

Survey of renewable electricity and heat projects in South West England

March
2006

South West Renewable Energy Agency

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Regional Overview

Renewable Electricity

- The survey identified 151 grid connected renewable electricity projects in the South West. An additional 49 projects have been identified since the last survey was undertaken in February 2005, 36 of which have been installed in the last year. The others are existing schemes which we have identified due to better reporting, particularly on micro renewable schemes such as solar PV. The largest scheme to be built in the last year was the Beacon Hill Landfill Gas site in Dorset which has two generators with a combined capacity of 2.3 MW.
- The installed capacity for renewable electricity now stands at 122.6 MW, up 13.2 MW since the last survey. This is partly due to new electricity capacity being installed in the last 12 months (6MW) and also partly due to better reporting of existing schemes. Renewable electricity schemes in the region are producing enough electricity to supply the equivalent of 107,398 homes, avoiding the production of 363,543 tonnes of carbon dioxide a year¹.
- There are 22 landfill gas schemes making up 47.2% of total installed capacity, 15 sewage gas schemes making up 8.2% of capacity, 15 wind projects making up 34.8%, 44 small-hydro schemes contributing 7.5% to total capacity, 51 solar PV schemes making up 0.5% and one advanced treatment of waste project making up 1.8% of total capacity.
- Planning is a big barrier to development of potential renewable electricity schemes in the South West. In the last 12 months, five schemes equating to 71.5 MW have been refused planning permission by local planning committee. Five large schemes totalling 22.95 MW have been approved but are not yet built.
- The South West still has a very long way to go to achieving its 2010 renewable electricity target of securing 11-15% of generating capacity from renewable sources (approximately 597MW). The rate of construction of projects must increase dramatically if the region is to meet its targets.

1. a. Energy generated has been estimated using typical capacity factors for different Renewable Energy technologies: LFG 80%; wind 30%; sewage gas 60%; small hydro 25%; advanced technology 80%; and PV 30%.

b. The number of equivalent homes powered is based on the assumption that an average house consumes 5,000 units of electricity (kWh) a year.

c. Carbon savings are based on a DTI figure that the average carbon dioxide emission per KWh of electricity generated in the UK is 0.598 kg.

Installed renewable electricity capacity (MW)

County	Number 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	7	9.89	0.00	0.00	4.01	5.75	0.11	0.02	8.1%
Cornwall and IoS	41	49.94	39.16	1.73	8.57	0.40	0.00	0.08	40.7%
Devon	55	25.03	3.03	6.85	11.82	1.10	2.10	0.14	20.4%
Dorset	9	10.11	0.03	0.00	8.32	1.74	0.00	0.02	8.2%
Gloucestershire	14	9.15	0.50	0.25	8.17	0.00	0.00	0.23	7.5%
Somerset	16	8.91	0.01	0.36	8.33	0.17	0.00	0.04	7.3%
Wiltshire	9	9.62	0.00	0.00	8.67	0.92	0.00	0.03	7.8%
TOTALS	151	122.64	42.72	9.19	57.88	10.07	2.21	0.57	100.0%
% of regional total by technology		100.0%	34.8%	7.5%	47.2%	8.2%	1.8%	0.5%	

Installed Renewable Electricity Capacity (March 2006)

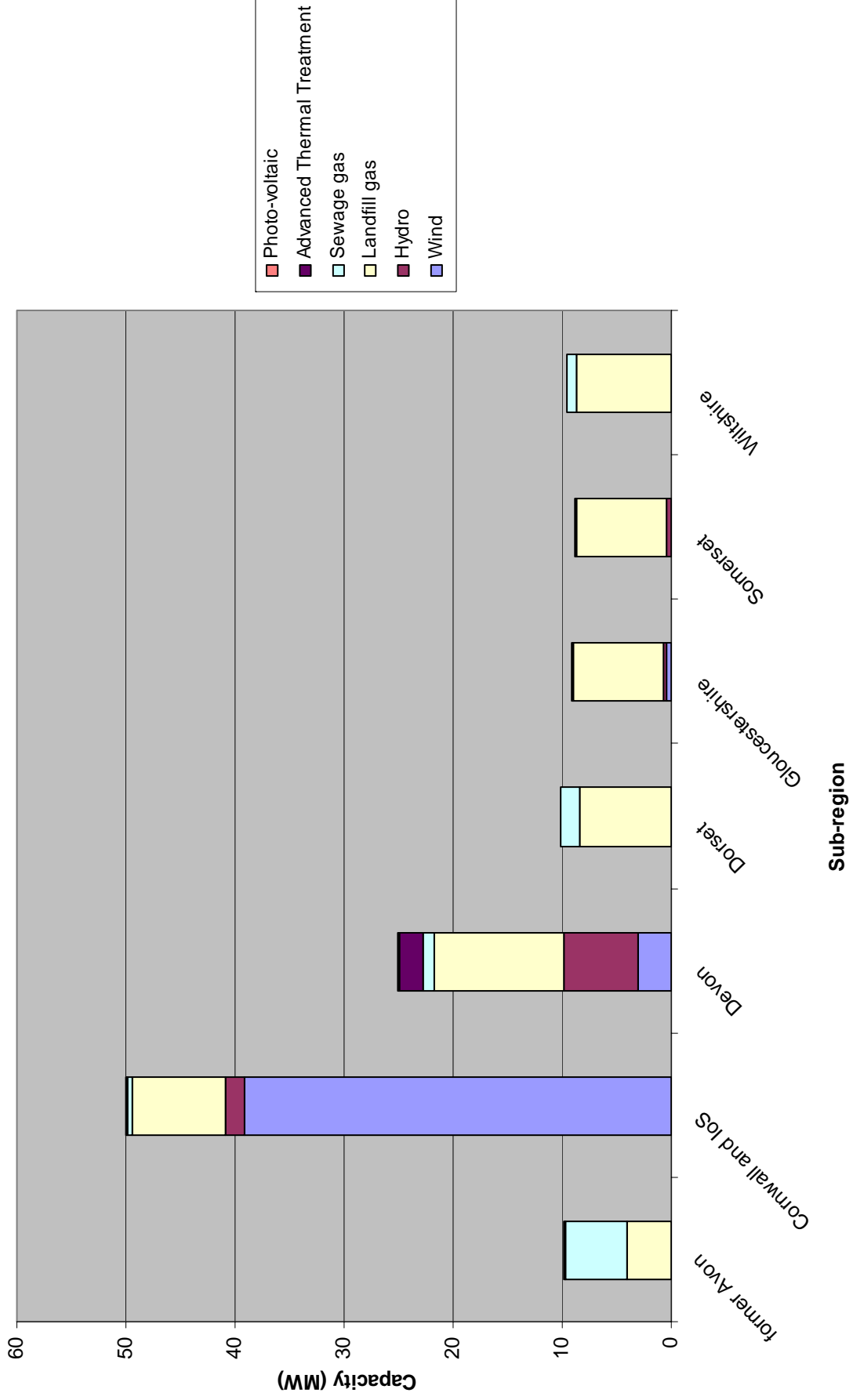


Table of renewable electricity projects in South West England

Technology	Project name	Owner or developer	Renewable Electricity Capacity (MW)
Avon			
EFW	Compact Power Pilot Scheme, Avonmouth	Compact Power Ltd	0.11
LFG	Berwick Farm	Eco2	0.6
LFG	Harnhill Quarry Landfill	SITA Ltd	1.9
LFG	Yanley Landfill	Viridor Ltd	1.505
Sewage gas CHP	Avonmouth STW	Wessex Water	5.75
Solar PV	Ashley Vale	Ashley Vale Action Group, nr Bristol	0.02
Solar PV	Whitminster houses PV	Residential Building	0.001
Sub-region total			9.89
Cornwall			
LFG	Connon Bridge Landfill	CLP Envirogas	3.6
LFG	United Mines Landfill	CLP Envirogas	2.97
LFG	United Mines Landfill II	Ridgewood UK/ Envirogas	2
Onshore wind	Bears Down	National Wind Power	9.6
Onshore wind	Carland Cross	Renewable Energy Systems	6
Onshore wind	Cold Northcott	Westbury Windfarms	4.5
Onshore wind	Delabole	Windelectric	4
Onshore wind	Four Burrows	Renewable Energy Systems	4.5
Onshore wind	Goonhilly Downs	Cornwall Light and Power	5.6
Onshore wind	St Breock	PowerGen Renewables	4.95
Onshore wind	St Just	Residential Building	0.01
Sewage gas	Liskeard STW	South West Water	0.06
Sewage gas	St Erth STW, Hayle	South West Water	0.335
Small hydro	Blisland	Residential Building	0.02
Small hydro	Callington	Mill/Commercial Building	0.08
Small hydro	Callington	Residential Building	0.004
Small hydro	Callington	Residential Building	0.006
Small hydro	Callington	Residential Building	0.003
Small hydro	Camelford	Residential Building	0.019
Small hydro	Coverack Bridges, Launceston	Commercial Building	0.205
Small hydro	Delank Quarry	Enstone Quarries	0.3
Small hydro	Kennal Vale		0.24
Small hydro	Launceston	Residential Building	0.009
Small hydro	Launceston	Residential Building	0.03
Small hydro	Launceston	Residential Building	0.007
Small hydro	Ponts Mill	Valley Hydro	0.2
Small hydro	St Blazey	Restormel Borough Council	0.2
Small hydro	St Clether	Residential Building	0.005
Small hydro	St Clether	Residential Building	0.003
Small hydro	Trecarrell	Residential Building	0.03
Small hydro	Trelubbas	Trelubbas Power Plant, Cober Valley	0.15
Small hydro	Trelubbas	Western Hydro	0.22
Solar PV	Blisland Village Hall, Bodmin	Blisland village hall	0.0048
Solar PV	CPR Learning Space	Cornwall County Council	0.008
Solar PV	National Trust Café at Kynance Cove	National Trust	0.006
Solar PV	Pendeen Parish Centre	Public building	0.015
Solar PV	Plug into the sun	Penwith Housing Association	0.0072
Solar PV	The Eden Project	The Eden Project	0.0287
Solar PV	The Old Chapel Penzance	Residential Building	0.0014
Solar PV	Threemilestone WI HQ	Women's Institute (WI)	0.005
Solar PV	Well being Centre	Self heal charitable trust	0.0048
Sub-region total			49.94

Devon

Bio-gas	Holsworthy Bio-gas	Holsworthy Biogas Ltd	2.1
LFG	Broadpath Landfill	Viridor Ltd	0.1
LFG	Chelson Meadow Landfill	CLP Envirogas	5
LFG	Deep Moor Landfill	Devon Waste Mgt.	1.95
LFG	Heathfield Landfill	Viridor Ltd	4.772
Onshore wind	Bradworthy	West Coast Energy	3
Onshore wind	Hartland	Private dwelling	0.006
Onshore wind	National Marine Aquarium	National Marine Aquarium	0.012
Onshore wind	Sandford	Residential Building	0.005
Onshore wind	Seaton Primary School	Seaton Primary School	0.0025
Sewage gas CHP	Countess Wear STW, Exeter	South West Water	0.66
Sewage gas CHP	Kilmington STW, Axminster CHP	South West Water	0.105
Sewage gas CHP	Kingsbridge STW	South West Water	0.06
Sewage gas CHP	Plympton STW	South West Water	0.165
Sewage gas CHP	Totnes STW	South West Water	0.105
Small hydro	Ashburton	Residential Building	0.045
Small hydro	Avon Dam, Fernworthy, Buckfast Abbey	South West Water	0.3
Small hydro	Crownhill WTW	South West Water	0.425
Small hydro	Dartmoor - Dartmoor National Park	Dartmoor National Park	0.18
Small hydro	Glen Lyn Gorge, Lynton	Commercial Building	0.3
Small hydro	Littlehempston Hydro WTW, Totnes	South West Water	0.48
Small hydro	Lynmouth	Commercial Building	0.305
Small hydro	Mary Tavy Hydro	South West Water	2.6
Small hydro	Meldon Dam	South West Water	0.43
Small hydro	Morwellham Hydro	South West Water	0.64
Small hydro	Old Walls Farm	Residential Building	0.09
Small hydro	River Dart Country Park	Commercial Building	0.04
Small hydro	Roadford Reservoir	South West Water	0.975
Small Hydro	Sowton Mill	Residential	0.003
Small hydro	Stoodleigh	Residential Building	0.004
Small hydro	Tavistock	Residential Building	0.01
Small hydro	The Rock	Residential building	0.0035
Small hydro	Totnes	Residential Building	0.018
Solar PV	Barnstaple Civic Centre	Barnstaple Civic Centre - SPIRE project	0.0566
Solar PV	Caddsdwn	Torrige District Council	0.0036
Solar PV	Croyde	Residential Building	0.0025
Solar PV	East Ansey	Residential Building	0.00192
Solar PV	Frogmore	Residential Building	0.0048
Solar PV	Georgeham nr Croyde	Residential Building	0.00096
Solar PV	Hunters Moon, Totnes PV	Residential Building	0.008
Solar PV	Illfracombe Youth Hostel	Illfracombe Youth Hostel	0.001
Solar PV	Kelbechan House, Dartmouth PV	Residential Building	0.0013
Solar PV	Kenton, Exeter	Residential Building	0.0015
Solar PV	Moretonhampstead Multi-activity centre	Moretonhampstead Multi-activity centre	0.0048
Solar PV	National Marine Aquarium, Plymouth	National Marine Aquarium	0.02
Solar PV	New Build - Dartmoor	Residential Building	0.002
Solar PV	Nr Bideford	Residential Building	0.004
Solar PV	Okehampton	Residential Building	0.00128
Solar PV	Rattery	Residential Building	0.00192
Solar PV	Seaton Primary School	Seaton Primary School	0.0048
Solar PV	Shillingford	Residential Building	0.0028
Solar PV	Stoke Hartland	Residential Building	0.0049
Solar PV	Teignmouth	Residential building	0.0028
Solar PV	Teignmouth	Residential Building	0.00192
Solar PV	Uptonery Preschool	Uptonery Preschool	0.0048
Sub-region total			25.03

Dorset

LFG	Beacon Hill	Sita	2.3
LFG	Whites Pit Landfill	Canford Environmental	6.015
Onshore wind	Studland Centre	National Trust	0.03
Sewage gas CHP	Bournemouth Berry Hill STW	Wessex Water	0.9
Sewage gas CHP	Christchurch STW	Wessex Water	0.085
Sewage gas CHP	Poole STW	Wessex Water	0.755
Solar PV	Nature Reserve	Wardens Office	0.001275
Solar PV	Solar PV - Wey Valley School	Dorset County Council	0.00075
Solar PV	Weymouth & Portland Sailing Academy	Weymouth & Portland Sailing Academy	0.02079
Sub-region total			10.11

Gloucestershire

LFG	Frampton Mill Landfill	Eco2 (RMC)	1.4
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	Brockwier and Hewlesfield Community Shop	Brockwier and Hewlesfield Community Shop	0.0045
Solar PV	Cotswold Water Park	Cotswold Water Park	0.05
Solar PV	Crickley Hill Country Park	Crickley Hill Country Park	0.002
Solar PV	Oxstalls Campus	Gloucestershire University Oxstalls Campus	0.064
Solar PV	Ruskin Mill	Ruskin Mill	0.005
Solar PV	Springfield Road		0.05
Solar PV	Stonehouse	Residential Building	0.0018
Solar PV	Stroud Housing Co-op	Stroud Housing Co-op	0.05
Solar PV	Wilderness Centre	Wilderness Centre	0.00273
Sub-region total			9.15

Somerset

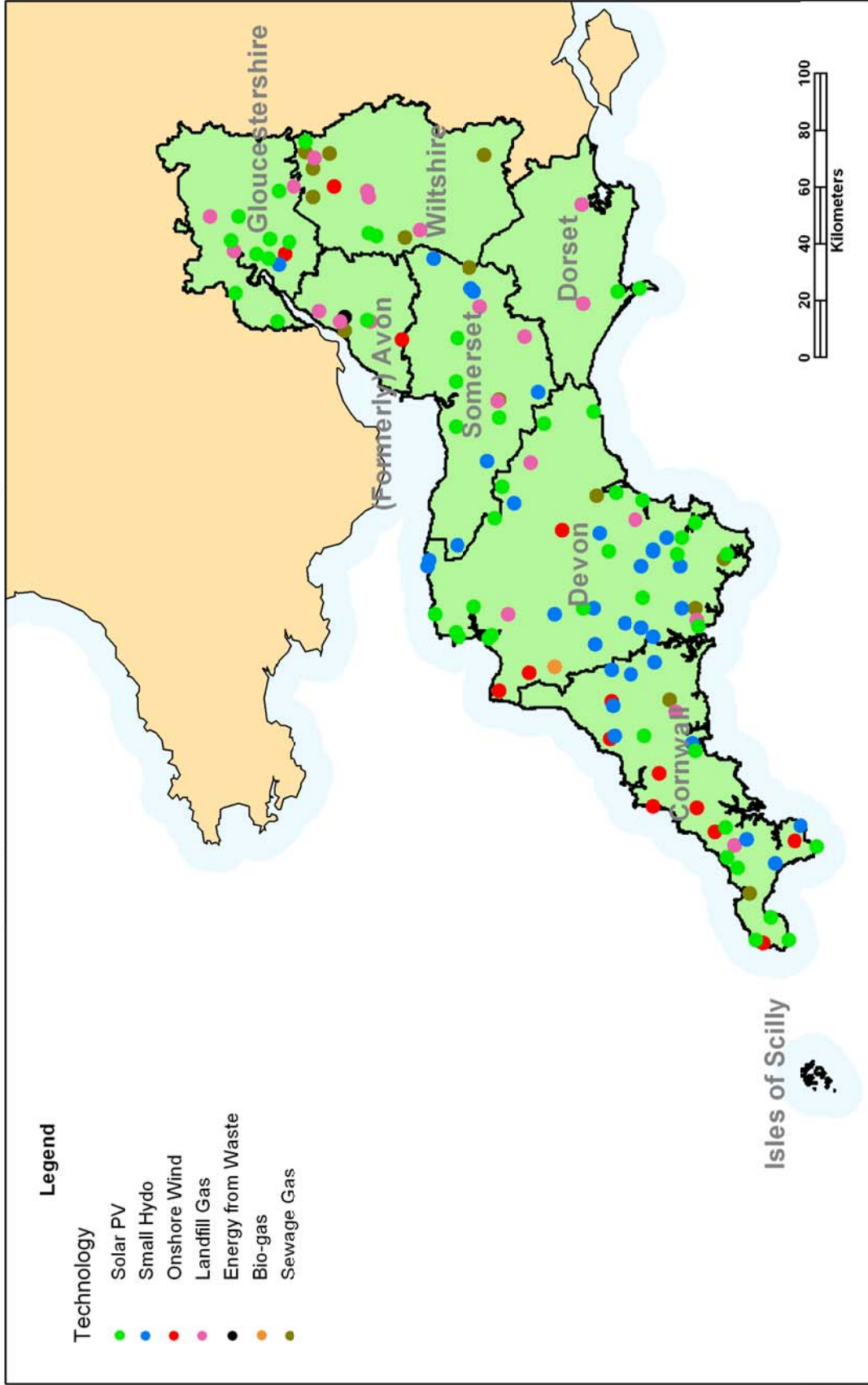
LFG	Dimmer Landfill I & II	Wyvern Waste	4
LFG	Odcombe Landfill	Wyvern Waste	0.33
LFG	Walpole Landfill	Wyvern Waste	3
LFG	Wellington Landfill	Wyvern Waste	1
Onshore wind	Charterhouse Charterhouse Centre	Mendips AONB	0.005
Sewage gas CHP	Ham, Taunton Clean Water Supply	Wessex Water	0.17
Small hydro	Cole Manor	Hydro Generation Ltd	0.0037
Small hydro	Court Mill	Hydro Generation Ltd	0.0037
Small hydro	Gants Mill	Hydro Generation Ltd	0.012
Small hydro	Maundown - Clean Water Supply Treatment Works	Wessex Water	0.32
Small hydro	Simonsbath sawmill	Commercial Building	0.01
Small hydro	Wallbridge Mill	Residential Building	0.011
Solar PV	County Hall	Somerset County Council	0.024
Solar PV	Fairways International Touring Caravan & Camping Park	FITCCP	0.008
Solar PV	Nether Stowey	Residential building	0.00288
Solar PV	Nr Glastonbury	Residential Building	0.008
Sub-region total			8.91

Wiltshire

LFG	Calne Landfill	Viridor Ltd	2.2
LFG	Chapel Farm Landfill	SITA Ltd	0.96
LFG	Compton Bassett Landfill	Hills Minerals & Waste	2.2
LFG	Westbury Power Plant Landfill	Viridor Ltd	3.306
Sewage gas	Swindon STW	Thames Water	0.75
Sewage gas CHP	Salisbury STW	Wessex Water	0.085
Sewage gas CHP	Trowbridge STW	Wessex Water	0.085
Solar PV	Corsham	Westlea Housing Association	0.03
Solar PV	ESD Electric Vehicle Garage, Neston	Commercial Building	0.0005
Sub-region total			9.62

South West England region total 122.6

Installed renewable electricity projects in South West England



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Regional Overview

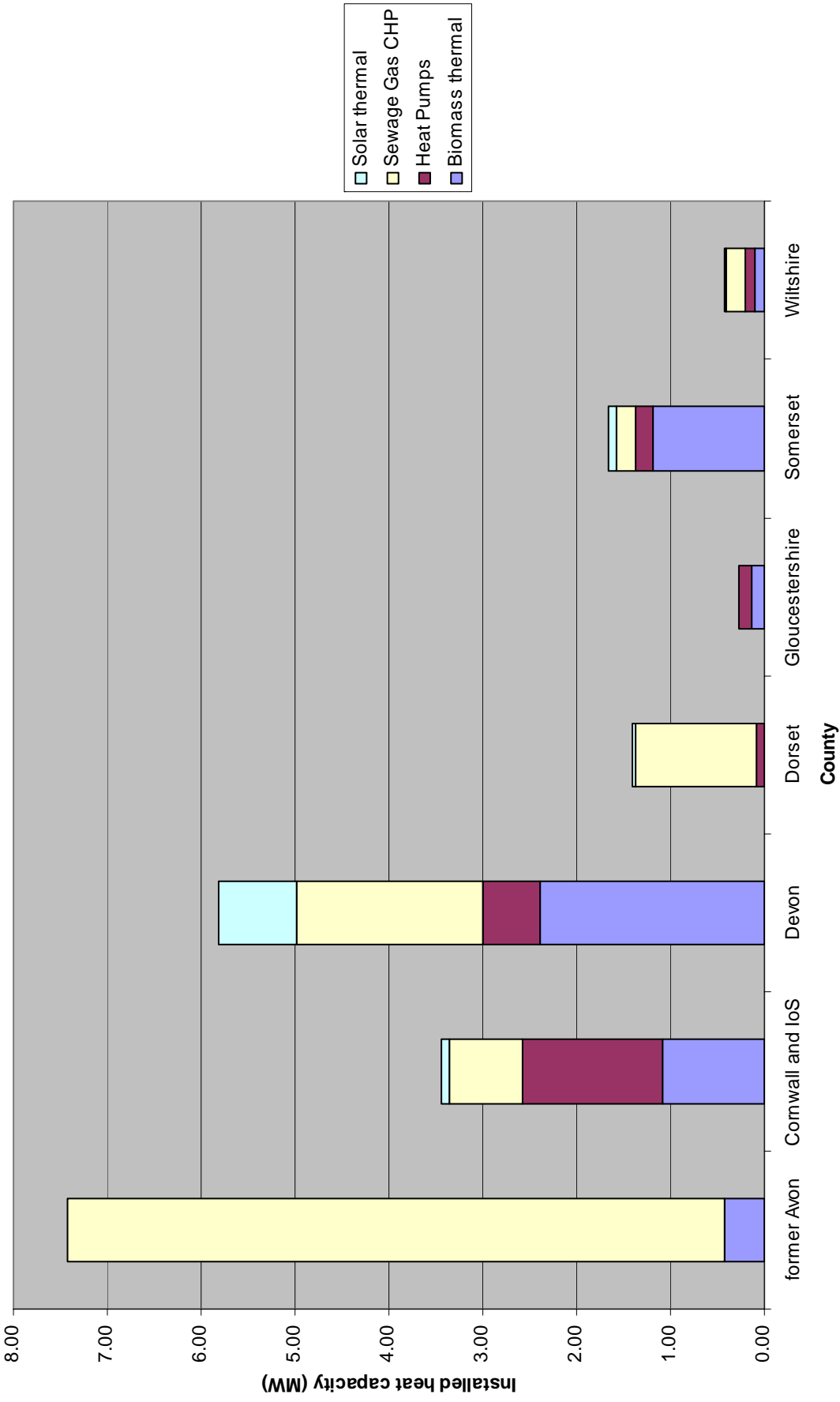
Renewable Heat

- We estimate that there is 20.43 MW of renewable heat installed capacity in the region. This figure is up by over 15 MW from last year, partly due to better reporting of existing schemes and partly due to new capacity installed in the last year. The survey identified 266 renewable heat projects in the South West. This covers wood heating, sewage gas CHP, solar water heating and heat pumps (comprising ground source, air source and water source heat pumps).
- The survey identified 93 projects and 4.4MW of new capacity installed in the last year. Due to the small nature of the majority of these schemes it is still difficult to gather a truly accurate picture of renewable heat in the region, and our estimate is probably a significant under representation of schemes in the region.
- Heat pumps make up 2.59 MW or 13% of total installed capacity, solar thermal 1.04 MW making up 5%, sewage Gas CHP 11.47 MW making up 56% and biomass thermal 5.32 MW making up 26% of installed capacity
- Although the installed capacity of renewable heat projects is still small in the South West, 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 high carbon content.

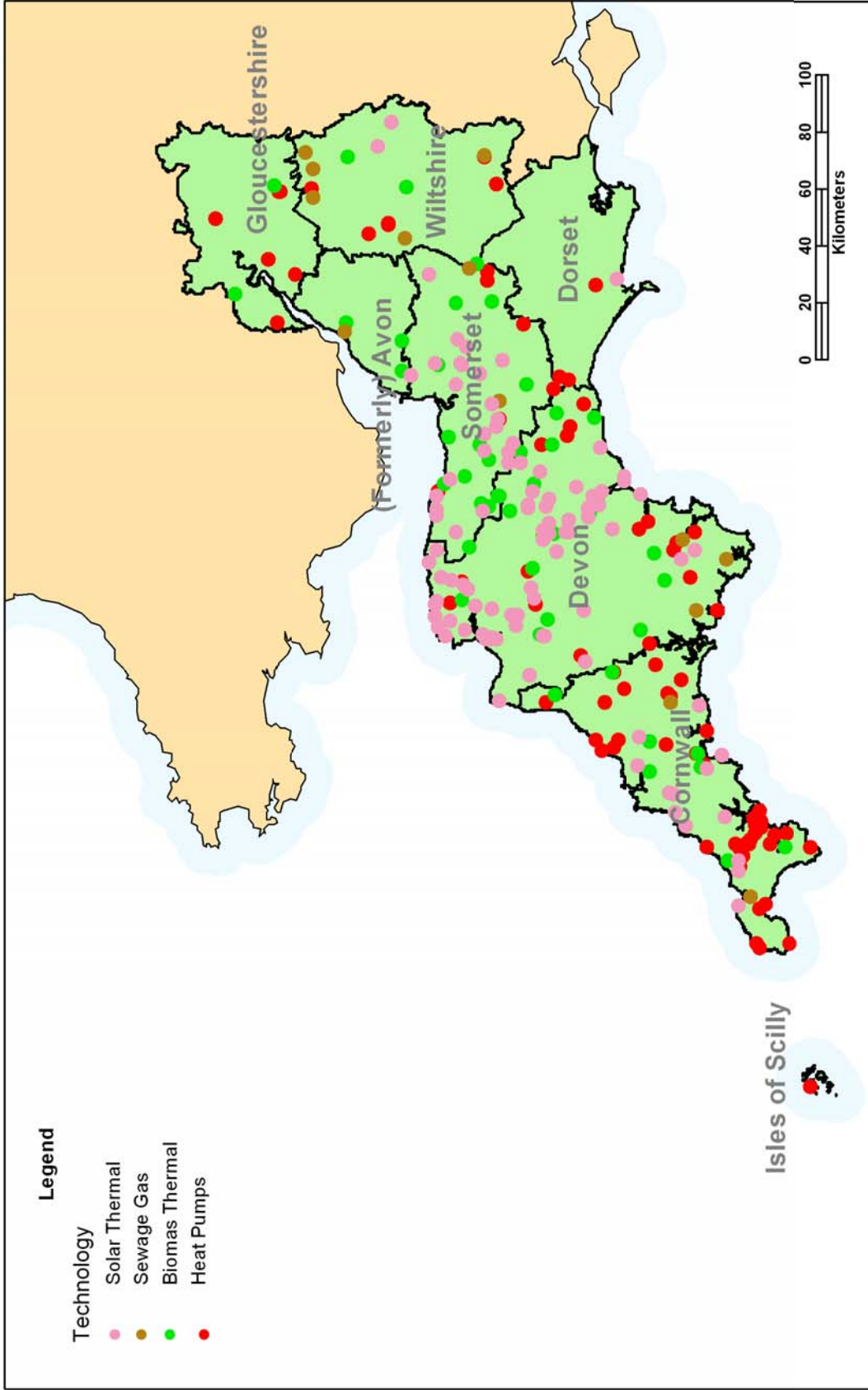
Installed renewable heat capacity (MW)

County	Number of renewable heat projects	Installed renewable heat capacity (MW)	Biomass thermal	Heat Pumps	Sewage Gas CHP	Solar thermal	% of regional total by County area
former Avon	3	7.43	0.43	0.00	7.00	0.00	36%
Cornwall and IoS	71	3.43	1.09	1.48	0.79	0.08	17%
Devon	120	5.80	2.39	0.61	1.98	0.83	28%
Dorset	9	1.41	0.00	0.08	1.30	0.03	7%
Gloucestershire	8	0.26	0.13	0.14	0.00	0.00	1%
Somerset	42	1.66	1.19	0.19	0.20	0.08	8%
Wiltshire	12	0.44	0.11	0.10	0.20	0.02	2%
TOTALS	265	20.43	5.34	2.60	11.47	1.04	100%
% of regional total by technology		100%	26%	13%	56%	5%	

Installed Renewable Heat Capacity (March 2006)



Installed renewable heat projects in South West England



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County Status

Cornwall and the Isles of Scilly

- Cornwall remains the leading county in the south west for renewable electricity schemes with 49.9 MW of installed capacity, making up nearly 41% of the total installed capacity for the region. Cornwall's capacity generates power for the equivalent of 43,747 homes.
- Cornwall's generating capacity will increase further in 2006 with the construction of the 1.8 MW Roskrow Barton wind cluster which was approved in 2004.
- Cornwall has 71 renewable heat schemes with 3.43 MW of installed heat capacity. Cornwall has the highest number of heat pumps installed and a current capacity of 1.48 MW.

Devon

- Devon has increased its installed capacity to 25 MW and it has the largest number of renewable electricity projects with 55 installed projects. Devon's capacity generates the equivalent electricity needs of 21,926 homes.
- Devon has the potential to become the leading county in the South West in terms of installed electricity capacity, due to several wind schemes that are currently going through the planning or appeals process. There are currently enough renewable energy schemes in Devon in the planning system to achieve the county's target of 151 MW for renewable energy by 2010.
- Devon also has the highest number of renewable heat projects – it has 120 projects, and the second highest heat capacity at 5.8 MW. Devon also has the highest number of solar thermal and biomass heat projects in the region.

Dorset

- Dorset has 10.1 MW of renewable electricity. This comes mostly from landfill gas with one scheme having over 6MW of capacity and a new landfill gas site at Beacon Hill has 2.3 MW. Dorset's schemes generate the equivalent electricity needs of 8,856 homes.
- Dorset has nine renewable heat projects with an installed capacity of 1.41 MW of heat.

Former Avon

- The Former Avon area has increased its installed capacity of renewable electricity by over 3 MW, largely due to changes in accuracy of recording landfill gas generating capacity, rather than new projects. Avon's renewable electricity schemes generate the equivalent electricity needs of 8,664 homes.
- The prospects for Avon increasing its installed capacity in 2006 are excellent with committee approval of a 9 MW wind scheme at Avonmouth in 2005, and a 1.25 MW pyrolysis plant approved in 2004, both of which are due to be built in the next 12 months.
- Although there are only three renewable heat projects recorded in the former Avon area, it actually has the largest renewable heat capacity in the South West (7.43 MW) due to 7MW of heat being generated at the Avonmouth Sewage Gas CHP site.

Gloucestershire

- Gloucestershire has increased its installed electricity capacity to 9.15 MW. Its 14 schemes generate the equivalent electricity needs of 8,015 homes.
- Gloucestershire has the lowest recorded green heat capacity of the South West with eight renewable heat projects, comprising six heat pumps and two biomass boilers. This gives a total heat capacity of 0.26 MW.

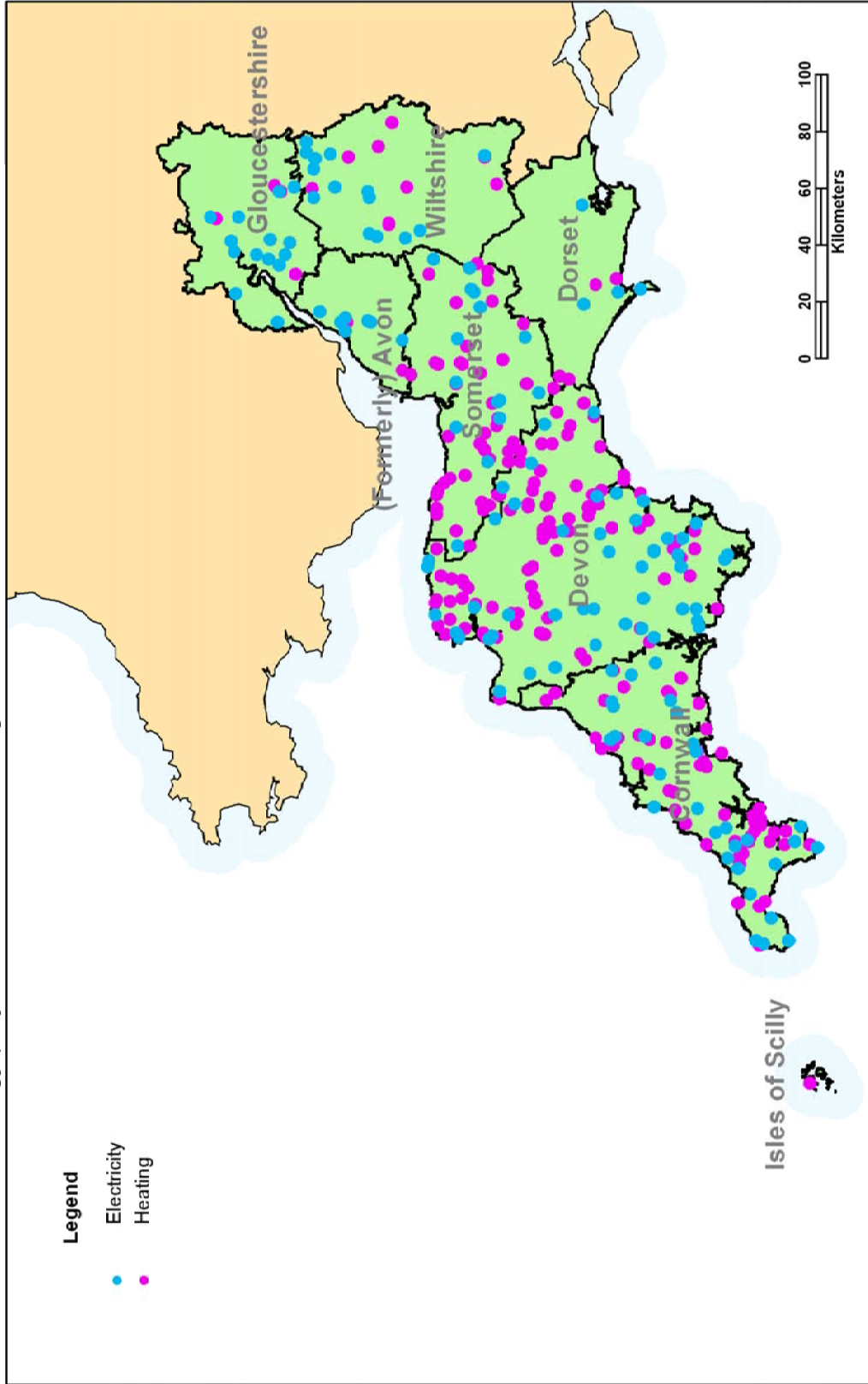
Somerset

- Somerset's installed renewable electricity capacity has actually decreased slightly in the past 12 months and stands at 8.9 MW. This is due to decreases in generating capacity at one of its landfill gas sites. Somerset's schemes generate the equivalent electricity needs of 7,805 homes.
- Somerset does have the potential to significantly increase its installed capacity in 2006, as it has recently approved a 7MW biomass pyrolysis plant and also has 32 MW of other projects currently in the planning system
- Somerset has the third highest green heat capacity of 1.66 MW and has 42 recorded renewable heat schemes.

Wiltshire

- Wiltshire has increased its installed capacity to 9.62 MW generating the equivalent electricity needs of 8,427 homes. Wiltshire has nine electricity schemes with the bulk of its contribution coming from landfill gas and sewage gas. Wiltshire's increase in 2005 was due to changes in landfill gas capacity.
- Wiltshire has 12 renewable heat projects, generating 0.44MW of heat, and its largest contribution for heat is from sewage gas CHP.

Installed renewable energy projects in South West England



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