



Heat from Biomass & the Renewable Heat Incentive



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DAE-03329



Case Studies

DAE-03330

Mushroom Unit



- 12 House Mushroom Unit
- 150 kW heat only boiler
- Installed during 2007
- Fuelled by indigenous timber e.g. Forestry thinning



Keenaghan Mushrooms



- Commissioned 2007
- Overall cost £35,000 (after Grant)
- Average annual fuel usage, 200 Tonnes
- Annual savings £20,000 +
- Potential saving of 200 tonnes CO₂
- Payback <3 yrs
- If RHI eligible at 1.5p/kWh ≈ £9,700 p.a.

Poultry Unit, Co. Tyrone



- 2 x 99kW Herz heat only pellet boilers, 8 x 60kW Herz pellet boilers.
- Installed 2013 -14
- Fuelled by indigenous wood pellets



Final boilers commissioned 2014

On target to save £3,160 on fuel per house

- On target to generate £10,000 p.a. per house from RHI
- Potential saving of 200 tonnes CO₂ per house

• Payback < 3 yrs



Heat from Biomass @ CAFRE



- Currently installed 850kW of biomass heating within CAFRE estate
- Fuel is both woodchip and wood pellets.
- Current tender to supply 500 tonnes of wood fuel which will replace approx 200,000 litres of oil (over 500 t CO_{2eq} annually)

Biomass Boilers @ CAFRE



Greenmount- HDC
Heating 2000m² Venlo glasshouse

- 320 kW heat only Boiler
- Installed January 2008
- Fuelled by indigenous willow chip



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Biomass Boiler – Horticulture Development Centre Greenmount



- Commissioned Spring 2008
- Boiler installation £100,000
- Annual fuel usage, 170-210 Tonnes
- Annual savings £15,000 -20,000 (RHI \approx £8000 p.a.)
- Potential annual saving of 200 tonnes CO_{2eq}
- Payback – 7 yrs without grant assistance

Biomass Boilers @CAFRE



Space and DHW for Shannon Hall

- Loughry Campus 150kW Boiler
- Installed August 2007
- Fuelled by locally grown willow chip



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Biomass Boiler – Shannon Hall Loughry



- Commissioned Summer 2007
- Overall cost £70,000
- Average annual fuel usage, 85-95 Tonnes
- Annual savings \approx £10,000 (RHI \approx £4,000 p.a.)
- Potential annual saving of 100 tonnes CO_{2eq}
- Payback \approx 7 yrs without grant assistance

Biomass Boilers @CAFRE



Space and DHW for Farm Courtyard

- Greenmount Farm Courtyard 80 kW wood-pellet boiler
- Installed October 2009
- Fuelled by indigenous wood pellets



Biomass Boiler – Farm Courtyard Greenmount



- Commissioned Autumn 2009
- Overall cost £55,000
- Average annual pellet usage, 30-32 Tonnes
- Potential saving of 50 tonnes CO_{2eq}
- Payback – under 5 yrs without grant assistance
- If eligible for RHI ≈ £9,200 p.a.

Biomass Boilers @CAFRE



Space and DHW for main campus building

- Enniskillen Campus 300 kW Boiler
- Installed Spring 2011
- Fuelled by locally grown willow chip



Enniskillen Boiler

Biomass Boiler - Enniskillen



- Commissioned Summer 2011
- Overall cost £100,000
- Average annual fuel usage, 220 Tonnes
- Average Savings £25,000-27,000 p.a. with RHI
- Potential for Enniskillen saving of 210 tonnesCO_{2eq}
- Payback ≈4 yrs without grant assistance

CAFRE – New Biomass Boiler Installations



Loughry Campus:

Food Technology Centre	250kW pellet boiler 100kW pellet boiler
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Food Incubation Centre	99kW pellet boiler 30kW pellet boiler
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Greenmount Campus:

Horticulture Training blg.	60kW pellet boiler
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Renewable Heat Incentive



- Payment for using renewable heat technologies
- Biomass heating included
- Open from 1st November 2012 for commercial applications (for domestic users in 2014/15)
- Commercial tariffs paid for 20 years
- Domestic tariffs paid for 7 years

Renewable Heat Incentive



Non - Domestic

Biomass Boilers	Size Range(kW)	NI RHI tariff (p/kWh)	Length of tariff
	Less than 20kW	6.6	20 years
	20kW -99.9kW	6.3	20 years
	100kW – 999.9kW	1.5	20 years

Renewable Heat Incentive



Non – Domestic: Proposals 2015

Tariff Name	Size Range(kW)	NI RHI tariff (p/kWh)	Length of tariff
Biomass (heat only)	1000kW and above	0.6	20 years
Biomass or Bioliquid Combined Heat and Power (New sites)	All Sizes	3.5	20 years
Biomass or Bioliquid Combined Heat and Power (conv. From fossil fuel)	100kW – 999.9kW	1.7	20 years
Biomass Direct Air	Less than 100kW	5.1	20 years
	!00kW and above but less than 1000kW	1.4	

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Renewable Heat Incentive



Proposed Domestic

Biomass Boilers	New installations and those supported under RHPP	
	Up front Support (£)	Tariff for 7 Years (p/kWh)
	2500	5.65



Proposed Business conversion from oil to biomass

Existing Oil usage – 60,000 l x £0.57 = £34,200

Biomass Proposal

- install two 99kW boilers costing in total £62,000 – each boiler providing a hydraulically separate heat load.
- energy use = 60,000 x 10.7 = 642,000 kWh
- equivalent to 134 t woodpellets @ 4800kWh/t
 - assumes equal boiler efficiency
- if pellets @ £200 then new fuel cost = £26,800
- assuming 85% boiler efficiency heat output = 545,700 kWh
- RHI payment due @ 6.3p/kWh = £34,379



Proposed Business conversion from oil to biomass

Annual service charge to service interest and capital repayment on
£62,000 over 10 yrs at 5% = 62 x £130 = £8,060

Wood pellet cost = £26,800

Service charge and interest = £ 8,060

Total = £34,860

RHI repayment = £34,379
£481

Total Saving Oil Cost = £34,379 - 481 = £33,898

More information

www.britishbiogen.co.uk

www.greenenergy.org.uk

www.nef.org.uk

www.energysavingtrust.org.uk

www.lowcarbonbuildings.org.uk

www.biomassenergycentre.org.uk

www.actionrenewables.org



Future Events



- Heat from Biomass workshop
 - 11th December at Hegan Farm, Stewartstown
- Practical On-farm Renewable Energy Event
 - Wednesday 18th February 2015
at Enniskillen Campus



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