

# Survey of renewable electricity and heat projects in the South West

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**South West Renewable Energy Agency**

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## Regional Overview

### Renewable Electricity

- The survey identified 102 grid connected renewable electricity projects in the South West. An additional 33 projects have been identified since the last survey was undertaken in January 2004, largely due to better identification of existing micro-renewable schemes such as solar PV installations. Ten projects are known to have been constructed in the last twelve months, the largest of which is the 3 mega watt (MW) wind cluster in Bradworthy, Devon.
- The installed capacity for renewable electricity now stands at 109.4 MW, up 4.4 MW in the last twelve months. Although there has been a net increase in capacity, there have also been some losses in capacity through decreasing electricity generation from some existing landfill sites. The renewable electricity schemes in the region are now producing enough electricity to supply the equivalent of 130,875<sup>1</sup> homes, avoiding the production of 313,000<sup>2</sup> tonnes of carbon dioxide per year.
- There are 32 landfill and sewage gas schemes in the region making up 51% of the installed capacity, 9 wind projects make up 39%, 39 hydro schemes providing 8%, 2 schemes using advanced waste treatments\* making up 1.5% and 17 solar PV installation making up 0.2% of installed capacity.
- The SW is making very slow progress towards its 2010 renewable electricity target of securing 11-15% of generating capacity from renewable sources (approximately 597MW). The region will miss the targets unless the rate of construction increases. In the last twelve months, 5 schemes equating to 47.8MW have been refused planning permission and 4 schemes at 9MW have been approved.

Figure 1. *Installed renewable electricity capacity (MW)*

County	No. of renewable electricity projects	Installed renewable electricity capacity (MW)	Wind	Hydro	Landfill Gas	Sewage Gas	Advanced treatment of waste*	Photo - voltaic	% of regional total by County area
former Avon	5	5.966	0	0	3.555	2.300	0.110	0.001	5
Cornwall & IoS	32	46.538	39.160	1.488	5.870	0	0	0.020	43
Devon	33	22.723	3.006	6.832	10.188	1.095	1.560	0.042	21
Dorset	7	9.757	0.030	0	6.015	3.690	0	0.022	9
Gloucestershire	7	7.623	0.500	0.250	6.770	0	0	0.103	7
Somerset	11	9.439	0	0.353	8.900	0.170	0	0.016	9
Wiltshire	8	7.390	0	0	6.469	0.920	0	0.001	7
<b>TOTALS</b>	<b>103</b>	<b>109.435</b>	<b>42.696</b>	<b>8.923</b>	<b>47.767</b>	<b>8.175</b>	<b>1.670</b>	<b>0.204</b>	<b>100</b>
<b>% of regional total by tech</b>		<b>100</b>	<b>39</b>	<b>8</b>	<b>44</b>	<b>7</b>	<b>2</b>	<b>0.2</b>	

\*Advanced treatments of waste include Gasification, Pyrolysis and Centralised Anaerobic Digestion(CAD)

Figure 2. *Installed renewable electricity capacity*

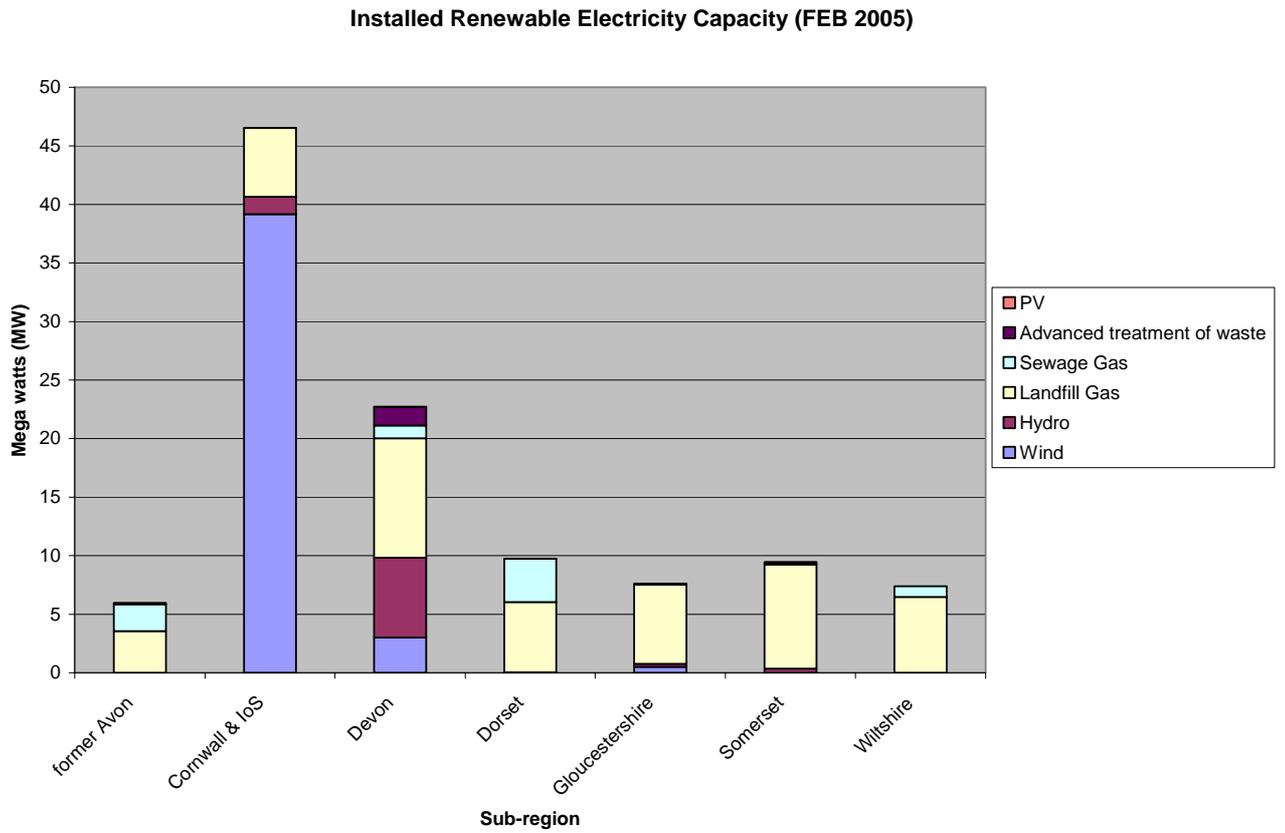


Figure 3. *Table of renewable electricity projects in the South West*



Technology	Project name	Owner or developer	Renewable electricity capacity (MW)
<b>Avon</b>			
LFG	Harnhill Quarry Landfill	SITA Ltd	2.61
LFG	Yanley Landfill	Viridor Ltd	0.945
Sewage gas	Avonmouth STW	Wessex Water	2.3
Solar PV	Whitminster houses PV	Residential Building	0.001
EFW	Compact Power Pilot Scheme, Avonmouth	Compact Power Ltd	0.11
<b>Sub-region total</b>			<b>5.966</b>
<b>Cornwall</b>			
Small hydro	Ponts Mill	Valley Hydro	0.2
Small hydro	Callington	Residential Building	0.006
Small hydro	Launceston	Residential Building	0.009
Small hydro	Launceston	Residential Building	0.03
Small hydro	Camelford	Residential Building	0.019
Small hydro	St Clether	Residential Building	0.005
Small hydro	Callington	Residential Building	0.003
Small hydro	Callington	Residential Building	0.004
Small hydro	St Blazey	Restormel Borough Council	0.2
Small hydro	Launceston	Residential Building	0.007
Small hydro	Trelubbas	Western Hydro	0.22
Solar PV	Threemilestone WI HQ	Women's Institute (WI)	0.005
Solar PV	The Old Chapel Penzance	Residential Building	0.0014
Onshore wind	St Just	Residential Building	0.01
Small hydro	Trelubbas	Residential Building	0.15
Onshore wind	Goonhilly Downs	Cornwall Light and Power	5.6
Small hydro	Blisland	Residential Building	0.02
Solar PV	CPR Learning Space	Cornwall County Council	0.008
Small hydro	Delank Quarry	Enstone Quarries	0.3
LFG	Cannon Bridge Landfill	CES	0.9
LFG	United Mines Landfill II	Ridgewood UK/ Envirogas	2
Solar PV	National Trust Café at Kynance Cove	National Trust	0.006
Onshore wind	St Breock	PowerGen Renewables	4.95
Onshore wind	Carland Cross	Renewable Energy Systems	6
Onshore wind	Four Burrows	Renewable Energy Systems	4.5
Onshore wind	Cold Northcott	Westbury Windfarms	4.5
Onshore wind	Delabole	Windelectric	4
Onshore wind	Bears Down	National Wind Power	9.6
Small hydro	Coverack Bridges, Launceston	Commercial Building	0.205
Small hydro	Callington	Mill/Commercial Building	0.08
Small hydro	Trecarrell	Residential Building	0.03
LFG	United Mines Landfill	Ridgewood UK/ Envirogas	2.97
<b>Sub-region total</b>			<b>46.5384</b>

Devon			
Small hydro	Lynmouth	Commercial Building	0.305
Sewage gas CHP	Countess Wear STW, Exeter	South West Water	0.66
Small hydro	Ashburton	Residential Building	0.045
Small hydro	Tavistock	Residential Building	0.01
Small hydro	River Dart Country Park	Commercial Building	0.04
Small hydro	Glen Lyn Gorge, Lynton	Commercial Building	0.3
Sewage gas CHP	Kingsbridge STW	South West Water	0.06
Sewage gas CHP	Kilmington STW, Axminster CHP	South West Water	0.105
Sewage gas CHP	Totnes STW	South West Water	0.105
Sewage gas CHP	Plympton STW	South West Water	0.165
Onshore wind	Bradworthy	West Coast Energy	3
LFG	Heathfield Landfill	Viridor Ltd	5.25
LFG	Chelson Meadow Landfill	Ridgewood UK/ Envirogas	2.988
Bio-gas	Holsworthy Bio-gas	Holsworthy Biogas Ltd	1.56
Small hydro	Roadford Reservoir	South West Water	0.975
LFG	Deep Moor Landfill	Devon Waste Mgt.	1.95
Small hydro	Mary Tavy Hydro	South West Water	2.6
Onshore wind	Hartland	Private dwelling	0.006
Small hydro	Stoodleigh	Residential Building	0.004
Small hydro	Totnes	Residential Building	0.018
Solar PV	Illfracombe Youth Hostel	Illfracombe Youth Hostel	0.001
Solar PV	Hunters Moon, Totnes PV	Residential Building	0.008
Solar PV	New Build - Dartmoor	Residential Building	0.002
Small hydro	Dartmoor - Dartmoor National Park	Dartmoor National Park	0.18
Solar PV	Kelbechan House, Dartmouth PV	Residential Building	0.0013
Small hydro	Morwellham Hydro	South West Water	0.64
Small hydro	Little Hempston Hydro WTW	South West Water	0.48
Small hydro	The Rock	Residential building	0.0035
Small hydro	Crownhill WTW	South West Water	0.425
Small hydro	Meldon Dam	South West Water	0.43
Small hydro	Avon Dam, Fernworthy, Buckfast Abbey	South West Water	0.3
Small hydro	Old Walls Farm	Residential Building	0.076
Solar PV	National Marine Aquarium, Plymouth	National Marine Aquarium	0.03
<b>Sub-region total</b>			<b>22.7228</b>
Dorset			
Sewage gas	Christchurch STW	Wessex Water	0.085
Solar PV	Weymouth & Portland Sailing Academy	Weymouth & Portland Sailing Academy	0.02079
Sewage gas	Poole STW	Wessex Water	0.755
Sewage gas	Bournemouth Berry Hill STW	Wessex Water	2.85
Onshore wind	Studland Centre	National Trust	0.03
LFG	Whites Pit Landfill	Canford Environmental	6.015
Solar PV	Solar PV - Wey Valley School	Dorset County Council	0.00075
<b>Sub-region total</b>			<b>9.75654</b>

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Gloucestershire			
LFG	Hempsted Landfill	Cory Environmental	4.27
LFG	Wingmoor Landfill	Cory Environmental	2.5
Onshore wind	Lynch Knoll, Nympsfield	Ecotricity Ltd	0.5
Small hydro	Coaley Mill	Coaley Mill	0.25
Solar PV	Cotswold Water Park	Cotswold Water Park	0.05
Solar PV	Springfield Road		0.05
Solar PV	Wilderness Centre	Wilderness Centre	0.0027
<b>Sub-region total</b>			<b>7.6227</b>
Somerset			
LFG	Odcombe Landfill	Wyvern Waste	0.3
Small hydro	Gants Mill	Part of the South Somerset cluster	0.012
Solar PV	Nr Glastonbury	Residential Building	0.008
Solar PV	Fairways International Touring Caravan & Camping Park	FITCCP	0.008
LFG	Dimmer Landfill I & II	Wyvern Waste	5
LFG	Walpole Landfill	Wyvern Waste	2.6
LFG	Wellington Landfill	Wyvern Waste	1
Small hydro	Wallbridge Mill	Residential Building	0.011
Small hydro	Hydro-powered sawmill on the edge of Exmoor	Commercial Building	0.01
Sewage gas	Ham, Taunton STW	Wessex Water	0.17
Small hydro	Maundown STW	Wessex Water	0.32
<b>Sub-region total</b>			<b>9.439</b>
Wiltshire			
LFG	Westbury Power Plant Landfill	Viridor Ltd	1.109
LFG	Chapel Farm Landfill	SITA Ltd	0.96
LFG	Calne Landfill	Viridor Ltd	2.2
Solar PV	ESD Electric Vehicle Garage, Neston	Commercial Building	0.0005
Sewage gas	Salisbury STW	Wessex Water	0.085
Sewage gas	Trowbridge STW	Wessex Water	0.085
Sewage gas	Swindon STW	Thames Water	0.75
LFG	Compton Bassett Landfill	Hills Minerals & Waste	2.2
<b>Sub-region total</b>			<b>7.3895</b>
<b>South West region total</b>			<b>109.43494</b>



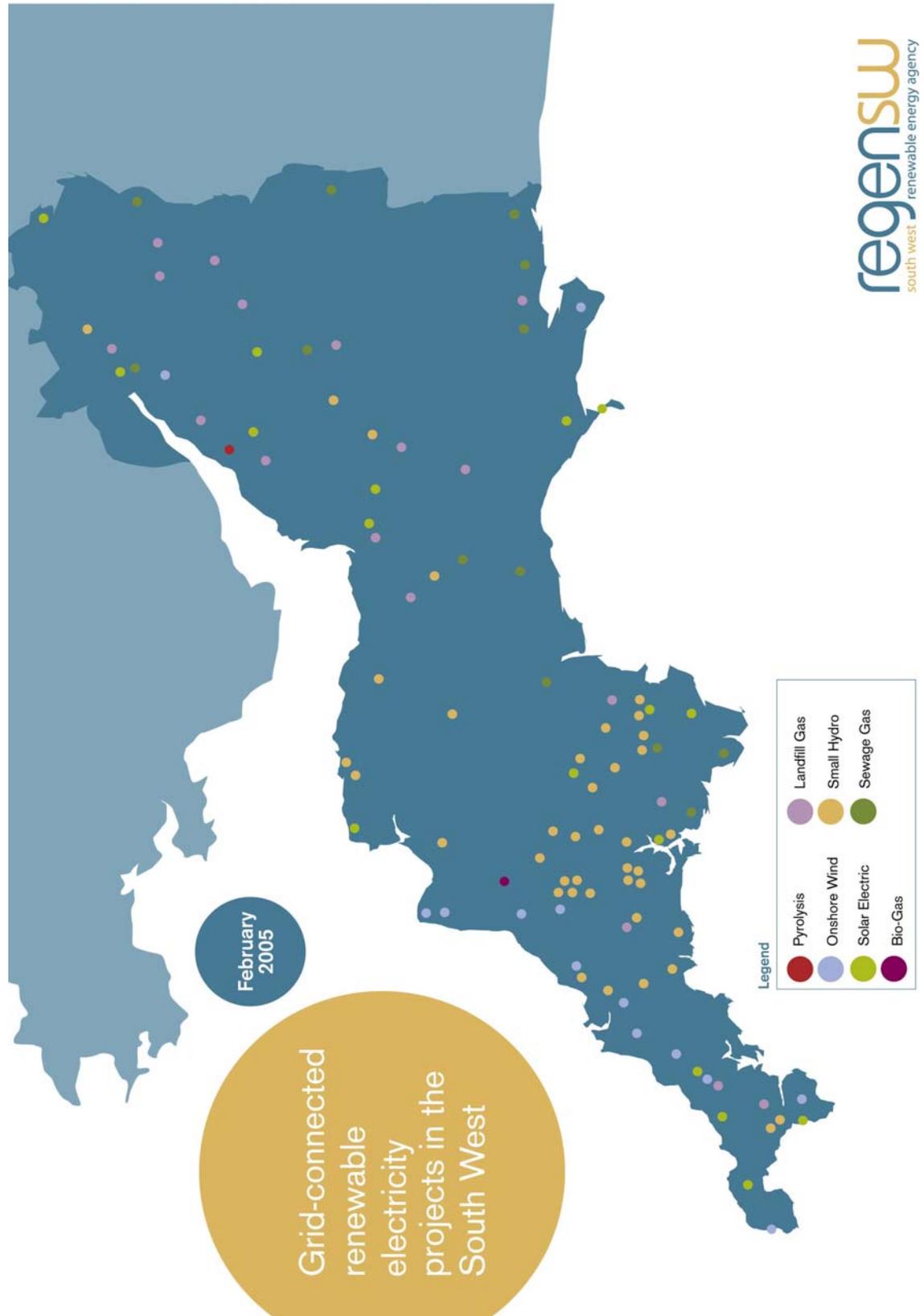
South West of England  
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Regen SW receives core funding from the  
South West Regional Development Agency

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Legal disclaimer Regen SW has made all reasonable efforts to ensure that all information in the table is accurate at the time of inclusion, however, there may be inadvertent and occasional errors for which we apologise. Please advise errors and omissions to [admin@regensw.co.uk](mailto:admin@regensw.co.uk). The information contained in this table is for general guidance only.

Figure 4. Grid-connected renewable electricity projects in the South West



## Regional Overview

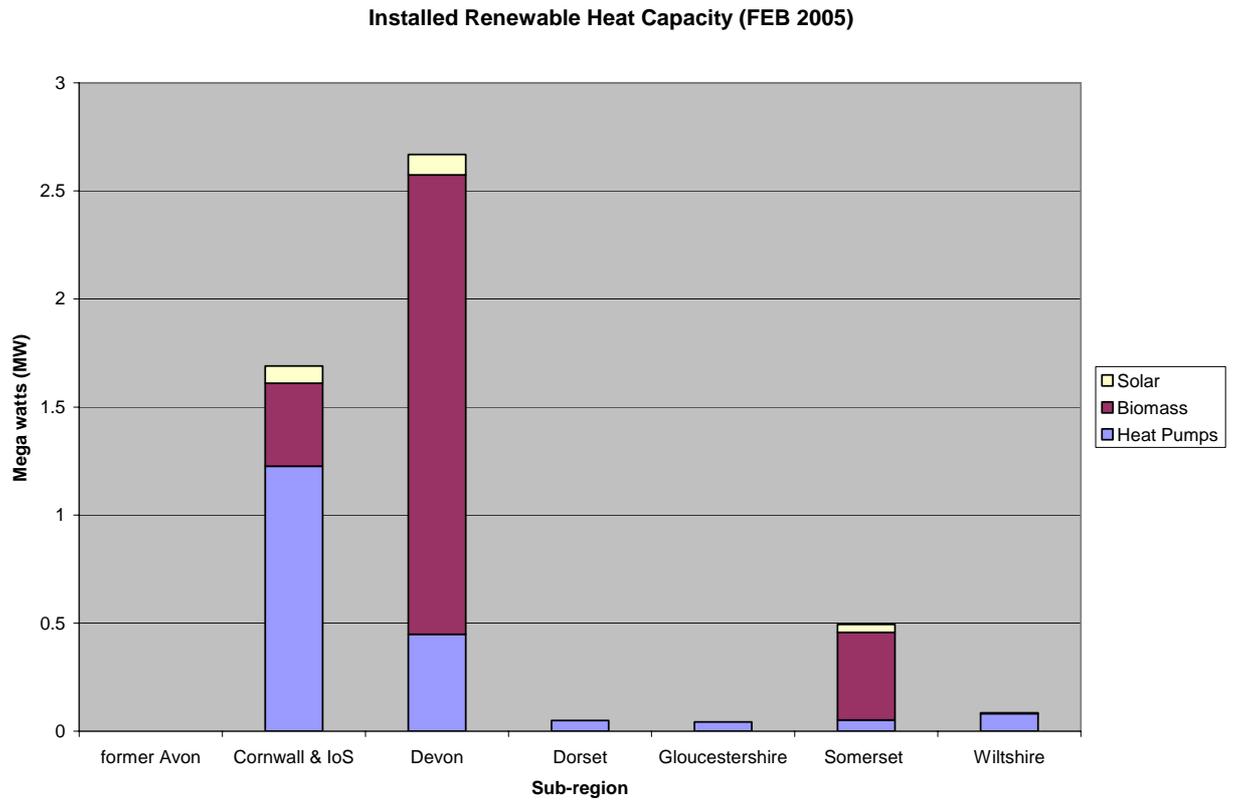
### Renewable Heat

- For the first time, the survey has made an estimate of the contribution of renewable heat projects in the SW. This covers wood heating, solar water heating and heat pumps. We have identified approximately 5MW of installed capacity.
- 22 wood heating schemes provide 58% of this capacity, 56 heat pump projects provide 38% and 471 solar water heating installations contribute 4%. These schemes are small and very difficult to identify and therefore these figures are considered to be an underestimate of the total renewable heat capacity in the region.
- Although the installed capacity of renewable heating projects is still small in the SW, the climate change benefit is likely to be significant because many of them are installed off the mains gas network, and displace heating oil, which has a very high carbon content.

Figure 5. *Installed renewable heat capacity (MW)*

County	Installed Renewable Heat capacity (MW)	Heat Pumps	Biomass	Solar	% of regional total by county
former Avon	0	0	0	0	<b>0</b>
Cornwall & IoS	1.691	1.226	0.385	0.080	<b>34</b>
Devon	2.668	0.448	2.126	0.094	<b>53</b>
Dorset	0.050	0.050	0	0	<b>1</b>
Gloucestershire	0.043	0.043	0	0	<b>1</b>
Somerset	0.494	0.052	0.405	0.037	<b>10</b>
Wiltshire	0.085	0.081	0	0.004	<b>2</b>
<b>TOTALS</b>	<b>5.031</b>	<b>1.900</b>	<b>2.916</b>	<b>0.215</b>	<b>100</b>
<b>% of regional total by technology</b>	<b>100</b>	<b>38</b>	<b>58</b>	<b>4</b>	

Figure 6. *Installed renewable heat capacity*



## County Status

### Cornwall and the Isles of Scilly

- Cornwall remains the leading SW county for renewable electricity schemes with 46.5MW of capacity installed, including significant contributions from its seven wind farms, two landfill gas sites and seven small hydro installations. Its installed capacity has decreased slightly in the last 12 months because of a decrease in output from its two landfill gas sites.
- Nevertheless the Cornish schemes generate sufficient electricity to supply the equivalent of 33,434 homes.
- Cornwall's generating capacity should increase further in 2005 with the construction of the 1.8MW Roskrow Barton wind cluster, which was approved in 2004.
- Cornwall also has the second highest installed capacity of green heat projects in the SW at 1.64MW, with a high uptake of heat pumps.

### Devon

- Devon has increased its installed capacity to 22.7MW, with the construction of the Bradworthy wind cluster. The largest contributions come from its landfill and sewage gas projects and micro hydro installations.
- More renewable electricity projects were identified in Devon than in any other SW county (33). Once the Bradworthy wind cluster is commissioned, these schemes will be generating the equivalent of the electricity needs of 27,799 homes.
- Devon has the potential to become the SW's lead county for renewable energy in the next two years because it has over 100MW of proposals in the planning pipeline.
- The county also has the largest green heat capacity of any county at 2.7MW, with wood chip and wood pellet boilers making the largest contribution.

## Dorset

- Dorset has 9.7MW of installed renewable electricity capacity, with the majority coming from one landfill site (6MW) and three Sewage gas schemes (3.6MW). These schemes generate the equivalent electricity needs of 17,240 homes.
- Dorset has the lowest number of renewable electricity schemes of the six rural counties of the SW, at only 7. It also has the second lowest installed capacity of green heat projects (0.05MW) and no wood heat boilers recorded in the county.

## Former Avon

- Avon has the lowest installed capacity of any county in the SW, but this is to be expected as the potential for large renewable electricity schemes is limited in a predominately urban sub-region. Nevertheless significant potential exists to generate renewable electricity from micro renewable energy schemes integrated into buildings. The majority of its 6 MW of existing installed capacity comprises two landfill schemes (3.5MW) and one sewage gas installation (2.3MW). These schemes generate the equivalent electricity needs of 10,582 homes.
- The prospects for Avon increasing its installed capacity in 2005 are good, with a further pyrolysis plant approved for Avonmouth (1.25MW) in 2004 and permission granted for a further landfill gas project (0.6MW).
- We have no recorded green heat projects in the sub-region to date.

## Gloucestershire

- Gloucestershire has the second lowest installed renewable electricity capacity of the six rural counties of the SW at 7.6 MW. The majority of this is comprised of two landfill gas sites with 6.7MW of installed capacity. These schemes generate the equivalent electricity needs of 12,448 homes.
- Gloucestershire has the lowest recorded green heat capacity of any rural county in the SW at 0.04MW. There are currently

no wood heat boilers recorded in the county, although one proposed scheme has recently received grant funding.

## Somerset

- Somerset has 9.4MW of installed renewable electricity capacity with the majority coming from three landfill gas sites (9 MW). These schemes generate the equivalent electricity needs of 16,265 homes.
- The county has the potential to significantly increase its installed capacity in the coming 12 months with at least 35MW of renewable electricity schemes in the planning pipeline.
- Somerset has the fourth highest green heat capacity with the largest contribution coming from wood heat boilers.

## Wiltshire

- Wiltshire has the lowest renewable electricity installed capacity of any rural county in the SW at 7.3 MW, enough to supply the electricity needs of 13,108 homes. Almost all of this comes from four landfill gas and three sewage gas projects.
- Wiltshire has less than 0.1MW of green heat capacity, mainly coming from heat pumps.

### Notes to editors

1. Equivalent homes powered is calculated using the standard assumption that an average UK house consumes 4000 units of electricity (kWh) a year. If energy consumption falls through energy efficiency measures this number rises. If energy use increases the equivalent number of houses supplied falls.

2. Carbon savings are based on a calculation from DTI Energy Trends (March 2003) that the average carbon dioxide emission per KWh of electricity generated in the UK is 598 g.

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