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Regen SW passionately believes renewable energy and energy efficiency have a vital role at the heart of a prosperous and sustainable society.

We are an independent not for profit working with industry, communities and the public sector to overcome barriers to the development of renewables and energy efficiency, create local jobs and benefit local communities.

To find out more about our work and join us visit www.regensw.co.uk

Foreword

A local success story

Renewable energy in the south west of England is a success story and 2013/14 was another year of rapid growth. We now generate 8.3 per cent of our electricity from renewables, the equivalent of 627,966 houses or just over a quarter of south west homes. The largest source of renewable energy is now large scale solar projects, which have seen a record year.

The south west leads the way in small and community scale renewables and renewable heat. Our natural resources, partnership working to overcome barriers and excellent supply chain has helped us deliver 21 per cent of the government’s Feed-in Tariff, more than any other UK region, and 14 per cent of the Renewable Heat Incentive, second only to Scotland.

Renewables are creating investment, jobs and local benefits

The sustained growth in renewable energy has created a workforce of 10,000 skilled direct jobs – a similar number to last year as the industry reaches a degree of maturity. We also have detailed data for the first time showing 16,000 jobs in the construction sector are engaged in bringing our leaky houses up to modern standards of energy efficiency.

A key trend this year has been the development of a community led movement to ensure more of the benefit of renewables stays in the local economy, which we believe is central to the future of the sector. Regen’s community support network now works with over 200 community energy groups.

Still a long way to go

Despite strong growth, we are not yet on track to deliver our share of the national 2020 target for 15 per cent of our energy to come from renewables.

To meet this target we will need all renewable technologies and a mix of large and smaller scale projects. The decision of RWE to pull out of our largest project, the Atlantic Array offshore wind farm, was a significant blow and makes the Navitus Bay project even more important.

Failing to meet the 15 per cent target means missing out on an opportunity for the south west to take a leading role in the renewable energy revolution – we think that meeting the target could deliver 34,000 jobs.

Key factors for success

The foundation stone for renewables is a clear and consistent government policy framework. However, there is much more we can do locally to:

- tackle barriers, such as the capacity of our electricity grid and ensuring clear planning rules
- support local businesses to develop expertise to deliver renewables projects locally nationally and internationally
- put local communities at the heart of all new projects

With 70 per cent of all investment in energy globally predicted to be in renewables, our success in this market is critical to our economy. Regen SW is dedicated to leading a sustainable energy revolution that delivers for people and communities.

Merlin Hyman
Regen SW chief executive
Renewable energy capacity in the south west totalled nearly 1.5 GW in 2013/14, with 1.2 GW of renewable electricity and 290 MW of renewable heat. 317 MW of renewable electricity and 89.1 MW of renewable heat were installed in 2013/14. Nearly 93,000 renewable projects have been installed, with nearly 14,500 of those installed in the last year.

Renewable electricity

- Total capacity: 1,185 MW
- Capacity increase in 2013/14: 317 MW
- Total projects: 80,374
- New projects in 2013/14: 12,589
- Total generation: 2,009 GWh
- New projects in 2013/14: 11,599
- Total capacity: 1,185 MW
- Capacity increase in 2013/14: 317 MW
- Total capacity: 290 MW
- New projects in 2013/4: 2,858
- Total renewable heat produced: 891 GWh
- Equivalent south west homes heat demand met through renewables: 2 per cent

Renewable heat

- Total capacity: 92,963
- Total projects: 80,374
- Total generation: 2,009 GWh
- Number of projects: 390
- Total capacity: 290 MW
- New projects in 2013/4: 2,858
- Total renewable heat produced: 891 GWh
- Equivalent south west homes heat demand met through renewables: 8.3 per cent

The region now generates 8.3 per cent of its electricity demand from renewables and produces an estimated 891 GWh of renewable heat. Just under 14,500 projects were installed in 2013/14. This is a similar level to 2012/13 when projects totalled 15,350. 80 per cent of these projects were installed under the Feed-in Tariff, demonstrating the ongoing incentive this scheme continues to offer despite tariff reductions.

The south west is leading the way on small and medium scale installations. One fifth of the capacity installed under the Feed-in Tariff is in the south west, making us the leading area for Feed-in Tariff scale renewables across the UK. Similarly, the south west is leading the way on applications under the Renewable Heat Incentive with 19 per cent of all applications, second only to Scotland on capacity installed under the scheme.

This year has also seen record success for our community energy groups, with many groups installing projects than ever before, many groups formalising their structures and our Community Energy Network adding over 50 new groups to its ranks.

Renewable electricity

Solar PV dominating installations

Renewable energy installed capacity grew by 37 per cent in 2013/14 and now totals nearly 1.2 GW. For the third year running, solar PV has been the greatest contributor to the south west’s renewable capacity, contributing 270.9 MW in 2013/14, 67 per cent of this year’s total. Solar PV deployment could remain high to 2020 provided financial support is decreased steadily not suddenly. Grid constraints will also need to be tackled - for example through innovative solutions such as the Renewable Energy Grid Collaboration Service offered by Regen (see page 18).

In addition, onshore wind contributed 23 MW with significant additions from the repowering of Carlyon Cross and the commissioning of Bristol City Council’s two 2.5 MW turbines at Avonmouth. Other significant electricity installations included New Earth Solutions adding 6.5 MW of capacity to their Avonmouth energy from waste plant, bringing its capacity to 15.7 MW.

Renewable electricity installations in the south west generated an estimated 2,009 GWh per year, around 8.3 per cent of current annual electricity demand. This is the equivalent of 627,966 homes, over 25 per cent of the south west’s homes.

Renewable heat

Biomass continues to blaze a trail

The south west has led the way in renewable heat for many years and has continued to do so in 2013/14, with 89.1 MWth of additional capacity being added to our homes and businesses. Renewable heat installations now total 290.3 MW.

In 2013/14, biomass added the greatest amount to the south west’s renewable heat capacity, with over 68 MW of capacity delivered through 751 installations. Heat pumps added the greatest number of installations with 1658 projects delivering 15.7 MW of capacity. Solar thermal added 449 projects, totalling 1.5 MW.

An estimated 891 GWh of heat is produced from renewable sources. But there is still huge untapped potential in the region for homes, businesses and communities to invest in renewable heat – the RHI as a whole is still only supporting about half the installations that were expected.

Regen’s House of Commons Reception, October 2013.

Regen’s work to support renewable energy in the south west is invaluable to driving this key sector.
Devon and Cornwall continue to lead the way in renewable energy in the south west and are now neck and neck in terms of installed capacity. Devon overtook Cornwall for the first time in 2012/13 and continues to lead the overall race with 380 MW of installed capacity.

Last year Devon also had the highest number of installations with 30 per cent of all new south west installations in 2013/14. Cornwall is, however, catching up again with 374 MW of total capacity and was the lead area in terms of new capacity installed in 2013/14 with an additional 79.7 MW of electricity and 13.2 MW of heat.

Somerset experienced greatest surge in solar PV installed capacity
Although still some way behind Devon and Cornwall, Somerset pulled ahead of the chasing pack after an impressive year during which it contributed 90 MW of new installed capacity. This surge was mainly due to a strong performance in the installation of solar PV. Regen SW has been tracking solar PV over several years and a theme of this year’s survey has been the wave of solar PV installations which have gradually moved up from the south west peninsula and are now increasing across Somerset, Wiltshire and into Dorset. As a result, Somerset had the highest volume of new solar PV capacity installed, while Wiltshire came in a strong second.

Devon leading the field on renewable heat
Devon experienced the highest increase in renewable heat installations in 2013/14 with 21.3 MW of new installed capacity, more than a third of that in Devon. The West of England is the most urban area of the south west with the lowest potential to accommodate freestanding renewables; the area added the lowest installed electricity and heat capacities in 2013/14. Within the West of England, just over half of all installed capacity is in Bristol due to freestanding renewables; the area added the lowest installed electricity and heat capacities in 2013/14. Within the West of England, just over half of all installed capacity is in Bristol due to its high levels of irradiation and excellent network of businesses. For wind, the south west delivered 23 per cent of all the capacity in England under the Feed-in Tariff. However, in 2013/14 just 35 small or medium scale turbines were installed in the south west.

North of the region delivering lowest amount of renewable energy
Overall, Gloucestershire is the area with the least renewables, with a total of 109 MW of installed capacity, less than a third of that in Devon. The West of England is the most urban area of the south west with the lowest potential to accommodate freestanding renewables; the area added the lowest installed electricity and heat capacities in 2013/14. Within the West of England, just over half of all installed capacity is in Bristol due to the large scale wind turbines and energy from waste plants at Avonmouth, as well as extensive built environment programmes driven by the Council.

South west tops Feed-in Tariff capacity

With its abundant resources and strong supply chain, the south west tends to attract more community-scale renewable energy projects than might be expected. South west leading the way for Feed-in Tariff installations
17 per cent of all projects receiving the Feed-in Tariff from across the UK are in the south west, making up 21 per cent of installed capacity claiming under the scheme. For solar PV alone, this rises to 22 per cent, with the south west performing strongly due to its high levels of irradiation and excellent network of businesses. For wind, the south west delivered 23 per cent of all the capacity in England under the Feed-in Tariff. However, in 2013/14 just 35 small or medium scale turbines were installed in the south west.

South west Feed-in Tariff technology split

The south west has 2.3 times the regional average capacity, generating approximately 470 GWh, saving 250,000 tonnes of CO2, the equivalent to taking 143,000 cars off the road.

With the Feed-in Tariff taking the lion’s share of capacity, the south west has developed a strong supply chain. Solar PV clearly dominates the Feed-in Tariff in the south west: 94 per cent of all installations. Wind and hydro are in a close second place, each taking 6 per cent of all installations. AD installations are by far the smallest, making up just 1 per cent of all installations. The rest of the installations are made up of biomass.

Solar clearly dominates the Feed-in Tariff in the south west, accounting for over 94 per cent of installed capacity. Wind, hydro and anaerobic digestion make up the remainder.

RHI by south west local authority

Devon has installed by far the greatest number of projects eligible for the RHI of any area in the south west, with Somerset in second place.
South West Renewable Energy Progress Report 2014

Towards 2020

Falling short of our potential

Despite installed capacity of electricity and heat increasing at a greater rate than ever before, the south west is still falling short of what we estimate is required to meet the UK's 2020 target as a region. Our analysis is that taking an optimistic view of the current trends and policies we could meet 11 per cent of our energy demand from renewables by 2020, still well short of the national 15 per cent target.

However, our analysis shows that we have more than ample resources to meet or exceed 15 per cent of our 2020 energy demand from renewables and an excellent local supply chain to deliver the installations required – if we have the right policies and support.

Increased reliance on Navitus Bay and onshore technologies to deliver

Meeting our 2020 target is dependent on delivering all renewable energy technologies, alongside widespread energy efficiency measures.

The loss of the Atlantic Array offshore wind project in 2013 had a major impact on our ability to meet our target – without this 1.2 GW offshore wind farm, we are now more reliant than ever on the Navitus Bay project going ahead and on onshore technologies, in particular solar PV, onshore wind and biomass heat.

Can we meet our 2020 targets?

Solar PV had an exceptionally strong year in 2013/14 and whilst the focus is expected to shift from ground-mounted to commercial rooftops, we are now predicting that solar PV will play the largest part in achieving our 2020 target. This is dependent on subsidies for solar PV being reduced steadily until grid parity can be achieved.

This year onshore wind has installed 23 MW and we predict with approved schemes and known sites this level of deployment could be maintained to 2020. However, the Conservative Party proposals to stop onshore wind put this at risk – and, by stopping the cheapest technology, would inevitably increase the cost of energy.

The installation of biomass heating also had a year of unprecedented growth in 2013/14 with the Renewable Heat Incentive starting to deliver. We expect this growth to continue, provided the RHI continues to offer appropriate levels of support.

There is significant potential for anaerobic digestion to increase substantially, but there is a need for consistent incentives and non financial support for this sector to enable it to take off.

With our strong local supply chains, the renewable energy sector has the potential to deliver 34,000 local jobs by 2020. Our South West Renewable Energy Manifesto sets out the key actions needed for the sector to achieve its full potential.

Merlin Hyman, Regen SW, chief executive
Community initiatives

Community energy

We have witnessed a surge in community energy in the south west which is now reflecting the national interest in this sector. DECC launched its Community Energy Strategy in January 2014. The strategy identified over 5000 community energy groups, with more in the south west than any other part of the country.

By 2020, the government estimates that community groups could account for between 2.2 per cent and 14 per cent of the total installed electricity capacity in the UK. Some key trends we have seen in 2013/14 are detailed below.

- The south west’s established groups have used 2013/14 to issue share offers, such as TRESOC’s hydro and solar share offer, and to install projects, such as South Brent’s 225 kW wind farm (see page 34).

- New groups incorporated in 2013/14, such as SidEnergy which became an Industrial and Provident Society for the benefit of the community in February 2014.

- We have seen the maturing of the community energy movement, with groups recognising the need to work with professional partners, as well as conventional developers recognising their need to work with communities. For example, REG Windpower granted Bristol Energy Cooperative an exclusive option to buy its M48 wind farm, if it’s built.

Local success stories

South Brent Community Energy Society (SBCES) installed a 225 kW wind turbine in August 2013, funded by a £430,000 community share issue.

SidEnergy registered as an Industrial and Provident Society for the benefit of the community in February 2014, launched a membership share offer and was successfully granted a Rural Community Energy Fund Grant of £20,000 for large and small scale solar project feasibility.

SW Devon Community Energy Partnership (SWDECP) commissioned a strategic energy study in May 2013, which has been adopted by the local authorities and is a valuable evidence base. They have been working to implement the study’s findings by commissioning a workshop and supporting study by Communities for Renewables and Regen SW, and work is now underway to identify potential sites for community renewables.

Plymouth Energy Community (PEC) was set up in 2013 as a member’s cooperative and launched a solar share issue in February 2014. Backed by a Plymouth City Council loan, over £600,000 of community shares were sold in less than eight weeks; over 50 per cent to local residents.

Advisory services

Regen’s support for the sector

Regen SW works to shape national policy and support the sector with delivery on the ground. Our work this year has focused on the challenges of connecting to the grid and working with local communities. This year we have:

- written best practice national guidance for DECC on Community Engagement and Benefits for wind energy
- been part of the Ministerial Task Force on Shared Ownership
- played a key role in DECC’s community energy grid connections working group chaired by Ofgem.

We are now working to help those involved in wind energy development to reduce their grid costs and work collaboratively with their local communities through:

- our Renewable Energy Grid Collaboration Service
- establishing effective ownership and benefit models for community engagement.

Free support

Membership

Growing number of community energy groups Regen supports in the south west

Community energy

Communities for Renewables: Project delivery

Regen SW established CFR CIC to help community groups develop and finance renewable energy projects. It is a not-for-profit social enterprise of highly experienced renewable energy professionals. CFR is currently working with 12 energy cooperatives in the south west on projects ranging from multiple building-scale installations to MW-scale community solar farms. CFR (with Francis Clark, Foot Anstey and Ethex) worked with the Plymouth Energy Community team to launch the PEC Renewables share offer which raised £600,000 in six weeks to fund community owned solar PV on schools and businesses. For more information see www.cfrcic.co.uk.

Totnes Renewable Energy Society (TRESOC) issued a share offer in spring 2014, with the opportunity to invest up to £1.5 million into six hydro and roof-mounted solar PV projects, offering a collective return of £136,000 per year over 20 to 30 years.

The Resilience Centre’s Great Dunkinills 500 kW turbine continues to generate returns for the 420 community investors, and has already awarded donations of £14,000 to the host community of St Brelaves based on just over a year of operation.

Exeter Community Energy set up as a Community Benefit Society at the start of 2014 to enable local people to take ownership of renewable energy projects. They are preparing for their share offer in summer 2014.

Wadebridge Renewable Energy Network’s Stephen Frankel won Regen’s Green Energy Award for south west Sustainable Energy Champion, and the community energy group won an Ashden Award in 2013 for the exemplary community energy movement they have created. The group used the subsequent support from Ashden to engage even more people through the ‘Wadebridge Energy Futures’ event last Summer.

South West Renewable Energy Progress Report 2014
Our success will not be measured simply in MWs, but in our role in innovation and technological development, in attracting investment into our local businesses and in engaging households, communities and businesses in a decentralised energy revolution. Regen SW is committed to continuing to provide the leadership needed for these exciting goals.

Key factors for success

Our success will not be measured simply in MWs, but in our role in innovation and technological development, in attracting investment into our local businesses and in engaging households, communities and businesses in a decentralised energy revolution. Regen SW is committed to continuing to provide the leadership needed for these exciting goals.

Clear and consistent policy
Energy is currently a highly political issue; this has led to rapid change and uncertainty in policy, which deters investment and increases costs. We must press government to provide the stable policy framework needed for investment in long term infrastructure.

Local communities at the heart of projects
We should support the 200 community energy groups in place to develop and professionalise and expect developers in the south west to work in partnership with these groups to enable local investment and control. This will not be a simple process, but other countries have proved it can be achieved.

A thriving local supply chain
With huge investment in renewable energy, our success in capturing some of that investment locally will be vital to our economic future. We need to support our local businesses and ensure all renewables projects give them opportunities and support to compete for work.

Local control of major projects
The withdrawal of the Atlantic Array shows how easy it is for multi-billion pound energy investments to be lost in the board rooms of multinationals. A more sustainable approach is for local policy makers to chart out the path for development of major projects and invite the private sector to deliver.

A step change in innovation
The renewable energy sector has overcome many barriers and we need to keep innovating to cut costs and increase the benefits. The aim must be to make government subsidies unnecessary. In particular, a smarter approach to electricity generation, with local embedded generation matching local demand is needed.

Regen’s support for the sector
Our work to build political, community and public support for renewable energy includes:

Events programme
We run an extensive programme of events, informing businesses and stakeholders, promoting networking and facilitating sales opportunities, as well as celebrating successes at our annual Green Energy Awards.

Influencing national policy
We engage with government to influence policy and we analyse policy as it comes out, updating members and lobbying government. We are currently running a campaign to influence all the main parties to focus on energy issues in their manifestos for the 2015 election.

Communicating on behalf of the sector
We work with the media to promote good news stories and put forward the industry’s point of view and work on projects to communicate renewables through the arts.

Supporting local authorities
We work with local authorities to support them to maximise the benefits and manage the impacts of renewables in their area, through their planning, economic development, communication and procurement functions.

South West Renewable Energy Manifesto
We set out our ambition for the south west to support 34,000 jobs by 2020 in our Manifesto.

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South West Renewable Energy Progress Report 2014
Diversifying farmers' incomes

Regen SW has worked to support the farmers' cooperative Mole Valley Farmers since 2011 and the inception of its energy division, moleenergy. Moleenergy estimate that its members' projects have earned in excess of £90 million from government incentives for renewable technologies, helping diversify the incomes of the region's farmers and boost the local economy. Solar PV alone has generated £78 million in income to the rural economy.

Projects have varied tremendously from domestic solar PV installations to much larger systems. For example, the owners of Bower Farm in Somerset have had two biomass boilers installed by moleenergy's preferred installers Glevum Heating. The boilers provide heating for a 3.5 acre glasshouse used for growing strawberries. By replacing the conventional oil burning system, the farm will save £80,000 a year on fuel, as well as earning around £80,000 from the Renewable Heat Incentive. Taking only the RHI into account, payback from the £350,000 system will be achieved in around five years.

Energy security and local energy economies

The UK currently relies on at least 858 TWh of imported energy, 39 per cent of our demand, much of which is from unstable parts of the world.

- Producing energy from local resources improves the security of our energy and retains spend within the south west economy. £2.69 billion of the £2.93 billion we spend on electricity in the south west immediately leaves the south west economy.
- Harnessing renewable energy resources could have a transformational impact on local communities. Wadebridge Renewable Energy Network calculates that the town spends £12.8 million on energy, including £4.7 million on electricity of which 67 per cent could be retained locally.
- Renewable energy policies add just £37 or less than three per cent to the average bill.
- Rising fossil fuel prices are the key driver of the cost of energy. Dual fuel bills rose by an average of £455 between 2004 and 2010, and £382 of that due to soaring gas prices.
- Globally, subsidies for fossil fuels are $409 billion compared to $66 billion for renewable energy.
- The annual government grant to the Nuclear Decommissioning Authority is £2.3 billion. Divide that by 26.3 million UK households and find the average cost per household of dealing with nuclear waste is £87.
- One large wind turbine can power the equivalent of 1,500 homes a year, saving 2,200 tonnes of CO₂.
- Renewable energy generation in the south west currently saves the equivalent of over 900,000 tonnes of CO₂ a year – the equivalent to removing over 500,000 cars from the road.
- Bloomberg predict that 70 per cent of all spend on new energy up to 2030 will be in renewables, a huge opportunity.
- More than 6.5 million people work in renewables across the world, including 2.6 million in China alone.
- The renewable energy industry in the south west currently supports 10,000 jobs and attracted £740 million in investment in 2013/14.
- In the UK since 2010, over £30 billion has been invested in electricity generation, principally in renewable technologies - that's over half the total investment in all infrastructure.
- We estimate the sector has the potential, given the right conditions, to support 34,000 jobs in the south west.

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Why renewables?

It is critical that debate about the future of energy is based on facts – a list of sources is available on our website.
Solar research at the heart of the south west

The University of Exeter’s Environment and Sustainability Institute (ESI), at the Penryn Campus, leads cutting-edge, interdisciplinary research. Solar PV research is one of the themes central to its work.

Operating with state-of-the-art equipment in extensive new facilities, the solar energy research team led by Professor Tapas Mallick, focuses on reliability, enhancing efficiency and development of low cost solar power solutions, especially concentrating systems for building fenestration, the novel/natural materials for solar energy, and the use of PV across a variety of landscapes and environments.

- Tapas and his research team are working to provide effective, off-grid power to areas with poor access to traditional energy systems.
- The team is leading the way in the UK in the research of enhanced optical concentrator systems to reduce the costs of solar electricity to extend the lifetime of PV cells which measure up to utility scale generation.
- Collaborations with Cornish SMEs are under way to explore and exploit markets for new products for off-grid solutions to energy generation.
- The group’s work extends to collaborations as far afield as India, China and The Middle East ensuring that the south west and Exeter are at the forefront of international research collaborations.
- The group is looking at minimising the negative impacts of solar park management on biodiversity providing guidance to commercial operators and regulators.
- The team has developed relations with the BRE’s Solar Centre. The organisations are working together to support south west businesses to become more competitive through knowledge exchange.
Renewable Energy Grid Collaboration Service

Regen SW set up a Renewable Energy Grid Collaboration Service in response to requests from developers for a service to broker collaborations that could reduce grid reinforcement costs and enable projects in areas where grid costs are prohibitive. The service has been developed with the support of Western Power Distribution and Scottish and Southern Energy Power Distribution.

The main mechanisms to cut grid costs are to:
- facilitate collaboration between different technologies for more efficient use of grid capacity
- facilitate the development of consortium
- facilitate private wire agreements with energy users.

The service is also intended to facilitate collaboration more generally, including:
- collaboration on planning applications in the same area
- partnership with local community energy groups.

Regen SW’s aims for this service are to increase the amount of renewable energy deployed through reducing grid costs and to support a development model that maximises collaboration and works positively with local communities.

To find out more, please contact Rachel Hayes 01392 494399, rhayes@regensw.co.uk

South West Renewable Energy Progress Report 2014

Anaerobic digestion

Key changes in the last year

Eight new anaerobic digestion (AD) plants were installed in 2013/14, adding 10 MWe and 3.5 MWth and bringing the south west’s total number of projects to 38. Installed capacity is 36 MW of electricity and 20.4 MW of heat. Five of the new plants were in Somerset, meaning that the area now has nine plants and the highest installed capacity of any area in the south west.

Only two of the new plants produce useable heat alongside electricity. All the new plants are at least 500 kW in electrical capacity, with Viridor’s Dimmer AD plant at Castle Cary in Somerset being the largest new plant at 3 MWe.

Drivers

The Feed-in Tariff has created a moderate increase in demand for AD, with a third of all plants installed in the south west commissioned in the last year. The south west supply chain is developing with a number of new companies moving into the sector or into the south west in recent years.

However, with only 38 installations in total, the current installed capacity is far below the potential of this technology. Government had promised in late 2013 to review the degression process for the Feed-in Tariff for anaerobic digestion, as rapid degressions are stalling the growth of this sector. However, this promise was not seen through, and the Feed-in Tariff dropped by 20 per cent for AD in April 2014. This could mean deployment slows again in 2014/15.

Moving towards 2020

AD in the south west currently produces an estimated 252 GWh of electricity and 125 GWh of heat. This makes a small contribution towards the estimated 2.45 TWh of electricity from biomass which is needed to contribute to our 2020 target. We expect AD installation numbers to pick up further in the six years to 2020 as the supply chain matures, provided adequate financial incentives remain in place. We predict up to 140 MW is likely to be installed by 2020, an additional 14 MW of installed capacity per year; however, this falls well short of this technology’s potential.

Trends in the growth of anaerobic digestion

Energy from anaerobic digestion in the south west

<table>
<thead>
<tr>
<th>Geographical area</th>
<th>Total (March 2014)</th>
<th>New in 2013/2014</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of projects</td>
<td>Electrical (MWe)</td>
</tr>
<tr>
<td>Cornwall</td>
<td>1</td>
<td>0.00</td>
</tr>
<tr>
<td>Devon</td>
<td>5</td>
<td>7.10</td>
</tr>
<tr>
<td>Dorset</td>
<td>7</td>
<td>3.50</td>
</tr>
<tr>
<td>Gloucestershire</td>
<td>9</td>
<td>6.56</td>
</tr>
<tr>
<td>Somerset</td>
<td>9</td>
<td>10.38</td>
</tr>
<tr>
<td>West of England</td>
<td>3</td>
<td>6.25</td>
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<tr>
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</tr>
<tr>
<td>Grand Total</td>
<td>38</td>
<td>35.97</td>
</tr>
</tbody>
</table>
Biomass heat

Key changes in the last year

Biomass has seen a substantial increase in installations this year, adding 63.4 MW through 751 new projects – a 52 per cent increase over 2012/13. Installed capacity now totals 185.3 MW through over 2000 projects.

Devon heads the table in the south west and in the UK on biomass installations, with 43.4 MW of installed capacity through 628 projects: over 300 more projects than Somerset, which is second in project numbers. Just over half of all the new installations this year are non-domestic projects (over 45 kW), with the largest a 1 MW plant in Tewkesbury, Gloucestershire.

Drivers

One of the major drivers for renewable heat installation in recent years has been the RHI, which provides payments for heat produced by renewable technologies. The RHI has supported both domestic and non-domestic installations in various forms since 2011. The south west is outperforming other geographic areas of the UK in terms of biomass installations under the RHI. This can be attributed to the market development work Regen led through the South West Bioheat programme, which supported the industry through its infancy, and the high proportion of off-gas grid properties making renewable forms of heat an attractive prospect.

Moving towards 2020

We estimate that the current high installation rates, supported by the RHI, could continue to 2020. This means that around 600 MW of biomass heat could be installed in the south west by 2020, although this is still considerably less than the 820 MW that is needed to meet a 15 per cent renewable energy target in the south west.

Energy from biomass in the south west

Surge in commercial RHI capacity

- There has been a surge in commercial RHI projects, with 380 small solid biomass boilers being approved under the scheme in 2013/2014.
- The 380 small solid biomass boilers (45 – 199 kW) have a capacity of 48.24 MW. This compares to 23 medium solid biomass boilers (over 200 kW), totaling 10.85 MW.
- As page 6 discusses, Devon continues to lead the way under the RHI, with over 200 projects in total and the greatest capacity of any other county.

South west leads the way under the Renewable Heat Premium Payment scheme

Regen’s support for the sector

With the launch of the RHI in 2011, Regen has been working closely with local authorities, government bodies and the private sector to grow the renewable heat sector, building on the foundation created by our South West Bioheat Programme. With the south west becoming the leading region for renewable heat, it’s clear that this support is taking effect.

Moleenergy

Regen has continued to work in partnership with the leading farmers’ cooperative in the south west, helping the agricultural community understand the benefits for renewable energy generation and engage with the local businesses who supply it. See page 15 for details.

Renewable Heat at Work

A partnership of Devon County Council, the Forestry Commission and Regen has been at the fore in helping supply chain businesses to promote the benefits of renewable heat by running a series of business-led open days, helping community groups, home and business owners to see for themselves what’s involved. This work is continuing into 2014, and with the recent launch of the domestic RHI will be reaching an increasing range of energy users.

RHI application support

- Inevitably, registering an installation for the RHI involves a technical application. Regen has supported a number of organisations with their applications, providing technical and policy insight. This ‘on the ground’ knowledge along with our experience in the sector has allowed us to engage directly with DECC and Ofgem on how the scheme is being received in the sector and how it could be shaped and improved.

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Jamie Burnham, Project Manager at SunGift Energy installed a woodchip boiler with a small district heat network to provide heating and hot water to Escot stately home and twelve surrounding buildings.

“The RHI provides businesses with a great opportunity to move away from their reliance on expensive, imported fossil fuels, reducing their running costs, turning a large overhead into a substantial income”

---

<table>
<thead>
<tr>
<th>Geographical area</th>
<th>Number of projects</th>
<th>Capacity (MWh)</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>Devon</td>
<td>628</td>
<td>43.40</td>
</tr>
<tr>
<td>Dorset</td>
<td>196</td>
<td>16.48</td>
</tr>
<tr>
<td>Gloucestershire</td>
<td>222</td>
<td>30.01</td>
</tr>
<tr>
<td>Somerset</td>
<td>326</td>
<td>27.36</td>
</tr>
<tr>
<td>West of England</td>
<td>129</td>
<td>16.02</td>
</tr>
<tr>
<td>Wiltshire</td>
<td>202</td>
<td>15.48</td>
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<td><strong>2006</strong></td>
<td><strong>185.25</strong></td>
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<table>
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<td>Number of projects</td>
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</tr>
<tr>
<td>Capacity (MWh)</td>
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<tr>
<td></td>
<td>70</td>
<td>4.49</td>
</tr>
<tr>
<td></td>
<td>82</td>
<td>12.65</td>
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<td></td>
<td>127</td>
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<td>3.10</td>
</tr>
<tr>
<td></td>
<td>69</td>
<td>5.85</td>
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</table>

<table>
<thead>
<tr>
<th>New in 2013/2014</th>
<th>Number of projects</th>
<th>Capacity (MWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of projects</td>
<td>751</td>
<td>68.32</td>
</tr>
</tbody>
</table>
Energy efficiency

Key changes in the last year

The Energy Company Obligation (ECO) was introduced in January 2013 to reduce energy consumption and support people at greater risk of living in fuel poverty by installing such measures as solid wall insulation and other hard to treat energy efficiency measures. The Green Deal scheme was also introduced in January 2013 as an innovative financing mechanism that lets people pay for some or all of the cost of energy efficiency improvements through savings on their energy bills. Up until December 2013, a total of 31,143 measures were delivered in the south west under the ECO, which represents slightly fewer than 14 households in every 1000 in the region having measures installed. Broken down by local authority area, the majority of the ECO funding utilised for measures in the region was completed within Plymouth. There were 8,953 Green Deal assessments made up to December 2013 in the south west. This represents a low uptake of just four green deal assessments per 1000 households.

Drivers

The deployment of energy efficiency, or retrofit measures, represents one of the greatest opportunities and challenges to government, local businesses and communities. With an estimated £7 billion of private investment over the next five years, and the creation of thousands of jobs, energy efficiency will be a key factor in reducing our energy bills and building a low carbon future.

Moving towards 2020

DECC’s 2009 Low Carbon Transition Plan identified that the domestic housing sector will provide the largest carbon reduction, an estimated 29 per cent reduction towards hitting the 2020 targets set by the Climate Change Act. The Act also aims that by 2050 emissions from the UK housing stock will be zero. To put this challenge into perspective, these targets require that all remaining lower cost retrofit measures are completed (e.g. cavity wall insulation, loft insulation, basic draught proofing etc.) In addition to this, seven million homes must be fully eco-refurbished, i.e. install a full range of energy efficiency measures, equivalent to 27 per cent of the UK’s housing stock. To meet the targets, 1400 south west homes need to be fully eco-refurbished every week between 2010 and 2020. With just four in every 1,000 homes undertaking a Green Deal assessment in 2013, this rate seems unlikely to be achieved.

Regen’s support for the sector

Regen SW is taking the lead in providing intensive business support to south west based businesses in the construction, energy efficiency and microgeneration sectors through a European funded programme, ‘Ready for Retrofit’, which we are delivering in partnership with the Energy Saving Trust. The £8 million Ready for Retrofit programme will help local businesses prepare for the delivery of the Government’s Green Deal programme and the eco-refurbishment of tens of thousands of homes by 2020. To date the Ready For Retrofit programme has supported over 500 businesses in the domestic retrofit supply chain with the effect of creating 136 new jobs and increasing turnover in the supply chain by £22m.

Green deal assessments by area

Energy from waste

Key changes in the last year

6.5 MWe was added to the south west’s energy from waste installed capacity in 2013/14. This was an extension to New Earth Solutions’ Advanced Conversion Technology plant at Avonmouth, which is now commissioned and totals 13 MWe in capacity. New Earth Solutions’ plant in Avonmouth and 1 MWe plant in Canford in Dorset are currently the only commissioned energy from waste installations in the south west, totalling 14 MWe.

A 3 MWe incinerator at Marsh Barton in Exeter and a 22.5 MWe incinerator at Devonport in Plymouth have been constructed but are not yet commissioned – they are expected to be commissioned in 2014. The 16.6 MWe Cornwall Energy Recovery Centre incinerator at St Dennis is also under construction and is expected to divert 90 per cent of the county’s waste from landfill once commissioned and provide electricity for 21,000 homes in the region. Sita has plans for a 32 MWe energy recovery plant at Severnside in South Gloucestershire and a resource recovery plant in Bristol that should include an end-of-life plastics to diesel factory, a recycling centre and a 6 MWe gasification facility.

Drivers

With landfill sites closing and high gate fees, there is increasing pressure on local authorities to find alternative waste management solutions. Currently, many authorities export waste to European energy from waste plants, but this is an expensive approach, with high carbon costs associated with transporting the waste. In addition, councils are starting to look for more flexibility in their waste management contracts, rather than being locked into long term contracts. As a result, many councils are reviewing their options for dealing with residual waste.

Energy from Energy from waste in the south west

<table>
<thead>
<tr>
<th>Geographical area</th>
<th>Total (March 2014)</th>
<th>New in 2013/2014</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of projects</td>
<td>Electrical (MWe)</td>
</tr>
<tr>
<td>Cornwall</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Devon</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Dorset</td>
<td>1</td>
<td>1.00</td>
</tr>
<tr>
<td>Gloucestershire</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Somerset</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>West of England</td>
<td>2</td>
<td>13.00</td>
</tr>
<tr>
<td>Wiltshire</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Grand Total</td>
<td>3</td>
<td>14.00</td>
</tr>
</tbody>
</table>

Advanced thermal treatment offers greater environmental advantages than mass burn incineration. With two Renewable Obligation Certificates currently available and the strike price under the Contract for Difference in line with that offered for offshore wind, the financial incentives available for advanced thermal treatment technologies are strong, which is supporting innovation in this area, such as New Earth Solutions’ new plant.

Moving towards 2020

Energy from waste has the potential to play a key role in meeting our 2020 targets. Our predictions show that, based on currently planned projects, around 130 MWe will be installed by 2020, falling short of the 200 MWe we need to reach our 2020 target.

Regen’s support for the sector

Regen has worked with New Earth Solutions to identify the key policy issues for the Advanced Conversion Technology sector to thrive in the south west and engage government in the potential of the sector. As an emerging technology the details of how the new Contracts for Difference policy will work for Advanced Conversion Technology is going to be central to its success.

New Earth Solutions

In autumn 2013, New Earth Solutions commissioned the second phase of their advanced conversion technology plant at Avonmouth in Bristol, bringing the total capacity to 13 MWe.
Key changes in the last year

15.68 MW of heat pumps were added to the south west’s installed capacity in 2013/14 through over 1,600 new projects. This was the greatest number of projects added for any renewable heat technology in 2013/14. Installations new total 58.2 MW with over 6,200 projects installed. Installations are spread fairly evenly across the south west, apart from the more urban, typically on gas areas in the West of England which have fewer projects installed.

Only 240 of the new installations this year were ground-source heat pumps, with the remaining 1418 all air-source.

Drivers

In 2013/14, growth in the demand for heat pumps has been slower than in 2012/13, although it remains considerably higher than pre-2012. The Renewable Heat Incentive and Renewable Heat Premium Payment vouchers largely drove demand in 2013, with the official commencement of the domestic RHI in April 2014, domestic demand for heat pumps should be maintained or increase.

Moving towards 2020

Around 300 MW of heat pump capacity is needed to support delivery of our 2020 targets. Based on current trends, we estimate around 200 MW could be delivered by 2020, with around 20 to 25 MW installed each year.

Energy from heat pumps in the south west

<table>
<thead>
<tr>
<th>Geographical area</th>
<th>Total (March 2014)</th>
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<tbody>
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<td>Devon</td>
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<tr>
<td>Gloucestershire</td>
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<td>Somerset</td>
<td>1,231</td>
<td>8.90</td>
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<td>West of England</td>
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</tr>
<tr>
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<td>780</td>
<td>7.82</td>
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<tr>
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<td>6,216</td>
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Energy from hydro in the south west

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<tbody>
<tr>
<td></td>
<td>Number of projects</td>
<td>Capacity (MWe)</td>
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<tr>
<td>Cornwall</td>
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<td>1.72</td>
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<tr>
<td>Devon</td>
<td>41</td>
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<tr>
<td>Dorset</td>
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<td>0.13</td>
</tr>
<tr>
<td>Gloucestershire</td>
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<tr>
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<tr>
<td>Grand Total</td>
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Navitus Bay offshore wind farm, Dorset

Located off the Dorset and Hampshire coasts, to the west of the Isle of Wight, the project is a joint venture between the Dutch utility Eneco and EDF Energy. Its planning application has been submitted and if built, the 970 MW capacity wind farm will consist of between 121 and 194 turbines.

The multi-billion pound project will bring a range of benefits, both locally and nationally, including:

- Making a significant contribution to the south west’s aim of sourcing 15 per cent of its total energy usage from renewable energy by 2020
- Providing enough renewable energy to power approximately 700,000 homes each year
- Offsetting approximately 1,290,000 tonnes of CO2 emissions each year
- Creating around 1,700 local jobs during the four year construction phase and 140 local permanent jobs for the 25 year operational life of the project
- Significant opportunities for local, regional and UK businesses to become part of the project’s supply chain by providing their services and products
- Using a local port to act as the headquarters of the project and host the wind park’s operation and maintenance base. This is expected to provide an economic value of £590 million to the local economy. Navitus Bay has signed memoranda of understandings with three local ports; Portland, Poole and Yarmouth (IoW).

The wind park developers submitted an application for a Development Consent Order in May 2014. Examination is due to start in September with a decision by the Secretary of State for Energy and Climate Change in 2015. If consented, construction could start in late 2017 with the wind park fully operational by 2021.
Offshore and marine

It has been a mixed year for the offshore renewable energy sector in the south west. The high point has been the significant progress made in wave energy, with Wave Hub’s four berths now booked by technology developers and continued activity at both FabTest and Plymouth’s COAST laboratory. The low point for the year was RWE’s decision to withdraw its application for the 1.2 GW Atlantic Array wind farm in the Bristol Channel. Activity in tidal energy meanwhile continues to progress towards the first array projects and has seen a ramp up of commercial activity and associated jobs.

Offshore wind

While the UK still leads the world with over 3.7 GW of installed capacity, the offshore wind sector has taken a buffeting in the past 12 months, with a number of projects cancelled or down sized. The DECC roadmap estimate for 2020 has now been reduced to between 8 and 15 GW with a central estimate of 10–12 GW.

In the south west, utility company RWE withdrew its Atlantic Array offshore wind project for the Bristol Channel in November 2013. The reasons cited were the technical and commercial challenges faced by the project against a backdrop of RWE’s reduced investment in new generating capacity and job cuts across the EU. The lessons from Atlantic Array are certainly that we need to have more local control and governance around major infrastructure projects. For the deeper waters of the south west, new foundation technologies such as floating wind and new installation techniques, will be required.

More positive news has come from the Navitus Bay project off shop of Dorset, which has had its application accepted for examination by the National Infrastructure Planning Inspectorate. A year-long investigation will now ensue culminating in a final decision by the Secretary of State on whether the 970 MW project will go ahead.

Tidal stream

There are exciting times ahead for the tidal stream sector as the leading technology developers prepare for the deployment of the first array projects of between 3 and 10 MW at a number of locations around the UK and overseas. This includes the Bristol based companies Siemens MCT, Alstom TGL and Atlantic Resources Limited who all have upcoming array projects.

While no projects are currently planned in the south west, this could change in the coming year encouraged by the relatively high strike price for early marine energy projects and the designation of new demonstration zones. Meanwhile the commercialisation of tidal stream has already led to a significant number of jobs in the region especially in and around Bristol which now has the largest cluster of tidal technology developers and expertise anywhere in the world. Atlantis Resources Ltd, the latest addition, established their design office in Bristol in autumn 2013. The economic benefits are now spreading beyond Bristol – Dutch based developer Tocardo has recently opened a UK office in Plymouth while a number of Cornish, Devon and Dorset based companies are active in the supply chain.

Regen SW has established the Bristol Tidal Energy Forum to promote the development of the tidal sector and will continue to work with projects and technology developers to realise the regional and global potential of this technology.

Tidal range

In a move away from previous big barrage proposals, the Bristol Channel and Severn Estuary are now the focus for smaller, and more feasible, tidal energy lagoons. This development is very much in line with the ‘Balanced Technology’ approach which Regen SW and other partners have been proposing for the sustainable development of large scale offshore projects.

The most advanced project, Swansea Bay Tidal Lagoon, has already submitted its planning application to impound 11.5 km sq of water and build a 240 MW lagoon in Swansea Bay. The Swansea Bay Tidal Lagoon project has received widespread support from local communities and stakeholders and could herald the start of a series of lagoon projects which may include areas in Bridgewater Bay and off west Somerset.

Regen SW is supporting the development of tidal range projects, working closely with local Authorities such as Bristol City Council and West Somerset Council and by establishing a tidal range industry group.

Wave energy

It is generally accepted that Wave Energy technology is at an earlier stage of development compared to both tidal stream and offshore wind. Nevertheless, in the past 12 months there has been a surge in activity with a number of prototype deployments in the UK and especially abroad in the US, Asia and Australia.

Significantly for the south west the Wave Hub, the world’s largest offshore wave energy test facility, has confirmed customers for all four of its berths. Wave Hub is a grid connected socket on the seabed, located ten miles off the north coast of Cornwall, designed for the test and demonstration of wave energy devices and arrays of devices. Three of the four berths have the intention of deploying arrays, giving Wave Hub a pipeline of 30 MW installed capacity over the next few years. The fourth berth has been reserved by the ETI working with US floating wind technology developer Glensten Associates and Alstom to deploy a 6 MW turbine.

Wave Hub is one of a number of key assets within the South West Marine Energy Park. Other facilities include the FabTest nursery site in Falmouth Bay, Plymouth University’s new COAST wave and tidal test tank, the National Composites Centre and the research facilities associated with PRIMAHE. Together these R&D facilities have provided a catalyst for technology development and innovation which has attracted inward investment and the creation of high quality jobs within supply chain companies such as Supacat, LIC Energy, North Sea Systems, Mojo, KWL, LDD and A&P.

“Wave Hub was always designed for full scale array testing and what we are now seeing is the industry maturing to the point that it is ready to make that leap from proven prototype to pre-commercial array deployment.” - Claire Gibson.

See page 30 for more information about the individual customers.

Moving towards 2020

Offshore wind projects such as the 970 MW Navitus Bay are essential if the UK is to meet its carbon reduction targets.

We expect to see the first arrays of wave and tidal stream deployed at demonstration sites, such as Wave Hub, however, marine energy will not reach full commercial scale until the next decade.
## Wave Hub

**Meet the technologies**

### Tidal Energy Limited Ramsey Sound
- **Who:** Tidal Energy Limited
- **Device:** Ramsey Sound Tidal Array
- **Deployment date:** Planned for 2015

### Atlantic Array, Bristol Channel
- **Who:** A utility company
- **Device:** 200 MW array
- **Deployment date:** Anticipated in 2015

### Marine Offshore Renewables Group (MOR)
- **Who:** A network of companies working in the marine energy sector
- **Device:** Various
- **Deployment date:** Anticipated in 2015

### Hayle
- **Who:** Hayle Marine Renewables
- **Device:** Marine Park
- **Deployment date:** Anticipated in 2015

### Marine Energy Hub
- **Who:** Plymouth University
- **Device:** Marine Energy Hub
- **Deployment date:** Anticipated in 2015

### Perpetuus Tidal Energy Centre
- **Who:** A tidal array test and demonstration centre
- **Device:** 20 MW array
- **Deployment date:** Anticipated in 2015

### South West Marine Energy Park (SW MEP)

**Since the south west’s designation as the UK’s first marine energy park in 2012, Regen SW has worked with both public and private sector partners to accelerate the commercialisation of the marine energy sector and attract investment to support technology development. The focus and priority given to marine energy is now beginning to generate jobs and commercial opportunities for local companies. The latest edition of the South West Marine Energy and Offshore Wind Supply Chain directory has identified over 350 companies working in the marine and offshore energy sector in the south west, spanning all areas of the industry, from consultancy and legal firms to marine operation, components and manufacturing companies. Leading innovation companies are now working across the UK and around the world.**

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**Wave resource**

- Tidal currents > 1.75 m/s
- Tidal range > 8m
- Offshore wind zones
- Wave resource

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**Utility company RWE withdrew from the 1200 MW Atlantic Array offshore wind farm in November 2013.**

**Carnegie Wave Energy Limited, an Australian wave energy developer**

**Plymouth and South West Peninsula City Deal**

**Navitus Bay Offshore Wind Farm**

**Perpetuus Tidal Energy Centre**

Bristol Tidal Energy Forum (BTEF)
Onshore wind

Key changes in the last year

44 new wind projects have been commissioned in 2013/14 in the south west. 25 of these were in Cornwall, with 17 in Devon, one in Bristol and one small turbine in Dorset. 23 MW of installed capacity were added to the south west’s total of 178.3 MW. The majority of this increase was due to the re-powering of Carland Cross in Cornwall. Bristol City Council’s two 2.5 MW turbines were also commissioned.

There has been a significant slow-down in the deployment of small and medium wind projects. 42 small or medium turbines were installed in 2013/14 compared with 70 in November 2012 alone.

Drivers in 2013

Policy uncertainty, political positioning and grid constraints have had a significant impact on investor confidence and the deployment of large scale onshore wind in the south west this year. Developers continue to exercise caution, with the end of the Renewables Obligation and introduction of Contracts for Difference moving ever closer, and the continued threat of ‘Call in’ by Eric Pickles. For example, the Planning Inspector’s approval of Windpower’s 10 MW scheme at Denzell Downs, they have re-submitted their application afresh.

Moving towards 2020

An estimated 650 MW of wind would need to be installed to meet our 2020 target. Based on current trends and known sites, we estimate around 30 MW of onshore wind could be deployed each year to 2020, bringing our prediction to a total of approximately 350 MW of onshore wind installed by 2020. This is dependent on the political climate and planning environment turning further against onshore wind.

Some key achievements in 2013/2014 include:

- Triodos purchased Wessex Water’s 8.2 MW scheme in Avonmouth which is due to be commissioned in summer 2014.
- Site works are taking place at the 18 MW Den Brook site in Devon.
- Construction is under way on the re-powering of St Breek outside Wadebridge, Cornwall.
- The appeal court dismissed the case against the 9.2 MW Alaska wind farm in Dorset in March 2014.
- Regen supported RWE to organise a ‘meet the buyer’ business breakfast for local businesses who could work on the construction of the 18 MW Batsworthy Cross scheme in North Devon.
- Following an ongoing appeal against REG Windpower’s 10 MW scheme at Denzell Downs, they have re-submitted their application afresh.

Small and medium scale projects

The reduction in the Feed-in Tariff in April 2013 reduced demand in the south west for small and medium scale turbines, although they remain economically viable in the right setting. April 2014 saw a further 20 per cent reduction, with a further reduction due in October 2014 and April 2015. This speedy rate of degression is putting pressure on installers to reduce costs. Meanwhile, some local planning authorities are increasing their requirements for applications for small and medium turbines, sometimes requiring the same level of studies for a small single turbine as for large multi-turbine projects. The decreased Feed-in Tariff, increased cost of meeting planning requirements and rising grid connection costs have led to a significant decrease in the installation rate of small and medium turbines in the south west in 2013/14, from 149 in 2012/13 to 42 in 2013/14.

Regen’s support for the sector

Regen SW had the privilege of writing best practice national guidance for DECC on Community Engagement and Community Benefits for wind energy, which is expected to be published alongside other measures emerging from the publication of the UK’s first Community Energy Strategy in the summer of 2014. The strategy recognises that community involvement in renewable energy is critical and we are now witnessing a paradigm shift though collective local action and innovation. Regen SW helped to initiate this shift by establishing a Community Support Programme and Communities for Renewables CIC (see page 10) and we are working with the sector, in part through the Ministerial Task Force on Shared Ownership, to provide clarity on the opportunities this approach offers.

South West Renewable Energy Progress Report 2014
South Brent Community Energy Society (SBCES) installed a 225 kW wind turbine in August 2013, funded by a community share issue which was open for four months and raised £430,000.

SBCES installed a refurbished Vestas V27 wind turbine, 31.5m high to the hub and 27m in diameter, making an overall height to the blade tip of 45m. It has generated over 267 MWh since installation and you can see the latest export figures on their website at www.sbces.org.uk. The total installation cost just under £401,000 including grid connection (£17,000) and ground works (£80,000).

The expected return on investment for shareholders is between 4-5 per cent and more than two thirds of the investors are local people. The Society qualified under the Enterprise Investment Scheme, enabling investors to benefit from the tax breaks offered through the scheme. Once operating costs, interest payments and depreciation have been accounted for, any surplus will go into a community energy fund to be spent on more local sustainable energy projects. Because the share offer was slightly over-subscribed, SBCES is also able to reinvest £13,000 in a 10 kW solar PV system on the local sports pavilion roof, reducing the community building’s electricity bills. This project was granted planning permission by Dartmoor National Park Authority at the end of May and is due to be installed in June by The Good Heat Company, Diptford.

This success story is testament to the hard work and perseverance of the SBCES volunteers. Their determination, combined with some excellent technical expertise within the group, meant they were remarkably self-sufficient, but were grateful for the legal support they had from TLT Solicitors in Bristol, and the staff of Co-operatives UK. The project has been featured on BBC Spotlight South West and the Guardian Environment Network. The group also kindly ran a tour of the turbine for the DECC and Ofgem community energy grid taskforce, and joined the subsequent meeting in the local pub, hosted by ReGen SW in March 2014.

South Brent community wind turbine

Key changes in the last year

Sewage gas now provides 11.7 MWe and 12.4 MWth of installed renewable electricity capacity across the south west through 18 projects. In 2013/14, capacity decreased marginally against 2012/13 figures as Wessex Water’s plant at Trowbridge sewage treatment works was decommissioned, ready for an upgrade which is due to be commissioned in Autumn 2014.

Drivers

Water companies are driven to invest in renewables and sewage gas in particular by the need to control their operating costs, with energy as the biggest single cost to a water company. In addition, the water companies are investing in renewables to reduce their exposure to the risk of rising energy prices and to generate an income stream. There is potential at many of the existing sewage gas sites to upgrade the technology to increase generation.

Moving towards 2020

Sewage gas in the south west currently totals 11.7 MW, a small contribution towards the 400 MW of electricity from biomass installed capacity that the south west would need to meet a 15 per cent target in 2020. We expect growth in this technology to fall short of what is needed, with potentially around 60 MW of electricity and heat installed by 2020.

Trends in the growth of sewage gas

<table>
<thead>
<tr>
<th>Geographical area</th>
<th>Total (March 2014)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of projects</td>
</tr>
<tr>
<td>Cornwall</td>
<td>3</td>
</tr>
<tr>
<td>Devon</td>
<td>6</td>
</tr>
<tr>
<td>Dorset</td>
<td>2</td>
</tr>
<tr>
<td>West of England</td>
<td>1</td>
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<tr>
<td>Gloucestershire</td>
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<tr>
<td>Somerset</td>
<td>1</td>
</tr>
<tr>
<td>Wiltshire</td>
<td>2</td>
</tr>
<tr>
<td>Grand Total</td>
<td>18</td>
</tr>
</tbody>
</table>

Energy from sewage gas in the south west

Heat capacity
Electricity capacity
Number of projects

South West Renewable Energy Progress Report 2014
South West Renewable Energy Progress Report 2014

Solar PV

Key changes in the last year

There was over 270.9 MW of new solar PV capacity installed in 2013/14, which makes up 87 per cent of the new renewable electricity capacity installed over the last year. Installed capacity of solar PV now totals 852.2 MW.

Drivers

The significant cost reductions seen across the whole solar PV supply chain, along with government subsidies, have driven substantial growth in the large scale solar market in recent years. The excellent solar resources and the rural nature of the south west have resulted in it being an attractive place to develop solar farms.

The growth of solar farms looks set to continue this year - it will be important these are carefully sited and that communities are fully engaged in developments to maintain public support. From 2014/15 the government is reducing incentives for larger ground mounted projects and encouraging development of solar on commercial roofs. This represents a major opportunity, but with significant challenges resulting from the complexity of ownership arrangements that often exist.

Another challenge facing larger solar schemes is grid capacity. The cost of grid connections in some areas of the south west has made up to 70 per cent of the solar PV capacity.

Trends in the growth of solar PV

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Another challenge facing larger solar schemes is grid capacity. The cost of grid connections in some areas of the south west has made up to 70 per cent of the solar PV capacity.
Key changes in the last year
The installed capacity of solar thermal has increased to just over 14 MW this year. 449 projects amounting to over 1.5 MW were installed over the last 12 months.

Drivers
The growth in solar thermal has been slow but steady over recent years. The introduction of the non-domestic Renewable Heat Incentive (RHI) in November 2011 has had only a limited impact on solar thermal deployment, with just 194 kW being installed under the scheme to date. Solar thermal is not as attractive to the commercial sector as other renewable heat technologies, such as biomass, as it tends to only provide water heating and not space heating.

There has been a little more interest from the domestic sector with approximately one third of the (now closed) national RHPP applications coming from solar thermal. Domestic solar thermal installations are expected to pick up during 2014, with RHPP applications coming from solar thermal. Domestic solar thermal has the potential to develop a strong but small niche market for the off-gas grid domestic sector. The recent introduction of the domestic RHI will help the market to grow over the coming years.

Moving towards 2020
We estimate that 60 MW of solar thermal is needed to meet the south west 2020 target, which would make a small contribution of around 0.04 TWh. Based on a predicted upsurge in the market due to the domestic RHI, we predict that 50 MW could be installed by 2020.

Trends in the growth of solar thermal

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of projects</th>
<th>Capacity (MWth)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>1,072</td>
<td>1.66</td>
</tr>
<tr>
<td>2009</td>
<td>1,022</td>
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<tr>
<td>2010</td>
<td>1,044</td>
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<tr>
<td>2011</td>
<td>1,010</td>
<td>1.31</td>
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<tr>
<td>2012</td>
<td>1,022</td>
<td>1.38</td>
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<tr>
<td>2013</td>
<td>1,022</td>
<td>1.38</td>
</tr>
<tr>
<td>2014</td>
<td>1,009</td>
<td>1.31</td>
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Energy from solar thermal in the south west

<table>
<thead>
<tr>
<th>Geographical area</th>
<th>Total (March 2014)</th>
<th>New in 2013/2014</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of projects</td>
<td>Capacity (MWth)</td>
</tr>
<tr>
<td>Cornwall</td>
<td>820</td>
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<tr>
<td>Devon</td>
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<tr>
<td>Dorset</td>
<td>572</td>
<td>1.66</td>
</tr>
<tr>
<td>Gloucestershire</td>
<td>339</td>
<td>1.02</td>
</tr>
<tr>
<td>Somerset</td>
<td>509</td>
<td>1.63</td>
</tr>
<tr>
<td>West of England</td>
<td>544</td>
<td>1.98</td>
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<tr>
<td>Wiltshire</td>
<td>511</td>
<td>1.50</td>
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<tr>
<td>Grand Total</td>
<td>4,367</td>
<td>14.04</td>
</tr>
</tbody>
</table>

South West Water
South West Water is the water and waste water utility that covers all of Devon and Cornwall and small parts of Dorset and Somerset. As a significant energy consumer, South West Water has been using and deploying renewable energy technologies across its site portfolio for many years, with 10 MW of capacity generating around 20 GWh annually. South West Water plans to continue its deployment of renewable energy by targeting projects that are a suitable scale to match on-site operational energy consumption.

Significant capacity added in 2013/14
During 2013/14, South West Water commissioned two new microhydro turbines at Siblyback Reservoir in Cornwall and at Watercombe Water Treatment Works Intake, near the River Erme in Devon. Hydro provides the biggest proportion of the company’s renewable generation, with a total installed capacity of around 6 MW across the business.

South West Water also continued installing solar PV across its site portfolio, with new arrays at five clean and waste water treatment sites installed during 2013/14 with a combined capacity of 400 kW. These new arrays took the company’s overall solar capacity over the 2 MW mark (across 34 sites in total), and included the company’s largest single array to date (219 kW), which was installed on the company headquarters in Exeter.

Planning for the future
South West Water’s business plan for the next water industry five-year operating period (2015-2020) includes an aspiration to source 20 per cent of its energy from renewable sources by 2020.

South West Water worked closely with Regen SW to assess how the company might achieve this goal, through the deployment of further microhydro, small-scale solar and a significant opportunity to roll out additional wind power (single turbines) on or adjacent to South West Water operational sites.

Opportunities for renewable developers and communities
In addition to owning and operating schemes, South West Water is also keen to engage with third-party developers to assess the potential for private wire connections to renewable projects from South West Water sites. The company would like to collaborate with community groups, landowners and developers to implement renewable energy projects on land adjacent to South West Water sites.

Through involvement in Regen’s Communities for Renewables and Community Energy Network initiatives, South West Water has started to explore this model with some local community groups.

The company’s Energy Team would be delighted to meet or talk with any community groups or landowners in the region that may be interested in this model. Contact Ray Arrell, Renewable Energy Engineer, on rarerell@southwestwater.co.uk for more details.
## South West Renewable Energy Progress Report 2014

### Geographical area

<table>
<thead>
<tr>
<th>Geographical area</th>
<th>Total number of projects</th>
<th>Total electrical capacity (MW)</th>
<th>Total thermal capacity (MW)</th>
<th>Number of projects</th>
<th>Total electrical capacity (MW)</th>
<th>Total thermal capacity (MW)</th>
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<tr>
<td>Cornwall</td>
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<td>322.87</td>
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<td>13.949</td>
<td>10.44</td>
<td>4</td>
<td>2.166</td>
<td>21.210</td>
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<tr>
<td>Poole</td>
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<td>5</td>
<td>6.396</td>
<td>26.990</td>
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<td>Gloucester</td>
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<td>1.650</td>
<td>15.385</td>
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<td>3</td>
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<td>Weston</td>
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<td>4.98</td>
<td>9</td>
<td>6.472</td>
<td>11.039</td>
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<td>3</td>
<td>2.439</td>
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<td>38</td>
<td>35.966</td>
<td>20.370</td>
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</table>

### Data by local authority area

<table>
<thead>
<tr>
<th>Hydro</th>
<th>Electrical Capacity (MW)</th>
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<th>Total Electrical Capacity (MW)</th>
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<th>Thermal Capacity (MW)</th>
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<td>27.169</td>
<td>5.1383</td>
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</tbody>
</table>

### Local authority membership

Local authorities have a crucial role to play in maximising the opportunities that sustainable energy brings to their local communities. Join us and we will support your authority to achieve its sustainable energy ambitions with our expertise in planning policy, innovation, community energy, business models, training and economic development.

www.regnsw.co.uk

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The making of this report

This report is written based on our huge database of renewable energy projects in the south west which we began compiling in 2003. The database this year has over 92,500 individual entries with details of every renewable energy project installed to date. We bring together national data sets with information from local authorities, industry and communities to produce a clear picture of how the south west is progressing at a local level.

To produce our forecasts of renewable energy in 2030, our expert team poured over trends, installed and pipeline data and views from developers.

Data for the Regen 2014 progress report was collected for the period 1 April 2013 to 1 April 2014, using a baseline from the Regen 2013 progress report. We collected, cleaned, cross referenced and analysed the data.

Regen would like to thank the wide range of organisations and individuals who have contributed to this report. In particular, we would like to thank:

- AEE
- Bath and North East Somerset Council
- Biffa
- Bristol City Council
- British Solar Renewables
- Cannington Cold Stores
- Communities for Renewables CIC
- Cornwall Council
- DECC
- Devon County Council
- Dorset County Council
- Eco 2
- Ecoenergy
- EDF Energy
- Eneco
- Eneso
- Exeter Community Energy
- Genserv
- Gloucester City Council
- Good Energy
- Green Nation
- Hendra Group
- Inazin
- Infins
- James Reddy
- Lightsource Renewable Energy
- Magna Housing Association
- Mole Valley Farmers
- New Earth Solutions
- North Devon District Council
- North Somerset Council
- Ofgem e-serve
- Plymouth City Council
- Plymouth Energy Community
- REA Biogas
- Resilient Energy
- RESTATS
- Scottish and Southern Energy
- Severn Trent Water
- SidiEnergy
- South Brent Community Energy Society
- South Gloucestershire Council
- South Somerset Council
- South West Water
- SunGift Solar
- Sustainable Credition
- Sustainable South Brent
- SWDECP
- Teignbridge District Council
- The Good Heat Company
- TRESOC
- University of Exeter
- Vogt solar
- Wessex Water

The key sources of data used include:

- Ofgem Feed in Tariff data
- Renewables Obligation register
- Renewable Heat Incentive and Renewable Heat Premium Payment data
- MCS accredited projects
- RESTATS
- south west utilities
- local and national installers and organisations
- local authorities from across the south west
- local sustainable energy agencies
- local community groups.

Meet the team

The Regen SW team is always happy to answer queries from our members and to discuss new partnership opportunities. The first point of contact for our main areas of work are given below, with full details of all our staff on our website.

**Membership**

- Rachel Hayes
events and membership manager
rhayes@regensw.co.uk

Rachel manages Regen’s events, membership and sponsorship opportunities.

**Onshore electricity**

- Cheryl Hiles
director
Chiles@regensw.co.uk

Cheryl is responsible for our programme of activity to support the delivery of sustainable energy and works with both the public and private sector to create an environment attractive for investment. She is a founding director of Communities for Renewables CIC.

**Marine and offshore wind**

- Johnny Gowdy
director
jgowdy@regensw.co.uk

Johnny leads Regen’s work in the areas of offshore wind and marine renewable energy. He and the marine team have an excellent understanding of the industry, working with government departments, national bodies, technology developers and their investment partners. Johnny has been closely involved with the creation of the South West Marine Energy Park.

**Renewable heat**

- Tim Crook
senior project manager
tcrook@regensw.co.uk

Tim leads Regen’s technical work on renewable heat, with a particular focus on the UK’s renewable heat incentive.

**Microgen and energy efficiency**

- Lee Richards
programme manager
lrichards@regensw.co.uk

Lee is Regen’s programme manager for the built environment and Ready for Retrofit, providing strategic support to the microgeneration and energy efficiency supply chains in the south west.

**Public sector and grid**

- Tamar Bourne
project manager
tbourne@regensw.co.uk

Tamar delivers our local authority membership service and co-ordinates our lobbying on national policy issues. Tamar is our expert on smart grids. She is also managing the Renewable Energy Grid Collaboration Service and supporting the large scale solar industry.

**Communities**

- Jodie Giles
project manager
jgiles@regensw.co.uk

Jodie is responsible for the community energy support programme. Jodie engages with communities, developers and the wider renewable energy industry to support communities in the development of sustainable energy projects.

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Join Regen SW

Our members and local partners look to Regen SW to provide leadership and a strong voice for renewable energy and energy efficiency.

Championing
Making a passionate case with the media, policy makers and opinion former for sustainable energy at the heart of a thriving low carbon economy.

Informing
Briefings and events on the policy issues driving your market from our expert team and key policy makers.

Collaborating
Bringing together members to tackle challenges like grid and planning and enabling networking and business partnerships.

Showcasing
Leading events like where members can showcase their products and services and an online directory and publications featuring inspiring companies and achievements in the south west.

Recruitment
Assistance with recruitment, by publicising vacancies on our website, twitter feed and regular bulletins.

To find out more about membership contact Rachel Hayes, rhayes@regensw.co.uk, 01392 494399, or see www.regensw.co.uk/information/login-join-us

As a member, you are part of a unique network of 260 leading companies, community energy groups and public sector organisations working together to drive forward the renewable energy agenda.

"I have found being a member of Regen SW an excellent way to network with other companies in the SW. The events I have attended on behalf of ENVIRON have been informative and topical. I have valued the proactive, enthusiastic and friendly approach by the Regen SW staff."

Jo Curran, manager, ENVIRON

Engaging with Regen

Regen has launched its Renewable Energy Collaboration Service in response to requests from developers for a service to broker collaborations that could reduce grid reinforcement costs and enable projects in areas where grid costs are prohibitive. Contact Tamar Bourne tbourne@regensw.co.uk

We are extending an invitation to those that share our vision and our ambitions to do business with us – to draw on our expertise through our advisory services www.regensw.co.uk/advisory-services

You can support our work to promote sustainable energy by supporting our events, publications and campaigning initiatives www.regensw.co.uk/events/sponsorship