

Wood Heat to the Local Community – Llanwddyn School and Community Heating Project

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Format

- ① Llanwddyn
- ① Initial development work
- ① Scope of project
- ① Technical aspects
- ① Contractual aspects
- ① Fuel arrangements



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Llanwddyn Woodfuel Project



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Initial Development Work



Powys Energy Agency and partners were instrumental in getting the project on its feet. They were responsible for:

The whole process took in the region of 2 years

- Community consultation
- Feasibility study
- Hand holding Powys County Council
- Securing funding assistance
- The tendering process

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The Scope of the Project



Woodfuel heating services for:

- 🌳 The school,
- 🌳 The community centre
- 🌳 About 37 houses



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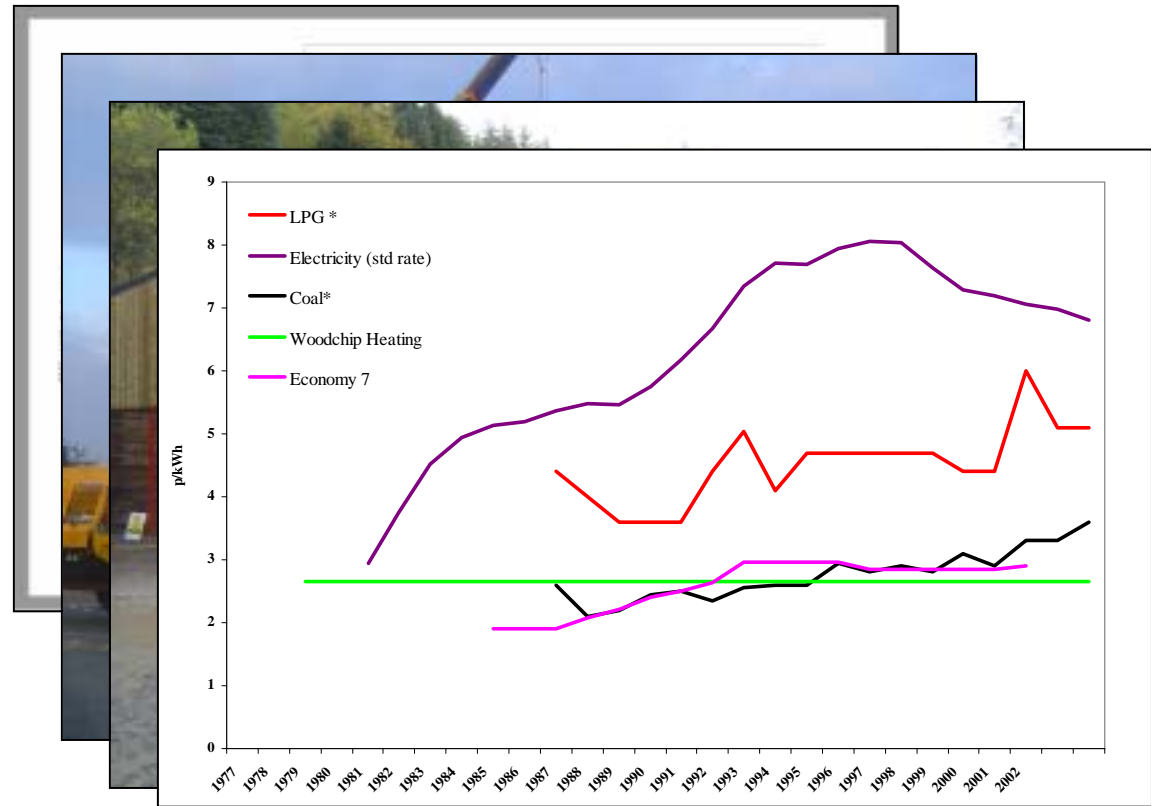
The Role of DWE

Turnkey
Installation



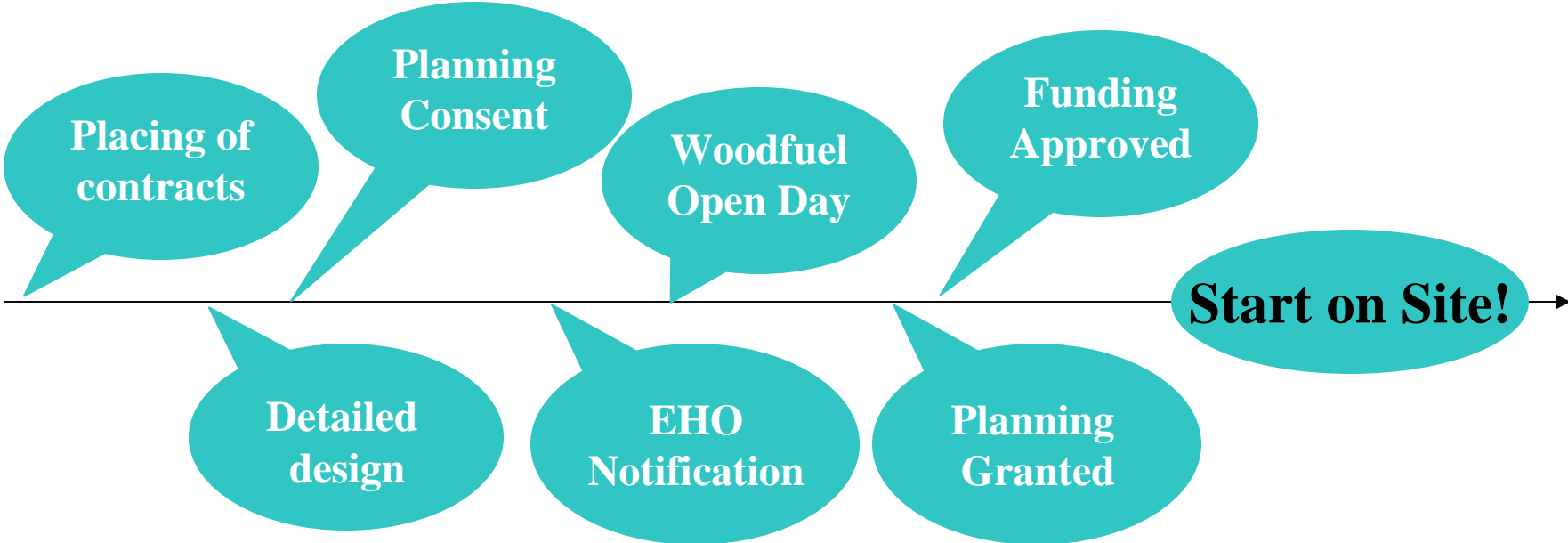
Fuel
Supply

Operation &
Maintenance



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Time Line of Activities



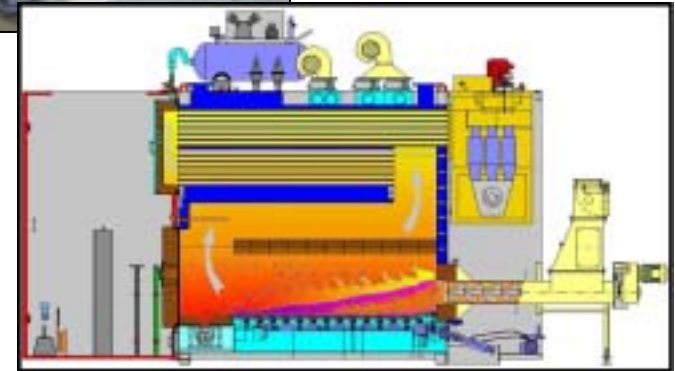
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The Woodfuel Boiler

- Rated at 500 kW output for fuel at 45% moisture - 630 kW for fuel at 20% moisture
- Fully modulating operation with fuel feed and primary and secondary air computer controlled to provide required output based on water temperature
- Highly efficient operation - 86% at full load, 80% at 50% load and 75% at 25% load
- Sophisticated digital controls include modem for remote monitoring, controls adjustments and early warning of servicing requirements



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Fuel Feed



Fuel reception consists of:

- a “Kapa” spring-arm out feeder
- Within a 4m x 4m x 3m high fuel store.

The angled spring-arm out feeder base incorporates an inclined auger that feeds fuel up to an air lock flap valve that drops fuel onto the stoker screw, which feeds the fuel onto the moving grate furnace.



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Fuel Sources



- SDR stored in the round to reduce MC
- Chipped at dedicated fuel store
- Delivered to on site store 2-3 times per week using tractor and high tip trailer



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Domestic Heating Services



Breakdown of Costs	
Wood boiler and fuel store	28%
Wood boiler services	2%
Boiler house and civils	8%
Back up oil boiler and services	5%
Distribution Network	45%
Fuel Store and Logistics	13%



- Two Types of Connection – Internal or External
- 50% of houses do not have a wet heating system

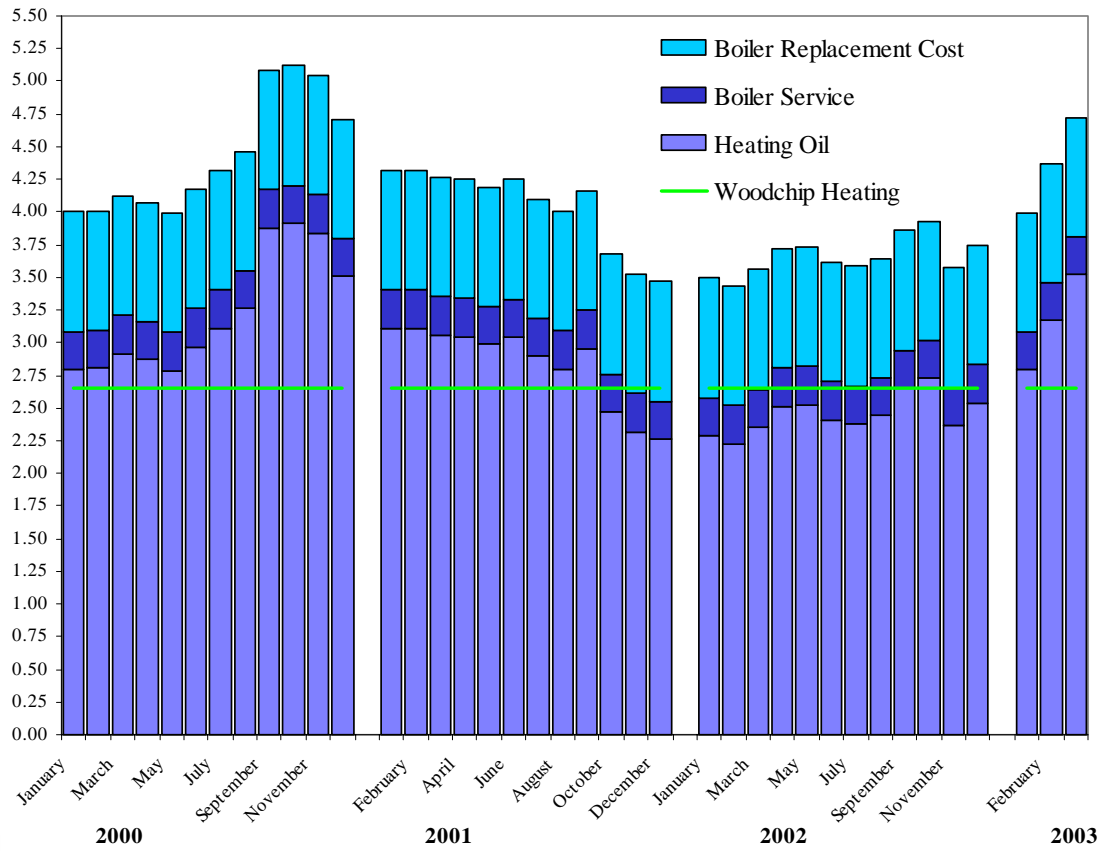


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Fuel Cost Savings



Annual Average Oil Price

- 2000 - 3.22 p/kWh
- 2001 - 2.84 p/kWh
- 2002 - 2.45 p/kWh
- 2003 - 3.16 p/kWh

4 yr average for oil

2.86 p/kWh

4yr average incl. O&M & boiler replacement cost

4.07 p/kWh

Woodchip Heating

2.65 p/kWh

Average Annual Fuel Saving

£54

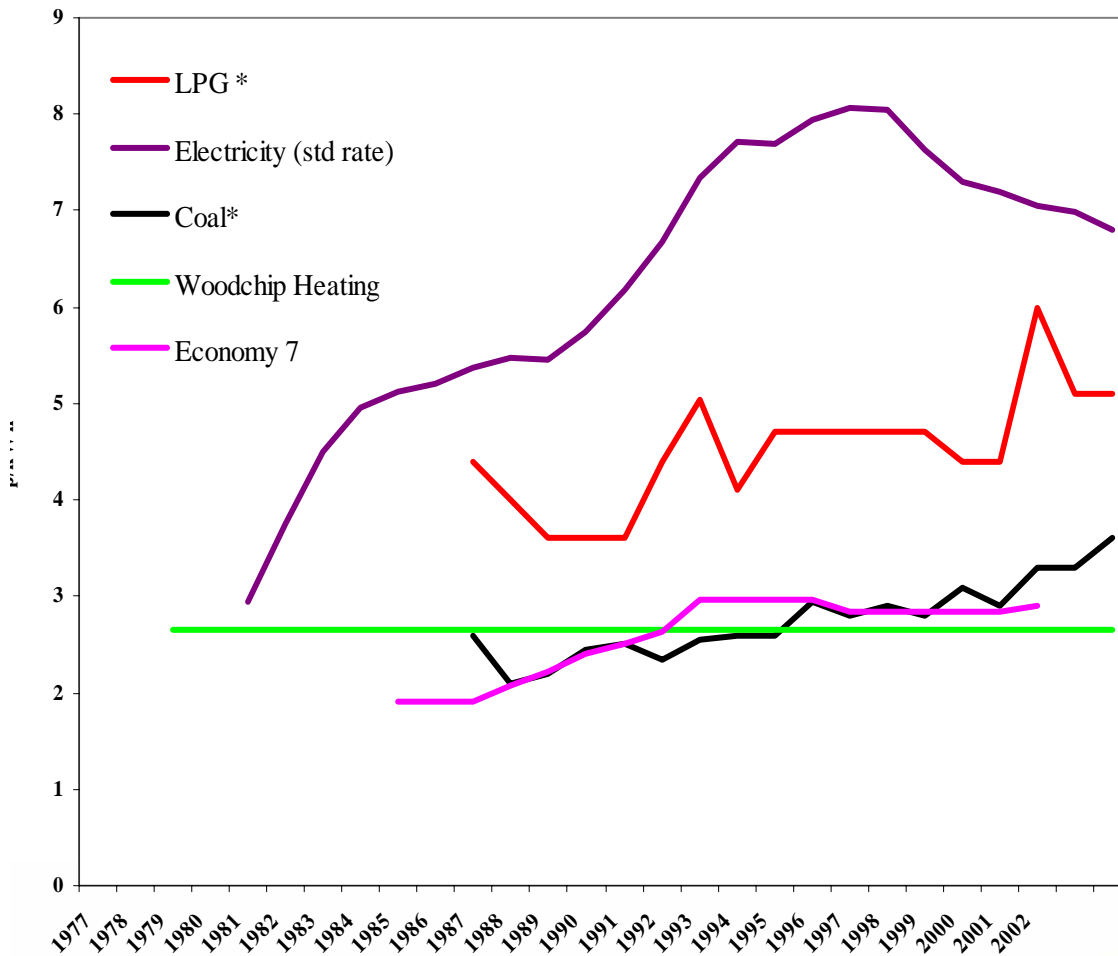
Average Annual Total Saving

£361



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Fuel Cost Savings



Woodfuel Heating

Contract sale price **2.65p/kWh**

LPG

Average price 1990-2002 **4.77 p/kWh**

Average unit price saving **2.12 p/kWh**

Annual saving **£ 541**

Electricity Standard Rate

Average price 1990-2002 **7.47 p/kWh**

Average unit price saving **4.82 p/kWh**

Annual saving **£ 1230**

Economy 7

Average price 1990-2002 **2.81 p/kWh**

Average unit price saving **0.16 p/kWh**

Annual saving **£ 41**

Coal

Average price 1990-2002 **2.9 p/kWh**

Average unit price saving **0.25 p/kWh**

Annual saving **£ 65**



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Conclusions



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