



South West Devon Strategic Energy Study: The Evidence Base

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EXECUTIVE SUMMARY

This report comprises an evidence base study, which forms the first stage of a Community Energy Plan for the South West Devon area. It has been produced for the South West Devon Community Energy Partnership (SWD CEP) and has been funded by the *Sustainable Energy Across the Common Space* (SEACS) project. The aim of the SWD CEP is to achieve energy resilience within 10-20 years. The area covered by this evidence base includes the districts of South Hams and West Devon, plus Dartmoor National Park. The area has around 160,000 inhabitants which is projected to rise by 15-20% over the next twenty years. Over this period, the proportion of the population over 65 will increase from one in five to one in three. There are a high proportion of people living in small isolated rural communities. People are generally very happy with living in this area, though there are specific local concerns about the affordability of housing, transport issues such as congestion and a lack of suitable public transport, and a lack of activities for teenagers. Unemployment is low, with the main employment sector varying across the area.

An analysis of current energy use estimates that there is a broadly equal split across the non-domestic, domestic and transport sectors in SW Devon. There are some differences in terms of breakdown in energy use across the different parts of SW Devon, though compared to the national picture the use of non-gas fuels in the homes is higher throughout. This energy consumption results in approximately £0.4 billion being spent on energy in SW Devon – equivalent to about a fifth of the economic output of the area or about 15,000 full time jobs. This is equivalent to about £2,600 per person per year on energy. Unlike when considering energy demand where there was an equal split between domestic, non-domestic and transport, in financial terms over half of the energy spend is on road transport. This is because fuel duty is a significant additional cost. Similarly, when cost is considered electricity becomes relatively more important than other fuels used in buildings such as natural gas or oil.

An estimate was made of the change in energy demand between now and 2022 as a result of both population growth and central government policy. This indicates that overall, energy demand could fall by 13%. Whilst many of the policies which result in this reduction are set by central government, the implementation requires significant action at a local level. In spite of this, it is estimated that the benefits of reductions in energy demand could be more than offset by rises in energy prices, meaning that overall over this period total spending on energy would increase.

There are significant opportunities to reduce energy consumption from buildings. New buildings offer the best potential to deliver high levels of energy efficiency. The building regulations require a minimum level of performance, which is improved upon over time. It would be challenging to require mandatory significant improvements beyond these standards, though encouraging more self-builders could mean that more aspirational standards such as Passivhaus are targeted voluntarily. There are also significant potential opportunities to develop local policy to help ensure “allowable solutions” contributions are used locally. There is much greater potential in tackling existing buildings. The domestic stock in SW Devon is characterised by having a high proportion of homes with solid walls and that are off the gas grid. There are also a high number of large and potentially under-occupied properties. Energy reduction will need to occur through a range of

potential interventions, with the greatest potential from insulating solid walls. There are also large potential longer-term savings if homes could be retrofitted to a standard approaching Passivhaus. Behaviour measures such as purchasing the most efficient domestic appliances or energy saving measures around the house could also save a reasonable amount of energy, at relatively low or no cost. Non-domestic energy use is harder to analyse as it is very dependent on the specific use of a building, though a combination of national policies and pro-active energy management could be expected to lead to reasonable and cost effective reductions in energy use.

Transport is the largest consuming sector of energy in SW Devon. Due to the rural nature of the area, there is a very high dependency on private car use, and for example, most commuting journeys are made by single car drivers. Traditional public transport models are very challenging to implement in rural areas due to low passenger densities and the high level of subsidy required. Going forward, the improving efficiency of vehicles will reduce transport energy use by a modest amount. Savings from other behavioural type measures are potentially very small for the assumptions we have made in this report. There are a number of local schemes in operation, though again their impact at the moment is likely to be small. There is also a lack of detailed local information on people's transport needs. Making more significant reductions in transport energy is likely to require fundamental changes to how people organise their lives across the area, and will only happen if there are attractive alternatives to private car travel.

A review of current assessments of the potential for renewable energy indicates that although a huge step-change in delivery would be required, South West Devon has the natural resources to meet a high proportion of the demand for energy, especially once energy demand is reduced through efficiency measures. Local energy resilience will need to be achieved using a broad mix of technologies, each of which would need to be deployed far more extensively than at present. The technologies with the greatest potential impact are likely to comprise large scale electricity generation, predominantly wind turbines though also PV farms, and building scale renewable heat technologies such as biomass boilers and heat pumps. Each of these technologies has significant barriers to deployment which would need to be resolved.

In overall terms, this evidence base has shown that there is plenty of potential to both reduce energy demand, and to generate more sustainable supplies of energy within the area. Of the opportunities examined here, there is high diversity between the potential measures in terms of impact, cost, number of measures required and whether it is suitable for implementing now or in the longer-term. A series of priority themes and action areas has been identified to take forward to the next steps of the community energy plan. These are:

- **Domestic Retrofit:** Improving the energy efficiency of existing dwellings, generally through fabric measures such as insulation.
- **Domestic behaviour:** Encouraging behaviour measures to reduce energy use in the home, especially around issues of thermal comfort.
- **New Development:** Developing local policy so the benefits of new development are realised in the local area, especially around promoting exemplary self-build projects and the emerging "allowable solutions" policy.
- Reducing energy use from the **non-domestic** sector.
- Reducing **single occupant car travel**.
- **Large Scale Renewable Energy:** Determining the appropriateness of large scale renewable energy generation in SW Devon, and to maximise local benefit where it can be deployed.
- Promoting and implementing **renewable heat technologies** in buildings.
- **Renewable Futures Group:** Keeping abreast of potential opportunities for the area due to new innovations and improvements to emerging technologies.