

# Rising to the Energy Challenges for the South West

## Findings and proposals arising from the SW Energy Debate

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### 1 Introduction: The Context

The supply and use of energy underpins our lives, from keeping our homes warm in winter and lighting our public buildings to powering the computers at the heart of our businesses and growing, distributing and preparing our food. Almost no aspect of our modern existence can be sustained in its present form without a reliable, affordable supply of energy – as electricity, heating fuel or motor fuel.

Yet the way we currently supply and use energy – based principally on fossil fuels – is causing potentially irreversible damage to the ecosystem upon which our way of life depends, most specifically through the climate changing impacts of carbon dioxide emissions.

Our overwhelming reliance on fossil fuels as our source of energy additionally creates vulnerability to supply constraints and price volatility which could cause extensive economic dislocation.

And at the same time, many of our most vulnerable households cannot afford to meet their basic needs to keep safely warm in their homes in winter, risking their health and wellbeing.

The need to change – to establish a more sustainable pattern of energy supply and use which avoids these problems – is urgent and now widely acknowledged.<sup>1</sup>

This need to change is the background to the South West Energy Debate, one of five debates triggered by the South West Regional Development Agency (South West RDA) to explore key challenges for the region identified in the Regional Economic Strategy published in 2006 (see [www.swdebates.info](http://www.swdebates.info)). A particular focus of the debates has been to establish priorities for future action by the region.

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1 For example, the need to cut carbon emissions significantly and to bring an end fuel poverty are both embodied in law (the Climate Change Act 2008 and the Warm Homes and Energy Conservation Act 2000)

The SW Energy Debate was initiated by the South West RDA with a stakeholder meeting in the summer of 2007. The Bristol-based charity, the Centre for Sustainable Energy (CSE – see [www.cse.org.uk](http://www.cse.org.uk)), was engaged by the RDA in June 2008 to assist with the debate. The debate has subsequently consisted of a seminar in July and two workshops in November – one on energy demand reduction and one on low carbon supply.

This paper represents the '*Findings and Proposals*' arising from this process, combined with analysis and deliberation undertaken by CSE. It is not intended to capture every thought and opinion expressed in the process, nor to reproduce all of the detailed thinking and action planning developed in the workshops. Instead it offers a synthesis of the analysis and various contributions in an attempt to provide a coherent set of proposals for the SW region, and the RDA in particular, to embed in its future strategies and programmes.

## **2 Structure of the Report**

This report is structured to provide an insight into the scale of the challenges facing the South West in relation to energy supply and use and the role the region can potentially play in responding to these challenges, alongside national government (Section 3).

Section 4 of this paper details the ideas and proposals emerging from the seminar and workshops, with particular focus on the two strongly backed priorities – reducing energy demand and stimulating low and zero carbon energy supply, particularly renewables. The final section (Section 5) outlines recommendations to the South West RDA as the sponsor of the Energy Debate to take forward these proposals.

Available alongside this paper is an accompanying paper – *Energy Demand and Supply in the South West: the Context for the SW Energy Debate* – which outlines the current energy demand and supply for the region and the current and future factors and policies driving change (for both the better and the worse). This paper was used to set the context for the workshops and contains useful analysis of the likely impacts of existing national and regional programmes and policies in the South West. The analysis is not reproduced here.

### **2.1 A comment on transport energy use**

It is important to note that the Energy Debate did not, and was not intended to, focus on transport-related energy use. This exclusion is legitimate in that there is only limited overlap between policies and practices influencing transport energy use and those influencing all other energy uses. In addition, the expertise and understanding required to tackle transport-related energy use tends not to co-exist with knowledge about tackling building-based and industrial process-related energy uses. The Debate would therefore have needed different expert input.

This said, the absence of any focus on transport in the South West Debates was identified as a significant shortcoming of the debate process – and a recommendation that this be addressed in future is made in this report.

However, the lack of systematic analysis in the region of how to tackle transport energy use – and therefore the lack of a truly comprehensive approach to tackling carbon emissions and energy security – should not be used to justify any delay in implementing effective action on the energy challenges which have been addressed.

### **3 The key energy challenges for the South West**

The need for change outlined in the introduction translates into significant challenges for the South West region:

- Deliver cuts in carbon emissions of at least 80% by 2050, with rapid progress over the next 10 years, to ensure the South West plays its full role in the global efforts to avoid dangerous climate change.<sup>2</sup>
- Manage a reduction in the region's dependency on fossil fuels to improve energy security and minimise the risk of economic and social dislocation caused by higher and more volatile energy prices.
- Eradicate the social and health impacts caused by fuel poverty – a result of high fuel costs, energy inefficient housing, inadequate household incomes, and health- and age-driven need for high standards of warmth.

In meeting these challenges – which are common to any region in the UK – there is an additional challenge to ensure the South West region's economy benefits rather than loses from success:

- Secure the economic benefits within the region of cutting carbon emissions, eradicating fuel poverty, and harnessing some of the best renewable energy resources in Europe.

The scale of these challenges is difficult to over-estimate, particularly in the face of a range of factors at work in the region – population growth linked to an ageing population and a shift to smaller households – all of which drive higher energy demand (see accompanying paper: *Energy demand and supply in the South West – RDA Energy Debate context*).

To these factors should be added the difficult economic conditions emerging in the second half of 2008; tight credit availability and forecasts of negative economic growth will severely restrict investment.

To negate the impact of these drivers and put the region on a path to meet the challenges outlined above will require an unprecedented scale of sustained activity to:

- reduce energy demand
- improve the efficiency of remaining energy use
- decarbonise the energy supply

It will also require a level of regional planning and co-ordinated action to support organisations and businesses in the region to expand and/or develop the necessary services and supply chains.

This amounts to a revolution in current priorities and practices – as demonstrated by the analysis of current and future trends on energy use detailed in the accompanying paper.

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2 A growing body of scientific evidence now suggests that cuts of this scale may need to be made significantly earlier than 2050 to avoid concentrations of greenhouse gases in the atmosphere at levels which would trigger irreversible 'runaway' climate change levels

### 3.1 The role of the South West as a region in meeting the energy challenges

Clearly these are not challenges which the South West region can meet in isolation from the rest of the UK. In particular, the region does not have control of many of the policy and funding levers which can influence carbon emissions, improve energy security or tackle fuel poverty. These include energy market regulation, tax and pricing policy, building and product standards etc.

Nevertheless, like any region in the UK, the South West has the potential and the powers to act through its various regional bodies. For example, the region can, either directly or through the funding its public bodies can make available, to:

- establish clear strategic frameworks for planning, housing, economic development, transport and other issues across a region (eg Regional Spatial Strategy, Regional Economic Strategy, Regional Housing Strategy etc) within which individuals, communities, local authorities, and businesses take decisions and act;
- support regional business, supply chain and skills development (often involving companies and organisations too small to participate in nationally co-ordinated activities);
- encourage innovation through effective regional partnerships with business and academic institutions and through accessible exemplar projects;
- manage regeneration and economic development funds;
- marshal regional, national and European funding streams into coherent spending programmes to make them relevant, manageable, targeted and accessible for sub-regional organisations, local authorities and businesses;
- provide effective co-ordination of local action and partnerships, sharing resources, improving information flows and practice, reducing duplication and providing a common voice.

These are all described here without reference to the sustainable energy challenges outlined above, because they represent what regional bodies already exist to do in order to serve other policy objectives. Yet the ways in which the South West's regional bodies carry out these roles will have an influence (whether or not it is deliberate or positive or negative) on key factors such as carbon emissions and affordable warmth.

The South West region is already using some of these roles to stimulate, for example, faster deployment of renewable energy (eg. Regional Spatial Strategy policies; the establishment and funding of Regen SW, the region's sustainable energy agency; specific programme funding for marine energy innovation and sector development and biomass energy deployment and supply chain development). The region has also established broad-brush policy ambitions to cut carbon emissions through the Climate Change Action Plan and the South West RDA has committed to making its spending programme carbon neutral.

The question at the heart of the Energy Debate is what *more* the region could be doing *through these roles* to meet the energy challenges it faces. Both the seminar and the workshops therefore endeavoured to focus on exploring issues and actions which the region could potentially influence through these recognised roles and by organising effectively across the region. As outlined in the next Section, a number of clear priorities for new and additional action came forward.

## 4 The priorities for action

The seminar which took place for the Energy Debate examined the current context (as at second half 2008) for energy demand and supply in the region and its future prospects. The discussion and feedback from the seminar set strong priorities for regional action to:

- Reduce energy demand, thus curbing carbon emissions, reducing energy dependence and, potentially, improving and energy affordability, and;
- Stimulate low and zero carbon energy supply, particularly renewable energy in line with the *Road to 2020*<sup>3</sup> report published by Regen SW, thus curbing carbon emissions and increasing energy independence.<sup>4</sup>

These two objectives then became the focal points for the two workshops, one on energy demand reduction and the other on low carbon energy supply. These workshops were designed to identify opportunities for action – particularly to overcome barriers to change –and to propose priorities for regional interventions which:

- Have a more-or-less immediate impact
- Create the conditions for impact to be achieved over the next 5 years
- Establish the foundations for actions in the future which will have significant impact in subsequent years.

The focus in the workshops, and therefore here, was on actions which are appropriate to be undertaken at regional scale, led by a regional body such as the South West RDA.

### 4.1 Reducing energy demand: priorities for the region

Reducing energy demand is often the ‘poor relation’ of sustainable energy policy and programmes. As pointed out at the Energy Debate seminar in July, it is generally quite boring in technological terms (eg insulation and metering), diffuse in application (eg millions of households and business premises), and involves challenging engrained habits and structures (eg heating regimes, decision-making systems etc).

Yet it is the area of action on sustainable energy which delivers the most cost-effective, economy-stimulating and carbon-emission-reducing results. It also tends to rely on largely local labour (ensuring economic benefits remain largely within the region) and offers an opportunity to engage whole communities with a mutually beneficial outcome.

To date, the region has not played an active role in energy demand reduction beyond relatively small-scale (relative to the size of the task) programmes associated with business resource efficiency. The advent of the region-wide Energy Saving Trust Advice Centre and the modest RDA funding for Regen

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3 Regen SW (2008) *The Road to 2020* [http://www.regensw.co.uk/downloads/RegenSW\\_210.pdf](http://www.regensw.co.uk/downloads/RegenSW_210.pdf)

4 It should be noted that there was not evident appetite during the Energy Debate to discuss the region’s approach either to the development of new nuclear power or the Severn Barrage. This may be a result of an expectation of a consensus-based approach combined with a weariness to engage with well-worn arguments that produce polarised positions and the knowledge that there were other national processes focused on these issues. One participant commented “*We really should focus on what we agree on and what we can do something about. We’ll end up getting nowhere if we spend the time sorting out a common – or even majority – position on such divisive issues*”

SW to offer business support to the energy efficiency sector potentially mark the start of a sea change. Accelerating this change would be widely welcomed by participants in the Energy Debate.

**For immediate impact:**

**Public procurement, strong promotion in communities, reaching homes through schools**

The public sector is a major user of energy, often in prominent buildings visited by the public. Its role as a leader requires it to set standards of energy performance and behaviour that are exemplary. This is not currently the case.

A comprehensive region-led public sector programme of improved energy metering and management, staff 'energy champion' training, and building refurbishment should be combined with effective region-wide procurement of energy using equipment (from refrigerators in schools to IT in hospitals) to ensure the best energy efficiency standards are achieved. This could be co-ordinated through the Regional Improvement and Efficiency Programme, bringing together public sector bodies to establish common procurement standards and test the potential benefits of joint procurement to drive up standards and drive down costs.

The region could add its weight to existing programmes and promotional activities by, for example, the Energy Saving Trust and Carbon Trust, to encourage householders and businesses to take up advice and offers available. Such promotion may best be done through support for the wide-range of community initiatives across the region that are trying to address carbon emissions and energy security within their localities. Community approaches often find effective ways to engage people in the issues. But communities may need help and support to turn the burgeoning interest into coherent and effective action, for example, to insulate homes and install new renewable energy systems.

It would also be valuable to ensure all local authorities in the region are maximising the potential of energy supplier and other funding – such as the Regional Housing Pot and their own funds – to subsidise the cost of basic insulation measures, particularly for lower income households. This would help to accelerate the take-up of these measures.

The energy demand reduction seminar also expressed strong support for a systematic approach across the region to engaging schools as a tried-and-tested route to changing household behaviour. Research has shown that education programmes which suit teachers' needs and engage the children as 'home energy advisors' can have impacts on household behaviour as significant as those achieved by professional energy advisors. Current educational activities on energy across the region are patchy and often poorly funded.

**For impact in the next 5 years:**

**Benchmarking, common refurbishment standards, funds for 'harder to do' measures**

The energy demand reduction seminar highlighted the strong potential for changing attitudes and, in particular, management behaviour by establishing and promoting energy benchmarks for different types of building. This would enable occupants to understand how their level of energy use compares with typical and best buildings of the type they occupy – and also what they could do to improve their energy performance. While there is data available, it is often not made specific enough and is certainly not promoted adequately to have the desired impact.

Such benchmarks could be coupled with a suite of standards for refurbishment for the main property types across the region. These 'blue-prints' will be needed by the public sector so that it can take a leadership role; they will also be relevant to householders and business organisations. Knowing what to do, how much it is likely to cost, and how easy (or difficult) it is to achieve are key to overcoming the barriers to action to reduce energy demand.

While there are national programmes designed to make sure that, in time, every home in the UK will have adequate cavity wall and loft insulation, the homes with solid walls require more complicated and expensive treatment. Such insulation measures are not yet being delivered at scale and yet there are roughly 600,000 homes in the South West which have solid walls. An injection of funding at regional level through, for example, the Regional Housing Pot, would enable the region to develop high quality supply chains and establish standardised approaches to the insulation of solid wall buildings ahead of any future national programmes.

**For longer term impact:**

**Smart meters across the region**

All of the immediate and 'in the next five years' measures outlined above will need to be sustained if the energy demand reduction potential of the region and the associated benefits are to be realised.

The Government has committed to ensuring that smart meters will be installed in every home in the UK by 2020. Smart meters can provide instant feedback to consumers (which evidence suggests leads to demand reduction of 2.5 – 5%), encourage more efficient timing of energy use, and also enable the installation of micro-generation through two-way metering. It is unclear how the required meter replacement programme is to be rolled out, but it would be a significant stimulus for demand reduction in the region if the South West could be at the front of the queue.

The RDA, potentially through Regen SW, should also engage with companies in the South West involved in manufacturing heating controls and energy metering and monitoring equipment to assess how it might support their successful involvement in the replacement programme.

#### **4.2 Stimulating low and zero carbon energy supply: priorities for the region**

There was strong support in the seminar for the continuing work of Regen SW to support improved planning for renewable energy, stimulate markets for particular technologies and resources (particularly wood-fuelled heating) and build the capacity of the renewable energy sector – from project developers to manufacturers and installers – through business support and inward investment programmes. In particular, the proposals outlined in Regen SW's *Road to 2020* report mentioned above were considered a starting point for action.

**For immediate impact:**

**Energy planning, public sector procurement and community action**

The key priority to enable increased renewable energy in the South West is to create a more positive and enabling planning system. Increasingly supported by national policy, the South West is well placed to develop a clear regional planning and deployment strategy for renewable energy up to and beyond 2020 and to support and enable local authorities to develop and adopt evidence-based policies which ensure each district in the region can make its full contribution to delivering a sustainable energy future.

This deployment planning exercise should explicitly address the issues associated with siting renewables in the South West's high quality landscapes. This requires a debate with a wide range of stakeholders which is informed by (a) an understanding of the actual potential landscape impacts of meeting long-term renewable energy targets and (b) a clear sense of the changing nature of the landscape (eg by changes in settlements and farming practice) and the likely impacts of climate change.

The public sector has many thousands of boilers producing heat across the South West. This provides an ideal opportunity for the sector to use its procurement powers to plan and deliver a programme to shift to renewable sources of heat – particularly woody biomass and waste. This will require a collective approach, potentially organised through the Regional Improvement and Efficiency Programme, to identify boilers due for replacement and to co-ordinate procurement to deliver a region-wide mechanism for ensuring low carbon replacement. The impact of this demonstrable public sector leadership on the household and business sectors should not be underestimated.

The potential for communities to engage positively and supportively with sustainable energy is widely demonstrated. Initiatives in the region such as Renewable Energy for Devon (R4D) have shown how modest funding can enable technical and community development experts to stimulate interest and take-up of renewable energy at community and individual household scale. There is a region-wide opportunity for a funded network of such county-level initiatives which is not currently being fully realised. This could also be tied in to developing a consistent regional approach to securing community benefits from renewable energy developments such as wind farms.

**For impact in the next 5 years:**

**Energy from waste, heat infrastructure, training, and investment in marine technology**

The opportunities and most appropriate technologies for using waste to generate heat and electricity within the region need to be better understood so that waste and energy policies can be more effectively integrated. This should extend beyond municipal waste to include waste wood and other commercial waste.

Associated with the potential to use waste as a fuel is the need to identify opportunities for community heating solutions, through district heating and the use of waste heat from existing power stations and larger boilers. The economics of district heating typically fail because the required infrastructure to distribute the heat in a locality produces an investment return that is unattractive to commercial investors (mainly because the environmental and social benefits are not 'counted' in a typical commercial investment appraisal). This indicates a role for public sector investment, notably by the RDA, in developing a heat distribution infrastructure in the locations in the region with the potential for district heating and combined heat and power.

With the anticipated advent of a 'feed-in tariff' and a renewable heat incentive to support smaller scale renewable energy technologies, the market for new microgeneration technologies should grow significantly. Starting now a programme of training and support for building trades to develop appropriate skills would help ensure the South West is 'self-sufficient' (if not a supplier to the rest of the UK) in renewable energy technology installation services as these new policies come into force over the next 2 years.

In the longer-term, the potential for offshore renewable energy technologies in the South West is significant. As identified in the *Road to 2020*, there are particular needs for research, development and deployment-enabling measures for both marine technologies (wave and tidal current) and offshore wind in the deeper waters off the South West coastline (compared with the shallower waters of the East and North West of England where most offshore development is currently taking place).

**For longer term impact:**

**Foundations for Servicing Off-shore Wind and Marine Energy**

All of the developments outlined above will need to be sustained beyond the 'immediate' or 'the next five years'. In addition, the region will need to begin to plan now if it is to realise a reasonable proportion of the economic benefits of exploiting our offshore renewable energy resources. Alongside initiatives like the Wave Hub, a focus on the development of ports and facilities for servicing these offshore projects will be necessary.

## **5 Recommendations for the South West RDA**

As the sponsor of the South West Energy Debate, the South West RDA was seeking views on how it can respond to the energy challenges faced by the region. While actions such as those outlined here will need to be taken by different regional bodies, it is likely to be the RDA which needs to lead the setting of strategy and to initiate, influence and/or fund other bodies to act.

The proposals emerging from the Energy Debate which were outlined in Section 4 therefore give rise to the following recommendations for the South West RDA to follow through:

### **For strategic prioritisation**

1. Establish energy demand reduction as a key objective of future strategy and a major priority of funding and procurement activities.
2. Sustain and grow RDA support for renewable energy deployment, particularly through the endorsement of Regen SW's *Road to 2020* programme and associated funding needs.
3. Undertake urgently a review of the region's transport-related energy use, with a focus on the need to reduce the significant impact it has on carbon emissions and energy security.

### **For immediate impact**

4. Fund, potentially in partnership with national government, a consensus-building planning process to develop a regional deployment strategy for sustainable energy to 2020 together with strong and positive evidence-based local planning policies.
5. Establish a focus for exemplary public leadership on energy demand reduction, with concerted joint effort (via the Regional Improvement and Efficiency Programme) to procure high efficiency equipment, improve energy management, train staff 'energy champions' and refurbish public buildings to excellent energy performance standards.
6. Resource the work of community initiatives and county-level technical expertise to stimulate (a) stronger public consensus for action to tackle climate change and improve energy security and (b) greater take-up of demand-reducing measures and renewable energy systems.
7. Develop a sustained replacement programme for boilers in the public sector to switch over to renewable heat such as biomass, using joint procurement (see recommendation 5 above) to manage the process, control costs and maximise the supply chain benefits in the region.
8. Ensure, through the Regional Housing Pot and other funding streams, that all local authorities are maximising the opportunities to leverage energy supplier and other monies to fund basic insulation measures in the region's households, particularly lower income households.
9. Build a region-wide education programme to ensure every child becomes an effective energy advisor in their own home.

**For impact over the next five years**

10. Create and publicise a set of benchmarks for building energy performance and a suite of refurbishment standards for the main property types across the region.
11. Establish a fund to support the delivery of solid wall insulation so as to develop a high quality supply chain and standardised approaches ahead of any future national programme.
12. Identify the opportunities and most appropriate technologies for using waste as a fuel across the region and integrate into both waste and energy policies.
13. Create a heat infrastructure funding mechanism to enable the realisation of the potential for district heating and combined heat and power in the region.
14. Set up training for building trades in the installation of microgeneration technologies to prepare them for the market expansion anticipated with the forthcoming feed-in tariff and renewable heat incentive.
15. Expand support for marine and offshore wind technology development and deployment, reflecting the particular needs represented by the resources in the South West (eg deeper water) as outlined in the *Road to 2020*.

**For longer term impact**

16. Seek to position the South West as a first mover for the roll out of smart meters to all households and businesses.
17. Plan for the development of ports and servicing facilities for the South West's offshore renewable energy projects.

**To comment on this paper**

You can provide comment on this paper and its recommendations by going to [www.swdebates.info/forum/forum\\_topics.asp?FID=6](http://www.swdebates.info/forum/forum_topics.asp?FID=6), a website managed by the South West Regional Development Agency to support the SW Debates.