

**From:** [McCormick, Andrew \(DFE\)](#)  
**To:** [Morelli, Emer](#)  
**Cc:** [Scott, Michelle](#); [Caldwell, Alison](#); [McEvoy, Colette](#); [Dukelow, Victor](#); [Murphy, Shane](#); [Clydesdale, Alison](#); [Cousins, Heather](#); [Wightman, Stuart](#)  
**Subject:** Fw: Immediate/Priority - RHI - Tariffs and Tiering - Query from DoF  
**Date:** 27 September 2016 21:26:57  
**Attachments:** [image001.png](#)  
[image002.gif](#)  
[EC1\\_16\\_0108753\\_RHI\\_IRR\\_summary\\_of\\_options.xlsx](#)

Please see Shane's email below in response to my request for some retrospective sensitivity analysis. This suggests that a relatively small increase in the load factor (17 to 20%) increases the rate of return to 18%, and that high usage gives very high rates of return. So this confirms that if the tariff of 5.9 was intended only to subsidise the capex, that assumption was only valid at low usage rates, and that as usage increased, the subsidy became in effect pure profit. I fear that this kind of sensitivity analysis could have been done in 2012.....

Any additional thoughts?

Many thanks.

Sent from my BlackBerry 10 smartphone.

---

**From:** Murphy, Shane <Shane.Murphy@economy-ni.gov.uk>  
**Sent:** Tuesday, 27 September 2016 16:40  
**To:** McCormick, Andrew (DFE); Dukelow, Victor  
**Cc:** Smith, Alan; Wightman, Stuart; McCann, Brendan; Coyne, Terence; McMurray, Stephen; Conliffe, David; McEvoy, Colette; Marten, Lucy; Woods, Michael (DfE); McFarlane, Iain; Cousins, Heather; Clydesdale, Alison  
**Subject:** RE: Immediate/Priority - RHI - Tariffs and Tiering - Query from DoF

---

Andrew,

In relation to your Rate of Return question enclosed below is an extract from one of Alan's summary spreadsheets which shows an assessment of how the Rate of Return (IRR) varies with different load factor assumptions. As I mentioned earlier the Rate of Return varies very sharply with the load factor – and it very quickly diverges away from the target 12% IRR.

		Do Nothing Option	
No in sample	Running time	est. Subsidy	est. IRR
26	10%	5,246	4%
104	20%	10,492	18%
242	35%	18,361	41%
	(Average )48.7%	25,548	70%
315	50%	26,230	73%
568	75%	39,345	180%
127	95%	49,838	454%

**Shane Murphy**

Analytical Services  
 Department for the Economy  
 Adelaide House  
 39-49 Adelaide Street  
 Belfast, BT2 8FD  
 Tel: 028 9052 9250 (ext: 29250)  
 Mob: Personal information redacted by the RHI Inquiry  
 TextRelay: 18001 028 9052 9250  
 Web: [www.economy-ni.gov.uk](http://www.economy-ni.gov.uk)



[NI Year of Food & Drink 2016](#)

**Please consider the environment - do you really need to print this e-mail?**

**From:** McCormick, Andrew (DFE)

**Sent:** 27 September 2016 11:58

**To:** Dukelow, Victor

**Cc:** Smith, Alan; Wightman, Stuart; McCann, Brendan; Coyne, Terence; McMurray, Stephen; Conliffe, David; McEvoy, Colette; Marten, Lucy; Woods, Michael (DFE); McFarlane, Iain; Cousins, Heather; Murphy, Shane; Clydesdale, Alison

**Subject:** RE: Immediate/Priority - RHI - Tariffs and Tiering - Query from DoF

Many thanks for the read out from your discussion with Michelle. I take their point that there is a weakness around the monitoring arrangements, but I think we can and should continue in the view that the decision not to have tiering was not based on appropriate understanding and appreciation of the implications of what the Consultants were saying.

The current draft of the briefing says: "This failed to recognise the need to cap/tier payments after 17% to avoid over compensation and ignored the fact that the tariff was higher than the cost of biomass fuel."

But where was the cross over point from appropriate to inappropriate incentive? Emer focussed heavily on the point that the proposed 5.9 tariff was all needed to cover capital and barrier costs over 20 years [on the assumptions in the business case...].

Is it possible to use the same assumptions as were being used in the 2012 Business Case and establish at what load factor (and all other things being equal) the capital and barrier costs would be paid off too early – I doubt if it's as low as 17.1% but it would be useful to know if the margin was large or small.

---

**From:** Dukelow, Victor  
**Sent:** 27 September 2016 07:30  
**To:** McCormick, Andrew (DFE); Clydesdale, Alison  
**Cc:** Smith, Alan; Wightman, Stuart; McCann, Brendan; Coyne, Terence; McMurray, Stephen; Conliffe, David; McEvoy, Colette; Marten, Lucy; Woods, Michael (DfE); McFarlane, Iain; Cousins, Heather; Murphy, Shane  
**Subject:** RE: Immediate/Priority - RHI - Tariffs and Tiering - Query from DoF

Andrew,

I will seek to speak to Emer asap this morning however struggling to catch the logic. As others have said in response - it might hold up if the original assumptions re loading/fuel costs had held. However the incentives worked against that with loading in particular taking on a very different outcome.

Will update you after speaking with Emer.

Victor

Sent from my Android device managed by BlackBerry Enterprise Service

On 26 Sep 2016 9:44 p.m., "Clydesdale, Alison" <[Alison.Clydesdale@education-ni.gov.uk](mailto:Alison.Clydesdale@education-ni.gov.uk)> wrote:

Andrew

I think we will need further economist advice on this, however Alan is on leave for the rest of this week.

I have attached his advice as of last week .

The business case does confirm that "This is the fuel cost in 2012. The model takes account of expected future fuel costs in determining tariffs".

Perhaps I am oversimplifying it but is the purpose of tiering not to address over usage –at 17% usage the rate of return has been achieved at a subsidy level 5.9 p/kWh – but it costs 4.75p to produce an additional kWh so the over incentivisation stems from a profit of 1.15 p /kWh being available because of the inability to limit usage.

The only deterrent from overuse if a tiered tariff was not being used would be that the tariff would be less than the absolute fuel costs.

So in other words a mechanism to limit usage was always needed.

The additional piece of consultants advice of 2012 that determined the 5.9 might give us the assumptions about the future costs of fuel. I will take a look at that.

Perhaps Shane or Victor could advise further ?

Alison

**From:** McCormick, Andrew (DFE)

**Sent:** 26 September 2016 18:06

**To:** Clydesdale, Alison

**Cc:** Cousins, Heather; McMurray, Stephen; Wightman, Stuart; Dukelow, Victor; Smith, Alan; Murphy, Shane; Woods, Michael (DfE); McCann, Brendan; McFarlane, Iain; Coyne, Terence; Conliffe, David; McEvoy, Colette; Marten, Lucy

**Subject:** Immediate/Priority - RHI - Tariffs and Tiering - Query from DoF

**Importance:** High

Fundamental point from Emer Morelli re the Tiering/Tariff issue. I think Alan Smith may be the key person to address the substance of the point, but all of us will need to follow the reasoning.

Her logic is as follows:

- The decision to have tiering in England was driven by the need to incentivise the use of renewable fuels, because biomass was more expensive than gas – they had to have a subsidy rate **for fuel** that was greater than the incremental cost of fuel (ie the excess cost of biomass over gas)
- On the assumptions used in July 2011 and March 2012, the capital and barrier costs over twenty years needed the full level of subsidy - so paragraph 2.29 of the 2012 business case shows a need for 5.9 just to cover the annualised capital and barrier costs
- The “subsidy rate” in 6.7.1 in the July 2011 Appraisal and hence the footnote on p17 of the March 2012 Business Case refers not to the 5.9 overall tariff but to the **fuel cost element** of the subsidy – which, as shown in 2.29 of the Business Case was in fact -0.1. So this was truly in that sense **lower** than the incremental cost of fuel – ie we were not planning to subsidise fuel because biomass was cheaper than oil (as shown in the table in paragraph 2.28 – 4.39 vs 4.86). On that basis the footnote was and remains correct!!!
- Hence the decision not to have tiering was okay - **on these assumptions** – because the full level of subsidy was required to cover the annualised costs of capital and barrier costs
- However, **subsequent movements** in the prices of oil and biomass changed this balance and it was those market movements, not the absence of tiering that created the problem of overincentivising.

Feel free to check with Emer that I have grasped this accurately.

Pity such a fundamental question has arisen at this stage as it is a totally different argument from the approach taken in the NIAO Report which we agreed was factually accurate.

One key piece of information, which I think I need anyway, but which is also key to understanding this argument is some facts re fuel cost trends as below:

	Cost of Biomass p/kWh	Cost of Oil p/kWh
March 2012	4.39	4.86
November 2012 (or best date available close to the scheme going live)		
January 2014 (ie when we		

should have reviewed the scheme)		
March 2015 (when we began to realise we had a big problem)		
September 2016		
[Please add any other key stages that would be important]		

But I also need a view as to whether we accept Emer's logic. Does the March 2012 Business Case establish that 5.9 is the tariff needed to incentivise the capex (given that we never needed to incentivise the fuel switch) **at whatever rate of usage applies??** Or was there then still a case for tiering, with an allowance for the capex in the form a higher tariff, followed, after a certain number of hours usage, by a drop to **no payment** (because the fuel cost would be lower than oil, and hence no need for subsidy at all (unlike GB which stepped down to 2p after 1314 kWhrs because gas was cheaper, and they had to incentivise the use of the more expensive fuel)).

**This needs urgent consideration as if we are going to change our line so fundamentally, and actually withdraw our agreement with the NIAO Report, we need to be very certain of our arguments.**

I am tied up first thing tomorrow, but should be available to get into this issue from mid-morning.

Many thanks.