hwenergy

the biomass heat specialists

Jack Welch

jack.welch@hwenergy.co.uk

making biomass heat work for you

APPROVED INSTALLER

Certificate Number MCS 1223
Biomass Systems

THE BRITISH ASSESSMENT BUREAU ISO9001 UKAS

REA

SCOTTISH renewables

The Scottish GREEN ENERGY Awards 2005

Highland Wood Energy, Nominee, 'Best New Business' Award 2005

constructionline

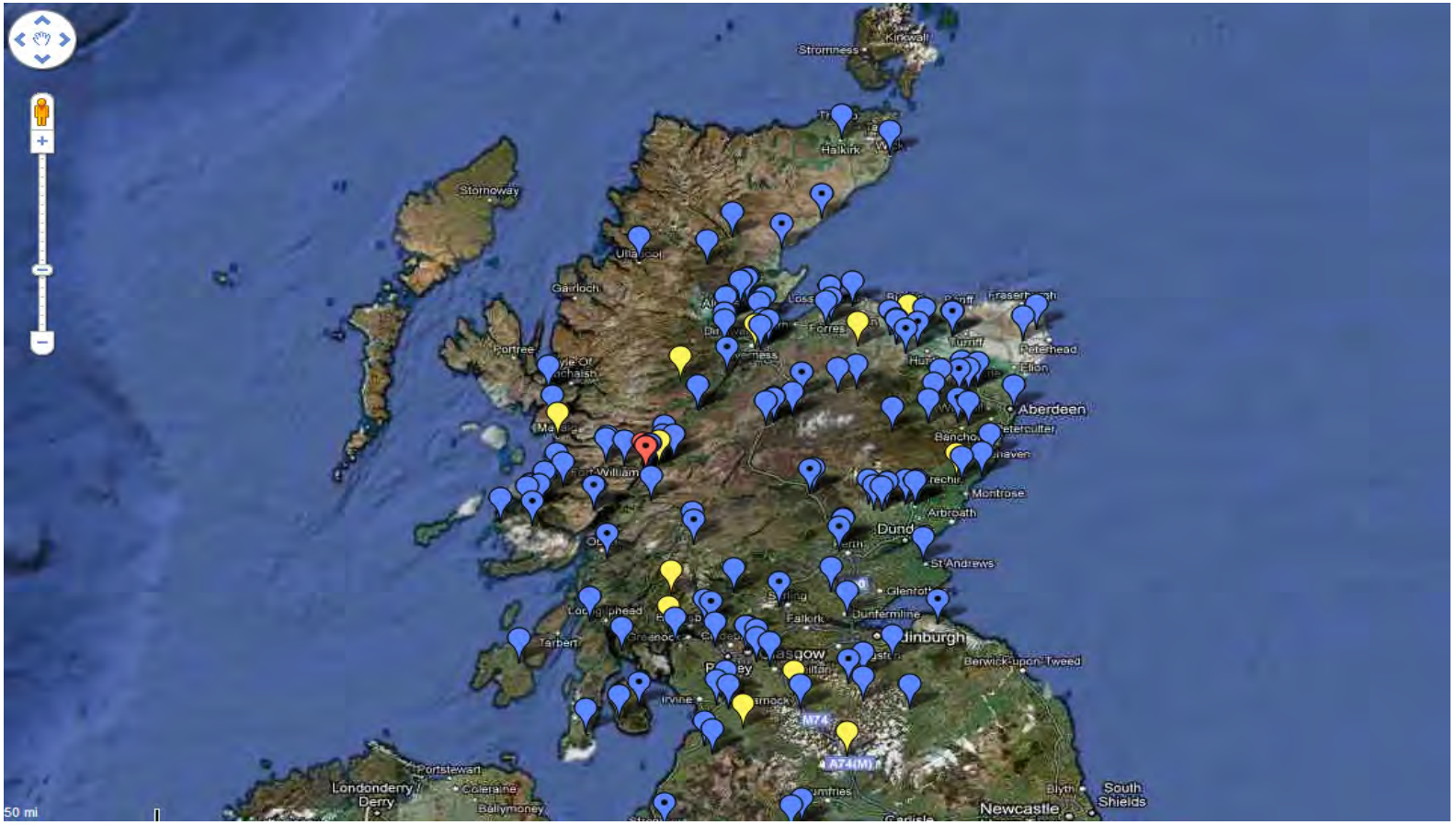
Qualified for Energy Technology List

About HWEnergy

- Founded in 2003
- Believe that biomass heating is right for Scotland:
  - Cuts Carbon
  - Cuts Cost
  - Adds value to a low value resource
  - Creates jobs
  - Helps secure our secure energy future
  - It makes sense!
- Renewable heat is the big energy challenge
  - 50% of total energy demand, 47% of CO2 and a very low renewable heat starting point.

About HWEnergy

- 170 Projects and 25MW of installed capacity

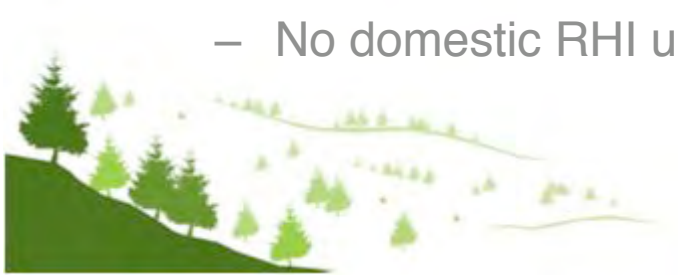


About HWEnergy

- Zonal support for service and heat supply.

The Renewable Heat Incentive

- What is it?
  - "A transformation in the way we heat our country"
  - Greg Barker, Minister of State, DECC, 10th March 2011
- Why?
- Good News:
  - Annual, guaranteed payment for switching to renewables. Payable for 20 years and inflation uplifted.
  - Relatively simple to understand
  - An attractive financial return to encourage investment, particularly against oil
  - Applies to groups of buildings and individual non-domestic buildings
- Not so Good News
  - No domestic RHI until August 2013 & details about to be announced



Some rules of thumb

- Energy Content
  - 1 tonne of woodchip fuel = 3000 kWh @ 30% moisture
  - 1 tonne of woodchip fuel = 5m3
  - 1 litre of oil = 10.3 kWh
  - 1 litre of LPG = 7kWh
  - 10,000 litres of oil = 33 tonnes of woodchip
- Price of Fuel
  - Home produced biomass fuel at £60 per tonne. Cost per kWh = £60 / 3000 = 2p per kWh (net)
    - £30 raw material
    - £15 chipping
    - £5 storage
    - £10 delivery
  - Oil at 60p per litre = 6p per kWh gross
    - @ 80% efficiency = 7.2p per kWh net

Projects and RHI: Small

2 Farm Houses or Guest Houses

- Chip or Log Boiler
- Project Type
  - 10,000 litres of oil
  - 50kw Boiler
  - £60,000 investment
  - Oil saving @ 60p per litre = £4500
- RHI impact = £5,000 per annum for 20 years.

Medium Scale RHI

	"Small" Boiler	
Heat Demand (kWh)	400,000	Equivalent to approx 40,000 litres of oil
Boiler size (kw)	195	
Tier 1 eligible kWh's	256,230	(195 x 1314)
Tier 1 Payment	£21,267.09	(256,230 x 8.3p)
Tier 2 kWh's	143,770	(400,000 - 256,230)
Tier 2 Payment	£3,019.17	(143,770 x 2.1p)
Annual RHI	**£24,286.26**	
Lifetime RHI	£485,725.20	

Example Projects

Example Projects

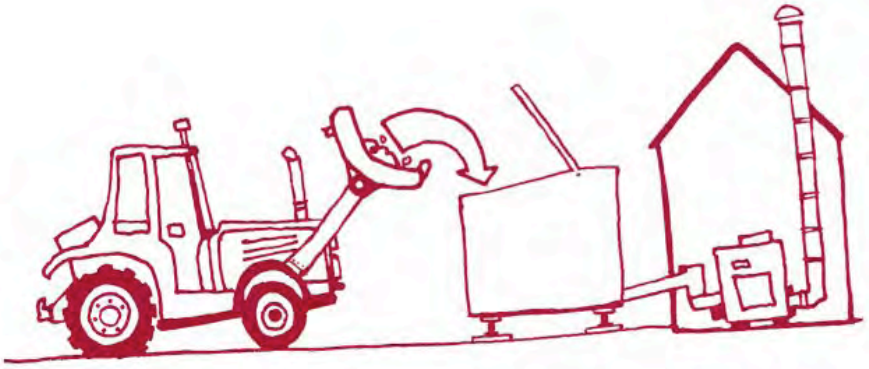
Example Projects:
Heat Cabins

“Typical” Large Scheme

Larger Scale Project: 300kw

PROJECT SUMMARY: Rural Estate		
	Annual	**Lifetime**
Total Capital Costs		£254,000
Fuel Cost Saving	£27,057	£541,138
RHI Income	£20,576	£411,522
RHI Service Plan Costs	£3,571	£71,425
Total Savings	**£44,062**	**£881,235**
Basic Years to Payback (no inflation)	5.76	
Pre-tax IRR (with inflation)	19.8%	

Different Options: Smaller



GGCR Case

hwenergy

Different Options: Bigger

hwenergy

Producing Fuel On-site

hwenergy

Botex
25m
Heizohack
HM5 400

Y451
WSM

Some rules of thumb

- Energy Content
  - 1 tonne of woodchip fuel = 3000 kWh @ 30% moisture
  - 1 tonne of woodchip fuel = 5m3
  - 1 litre of oil = 10.3 kWh
  - 1 litre of LPG = 7kWh
  - 10,000 litres of oil = 33 tonnes of woodchip
- Price of Fuel
  - Home produced biomass fuel at £60 per tonne. Cost per kWh = £60 / 3000 = 2p per kWh (net)
    - £30 raw material
    - £15 chipping
    - £5 storage
    - £10 delivery
  - Oil at 60p per litre = 6p per kWh gross
    - @ 80% efficiency = 7.2p per kWh net