

2008 SURVEY OF RENEWABLE ELECTRICITY AND HEAT PROJECTS IN SOUTH WEST ENGLAND

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REGIONAL OVERVIEW

Renewable energy

- The south west's installed renewable energy generation has grown by 15 per cent in the last year. Nevertheless the total installed capacity of 190 megawatts (MW) is still very small, and we estimate that only one per cent of the energy consumed in the region as heat and power currently derives from renewable sources.
- Despite this small percentage, the carbon impact of renewable energy generation is significant and results in savings of 477,000 tonnes of carbon dioxide a year. Renewable energy sales in the region also contribute a third of the turnover of the south west renewable energy business sector, which supports 4,000 full time employees in the region.
- We expect renewable output to grow significantly in the next two years as approved wind schemes get built and the renewable heat market begins to mature.
- The long development times for large scale renewable electricity schemes, where it takes a minimum of three years to get a proposal approved, means that this survey largely reflects planning and investment decisions taken in the first half of this decade.
- It is now inevitable that the region will miss its 2010 target of securing 11-15 percent of generating capacity from renewable sources (estimated at 597 MW), although current schemes in the pipeline suggest that the region could get approximately half way towards the target. This increases the pressure on the region to attract and to approve new large-scale renewable electricity schemes as we respond to the UK's new 2020 renewables target.
- The region continues to make steady progress in renewable heat installations, with the majority of the increase coming from the installation of biomass boilers as a replacement for oil fired heating.
- There has been a very rapid increase in micro renewable installations in the south west in the last year, both for electricity and in heat technologies, and installations have more than doubled to 1,100. The increase in micro renewable installations is particularly noticeable in Devon and Cornwall, where local agencies Renewable Energy for Devon (RE4D) and the Cornwall Sustainable Energy Partnership (CSEP) have run support programmes that appear to be making a real impact.
- Unfortunately the small capacity of microgeneration installations means that even the large numbers of installations seen in the last year have a relatively small impact on total renewable energy generated in the region. By way of comparison, the 85 new PV installations fitted during the last year will produce approximately two per cent of the power generated by the new three-turbine wind cluster at Avonmouth.
- The counties that experienced the greatest growth in installed renewable capacity in the last year were Cornwall, the former Avon, and Devon. The counties that experienced the weakest growth were Dorset, Wiltshire and Gloucestershire.





ELECTRICITY SUMMARY

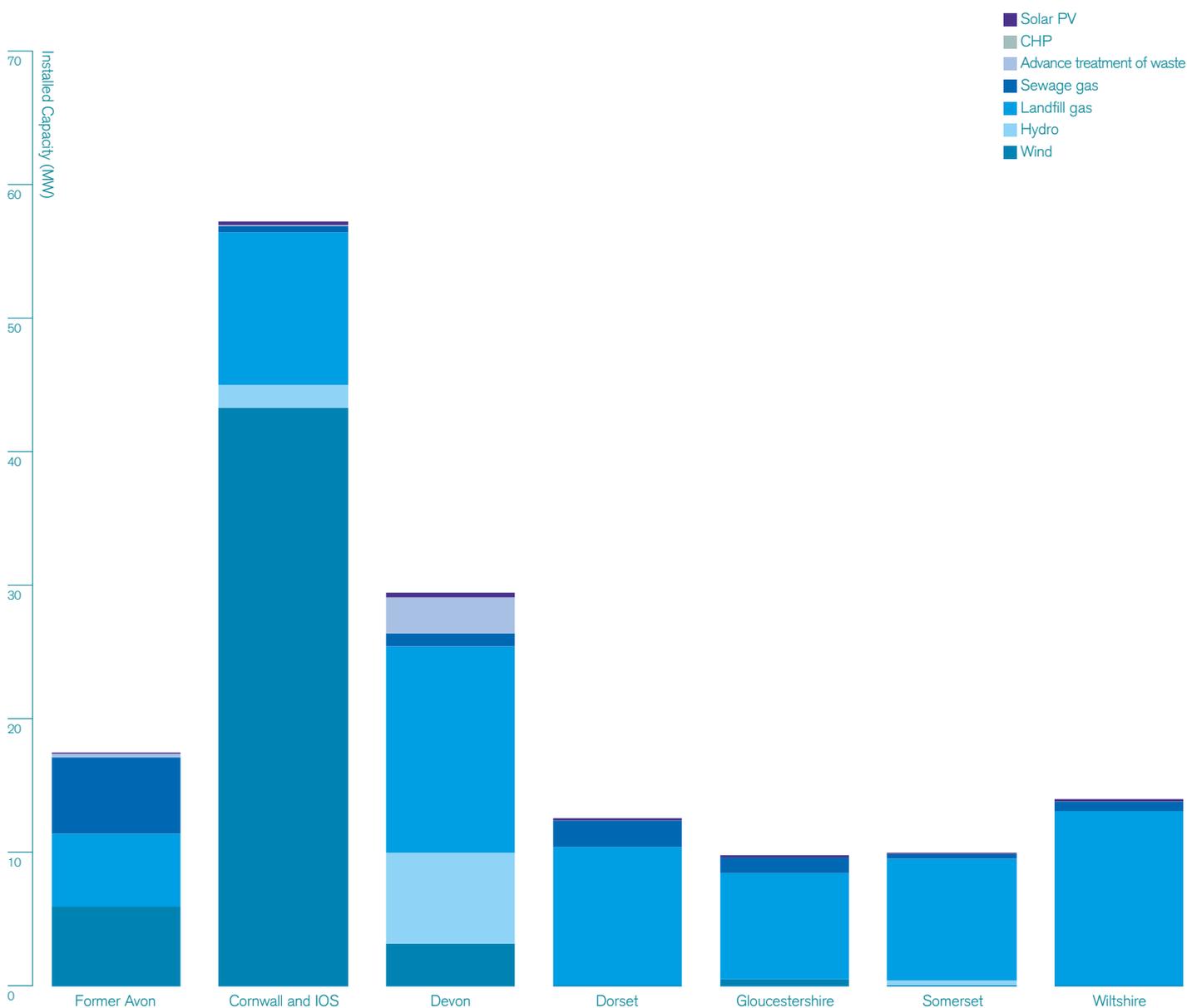
Renewable electricity

- Over the past 12 months, the growth in the capacity of renewable electricity in the south west of England has been slow, with the majority of progress coming from wind energy schemes.
 - The installed capacity for renewable electricity now stands at 151 MW, up 13.9 MW since the last survey. The majority of this increase is due to the installation of a 6 MW wind farm at Avonmouth Docks, a 1.7 MW wind farm at Roskrow Barton in Cornwall (which was initially given planning permission in 2004), and a newly-accredited 1 MW landfill gas site at Studley Grange in Swindon.
 - The survey identified 390 grid-connected renewable electricity projects in the region, which is almost double the amount from the 2007 survey. The majority of these are residential installations of solar photovoltaics.
 - An additional 175 projects have been identified since the last survey was undertaken in April 2007, and at least 60 of these have been installed in the last year*. Other schemes have been identified as a result of better reporting.
 - Landfill gas is still the largest source of renewable power in the region. There are 32 landfill gas schemes making up 48.34 per cent of total installed renewable electricity capacity. Other technologies and their breakdowns include:
 - 107 wind installations (62 of which are small residential installations); 35.3 per cent of total capacity
 - 20 sewage gas installations; 7.56 per cent of total installed capacity
 - 60 small hydro installations; 6.02 per cent of total installed capacity
 - 174 solar PV installations; 0.74 per cent of total installed capacity
 - three advanced treatment of waste installations; 2.04 per cent of total installed capacity
 - two combined heat and power installations; 0.008 per cent of total installed capacity
 - Renewable electricity schemes in the region are now producing enough electricity to power the equivalent of 150,929 homes, avoiding the production of 451,279 tonnes of carbon dioxide a year.
 - The region has approximately 90 MW of projects that have been approved in the last couple of years that are not yet built. These include a 66 MW wind farm that was approved at Fullbrook Down in North Devon in October 2007. The 22-turbine scheme, which should be in operation in 2010, will more than triple the current renewable electricity capacity in Devon and increase the current capacity for the region by over 43 per cent.
 - Cornwall is still the region's leading county in terms of renewable electricity capacity, followed by Devon. Former Avon has shown the largest increase in capacity, rising over 50 per cent from 11.47 to 17.47 as a result of the 6 MW wind farm at Avonmouth.
- a. Energy generated has been estimated using the following capacity factors for different renewable energy technologies: LFG 80%; wind 30%; sewage gas 60%; small hydro 25%; advanced thermal 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.
- * Some installers did not provide an exact date for installations, so the exact number of installations that have taken place in the past 12 months could not be given.

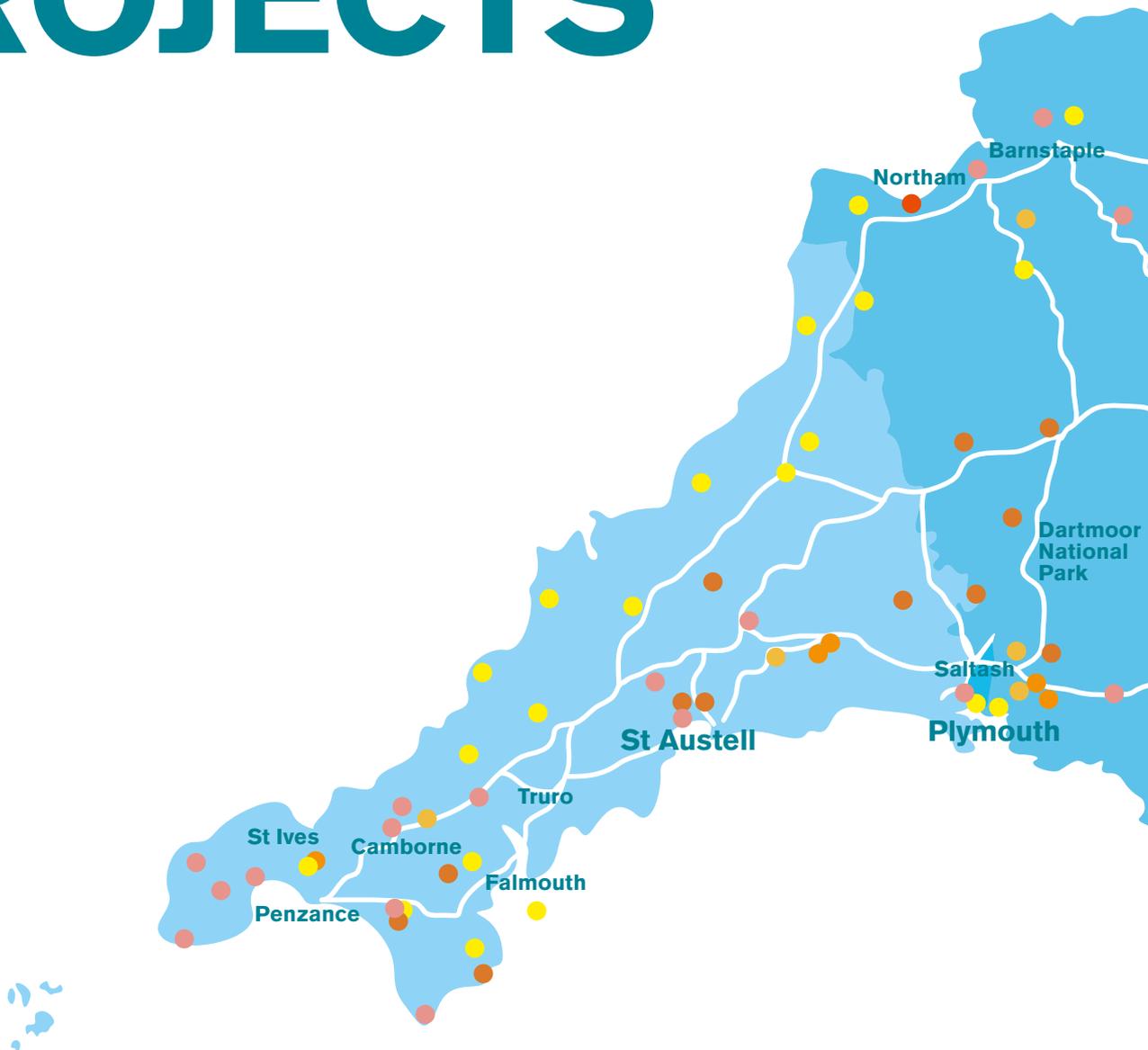
Renewable electricity capacity

County	Number of projects	Wind	Hydro	Landfill Gas	Sewage Gas	Advance treatment of waste	CHP	Solar PV	Installed electricity capacity	% of regional total by county area
Former Avon	14	6.006	0	5.45	5.75	0.225	0.012	0.037	17.479	11.598
Cornwall and IOS	100	43.335	1.731	11.476	0.395	0.143	0	0.205	57.284	38.008
Devon	126	3.202	6.772	15.512	0.99	2.7	0	0.316	29.492	19.568
Dorset	67	0.097	0.026	10.324	1.995	0	0	0.135	12.577	8.345
Gloucestershire	20	0.505	0.025	7.919	1.205	0	0	0.190	9.844	6.531
Somerset	42	0.046	0.442	9.12	0.34	0	0	0.095	10.042	6.663
Wiltshire	21	0.009	0.075	13.049	0.725	0	0	0.141	13.999	9.288
Totals	390	53.199	9.071	72.85	11.4	3.068	0.012	1.119	150.718	
% of total capacity		35.297	6.0185	48.335	7.564	2.036	0.008	0.742	100	

South West England installed renewable Electricity Capacity (MW)



SOUTH WEST RENEWABLE ELECTRICITY PROJECTS



This map does not include domestic installations.



- Onshore wind
- Landfill gas
- Sewage gas
- Small hydro
- Bio-gas
- Solar PV
- Biomass thermal
- Ground-source heat pumps

HEAT SUMMARY

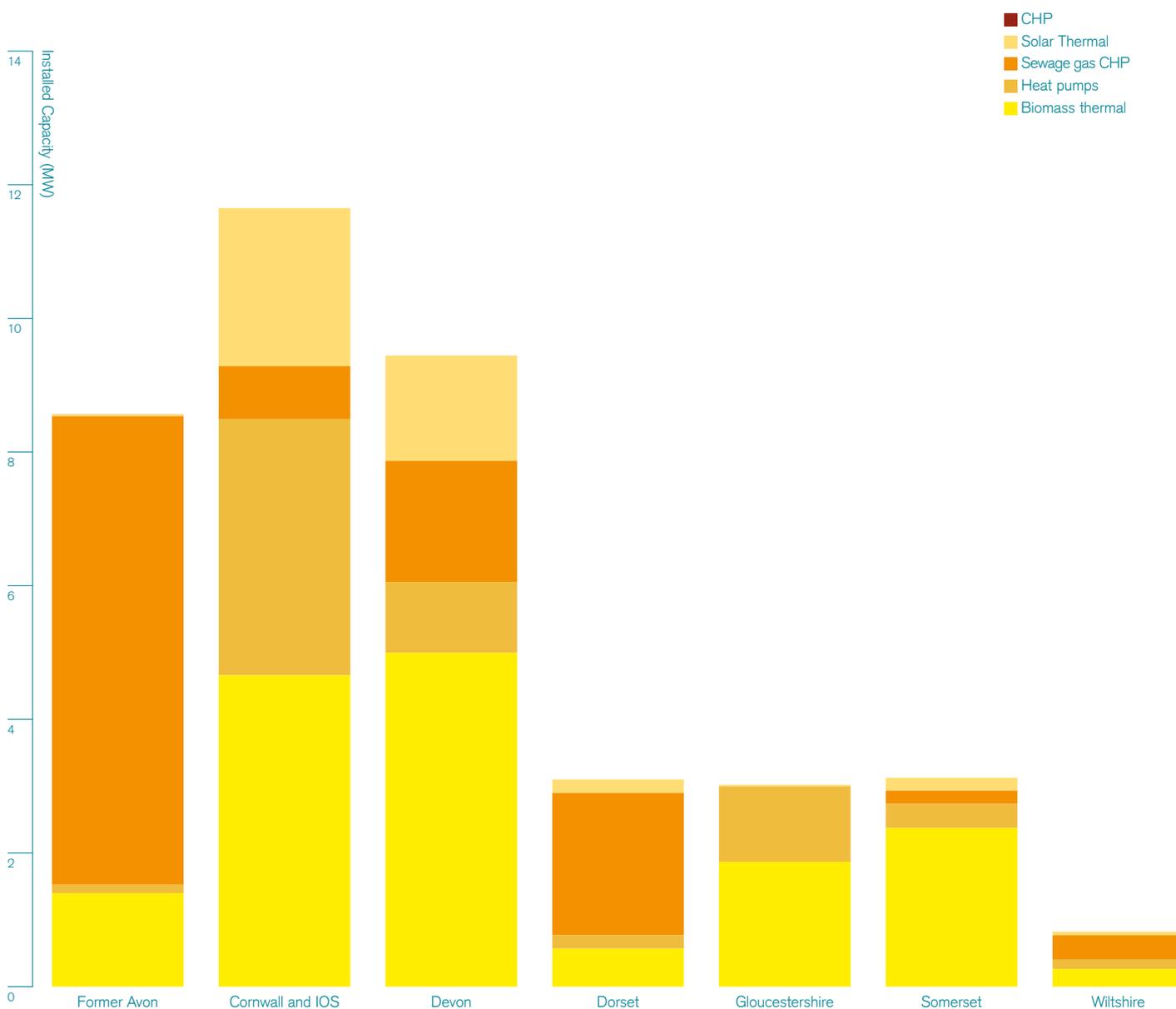
Renewable heat

- The survey identified 968 renewable heat projects in the south west, which is more than double the number of installations recorded in last year's survey. The majority of these are residential installations.
- The installed capacity of these projects is 39.66 MW, which is an increase of 11.81 MW (33.8 per cent) on the 2007 survey.
- Biomass thermal accounts for the majority of the increase, charting an increase in capacity of 60 per cent (6.04 MW) over the previous year. Heat pump capacity has increased by 56 per cent (2.45 MW), and solar thermal capacity has increased by 257 per cent (3.19 MW).
- Unlike the 2007 survey, none of the new renewable heat installations are above one megawatt of capacity.
- Biomass thermal is the strongest performing renewable heat sub-sector, making up 41.7 per cent (16.1 MW) of the region's total installed renewable heat capacity. Other technologies and their breakdowns:
 - Sewage gas CHP makes up 30.99 per cent (12.29 MW) of the region's total installed renewable heat capacity
 - Heat pumps make up 17.288 per cent (6.83 MW) of the region's total installed renewable heat capacity
 - Solar thermal makes up 11.17 per cent (4.43 MW) of the region's total installed renewable heat capacity
- Cornwall has overtaken former Avon as the county with the highest renewable heat capacity, increasing its capacity by over 50 per cent to 11.63 MW. Devon has risen into second place, increasing its renewable heat capacity by over 70 per cent to 9.43 MW.

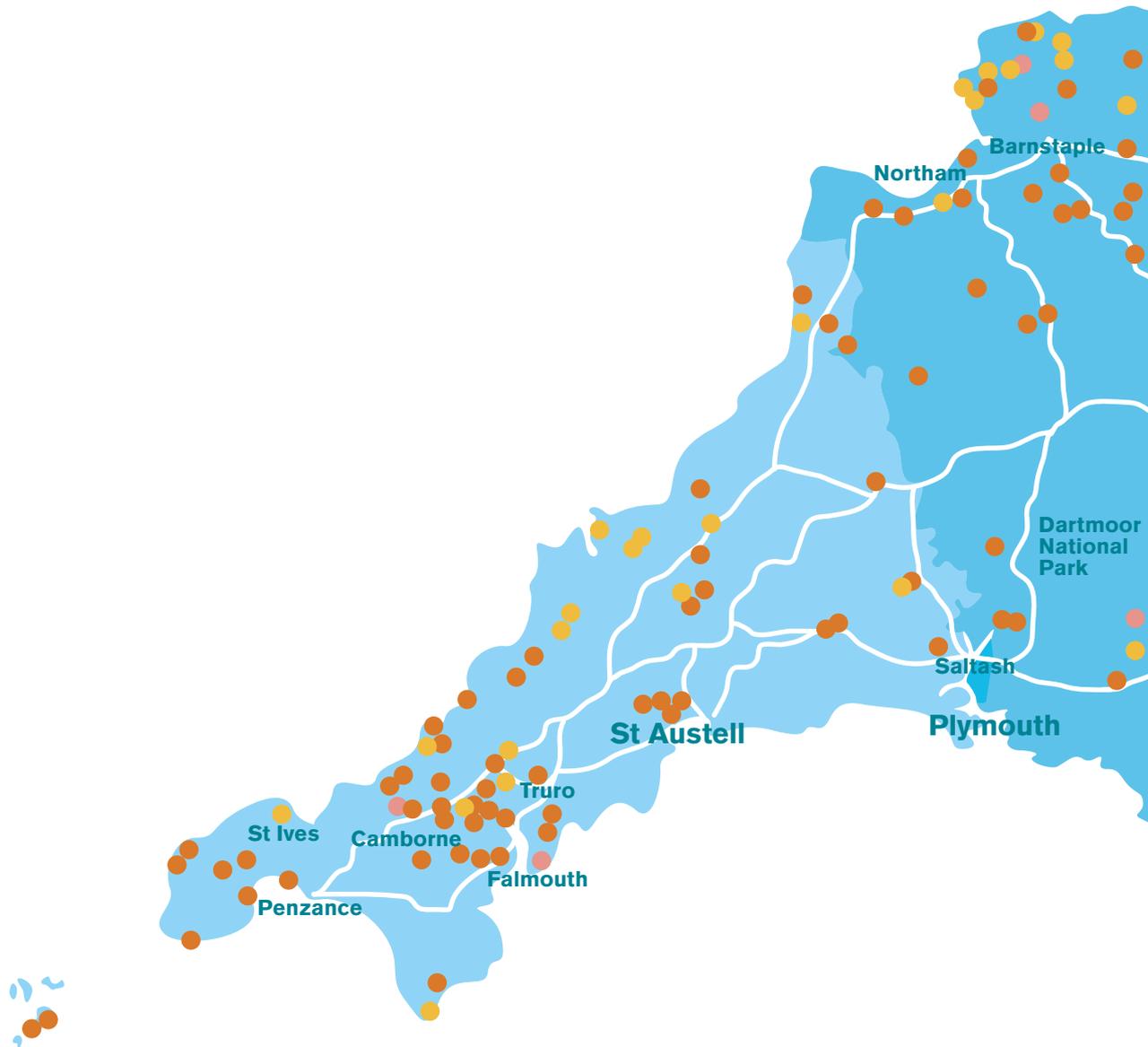
Renewable heat capacity

County	Number of projects	Biomass Thermal	Heat pumps	Sewage gas CHP	Solar thermal	CHP	Installed renewable heat capacity (MW)	% of regional total by county area
Former Avon	21	1.397	0.126	7	0.028	0.003	8.554	21.565
Cornwall and IOS	307	4.653	3.827	0.79	2.361	0	11.632	29.325
Devon	336	4.988	1.052	1.815	1.573	0	9.428	23.77
Dorset	93	0.569	0.205	2.12	0.199	0	3.093	7.799
Gloucestershire	43	1.867	1.125	0	0.023	0	3.015	7.6
Somerset	111	2.37	0.359	0.2	0.192	0	3.121	7.868
Wiltshire	22	0.265	0.14	0.365	0.053	0	0.823	2.074
Totals	968	16.109	6.833	12.29	4.430	0.03	39.665	
% of total capacity		40.612	17.228	30.985	11.167	0.007		

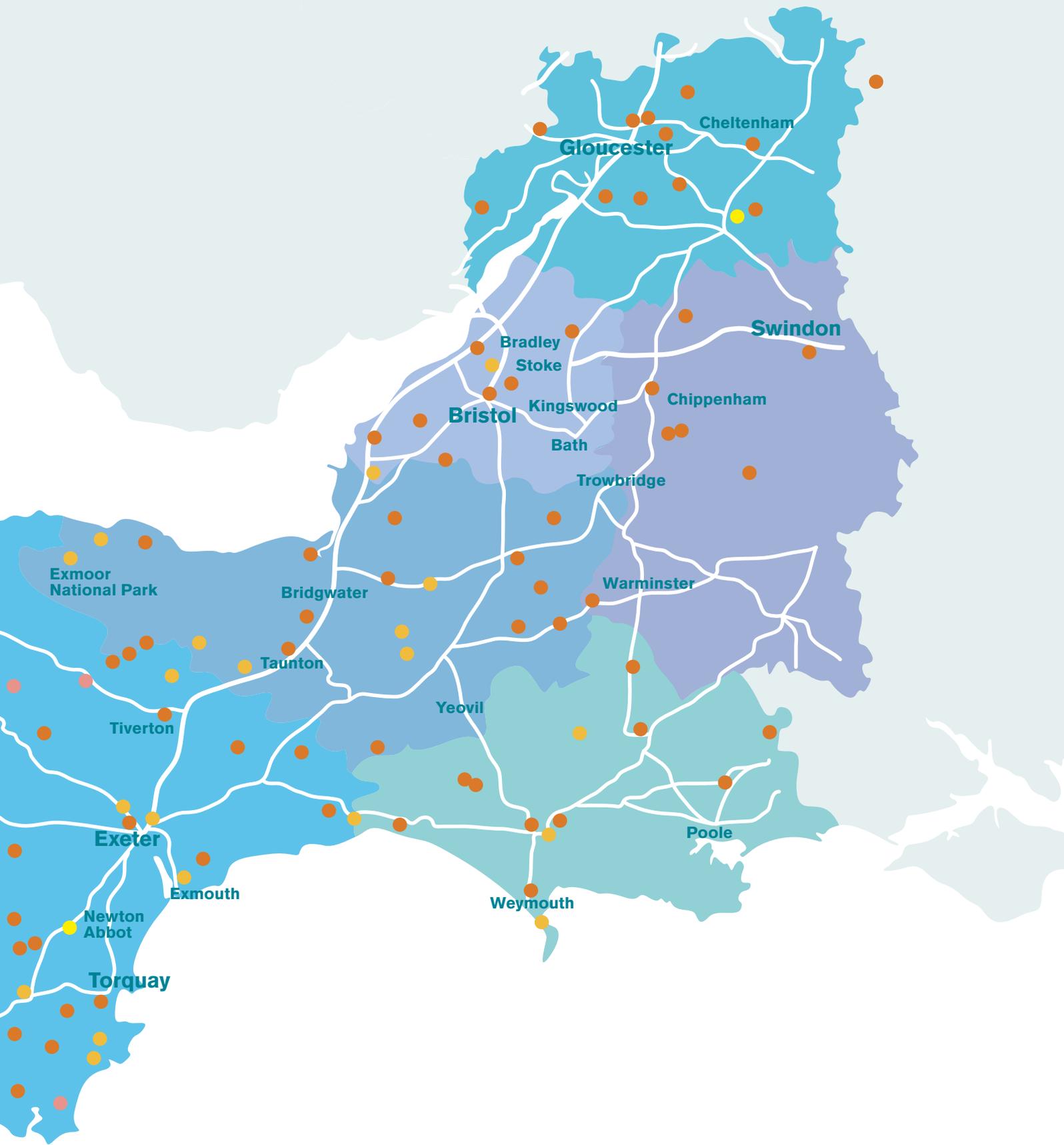
South West England installed renewable Heat Capacity (MW)



SOUTH WEST RENEWABLE HEAT PROJECTS



This map does not include domestic installations.



- Ground-source heat pumps
- Solar thermal
- Biomass thermal
- Air-source heat pump
- Water-source heat pumps





FORMER AVON

Renewable electricity capacity

- The four unitary authorities that make up the former Avon area have increased their installed renewable electricity capacity to 17.48 MW. This is an increase of 52 per cent, the majority of which is attributable to the 6 MW wind farm at Avonmouth Docks.
- Former Avon's renewable electricity schemes now generate the equivalent electricity needs of 17,191 homes.
- Bristol City is the top ranking local authority in former Avon in terms of installed renewable electricity capacity, with over 12 MW and eight projects installed.
- North Somerset and South Gloucestershire districts have recorded no new installations since the 2007 survey.

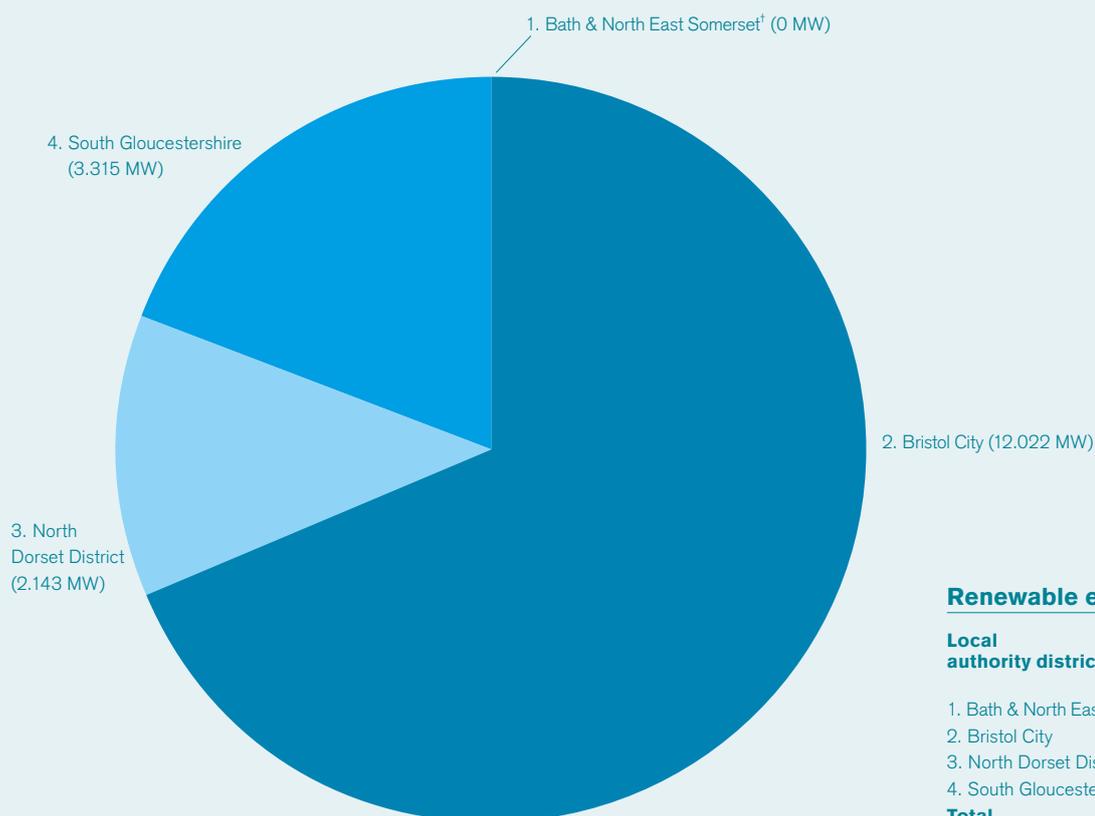
Renewable heat capacity

- Former Avon has the third largest renewable heat capacity in the region, with 8.55 MW. It has slipped from first place in the 2007 survey.
- 7 MW of this capacity is from the combined heat and power site at Avonmouth Sewage Gas treatment works.
- Bristol City remains the highest ranking district, with 8.198 MW of capacity (95.8 per cent of the county's renewable heat capacity).
- The 0.5 MW increase since the 2007 survey is mainly due to small biomass and solar thermal installations.
- This is the first year that Bath and North East Somerset district and South Gloucestershire district have registered in the heat survey. The new capacity in these areas can be attributed to solar thermal installations and ground source heat pumps in residential properties and schools.



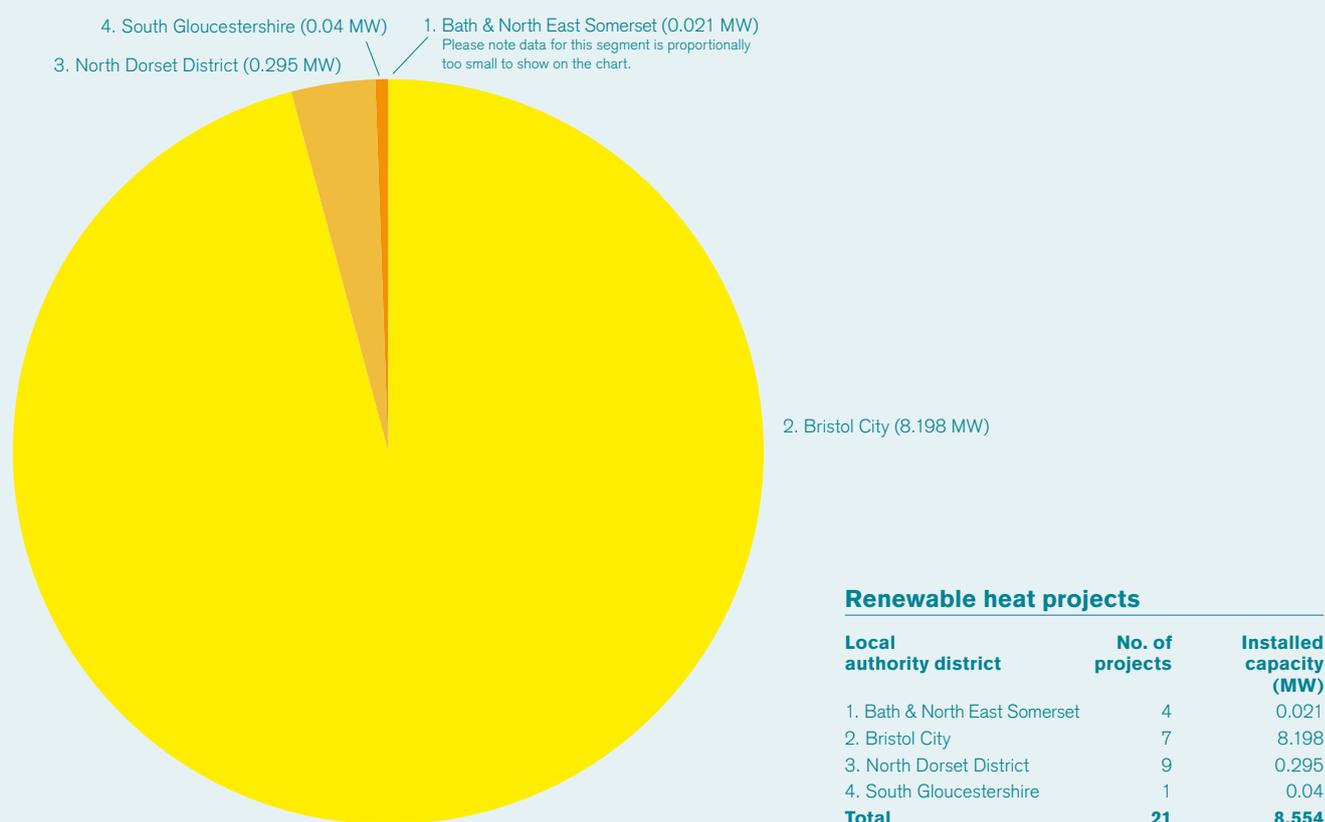
Construction of the 6 MW wind farm at Avonmouth Docks

Total installed capacity of renewable electricity by megawatt for Former Avon



[†]Please note data for this segment is proportionally too small to appear on the chart.

Total installed capacity of renewable heat by megawatt for Former Avon



CORNWALL AND THE ISLES OF SCILLY

Renewable electricity capacity

- Cornwall is still the leading county in the south west of England for installed renewable electricity capacity, with 57.28 MW. This makes up 38 per cent of the region's total installed capacity.
- Cornwall's renewable electricity capacity is enough to power the equivalent of 40,343 homes.
- The large part of Cornwall's additional renewable electricity capacity is due to a newly built 1.7 MW wind farm at Roskrow Barton, in the Carrick district.
- North Cornwall is still the leading district in terms of its installed renewable electricity capacity, with 45 per cent of the county's provision, followed by Kerrier and Carrick. Both of these local authorities have over 12 MW of installed capacity.

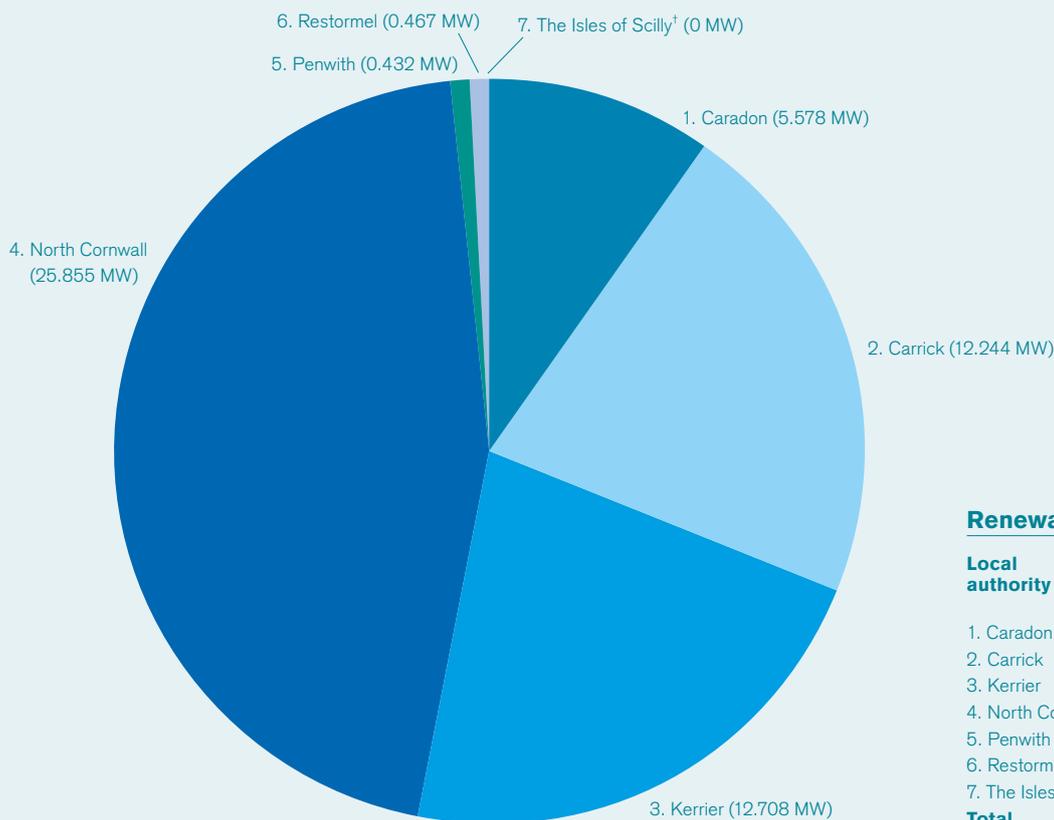
Renewable heat capacity

- Cornwall is leading the region in terms of renewable heat, with almost 30 per cent of the region's capacity.
- It has increased its capacity by 55 per cent to 11.63 MW, and almost doubled the amount of projects on the ground to 307. The majority of these projects are ground source heat pump and solar thermal installations.
- Caradon is still the leading district in Cornwall, with 3.34 MW of capacity. Carrick follows closely behind, after tripling its capacity since the last survey to 3.1 MW, most of which are attributable to residential installations of ground source heat pumps and solar thermal technology.



South Wheatley Renewable Energy Trust's community-owned wind project

Total installed capacity of renewable electricity by megawatt for Cornwall and the Isles of Scilly

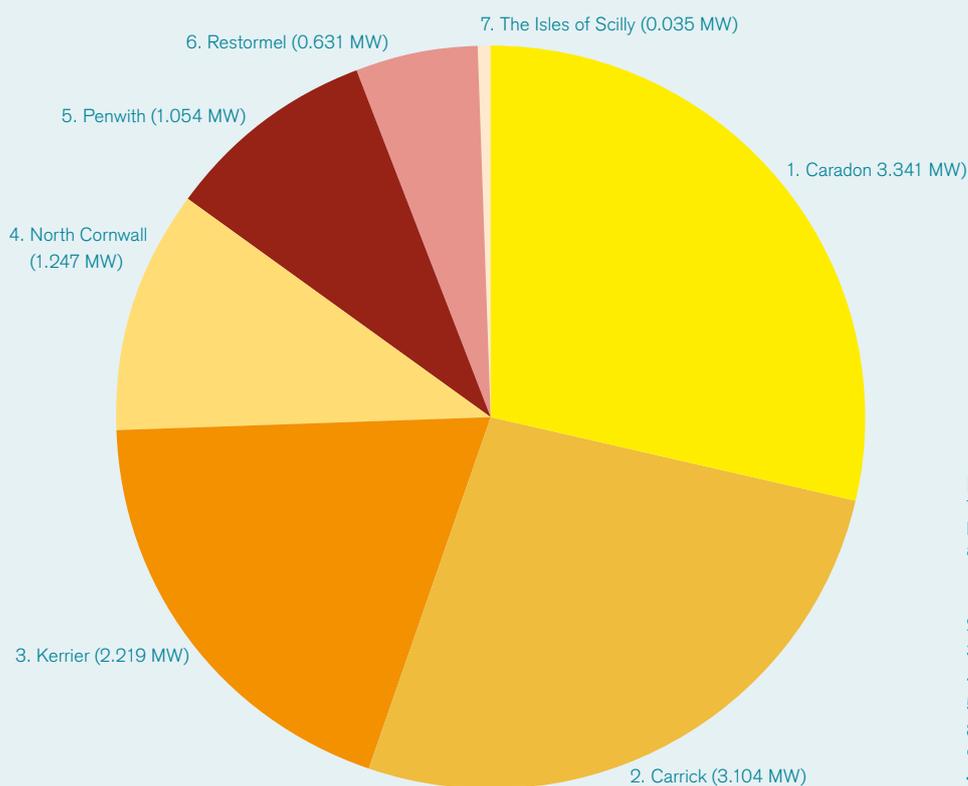


Renewable electricity projects

Local authority district	No. of projects	Installed capacity (MW)
1. Caradon	12	5.578
2. Carrick	9	12.244
3. Kerrier	24	12.708
4. North Cornwall	23	25.855
5. Penwith	24	0.432
6. Restormel	8	0.467
7. The Isles of Scilly	0	0
Total	100	57.284

†Please note data for this segment is proportionally too small to appear on the chart.

Total installed capacity of renewable heat by megawatt for Cornwall and the Isles of Scilly



Renewable heat projects

Local authority district	No. of projects	Installed capacity (MW)
1. Caradon	26	3.341
2. Carrick	92	3.104
3. Kerrier	56	2.219
4. North Cornwall	68	1.247
5. Penwith	34	1.054
8. Restormel	29	0.631
7. The Isles of Scilly	2	0.035
Total	307	11.631

DEVON

Renewable electricity capacity

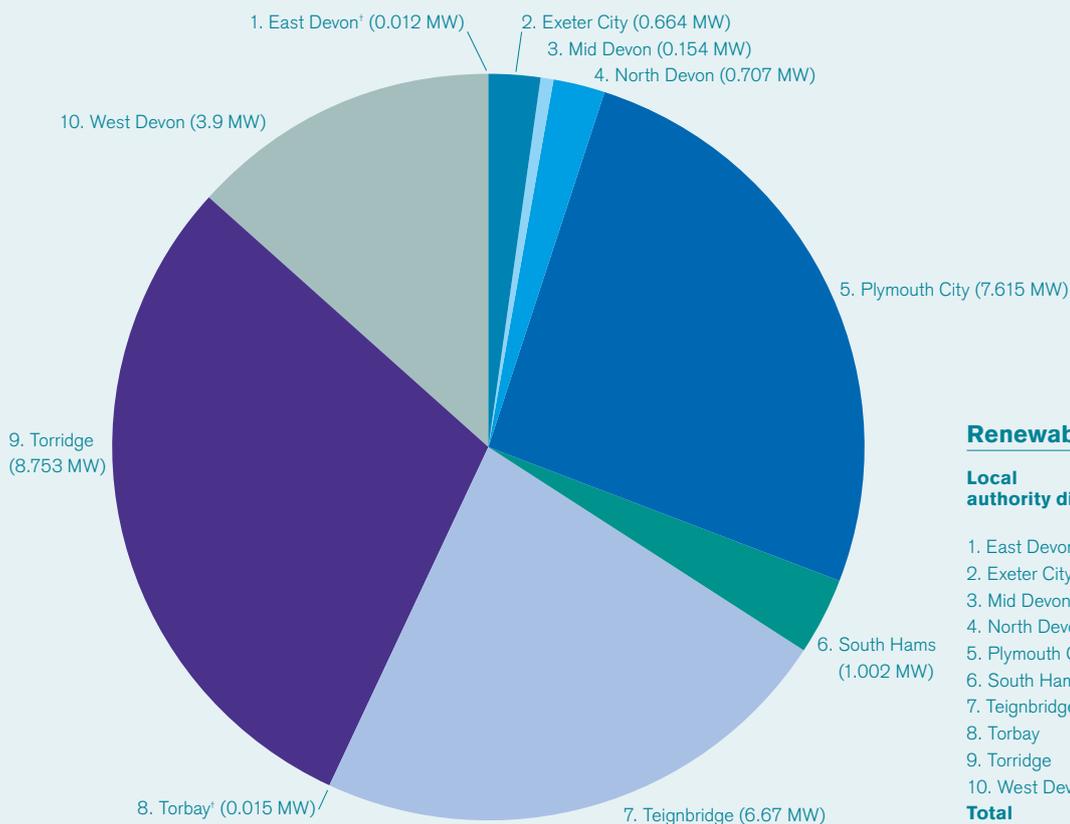
- Devon has the second highest installed capacity in the region, with 29.49 MW. This is an increase of just 0.56 MW on the 2007 survey and accounts for 19.56 per cent of the region's total capacity.
- The county's renewable electricity capacity generates enough electricity to power the equivalent of 31,381 homes.
- It has the largest number of renewable electricity projects in the region at 126. This number is an increase of 85 per cent since the 2007 survey, but the majority of these additional projects are small residential installations.
- Devon still has a number of wind schemes approved but not yet built, including a 66 MW wind farm at Fullabrook – the largest in the region. When built it will provide enough electricity to power the equivalent of almost 58,000 homes, and take Devon's renewable electricity capacity to almost 100 MW.
- Torridge is the highest ranking area in Devon with 8.75 MW of renewable electricity capacity, up 1.03 MW on the previous year's survey.

Renewable heat capacity

- Devon has the highest number of renewable heat installations in the region at 336, and the second highest renewable heat capacity at 9.43 MW. The increased capacity is a 71 per cent increase on the 2007 survey, most of which is from smaller residential installations.
- Mid Devon continues to be the best performing district in the county with 1.88 MW of renewable heat capacity, followed by Exeter City at 1.39 MW.
- South Hams is the third highest performing district, increasing its capacity by over 350 per cent to 1.28 MW since the 2007 survey.
- The area with the highest number of renewable heat installations in Devon is North Devon with 72 separate projects, averaging just over 15 kW each.



Total installed capacity of renewable electricity by megawatt for Devon

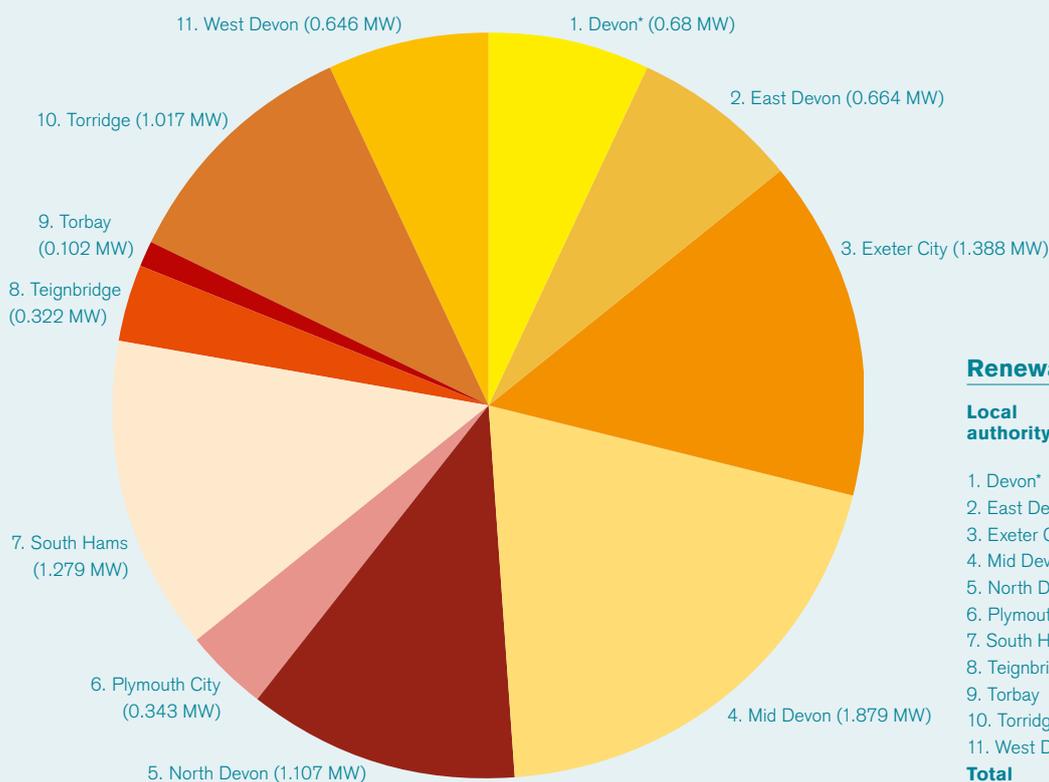


Renewable electricity projects

Local authority district	No. of projects	Installed capacity (MW)
1. East Devon	3	0.012
2. Exeter City	3	0.664
3. Mid Devon	12	0.154
4. North Devon	15	0.707
5. Plymouth City	9	7.615
6. South Hams	32	1.002
7. Teignbridge	15	6.67
8. Torbay	5	0.015
9. Torridge	18	8.753
10. West Devon	14	3.9
Total	126	29.492

*Please note data for this segment is proportionally too small to appear on the chart.

Total installed capacity of renewable heat by megawatt for Devon



Renewable heat projects

Local authority district	No. of projects	Installed capacity (MW)
1. Devon*	1	0.68
2. East Devon	33	0.664
3. Exeter City	12	1.388
4. Mid Devon	53	1.879
5. North Devon	72	1.107
6. Plymouth City	4	0.343
7. South Hams	47	1.279
8. Teignbridge	17	0.322
9. Torbay	3	0.102
10. Torridge	62	1.017
11. West Devon	32	0.646
Total	336	9.427

*Devon County Council supplied details of 0.68 MW of small individual solar thermal schemes, but no specific addresses or local authorities were specified.

DORSET

Renewable electricity capacity

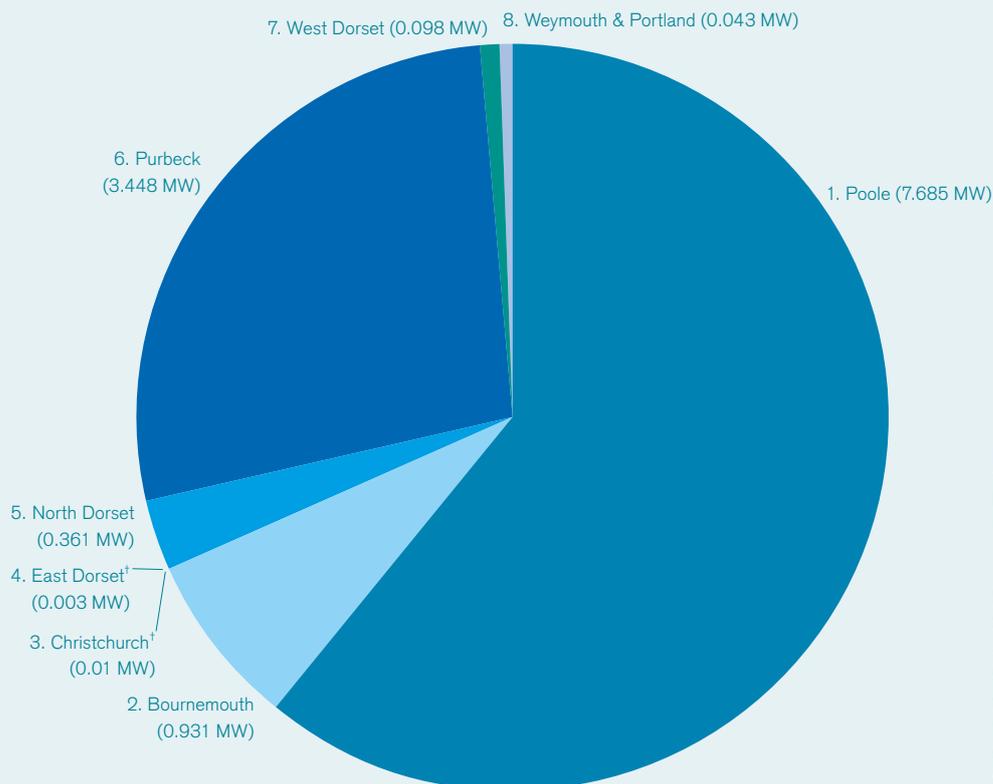
- Dorset has renewable electricity capacity of 12.58 MW, which is an increase of 0.52 MW on the 2007 survey. This capacity is 8.34 per cent of the total renewable electricity capacity for the region.
- This is enough electricity to power the equivalent of 16,701 homes.
- Most of Dorset's renewable electricity capacity comes from landfill gas and sewage gas, but the majority of the increase since the 2007 survey is from micro generation installations, particularly solar PV and micro wind.
- The Borough of Poole is the leading area in Dorset, with 7.69 MW of renewable electricity capacity. However, it has only had three additional renewable electricity installations since the 2007 survey.
- West Dorset District has the highest number of installations, increasing from two to 28 since the 2007 survey, but these still only account for 0.098 MW of capacity.

Renewable heat capacity

- The number of renewable heat projects in Dorset has increased by over 1,000 per cent in the past 12 months, from eight to 93, and the total renewable heat capacity has risen by almost 50 per cent to 3.019 MW.
- Dorset is the fifth best performing county in terms of renewable heat capacity.
- Bournemouth Borough Council is still the best performing local authority in this area, but West Dorset is the most improved, increasing its number of installations from 20 to 25 and increasing its capacity by almost 0.5 MW to 0.533 MW. The majority of these increases are from commercial and residential biomass installations.



Total installed capacity of renewable electricity by megawatt for Dorset

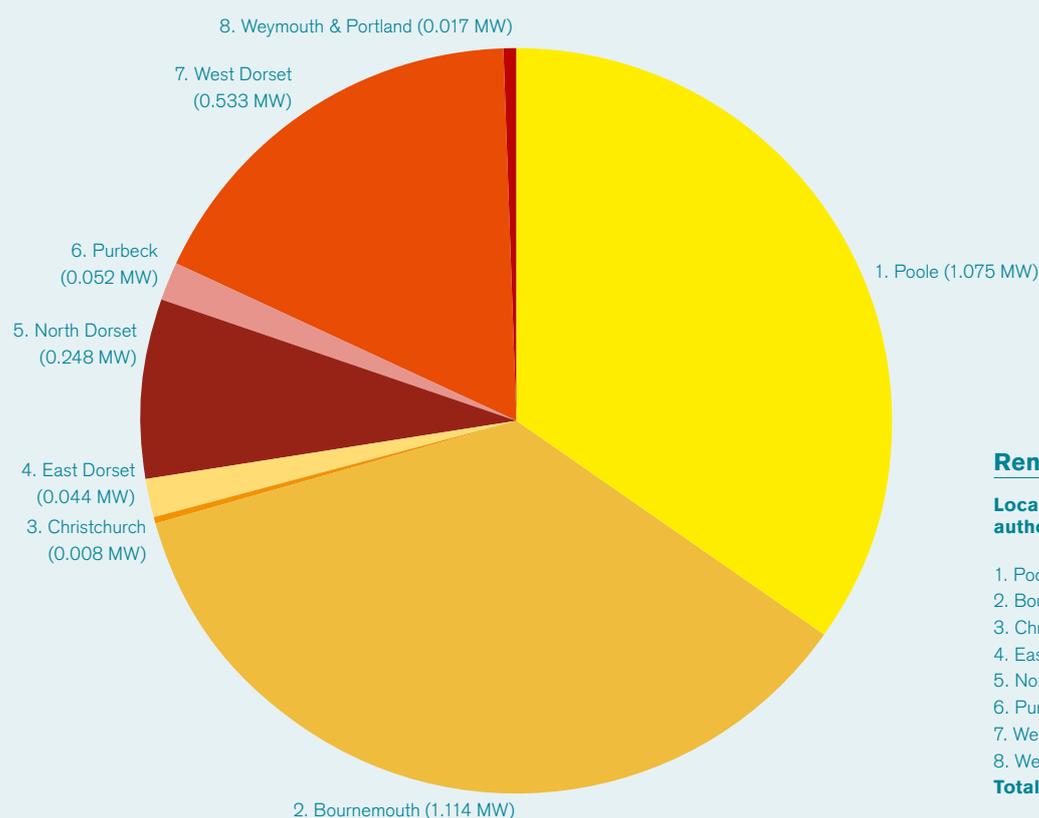


Renewable electricity projects

Local authority district	No. of projects	Installed capacity (MW)
1. Poole	5	7.685
2. Bournemouth	8	0.931
3. Christchurch	5	0.01
4. East Dorset	3	0.003
5. North Dorset	5	0.361
6. Purbeck	7	3.448
7. West Dorset	28	0.098
8. Weymouth & Portland	6	0.043
Total	67	12.579

[†]Please note data for this segment is proportionally too small to appear on the chart.

Total installed capacity of renewable heat by megawatt for Dorset



Renewable heat projects

Local authority district	No. of projects	Installed capacity (MW)
1. Poole	13	1.075
2. Bournemouth	8	1.114
3. Christchurch	3	0.008
4. East Dorset	15	0.044
5. North Dorset	17	0.248
6. Purbeck	6	0.05
7. West Dorset	25	0.533
8. Weymouth & Portland	6	0.017
Total	93	3.091

GLOUCESTERSHIRE

Renewable electricity capacity

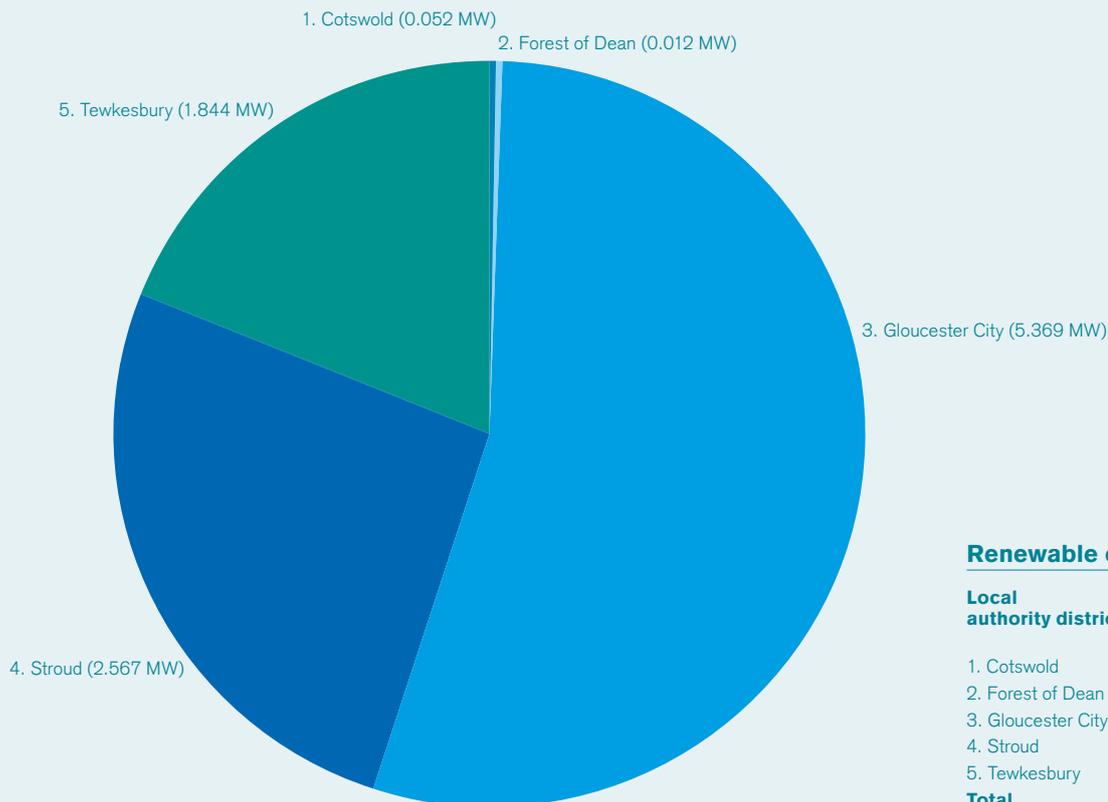
- Gloucestershire's renewable electricity capacity has barely changed since the previous survey and now stands at 9.84 MW. This is enough to power the equivalent of 17,742 homes.
- The majority of Gloucestershire's renewable energy capacity (almost 9.2 MW) comes from three landfill gas sites and three sewage gas sites.
- The number of renewable electricity projects on the ground has only increased by one. It now stands at 20 installations.
- Gloucester City remains the top performing district at 5.37 MW, mainly due to the 4.7 MW Hempsted landfill gas site in Gloucester, though it has recorded no new renewable electricity installations since the 2007 survey.

Renewable heat capacity

- The number of renewable heat projects in Gloucestershire has more than tripled since the 2007 survey, from 14 to 43, and the total heat capacity for the county has more than doubled to 3.02 MW.
- The majority of this increase is due to two biomass installations in the Stroud area – a 0.5 MW scheme at Archway School at Pagan Hill, and a 0.4 MW scheme at Cotswold Chine School in Box Village.
- These schemes have also taken the Stroud district from being the lowest performing Gloucestershire area in the 2007 survey to the highest performing in the 2008 survey.



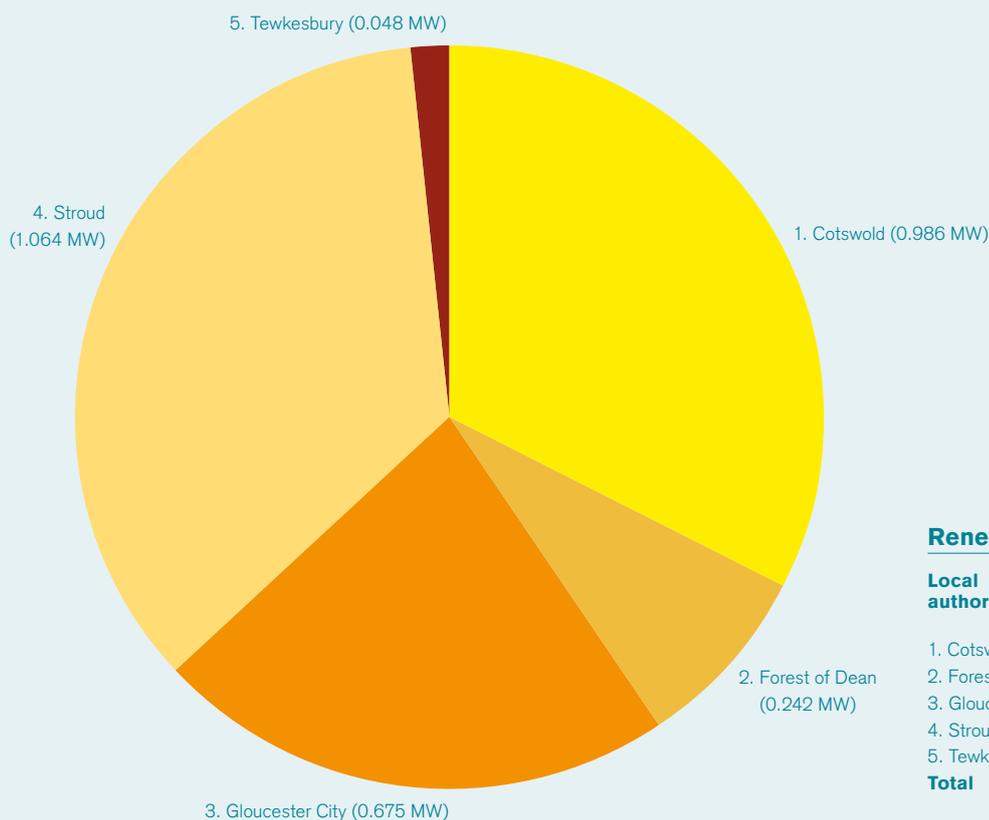
Total installed capacity of renewable electricity by megawatt for Gloucestershire



Renewable electricity projects

Local authority district	No. of projects	Installed capacity (MW)
1. Cotswold	2	0.052
2. Forest of Dean	3	0.012
3. Gloucester City	4	5,369
4. Stroud	10	2,567
5. Tewkesbury	1	1,844
Total	20	9,844

Total installed capacity of renewable heat by megawatt for Gloucestershire



Renewable heat projects

Local authority district	No. of projects	Installed capacity (MW)
1. Cotswold	8	0.986
2. Forest of Dean	4	0.242
3. Gloucester City	4	0.675
4. Stroud	22	1,064
5. Tewkesbury	5	0.048
Total	43	3,015

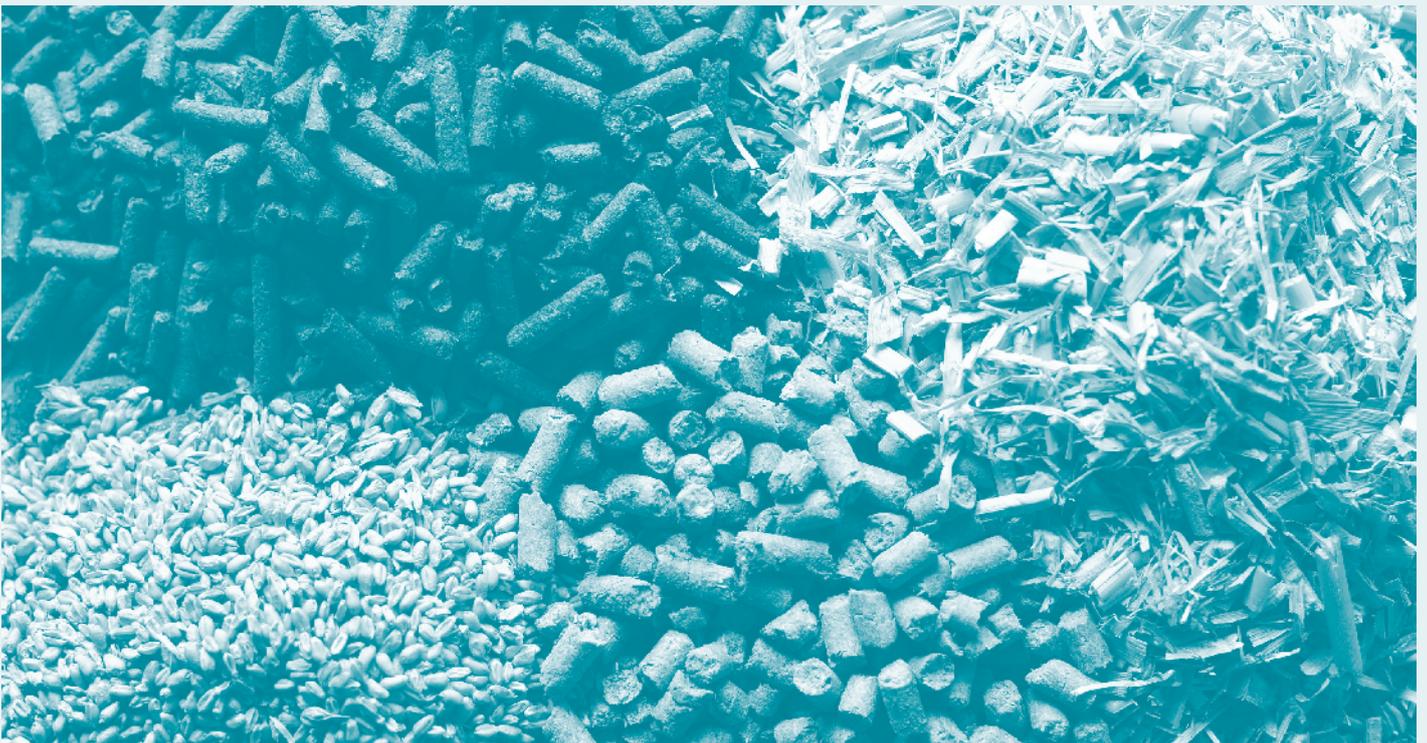
SOMERSET

Renewable electricity capacity

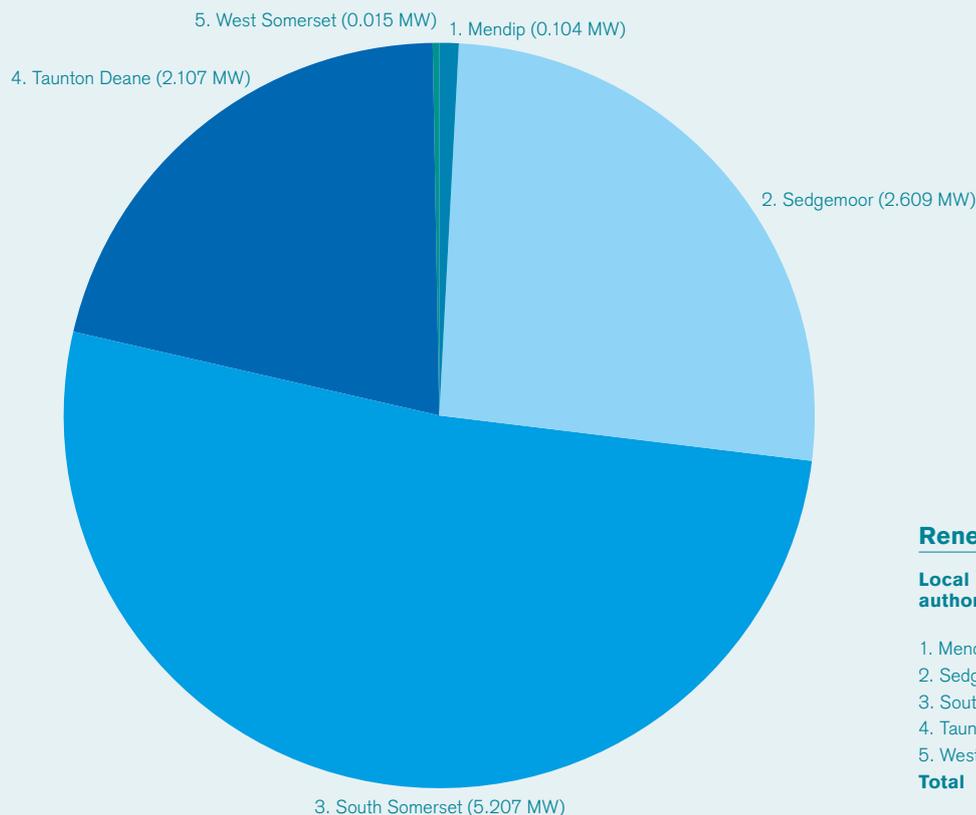
- Somerset has 10.04 MW of renewable electricity capacity.
- This is enough capacity to power the equivalent of 13,407 homes.
- The number of schemes in Somerset has almost doubled since the 2007 survey, from 23 to 42.
- Soon after the deadline for 2008 survey information, building started at a 2 MW wind farm at Shooters Bottom. This will take Somerset's total electricity capacity to over 12 MW.
- South Somerset is still the best performing local authority in terms of renewable electricity capacity, though it has only slightly increased its capacity since the 2007 survey.
- The majority of the county's increases in this survey have come from Taunton Deane, which has increased its number of installations from 6 to 13, and its capacity by over 38 per cent to 2.11 MW. The majority of this capacity increase has come from new landfill gas figures at the Poole generation plant in Wellington.

Renewable heat capacity

- Somerset has 3.12 MW of renewable heat capacity, which is 7.87 per cent of the region's total capacity, and ranks it as the fourth highest county.
- It has 111 renewable heat installations – a 95 per cent increase on the 2007 survey.
- Mendip is the highest performing county with 0.951 MW of capacity, the majority of which has come from new biomass installations.



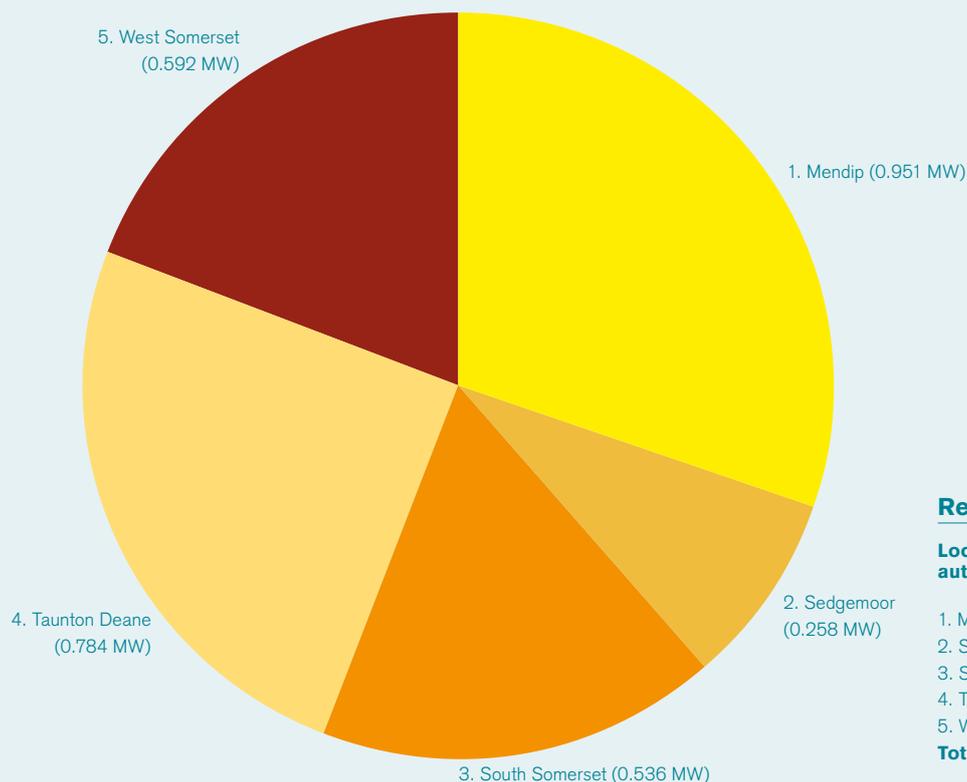
Total installed capacity of renewable electricity by megawatt for Somerset



Renewable electricity projects

Local authority district	No. of projects	Installed capacity (MW)
1. Mendip	9	0.104
2. Sedgemoor	9	2.609
3. South Somerset	9	5.207
4. Taunton Deane	13	2.107
5. West Somerset	2	0.015
Total	42	10.042

Total installed capacity of renewable heat by megawatt for Somerset



Renewable heat projects

Local authority district	No. of projects	Installed capacity (MW)
1. Mendip	14	0.951
2. Sedgemoor	19	0.258
3. South Somerset	20	0.536
4. Taunton Deane	30	0.784
5. West Somerset	28	0.592
Total	111	3.121

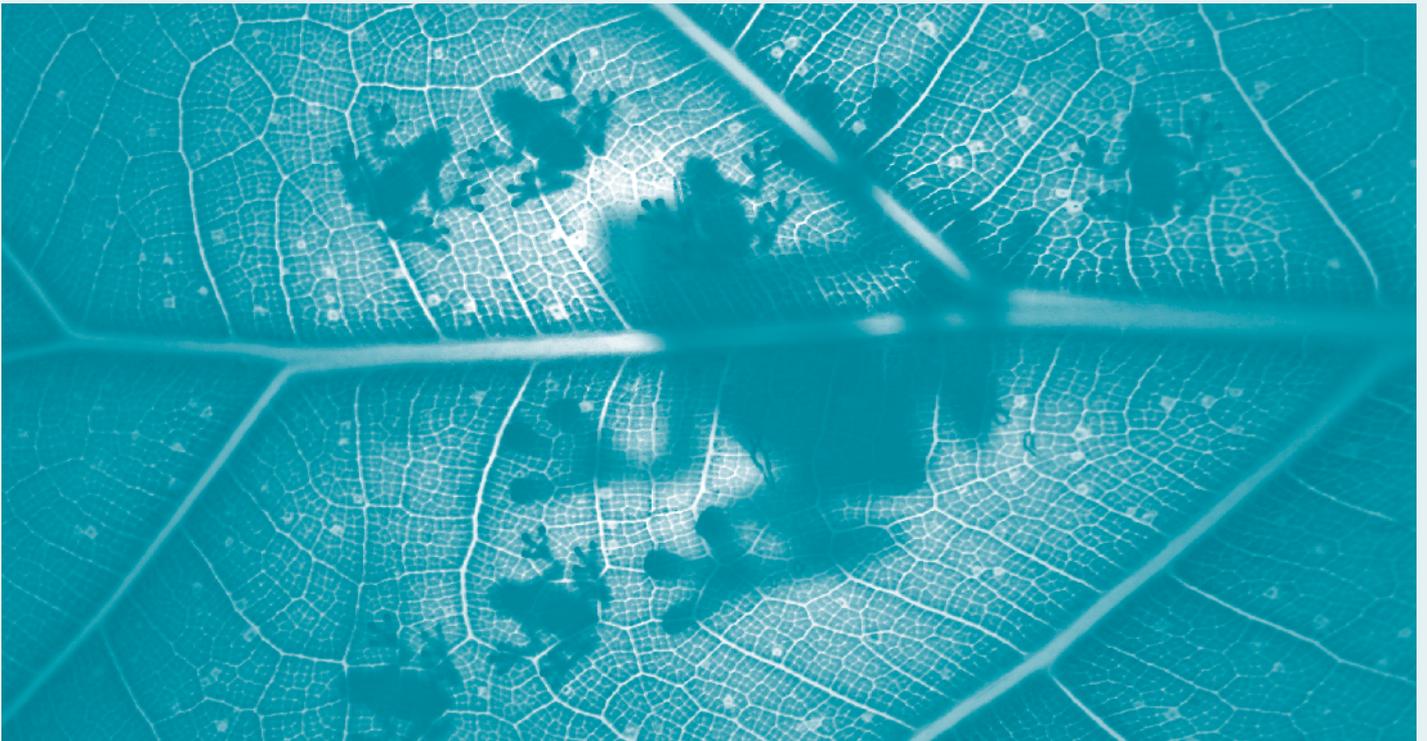
WILTSHIRE

Renewable electricity capacity

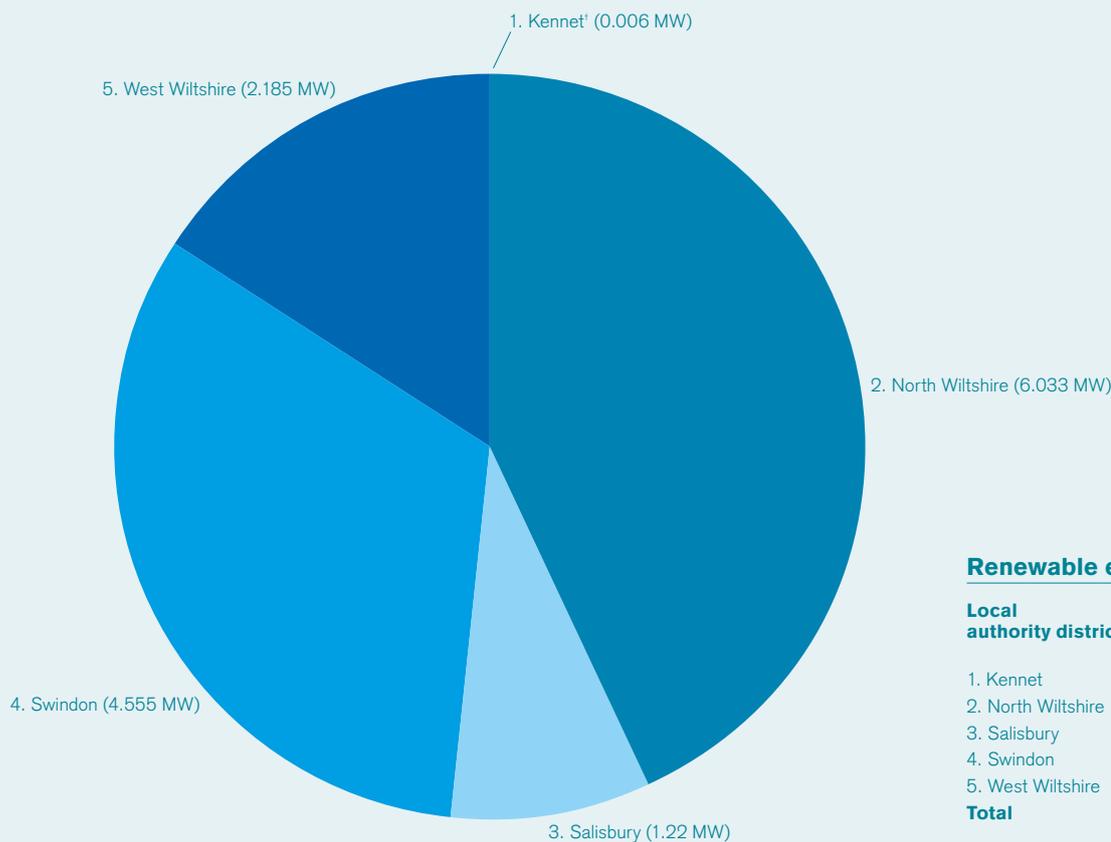
- Wiltshire has 14 MW of renewable electricity capacity, which is enough to power the equivalent of 19,163 homes. This is a 13.65 per cent increase on the 2007 survey.
- 13 MW of Wiltshire's renewable energy capacity comes from landfill gas schemes, and 0.45 MW is from a sewage gas scheme.
- It has 21 renewable electricity projects, which is an increase of two from the previous year's survey.
- North Wiltshire is still the leading district in terms of renewable electricity, but its capacity has reduced, due to lower landfill gas figures reported by Ofgem.

Renewable heat capacity

- Wiltshire is the lowest performing county in the south west of England in terms of renewable heat, with only 0.82 MW of capacity. This is just 2.07 per cent of the region's total capacity and a 5.5 per cent increase on the 2007 survey.
- Salisbury is still the highest performing local authority in the county, with 0.37 MW and six installations. The majority of this comes from its two sewage gas CHP sites.



Total installed capacity of renewable electricity by megawatt for Wiltshire

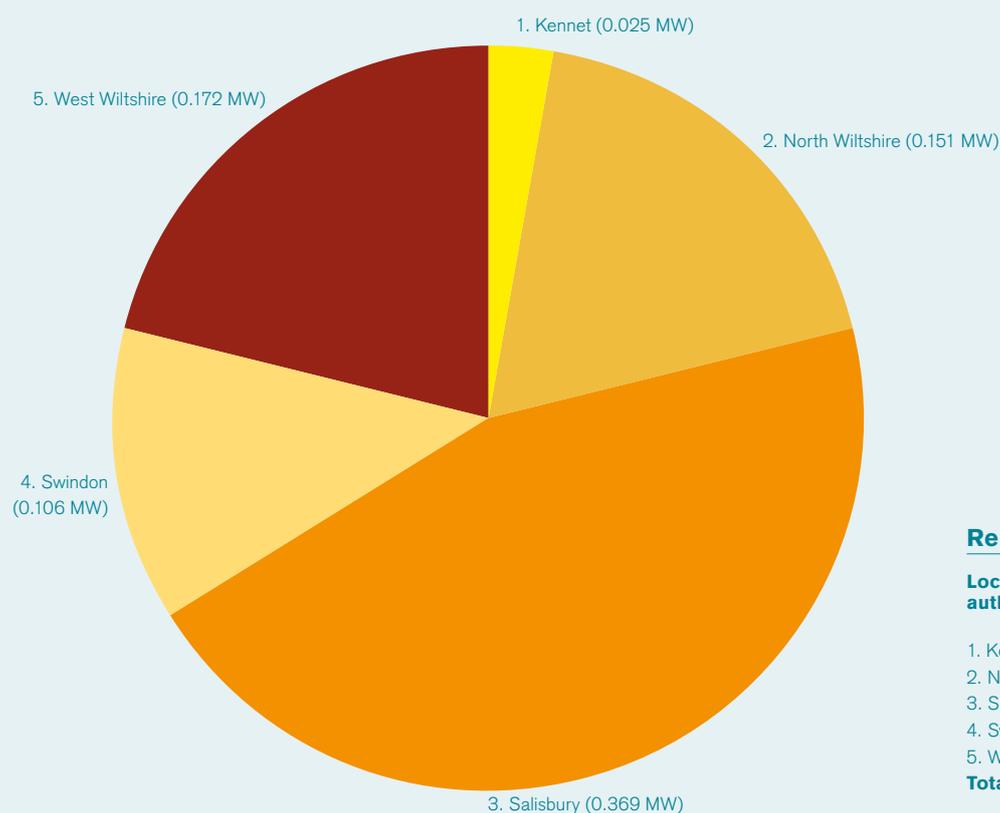


Renewable electricity projects

Local authority district	No. of projects	Installed capacity (MW)
1. Kennet	1	0.006
2. North Wiltshire	8	6.033
3. Salisbury	3	1.22
4. Swindon	7	4.555
5. West Wiltshire	2	2.185
Total	21	13.999

†Please note data for this segment is proportionally too small to appear on the chart.

Total installed capacity of renewable heat by megawatt for Wiltshire



Renewable heat projects

Local authority district	No. of projects	Installed capacity (MW)
1. Kennet	3	0.025
2. North Wiltshire	5	0.151
3. Salisbury	6	0.369
4. Swindon	4	0.106
5. West Wiltshire	4	0.172
Total	22	0.823





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