

THE POWER TO TRANSFORM

THE SOUTH WEST

The South West has the natural, technological and human resources to bring about a renewable energy revolution. The region can showcase a viable renewable energy mix, creating economic opportunities while protecting our precious environment.

As a region, South West England can be totally self-sufficient in energy. We have the capacity to generate this energy in clean, green ways with minimal environmental impact. Fossil fuels and nuclear are a distraction from this clear path.



A report commissioned by Molly Scott Cato MEP reveals:

- The region has the renewable energy resources to meet more than 100% of its total energy needs, including replacement of liquid fuels.
- A move to a renewable energy economy has the potential to create 122,000 jobs, an increase in employment of 4.5% across the region.
- One third of energy needs can be met from marine and inshore estuarine tidal energy, with the remaining two thirds from onshore renewables.
- The cost of delivering 100% renewable energy to the region would be around £60 billion. The equivalent cost of delivering 100% of energy needs from nuclear would be around £83 billion.
- Renewables offer opportunities for ushering in a Smart Grid Energy Storage system that would balance the intermittency of some renewable technologies
- Local Smart Grids developed in conjunction with renewable energy resources would reduce the need for large scale pylons and transmission systems.

In the South West we can demonstrate just how much better a society powered by clean, green energy would really be.

As is so often the case, the right environmental choice will also ensure greater economic justice and help us build flourishing local economies. Locally produced renewable energy will bring a huge economic boost and new jobs and benefit in particular some of our more deprived rural economies.

The South West of England has some of the world's best renewable energy resources, in great abundance and great variety.

All that holds us back from a renewable energy revolution and energy security is a failure of political will. Our politicians must progress beyond the fossil-fuel past into the sunny uplands of our shared renewable future.

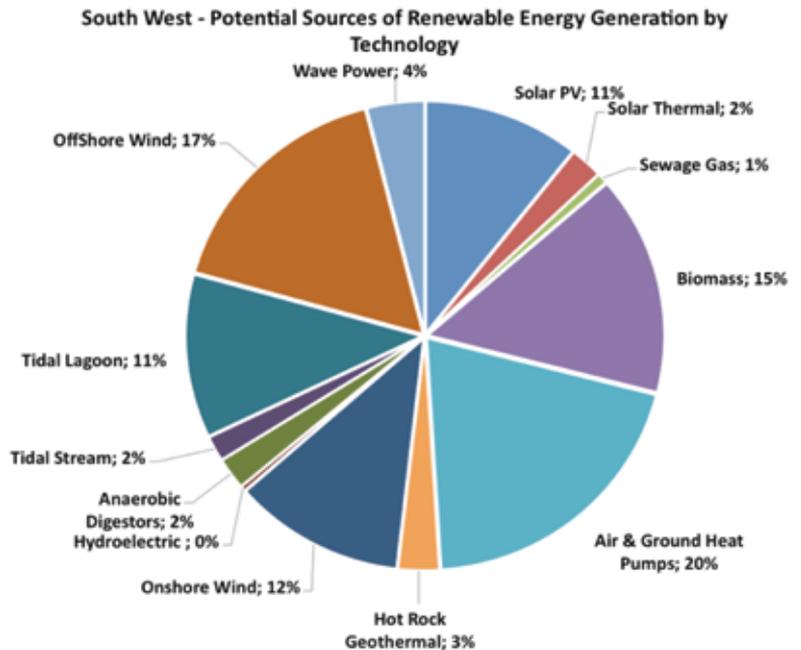


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THE REGIONAL CONTEXT

- **Current Total Gross Energy used:**
109,513 GWhrs
- **Projected future energy requirements by 2050, based on 40% reduction in energy through embracing low energy housing and electrification of the transport network:**
65,708 GWhrs
- **Renewable generating potential:** *67,449 GWhrs*
- **Percentage of future energy needs provided by renewables:** *102.6%*
- **Number of jobs created and percentage increase:**
122,112 full time equivalent skilled jobs/4.5% increase
- **Direct financial benefits to**



South West economy: *£4.3bn per year representing 4% growth per year in the total economy of the South West. Further economic gains would be achieved through local ownership and community investment in renewable energy schemes, such as Community Benefit Societies.*

The region has excellent potential for renewable energy generation based on its position facing the prevailing south westerlies and the configuration of the coastline. There are locally and nationally significant wind energy resources both onshore and offshore as well as tidal flow and wave resources. The excellent tidal range in the Severn estuary and the Bridgewater Bay provides significant potential for tidal lagoon and tidal flow energy generation.

The region also has some of the greatest potential for sustainable coppice wood biomass production when combined with the latest Combined Heat and Power generating technology. Extensive woodland restoration of key upland areas for coppice would also reduce runoff from increased rainfall intensity due to climate change and could play a significant role in reducing flooding in lowland areas across the region.

Ground and air source heat pumps would also play a significant role in meeting the regions heating and cooling energy requirements.

This wide diversity of renewable resources can ensure that the region meets baseload demands and sudden demand increases.



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COUNTY BY COUNTY ANALYSIS OF RENEWABLE ENERGY CAPABILITY IN THE SOUTH WEST OF ENGLAND

Devon

- **Total Gross Energy used:** 21,818 GWhrs
- **Projected energy requirements based on 40% reduction in energy by 2050:** 13,091 GWhrs
- **Renewable generating potential:** 12,642 GWhrs
- **Percentage of future energy needs provided by renewables:** 97%
- **Number of jobs created and percentage increase:** 21,067 full time equivalent skilled jobs/3.7% increase
- **Key drivers, opportunities and challenges:** Devon will require the installation of significant local smart grid energy storage due to the more variable nature of its renewable energy sources. The county's greatest untapped potential is offshore wind. Renewables in Devon have received mixed support owing to different political agenda's in the various Districts but the key technical obstacle of grid capacity can be overcome by political will. The majority of resources for grid upgrade are currently directed at new nuclear at Hinkley.

Cornwall and the Isles of Scilly

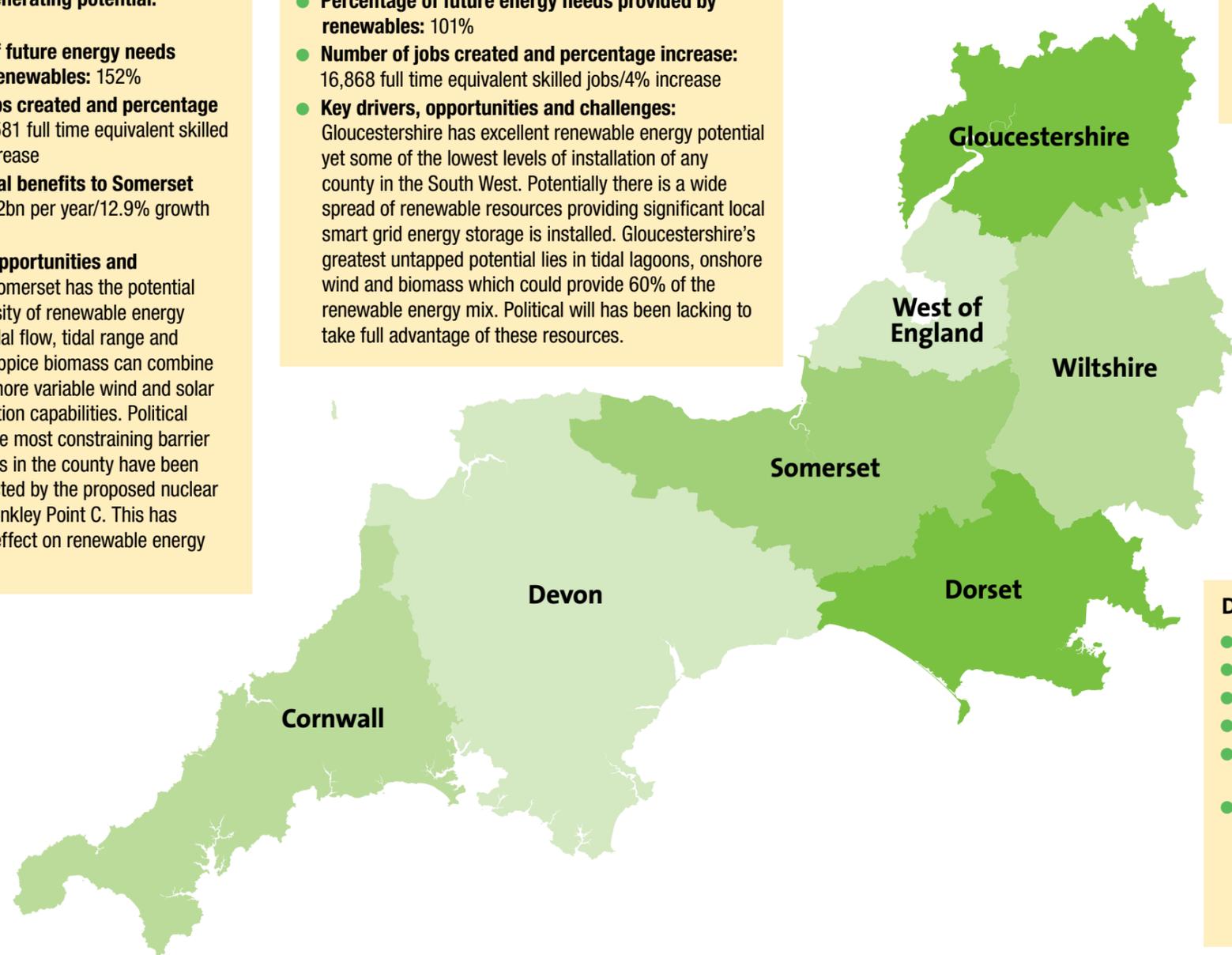
- **Total Gross Energy used:** 10,561 GWhrs
- **Projected energy requirements based on 40% reduction in energy by 2050:** 6,337 GWhrs
- **Renewable generating potential:** 10,185 GWhrs
- **Percentage of future energy needs provided by renewables:** 161%
- **Number of jobs created and percentage increase:** 16,537 full time equivalent skilled jobs/6.3% increase
- **Key drivers, opportunities and challenges:** Cornwall is richly endowed with a great variety of renewable energy resources, including reliable deep hot rock geothermal energy which can combine well with the more variable marine, wind and solar energy generation capabilities. Renewables have received excellent support from the progressive unitary authority and availability of EU funds. The county has one of the region's best overall strategies for developing renewables. However, its remoteness from the National Grid provides challenges for exporting surplus energy.

Somerset

- **Total Gross Energy used:** 12,607GWhrs
- **Projected energy requirements based on 40% reduction in energy by 2050:** 7,564GWhrs
- **Renewable generating potential:** 11,515GWhrs
- **Percentage of future energy needs provided by renewables:** 152%
- **Number of jobs created and percentage increase:** 16,581 full time equivalent skilled jobs/ 6.4% increase
- **Direct financial benefits to Somerset economy:** £1.2bn per year/12.9% growth per year*
- **Key drivers, opportunities and challenges:** Somerset has the potential for great diversity of renewable energy generation. Tidal flow, tidal range and sustainable coppice biomass can combine well with the more variable wind and solar energy generation capabilities. Political will is the single most constraining barrier and renewables in the county have been markedly affected by the proposed nuclear new build at Hinkley Point C. This has had a chilling effect on renewable energy deployment.

Gloucestershire

- **Total Gross Energy used:** 13,973 GWhrs
- **Projected energy requirements based on 40% reduction in energy by 2050:** 8,384 GWhrs
- **Renewable generating potential:** 8,445 GWhrs
- **Percentage of future energy needs provided by renewables:** 101%
- **Number of jobs created and percentage increase:** 16,868 full time equivalent skilled jobs/4% increase
- **Key drivers, opportunities and challenges:** Gloucestershire has excellent renewable energy potential yet some of the lowest levels of installation of any county in the South West. Potentially there is a wide spread of renewable resources providing significant local smart grid energy storage is installed. Gloucestershire's greatest untapped potential lies in tidal lagoons, onshore wind and biomass which could provide 60% of the renewable energy mix. Political will has been lacking to take full advantage of these resources.



West of England (including Bristol and Bath)

- **Total gross energy used:** 21,283 GWhrs
- **Projected energy requirements based on 40% reduction in energy by 2050:** 12,770 GWhrs
- **Renewable generating potential:** 10,115 GWhrs
- **Percentage of future energy needs provided by renewables:** 79%
- **Number of jobs created and percentage increase:** 19,101 full time equivalent skilled jobs/3.6% increase
- **Key drivers, opportunities and challenges:** West of England has significant potential, providing significant local smart grid energy storage is installed. Currently much of the grid upgrade is being diverted to new nuclear at Hinkley. The West of England's location along the Severn estuary provides good potential for tidal and marine based renewable energy. Renewables have received good support, especially from Bristol City Council. With the highest population density in the South West, the area will be a net importer of energy.

Wiltshire

- **Total Gross Energy used:** 15,793 GWhrs
- **Projected energy requirements based on 40% reduction in energy by 2050:** 9,476 GWhrs
- **Renewable generating potential:** 6,377 GWhrs
- **Percentage of future energy needs provided by renewables:** 67%
- **Number of jobs created and percentage increase:** 15,185 full time equivalent skilled jobs/4.5% increase
- **Key drivers, opportunities and challenges:** Wiltshire has the lowest potential for renewables of all the counties, with no marine energy resources, minimal major rivers and a wide open landscape of rolling hills. The key resources are biomass, onshore wind and solar. There has been limited political support, due to conservative agricultural traditions and the prevalence of some of the UK's foremost ancient sites. Given the political will, technical barriers to deployment of renewable energy can be overcome.

Dorset

- **Total Gross Energy used:** 13,477 GWhrs
- **Projected energy requirements based on 40% reduction in energy by 2050:** 8,087 GWhrs
- **Renewable generating potential:** 8,169 GWhrs
- **Percentage of future energy needs provided by renewables:** 101%
- **Number of jobs created and percentage increase:** 15,124 full time equivalent skilled jobs/ 4% increase
- **Key drivers, opportunities and challenges:** Dorset is heavily reliant on offshore wind which has the potential to provide 34% of future generation capacity. The county has the second lowest renewable energy capacity per head of population in the South West and lack of political will is a key obstacle. The education of the older generation to support positive energy policies is leading to some success in the development of renewables in Dorset.

ABOUT THE REPORT

Renewable energy capacity in the South West: the capability of renewable energy to meet baseload energy demand

Molly Scott Cato, Green MEP for the South West, commissioned a study into the ability of the South West of England to provide reliable baseload energy from renewable sources. The study was carried out by the Resilience Centre in Gloucestershire. For the purposes of the study, the region comprises Gloucestershire, West of England (Bristol and Bath), Wiltshire, Somerset, Dorset, Devon, Cornwall and the Isles of Scilly.

The report draws together the wealth of information that has been produced on onshore and offshore marine energy potential for the region in recent years.

“This report provides the renewables energy industry in the South West the evidence it needs to demonstrate the benefits that it can bring to the region’s economy and the thousands of new jobs it can create. For too long authorities have been courted by the quick fix of large scale nuclear and dazzled by seemingly extravagant job creation figures.

Let them now be dazzled by our local, safe and reliable renewables sector and the money it puts back into local people’s pockets in salaries and reducing energy imports. We all knew renewables can provide a better alternative for local economies and jobs, we just needed to demonstrate it.”

Andrew Clarke, Environmental, Energy and Strategy Consultant at the Resilience Centre



The full report can be found at:
<http://mollymep.org.uk/2015/04/17/power-to-transform/>

For further information on the work of the Resilience Centre: <http://www.theresiliencecentre.co.uk/>

For further information about the work of Molly Scott Cato MEP: www.mollymep.org.uk

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Contact Molly: office@mollymep.org.uk