



Woodchip at Croydon

experience so far

BioRegional

- Environmental organisation based in South London
 - Eco-housing and sustainable lifestyles
 - Fibres programme, recycling, minimills and hemp
 - Forestry, charcoal and wood chip fuel

Partners in commercial sector, local government, voluntary & community organisations.

Working in both urban and rural areas, bioregional approach

BedZED

- 82 homes plus workspace for 100
- commitment to zero fossil carbon emissions
- energy efficient design



BedZED energy

- commitment to renewable energy
- district heating and private wire electricity
- 777m² PV panels, enough for 40 electric vehicles
- downdraught gasifier fuelled by woodchip
 - 130kW_e and 200kW_{th}
- sufficient wood available in Croydon



Fuel requirements

1 100 t/yr woodchip



Size range (mm)	% by weight
below 5x5	2 – 3
5x5 – 10x10	6 – 11
10x10 – 15x15	12 – 19
15x15 – 20x20	20 – 24
20x20 – 25x25	25 – 30
25x25 – 30x30	9 – 10
30x30 – 35x35	about 5
over 35	about 3

arboricultural arisings

- chipped by contractors
- solid timber - 5cm to 150cm diameter

Chipper trials

- raw material difficult, short pieces, large diameters, rings
- small scale manual methods too slow and expensive
- larger scale disc, drum and screw chippers and shredders
- common quality issues:
 - slivers
 - fines
 - over-size chunks

Conclusion: Low labour input higher output system needed to keep unit cost down with screening to maintain chip quality.

Site requirements and set up costs

Enough space for log storage and seasoning, on or off site

• chipper	£35,000
• chip screen	£16,000
• chip store & hardstanding	£35,000
• tractor for chipper	£20,000
• log splitter, tractor & crane	£25,000
• telehandler and 360	<u>£22,000</u>
Total	£153,000

Funding

Norlands Foundation



The Carbon Trust



Scottish Power



Government funds also available e.g. BEIS

Chip markets

- BedZED CHP, never ran consistently
- Slough Heat + Power, low unit price
- Local markets for heat
- 2 chip grades from our Croydon site

	mc%	£/t	£/odt	p/kWh
Slough H+P	45	21.00	38.18	0.80
large (dry)	30	40.00	57.14	1.13
large (extra dry)	25	48.00	64.00	1.25
small local (undried)	45	34.00	61.82	1.29
small local (dry)	30	50.00	71.43	1.42

A site that works!

For Croydon Council:

- landfill reduction and recycling targets
- income from gate fees
- renewable energy targets

For City Suburban Tree Surgeons:

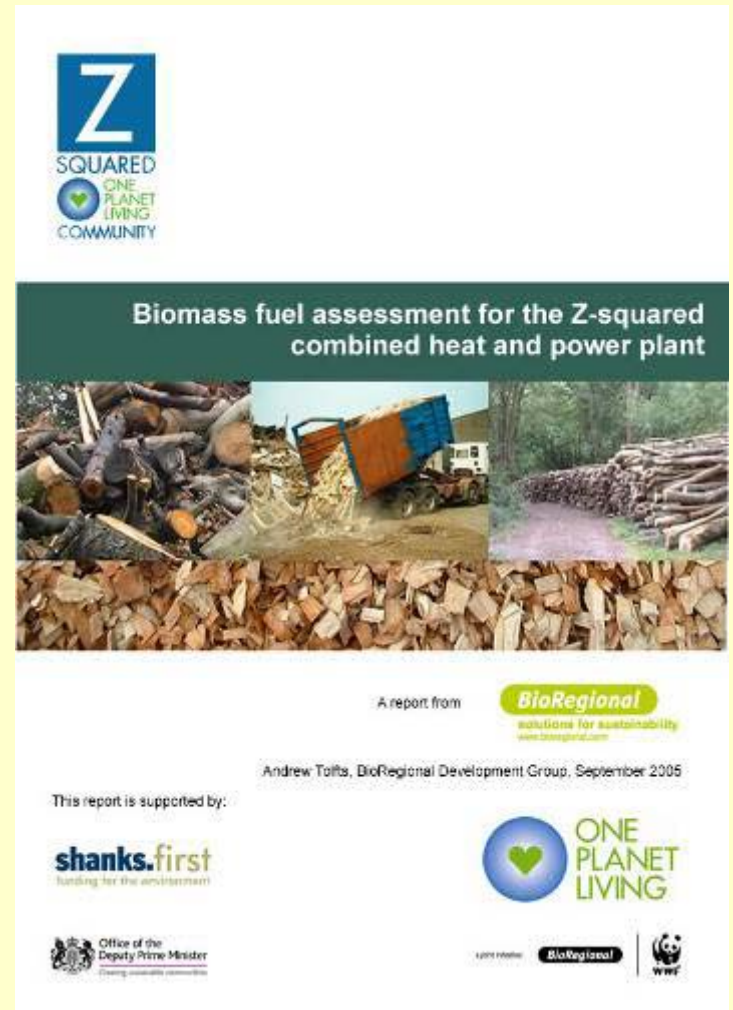
- completing the green cycle
- viable addition to the business

For BioRegional:

- a local source of wood chip fuel
- biomass fuel market development

Future developments

- improve quality through low cost chip drying
- develop similar production units in other areas of London
- expand markets for chip locally with support from Council
- aim to increase throughput on site by lowering gate fee
- work with others in wood fuel through SEWF (South East Wood Fuels)



Conclusions

- wood chip fuel production now viable, but market is still small
- must have capacity to provide confidence to installers
- quality chip, graded and dried, should command higher price
- flexibility in markets essential
- match the chipper to the resource and scale of operation
- recent fossil fuel price rises an opportunity for farmers and woodland owners