



Forestry Commission

# Woodfuel in the South East of England

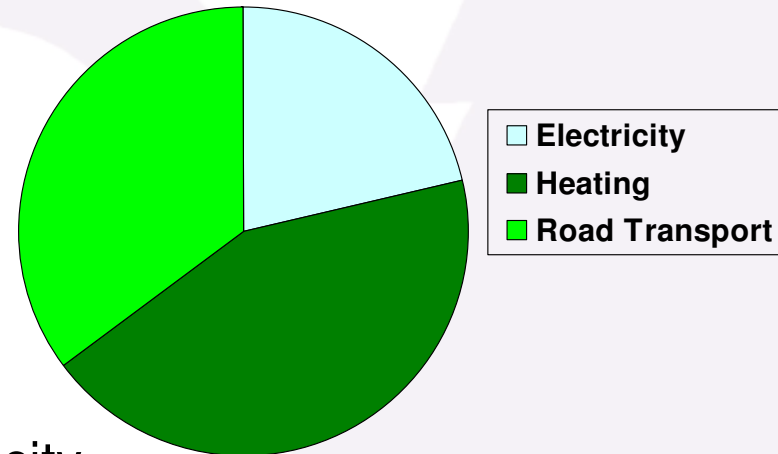
Gillian Alker

Forestry Commission  
South East Region



- EU renewables target -15% of energy consumption by 2020

South East Energy  
Consumption  
(total =  $1.6 \times 10^{11}$  kWh/yr)



- Renewables obligation for electricity
- Renewable transport fuel obligation
- Feed in Tariff for micro-generation of electricity (April 2010)
- Renewable heat incentive (April 2011)
- The Merton rule/Code for Sustainable Homes for new-builds
- Carbon reduction commitment targets for large energy users
- Grants for bioenergy technologies



- Financial assistance for renewable heating - income for each kWh of heat demand required by the building.
- All scales - household, communities and industrial
- All heat technologies - biomass boilers, solar hot water, GSHP, ASHP, biomass CHP, anaerobic digestion and biomethane injected into the gas grid
- Banded for size and technology
- Details under development
- Funded by a levy on suppliers of fossil fuel for heat, gas, coal, oil and LPG suppliers
- In place in April 2011, consultation just out





- Paid to the owner for 15 years after commissioning for biomass systems
- Tariff paid on deemed heat
- IRR - 12%
- Paid quarterly/annually

### Small installations (1)

Technology	Scale	Proposed tariff (pence/kWh) (2)	Deemed or metered (3)	Tariff lifetime (years)
Solid biomass	Up to 45 kW	9	Deemed	15

### Medium installations

Technology	Scale	Proposed tariff (pence/kWh) (2)	Deemed or metered (3)	Tariff lifetime (years)
Solid biomass	45-500 kW	6.5	Deemed	15
		2 (fuel tariff)	Optional: for metered kWh above deemed number of kWh	15

### Large installations

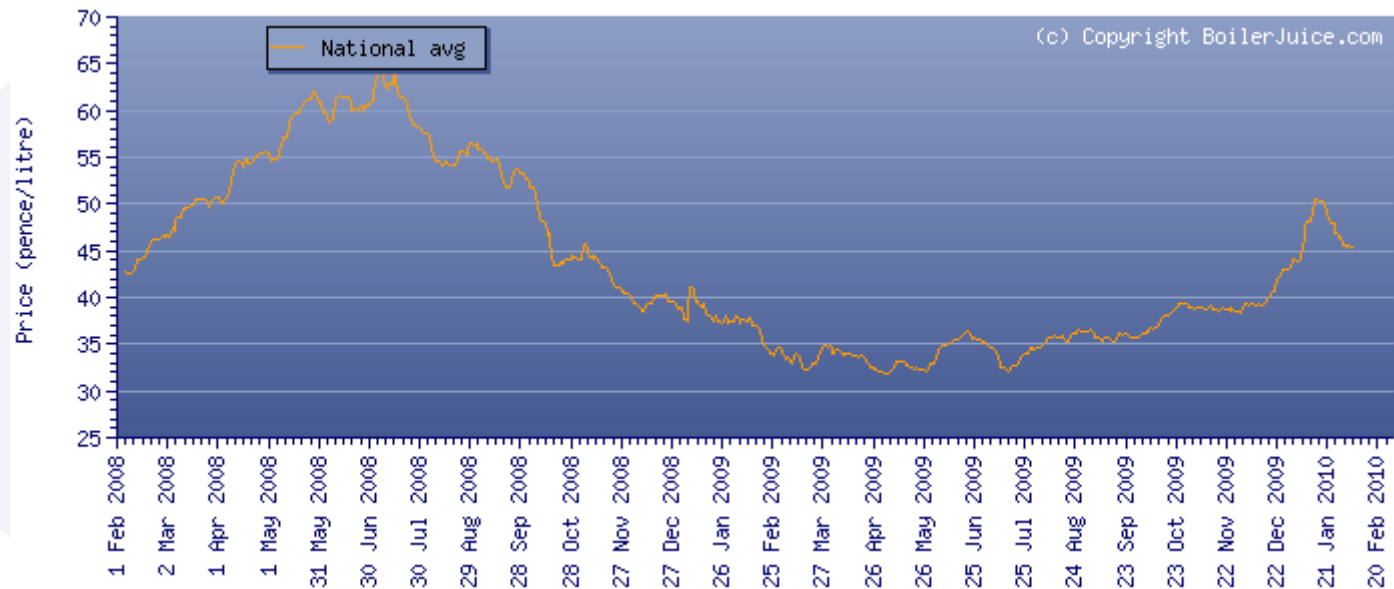
Technology	Scale	Proposed tariff (pence/kWh) (2)	Deemed or metered	Tariff lifetime (years)
Solid biomass (4)	500 kW and above	1.6 – 2.5	Metered	15



- England Woodfuel Strategy  
(Nationally 2 million green tonnes/yr potentially available from un- or under-managed woodland)
- Grants for production and supply infrastructure

- Fuel prices

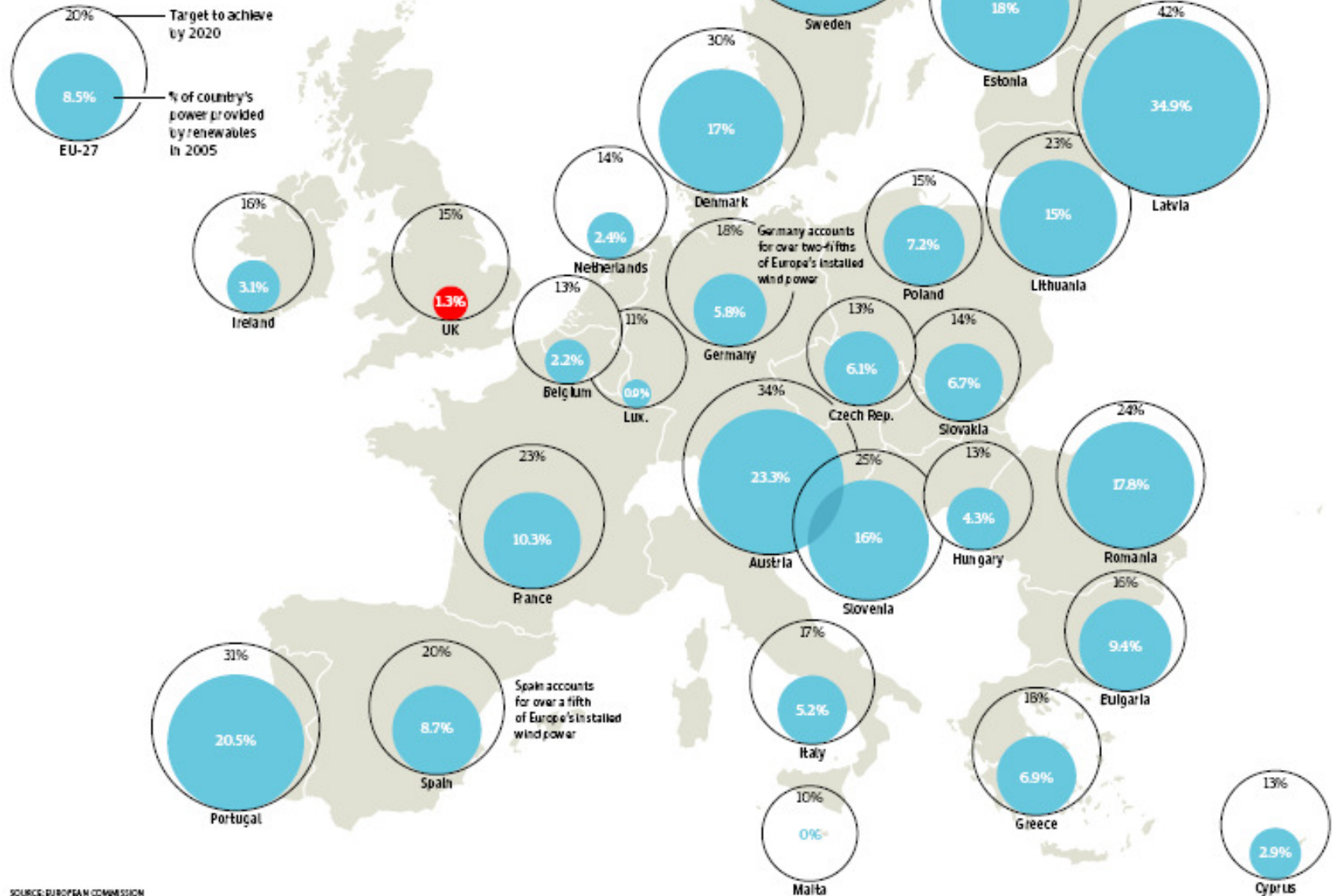
Oil prices  
over the last 24  
months



Source: [www.boilerjuice.com](http://www.boilerjuice.com)

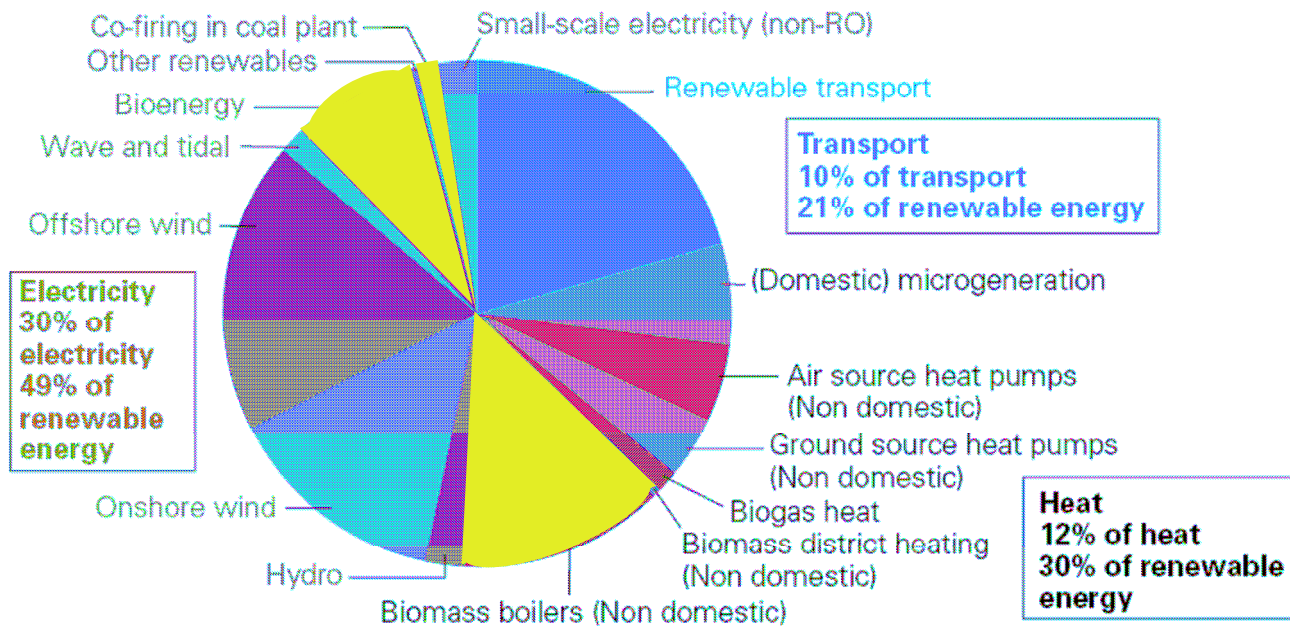
## Renewable energy in the EU

By 2020 renewable energy should account for 20% of the EU's final energy consumption (8,5% in 2005). To meet this common target, each Member State needs to increase its production and use of renewable energy in electricity, heating and cooling and transport



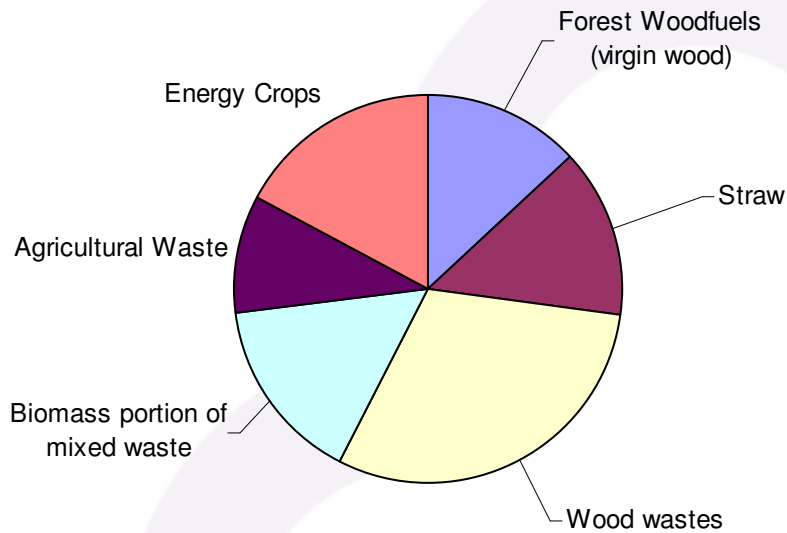


- 30% of the renewables mix (4.5% of total energy consumption) is expected to come from biomass in the UK

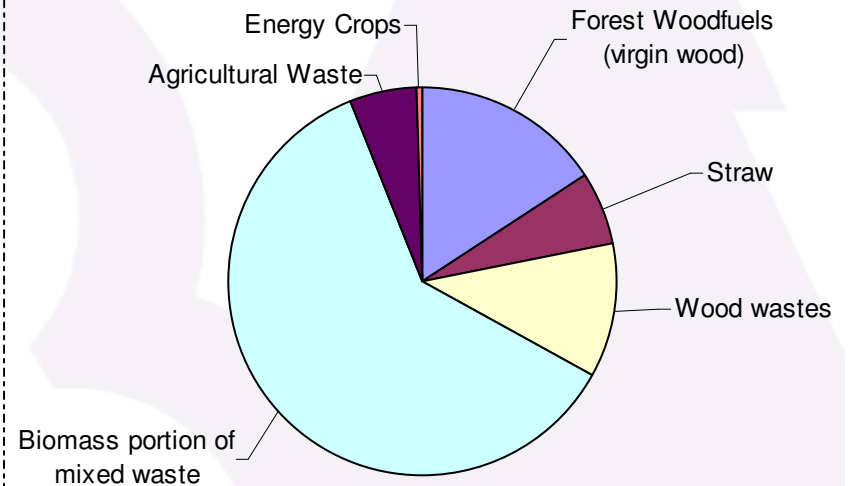




National Resource



South East Resource



Forest\*  
woodfuels

5.2 m green t

1.1 m green t

Wood waste

7.5 m t

0.73 m t

Energy  
crops

350,000 ha

1,600 ha

\* includes arboricultural arisings and sawmill residues



## Boiler Prices – All inclusive installed (excludes district heating)

Boiler/stove size	Example size	Rough price range (excluding grants)
5 kW	House - wood burning stove	£0.5k - £2k
50 kW	Primary school – chip boiler	£26k – £40k
200 kW	Greenhouses – chip boiler	£65k – £123k
500 kW	Council offices – chip boiler	£110k – £260k
1000 kW	College – chip boiler	£180k – £450k

## Fuel Prices (2009)

Fuel	Price	Price (p/kWh)
Gas	4.1 p/kWh	4.1
Electricity	13.3 p/kWh	13.3
Oil	44 p/l	4.4
Woodfuel logs	£100/t at 20% moisture content	2.6
Woodfuel chip	£90/t 30% MC (or £26/m <sup>3</sup> of chip)	2.7



## Typical payback periods - Years (WITHOUT GRANT)

Years until the difference in capital costs between a biomass boiler and a fossil fuel system is paid for by fuel cost savings

Boiler/Stove size	Replacing gas boiler	Replacing electric heating*	Replacing oil boiler
5 kW	9.8	3.9	6.2
50 kW	13.4	5.2	12.5
200 kW	9.3	4.3	8.7
500 kW	7.3	3.2	6.8
1000 kW	6.0	2.4	5.6

\* includes estimate for installing radiators



## Annual savings on fuel after payback

Boiler/Stove size	Replacing Gas boiler	Replacing electric heating	Replacing oil boiler
5 kW	£153	£1,685	£244
50 kW	£1,181	£6,750	£1,346
200 kW	£4,724	£27,000	£5,384
500 kW	£11,809	£67,499	£13,461
1000 kW	£23,618	£134,999	£26,922



Typical payback periods - Years  
(INCLUDING PROPOSED RHI)

Boiler size	Replacing gas boiler	Replacing electric heating	Replacing oil boiler
50 kW	4.8	3.4	4.6
200 kW	3.3	2.8	3.2
500 kW	5.0	2.8	4.8
1000 kW	4.2	2.1	4.0



Annual income after payback for 15 years after commissioning (savings+RHI)

Boiler/Stove size	Replacing Gas boiler	Replacing electric heating	Replacing oil boiler
50 kW	£5,451	£11,020	£5,617
200 kW	£21,806	£44,082	£22,466
500 kW	£22,321	£78,011	£23,973
1000 kW	£44,642	£156,023	£47,946



- Biomass Energy Centre
  - Woodheat Solutions
  - Networking Information by email
  - General Advice (Matthew Woodcock)
  - EWGS - [management plan grants](#)  
[grants to improve access to ancient woodland](#)
  - RDPE - facilitating access to grants for woodland owners (Mike Habergham)
  - General advice (Woodland Officers)
  - Larger users National Inventory of Woods and Trees data
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- European project
  - Share best practice from Austria and Finland with potential investors in England, Slovenia and Croatia
  - By raising awareness about the opportunities for woodfuelled heating and sharing best practice through:
    - information, advice and guidance for suppliers, users and advisors;
    - training, workshops, part-funded study tours to Austria and Finland;
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- The use of woodfuel in SEE is set to increase rapidly
- The targets are being backed up by strong policies
- Increasing number of good examples
- Market forces are driving wood heating and grants/incentives are helping
- Production and supply needs to be local, high quality and sustainable to reap the benefits for our woodlands and their owners

