - see calculation below *		9,696
Annual saving	**15,484**	**6,795**
Saving over 20 years	309,680	135,900
Initial capital cost to install biomass boiler	45,000	45,000
Profit over 20 years	264,680	90,900
Payback time	2.9 years	6.6 years
Annual rate of return	30%	10%

*** RHI Calculation – Great Britain**

Total hours used – 12 hours x 5 days x 52 weeks = 3,120 hours
Tier 1 hours: 1,314 hours x 99kw x 93% efficiency = 120,980 at 5.87 pence/kwh = £7,102
Tier 2 hours: 1,806 hours x 99kw x 93% efficiency = 166,278 at 1.56 pence/kwh = £2,594
Total RHI subsidy £9,696

[5] The figures above do not include "annuitized barrier costs" which the Department consider should be included. These costs would amount to £718 per year for what it calls the hassle costs of moving to the new technology e.g. installing new pipes etc and £828 per year for additional running costs such as emptying ash from the boiler every other day. If these were included it would reduce the overall return over 20 years by £30,920.

[6] The Department have pointed out that in GB the most popular boiler used is a 199kw boiler which would change the figures in the table. However for comparison purposes the boiler used in both NI and GB examples is the 99kw boiler.

Example 2

Based on 99kw biomass boiler running 24 hours/day, 7 days/week achieving 93% efficiency.

This boiler would create: 24 hours x 99kw = 2,376 kwh per day
2,376 kwh x 7 days = 16,632 kwh per week
16,632 kwh x 52 weeks = 864,864 kwh per year
864,864 kwh x 93% efficiency = 804,324 kwh actual per year

CAFRE Greenmount campus estimate that running the boiler 24 hours a day would result in increased downtime for servicing amounting to 35 hours over the year. Therefore the total amount generated would be reduced by 35 hours x 99KW x 93% efficiency = 3,222 kwh. The total number of Kwh would then be 804,324 – 3,222 = 801,102 kwh over the whole year.

The cost per kwh of energy produced (including pellet costs, increased electricity cost, servicing and remedial works) would be around 4.01 pence per kwh (based on figures produced by CAFRE Greenmount campus, May 2016) giving an annual cost of 801,102 x 4.01 pence = £32,124. The comparative cost of oil (based on its cost of 30 pence per litre in May 2016) is a cost per kwh of 3.0 pence. The annual cost of oil which has been saved is 801,102 x 3.0 pence = £24,033.

The cost of a 99kw wood pellet boiler would be about £45,000 (per Department). CAFRE also estimate that using a wood pellet boiler constantly would mean it would have to be replaced every five years at a replacement cost of £30,000. A similar oil boiler would cost £3,000 to replace – therefore the additional cost of the wood boiler would be £27,000 every 5 years.

	Northern Ireland[7]	Great Britain
	£	£
Annual cost of operating wood pellet boiler (wood, servicing etc)	32,124	32,124
Annual oil cost not incurred	(24,033)	(24,033)
Annual net cost of supplying fuel to biomass boiler	**8,091**	**8,091**
RHI Annual subsidy in NI – 801,102 kwh x 6.4 pence per kwh	51,270	-
RHI Annual subsidy in GB - see calculation below *	-	17,712
Annual saving	**43,179**	**9,621**
Saving over 20 years	863,580	192,420
Initial capital cost to install biomass boiler	45,000	45,000
Additional costs of replacing boiler every five years	81,000	81,000
Profit over 20 years	737,580	66,420
Payback time	1.04 years	4.7 years
Annual rate of return	82%	7.4%

***RHI Calculation – Great Britain**

Total hours used – 24 hours x 7 days x 52 weeks = 8,736 hours

Tier 1 hours: 1,314 hours x 99kw x 93% efficiency = 120,980 at 5.87 pence/kwh = £7,102
Tier 2 hours: 7,387* hours x 99kw x 93% efficiency = 680,121 at 1.56 pence/kwh = £10,610
Total RHI subsidy £17,712
*7,422 hours -35 hours downtime for servicing

[7] The figures above do not include "annuitized barrier costs" which the Department consider should be included. These costs would amount to £718 per year for what it calls the hassle costs of moving to the new technology e.g. installing new pipes etc and £828 per year for additional running costs such as emptying ash from the boiler every other day. If these were included it would reduce the overall return over 20 years by £30,920.

Example 3

Based on a 99kw biomass boiler running for 24 hours/day, 7 days/week and achieving 93% efficiency – but which is abusing the scheme by heating empty space and therefore not replacing an previous form of heating.

This boiler would create: 24 hours x 99kw = 2,376 kwh per day
2,376 kwh x 7 days = 16,632 kwh per week
16,632 kwh x 52 weeks = 864,864 kwh per year
864,864 kwh x 93% efficiency = 804,324 kwh actual per year

CAFRE Greenmount campus estimate that running the boiler 24 hours a day would result in increased downtime for servicing amounting to 35 hours over the year. Therefore the total amount generated would be reduced by 35 hours x 99KW x 93% efficiency = 3,222 kwh. The total number of Kwh would then be 804,324 – 3,222 = 801,102 kwh over the whole year.

The cost per kwh of energy produced (including pellet costs, increased electricity cost, servicing and remedial works) would be around 4.01 pence per kwh (based on figures produced by CAFRE Greenmount campus, May 2016) giving an annual cost of 801,102 x 4.01 pence = £32,124.

As the boiler in this example is not replacing anything the cost of oil that would have been used is not relevant. The initial cost of a 99kw wood pellet boiler would be about £45,000 (per Department) and CAFRE estimate that using a boiler constantly would mean it would have to be replaced every five years at a replacement cost of £30,000. Using these figures the annual return from the use of the wood pellet boiler would be:

	Northern Ireland[8]	Great Britain
	£	£
Annual cost of operating wood pellet boiler (wood, servicing etc)	32,124	32,124
Annual oil cost not incurred	n/a	n/a
Annual net cost of supplying fuel to biomass boiler	**32,124**	**32,124**
RHI Annual subsidy in NI – 801,102 kwh x 6.4 pence per kwh	51,270	-
RHI Annual subsidy in GB - see calculation below *	-	17,712
Annual saving / (loss)	**19,146**	**(14,412)**
Saving / (loss) over 20 years	382,920	(288,240)
Initial capital cost to install biomass boiler	45,000	45,000
Additional costs of replacing boiler every five years	90,000	90,000
Profit / (loss) over 20 years	247,920	(423,240)
Payback time	2.35 years	n/a
Annual rate of return	27%	n/a

***RHI Calculation – Great Britain**
Total hours used – 24 hours x 7 days x 52 weeks = 8,736 hours
Tier 1 hours: 1,314 hours x 99kw x 93% efficiency = 120,980 at 5.87 pence/kwh = £7,102
Tier 2 hours: 7,387* hours x 99kw x 93% efficiency = 680,121 at 1.56 pence/kwh = £10,610
Total RHI subsidy £17,712

[8] The figures above do not include "annuitized barrier costs" which the Department consider should be included. These costs would amount to £718 per year for what it calls the hassle costs of moving to the new technology e.g. installing new pipes etc and £828 per year for additional running costs such as emptying ash from the boiler every other day. If these were included it would reduce the overall return over 20 years by £30,920.

*7,422 hours -35 hours downtime for servicing