

Dickson, Fiona

Subject: RE: Historic Biomass

From: Hughes, Seamus
Sent: 05 January 2017 13:52
To: Ellis, Cathal
Subject: HPRM: RE: HPRM: RE: Historic Biomass

Cathal

Many thanks. I will apply a 1% reduction for 2011/12 oil costs.

Very much appreciate your help with this.

Enjoy the rest of your break.

Regards

Seamus

Seamus Hughes
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From: Ellis, Cathal
Sent: 05 January 2017 13:49
To: Hughes, Seamus
Subject: RE: HPRM: RE: Historic Biomass

Seamus, I do not have accurate figures for oil for 2011/12, but looking at the energy cost trends oil costs peaked in 2012/13 oil cost for 2011/12 would have been marginally less than 2012 (<1% lower?). Average Electricity cost for CAFRE in 2011/12 was 11.75p/kWh and 2012/13 was 11.79p/kWh.
Cost of pellets did not change for CAFRE between 2011/12 and 2012/13.

Cathal

Cathal Ellis | Acting Senior Renewable Energy Technologist | Department of Agriculture, Environment and Rural Affairs | Greenmount Campus | CAFRE | 45 Tirgracy Road Antrim | Co Antrim | BT41 4PS | Phone: 028 9442 6793 | Extension: 63793 | Mobile:  | E-mail: cathal.ellis@daera-ni.gov.uk

From: Hughes, Seamus
Sent: 05 January 2017 12:58
To: Ellis, Cathal
Subject: RE: HPRM: RE: Historic Biomass

Cathal

Thanks for the biomass info provided below and as discussed by phone. You provide the table below some time ago in relation to oil versus biomass costs. In trying to work this into our assessment would you have a sense for the oil fuel costs from 2011/12?

	120kW Oil Boiler				99kW Wood Pellet Boiler			
	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16
Purchase Cost	Up to £3,000	Up to £3,000	Up to £3,000	Up to £3,000	Around £30,000	Around £30,000	Around £30,000	Around £30,000
Fuel Cost - Oil/Pellets/kWh*	5.58p	5.23p	4.37p	2.81p	3.83p	4.15p	4.16p	3.36p
Increase in electricity use	0	0	0	0	0.23p	0.32p	0.30p	0.30p
Boiler Maintenance Cost/kWh*	0.04p	0.04p	0.04p	0.04p	0.19p	0.22p	0.25p	0.25p
Remedial Repairs/kWh*	negligible	negligible	negligible	negligible	0.10p	0.10p	0.10p	0.10p
Av. Running Cost/ kWh	5.62p	5.27p	4.41p	2.85p	4.35p	4.79p	4.81p	4.01p

Many thanks

Regards

Seamus

Seamus Hughes

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From: Ellis, Cathal
Sent: 05 January 2017 11:18
To: Hughes, Seamus
Subject: HPRM: RE: Historic Biomass
Importance: High

Seamus, There is an error below, my fault for not checking the figures on the tender. For pellets at £185 should read 3.8 not 5.8. The calculation for working out energy content of wood fuel i.e. kWh is as follows:

ENERGY CONTENT = $(19.2 - (0.2164 \times \% \text{ Moisture content})) \times 277.8\text{kWh}$ This is known as the Coford Equation.

Therefore for pellets at 7% MC $(19.2 - (0.2164 \times 7)) \times 277.8 = (19.2 - 1.5148) \times 277.8 = 4912.95$ This is the energy content of the fuel.

At £185/Tonne $185/4912.95 = 0.0376$ or 3.8p/kWh

At £200/Tonne $200/4912.95 = 0.0407$ or 4.1p/kWh. (Pellets are simple to work out as they are consistently 7%MC (Balcas figure)

The figures for wood chip were taken from the Tender documents and I do not have the MC% they were based on. For your exercise if you take a figure of 20%MC which would be our recommended MC:

Wood chip at 20%MC $(19.2 - (0.2164 \times 20)) \times 277.8 = (19.2 - 4.328) \times 277.8 = 4131.44$

At £140/Tonne $140/4131.44 = 0.0339$ or 3.4p/kWh

At £150/Tonne $150/4131.44 = 0.0360$ or 3.6p/kWh

In a further example we have been paying £150 per tonne at 15%MC this works out as an energy content of 4432.02 or 0.338 or 3.4p/kWh

I will let you work out a range should it be required.

Hope this helps.

Cathal

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From: Hughes, Seamus
Sent: 05 January 2017 09:40
To: Ellis, Cathal
Subject: FW: Historic Biomass

Cathal

Just to make sure I get my conversions correct here grateful if you could confirm the kWh figures for those not itemised below.

Many thanks again for all your help to date.

Regards

Seamus

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From: Marten, Lucy
Sent: 04 January 2017 20:52
To: Hughes, Seamus
Subject: FW: Historic Biomass
Importance: High

Seamus

Based on this, can you please draw up a table of costs of biomass and fuel over the years of the RHI scheme? Andrew is looking for this.

Thanks

Lucy

Lucy Marten

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From: Ellis, Cathal
Sent: 30 December 2016 14:51
To: Marten, Lucy
Cc: Wightman, Stuart; Hughes, Seamus
Subject: RE: Historic Biomass
Importance: High

Lucy, I discussed with Seamus last week but for your information:

Wood chip pricing based on CAFRE Tendering :

2011 Range from £94 -£115 per Tonne based on moisture content and supplier.(3.42p/kWh – 3.27p/kWh) Generally we aimed (and would have recommended to farmers a moisture content of 20%, so our fuel costs would be at the higher end)

2013 Range from £124.25 - £140 per Tonne based on moisture content and supplier.

2015 Range from £70 - £150 per Tonne. Again we requested no higher than 20%MC – as the supplier was drying the woodchip it generally was between 15 and 17%MC so at the higher end of the cost range.

Wood Pellet Pricing based on DFP Tendering:

Until 2014 we paid £185 per Tonne including ash removal(3.8p/kWh)

From 2014 we paid £200 per Tonne (load higher than 15 Tonnes) including ash removal (£190 per Tonne without ash removal)

Commercial businesses may have paid less particularly if they signed up to a long term contract with the supplier (up to 10 years).

The current commercial price for pellets is around £145-£150 per Tonne. This is as a result of increasing competition from 2015 when the traditional coal importers started importing pellets, I believe mainly from Eastern Europe.

Hope this helps.

Cathal

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From: Marten, Lucy
Sent: 29 December 2016 11:15
To: Hughes, Seamus; Ellis, Cathal
Cc: Wightman, Stuart
Subject: RE: Historic Biomass

Hi Cathal

Thanks so much for your help on this. Would you be in a position to provide information on biomass fuel costs? Apologies if you have already sent this to Seamus. I'm afraid he isn't in today.

Many thanks

Lucy

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From: Hughes, Seamus
Sent: 22 December 2016 09:03
To: Ellis, Cathal
Cc: Marten, Lucy; Wightman, Stuart
Subject: RE: Historic Biomass

Cathal

Thank you very much for doing this, very much appreciated.

Regards

Seamus

Seamus Hughes

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From: Ellis, Cathal
Sent: 21 December 2016 17:20
To: Hughes, Seamus
Subject: RE: Historic Biomass

Seamus, I have tender figures from late 2009 for woodchip and DFP tender pellet costs for bulk again from 2009. It was not until 2015 that pellet cost significantly changed due to market changes i.e. significant number of new suppliers entered the market. Will work from home tomorrow if I can get my laptop linked to the network.

Cathal

From: Hughes, Seamus
Sent: 21 December 2016 17:06
To: Ellis, Cathal
Cc: Marten, Lucy; Wightman, Stuart
Subject: Historic Biomass

Hi Cathal

As per our phone call just now. I would be grateful if you could provide any historical data you would have on biomass fuel costs from 2009 to the present in kWh for bulk, bagged etc if possible.

Many thanks in advance.

Regards

Seamus

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