Technical Paper E3

Comparing Cornwall’s
Renewable/low carbon Energy
Resource Potential with its Energy
Consumption
Cornwall Council
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N.B. This is a live document that will be updated.
Technical Paper E3
Comparing Cornwall’s Renewable/low carbon Energy Resource Potential with its Energy Consumption

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**Headlines**

The renewable energy resource assessment demonstrates that we have the potential to source the following proportions of our energy requirements from renewable/low carbon sources:

*The proportion of our energy needs that can be met from Cornwall’s renewable energy resources.*

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Current situation</th>
<th>Future situation (2025)</th>
<th>UK Target for 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of our total energy needs from renewable/low carbon sources</td>
<td>23.4%</td>
<td>25.8%</td>
<td>15%</td>
</tr>
<tr>
<td>Proportion of our total electricity needs</td>
<td>59.6%</td>
<td>50.9%</td>
<td>30%</td>
</tr>
<tr>
<td>Proportion of our total heating needs</td>
<td>21.5%</td>
<td>27.5%</td>
<td>12%</td>
</tr>
<tr>
<td>Proportion of our domestic electricity needs</td>
<td>100%</td>
<td>100%</td>
<td>-</td>
</tr>
<tr>
<td>Proportion of our domestic heating needs</td>
<td>48.6%</td>
<td>63.6%</td>
<td>-</td>
</tr>
</tbody>
</table>
1. **Introduction**

1.1 In order to provide some context to the renewable/low carbon energy resource assessment and any policies developed for the Core Strategy to support deployment of renewable/low carbon energy it is reasonable to try to compare it to our energy consumption. This will help to develop a greater understanding how much of the energy we use can be supplied through renewable/low carbon sources in Cornwall.

1.2 Renewable/low carbon energy sources can be exploited to generate energy in the form of electricity, heat and fuels for transportation. Depending on the energy generation technology used some renewable/low carbon sources can be exploited to produce any of the energy types, or a combination of the three.

1.3 With this in mind it is possible to consider the contribution that Cornwall’s renewable/low carbon energy resource could make to our total annual energy demands as a whole and to look at the contribution we can make to our electricity, heat and transport needs separately. The following sections set out how the potential can be assessed against our needs in terms of each energy type.

1.2 **Meeting our Electricity needs from renewable/low carbon energy resources – factors to be considered**

1.2.1 In order to truly meet our electricity needs from renewable/low carbon resources it would be necessary to generate electricity as and when it is required, or to find a way to store it in order that is can be used when it is needed.

1.2.2 Both storage and generation on demand present significant challenges. Current electricity storage technologies do not present an economically viable solution to storing electricity on this scale. The amount of electricity we need at any given time, although predictable to an extent, varies on a moment by moment basis. In addition to this many renewable/low carbon electricity resources vary naturally in intensity in a way that cannot be controlled – one cannot control when and at what speed the wind blows. When addressed on a national and international scale there are ways of overcoming the issue of variable electricity supply from some renewable/low carbon sources. However, meeting supply with
demand (on a temporal basis) is more difficult at the local scale, because the mechanisms that help to balance variable electricity supply (such as national scale electricity supply networks) cannot reasonably be replicated at the local scale.

1.2.3 It is therefore unrealistic to attempt to consider the potential contribution to our electricity needs from renewable/low carbon resources within Cornwall on a moment by moment basis. It is, however, possible to consider the contribution renewable/low carbon electricity sources can make to our electricity needs over a set period of time. **On that basis this paper outlines the contribution that renewable/low carbon electricity supply can make to our annual electricity consumption.** Simply put what proportion of our annual electricity use can be generated from renewable/low carbon resources each year.

1.2.4 In addition to this the report will set out the number of Cornish homes whose electricity requirements could be offset by renewable energy sources if Cornwall’s potential is realised.

1.3 **Meeting our need for heat from renewable/low carbon energy resources – factors to be considered**

1.3.1 Assessing the contribution that can be made from renewable/low carbon energy sources to our heat requirements is also complex. While renewable/low carbon heat can be generated on demand and can be stored (as fuel) **the heat needs to be generated close to the point of use** and once generated it cannot be distributed across the county in an even manner, or in response to unplanned demand.

1.3.2 Furthermore the renewable/low carbon energy resource assessment outlines the potential for renewable/low carbon heat in terms of the potential to site generating technologies or the availability of fuels. These fuels and technologies can be used in a variety of ways to deliver different amounts and grades of heat that can be used for different purposes. The same applies to the way that energy consumption is recorded. The amount of fuel used by each sector is recorded, but the end use of this fuel is not always recorded. This makes it very difficult to say with any certainty exactly how much of our overall heat energy requirements can be met from renewable heat energy sources in Cornwall.
1.3.3 It is, however, possible to compare the overall consumption of energy that is used primarily to generate heat to give an approximate indication of the potential to offset carbon-intensive heat generation with renewable/low carbon heat generation.

1.3.4 It is also possible to make an assessment of the contribution that can be made towards our domestic space heating requirements.

1.3.5 On that basis this paper will set out the proportion of our annual heat producing fuel consumption (that would normally be met from gas, petroleum, coal & manufactured fuels) that can be generated from renewable/low carbon resources and the proportion of our household heating needs that can be generated from renewable sources.

1.4 Meeting our need for transportation fuel from renewable/low carbon energy resources – factors to be considered

1.4.1 The transport sector currently accounts for approximately 33% of the total energy use in Cornwall. At present this energy is all derived from petroleum sources. It is therefore possible to compare the potential to replace this carbon-intensive fuel with renewable/low carbon alternatives in Cornwall on an annual basis. However, to do this an assessment of the potential bio-diesel resource would need to be made. This assessment has not been conducted.

1.4.2 It is recognised that the amount of energy used for transportation in Cornwall is significant and an understanding of the proportion of this energy requirement that can be met from renewable/low carbon energy sources would be valuable. A resource assessment could be undertaken to provide this information subject to resources being available to do so. It is, however, noted that land required for the production of bio-diesel would (based on current renewable/low carbon energy sources and technologies) compete with heat-generating biomass. It is therefore necessary for any resource assessment to consider the desirability of giving more land over to energy crops or sharing the amount of land considered available for heat-generating energy crops with the production of bio-diesel.
1.4.3 It is also recognised that there are a small number of electric vehicles in operation in Cornwall at present and this is projected to increase. It is possible to estimate the amount of electricity required within the transport sector that can be met from renewable sources.
2. **Using a common measure of energy**

2.1 To enable energy supply and demand to be compared easily all reference to energy figures will be made in tonnes or kilo tonnes of oil equivalent (ktoe). Oil equivalent is a standard metric used by the energy industry to enable energy content comparisons between different energy sources or fuels. The International Energy Agency provides an energy conversion tool that calculates the oil equivalence of a given energy amount\(^1\). The conversion factor for 1 tonne of oil equivalent is 11.63 megawatt hours.

\(^1\) The International Energy Agency energy conversion tool is available at: [http://www.iea.org/stats/unit.asp](http://www.iea.org/stats/unit.asp)
3 Targets

3.1 The drive to produce renewable and low carbon energy in the UK is underpinned by the need to derive energy from sources that are secure (in political and technological terms) and do not increase the likelihood of harmful changes to our climate occurring. In order to add meaning to the contribution that we can make to our renewable/low carbon energy resources it is useful to consider how this contribution would compare to local, national and international renewable/low carbon energy targets.


3.3 The UK Renewable Energy Strategy 2009 sets out a strategy for meeting the 2020 target of 15% of our final energy consumption from renewable/low carbon sources (thus reflecting the 2009 Renewable Energy Directive). The strategy states that we would need to achieve an electricity target of 30% from renewable/low carbon sources, a heat target of 12% and a transport target of 10% by 2020.

3.4 This paper will set out the contribution that Cornwall’s renewable/low carbon energy resources can make towards these national targets expressed as proportion of Cornwall's energy needs.
4 Assumptions

4.1 The figure for the current consumption of energy in Cornwall is based on a 2007 baseline which uses 2007 population statistics from the Office of National Statistics. This baseline was chosen because it was the most recent complete data set on energy use at the time of preparing the report.

4.2 The energy consumption projections forecast in the energy projections report are based on the Department of Energy and Climate Change’s (DECC) projections for the energy sector and the expected impacts of the implementation of policies aimed at reducing our dependence on carbon-intensive energy sources. These projections also take account of likely future changes in the population of Cornwall, based on the same assumptions that are being used to inform the Core Strategy.

4.3 The aim of the energy forecasting work was to project energy consumption for up to the end of the Core Strategy plan period (2031). However, DECC have not yet calculated the energy consumption projections past 2025 making it very difficult to estimate the consumption for Cornwall past that date. Consequently, this report does not seek to compare potential renewable/low carbon energy supply with demand past 2025. This comparison will be completed once further information is released by DECC.

4.4 Finally, comparisons made in this report assume that the deployment of technology to exploit all our renewable energy potential can be achieved by 2025. This is possible with the right level of investment, but further delivery planning work will be required to determine whether this is considered feasible.
5 Comparing projected energy demand in Cornwall with renewable/low carbon energy supply potential

5.0.1 This section outlines the contribution that we might make to our energy needs from our renewable/low carbon resources in Cornwall. The section starts by looking at our overall energy needs and then focus on electricity, heat and transport in turn.

5.0.2 For each comparison the proportion of energy that can be generated from renewable/low carbon sources has been calculated for our current use as well as our projected use for 2025. It is acknowledged that this is not a ‘real life’ scenario, because at present only a small proportion of our renewable energy potential is being released. However, the comparison is useful in that it illustrates the contribution we could make to our energy needs based on our current population, economy and lifestyle. It also helps us understand how our energy needs are likely to change over the next 15 years and what impact this may have on the proportion of our energy needs that can be met from renewable/low carbon energy resources.

5.0.3 The table below shows the total energy consumption for Cornwall in kilo tonnes of oil equivalent, the current situation and projected forward to 2025.

Table 1: Current and future energy consumption by energy type

<table>
<thead>
<tr>
<th>Energy Type/Source</th>
<th>Current Consumption (ktoe)</th>
<th>Projected Consumption in 2025 (ktoe)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>247</td>
<td>250</td>
</tr>
<tr>
<td>Gas</td>
<td>259</td>
<td>209</td>
</tr>
<tr>
<td>Petroleum</td>
<td>513</td>
<td>393</td>
</tr>
<tr>
<td>Coal/ Manufactured fuels</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Renewables and bio-fuels</td>
<td>5</td>
<td>85</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1,034</td>
<td>940</td>
</tr>
</tbody>
</table>

5.0.4 The Cornwall Renewable Energy Resource Assessment (2011) report shows that the total annual renewable/low carbon energy generation potential in Cornwall is 242.4515 ktoe. The resource assessment expresses the renewable/low carbon energy potential as a range, because some resources are estimated to provide a range of yields. The figure that represents high end of the range is used in this paper to reflect the maximum possible generation
based on the constraints applied in the resource assessment. The 
table below summarises the total annual renewable/low carbon 
resource potential by energy source.

Table 2: Cornwall’s renewable/low carbon energy potential by resource

<table>
<thead>
<tr>
<th>Resource</th>
<th>Potential in thousand tonnes of oil equivalent per year (ktoe).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Electricity</td>
</tr>
<tr>
<td>Solar PV</td>
<td>33.629</td>
</tr>
<tr>
<td>Wind</td>
<td>89.7</td>
</tr>
<tr>
<td>Hydro</td>
<td>0.835</td>
</tr>
<tr>
<td>Biomass – Forestry Residue</td>
<td>3.832</td>
</tr>
<tr>
<td>Livestock Slurry</td>
<td>1.97 – 4.18</td>
</tr>
<tr>
<td>Solar Thermal</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>144.843 – 148.823</strong></td>
</tr>
</tbody>
</table>


5.0.5 The table below summarises the total renewable/low carbon energy potential as a proportion of our current and future energy consumption.

Table 3: Cornwall’s renewable/low carbon energy potential as a proportion of our current and future consumption

<table>
<thead>
<tr>
<th></th>
<th>Current situation</th>
<th>Projected situation in 2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total energy consumption</td>
<td>1,034</td>
<td>940</td>
</tr>
<tr>
<td>Total renewable/low carbon energy resource potential as a proportion of the energy consumed (%)</td>
<td>23.4</td>
<td>25.8</td>
</tr>
<tr>
<td>The proportion of our energy consumption that comes or is projected to come from renewable source (%)(^2)</td>
<td>0.5</td>
<td>9</td>
</tr>
</tbody>
</table>

5.0.6 The energy consumption forecast figures have been developed using projections from the Department of Energy and Climate as a

\(^2\) This is the proportion of the current and future energy use in Cornwall that is expected to come from renewable/low carbon sources.
starting point. These projections suggest that in 2025 85 ktoe will be consumed in Cornwall from renewable energy sources (9% of our project energy mix). The resource potential demonstrates that Cornwall has sufficient resources to produce enough renewable/low carbon energy in Cornwall to meet our projected level of use.

5.0.7 In fact the resource potential is such that we can generate more renewable/low carbon energy than we expect to be using in 2025. There is potential to supply a further 16.8% of our projected energy needs in 2025 from renewable sources, thus allowing us to reduce our carbon-intensive energy use beyond that expected in the projections.

5.0.8 In total the resource assessment indicates that we could provide approximately 25.8% of our annual energy needs from renewable/low carbon sources.

How does this relate to the UK targets?

5.0.9 The 2009 Renewable Energy Directive set the UK a target of 15% of its final energy consumption to come from renewable/low carbon sources by 2020. Based on the assumption that our contribution would be the same proportion (15%) of our own energy needs we have the renewable/low carbon energy potential to meet approximately 26.3% of our 2020 energy needs. This figure is significantly greater than the UK target.

5.0.10 The table demonstrates that this figure decreases slightly by 2025 due to the projected increase in energy consumption.

5.1 Meeting Cornwall’s electricity consumption from renewable/low carbon energy resources

5.1.1 The table below summarises the proportion of Cornwall’s electricity consumption that could be met from renewable/low carbon electricity sources within the County and how it relates to existing national renewable electricity targets.
Table 4: The proportion of Cornwall’s electricity needs that can be met from Cornwall’s renewable energy resources

<table>
<thead>
<tr>
<th></th>
<th>Current situation</th>
<th>Projected situation in 2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total electricity consumption (ktoe)</td>
<td>249.5</td>
<td>292.5</td>
</tr>
<tr>
<td>Total renewable/low carbon electricity resource potential (ktoe)</td>
<td>148.823</td>
<td></td>
</tr>
<tr>
<td>Total resources as a proportion of the consumption (%)</td>
<td>59.6</td>
<td>50.9</td>
</tr>
<tr>
<td>Relevant target/s</td>
<td>30% of the total electricity use by 2020</td>
<td></td>
</tr>
</tbody>
</table>

Note: the total electricity consumption includes the assumption that half of the energy that comes or is projected to come from renewable energy sources (see table 1) is used as electricity and half as heat.

5.1.2 The table demonstrates that there are sufficient unconstrained renewable/low carbon energy resources in Cornwall to provide approximately 51% of our projected annual electricity needs in 2025.

How does this relate to the UK targets?
5.1.3 The 2009 UK Renewable Energy Strategy sets the UK a target of 30% of its final electricity consumption to come from renewable/low carbon sources by 2020. The renewable/low carbon energy resource potential indicates that Cornwall can achieve a significantly higher deployment as proportion of our own energy needs in 2020 (52%). The table above demonstrates that this figure decreases to 51% by 2025.

5.2 Meeting our domestic electricity needs from renewable/low carbon energy resources

5.2.1 It is also possible to consider what contribution our renewable electricity resources might make to specific energy requirements. For example, it is possible to consider the proportion of our

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3 The total electricity potential as identified by the report A Renewable Energy Resource Assessment of Cornwall (2011).
household electricity needs we might be able to generate from renewable sources in Cornwall.

5.2.2 Electricity currently accounts for 35% of the total energy consumed by households in Cornwall (116 ktoe). By 2025 the amount of electricity used by households per year will drop to approximately 109 ktoe of electricity a year due primarily to energy performance improvements in our housing and the appliances we use. The resource assessment shows that there is potential in Cornwall to generate all of our domestic electricity requirements both now and in 2025.

5.3 Meeting the need for heat from renewable/low carbon energy resources

5.3.1 In order to calculate the proportion of heat energy that can be met from renewable/low carbon sources within Cornwall it is first necessary to understand the proportion of energy used that is consumed as heat or produces heat through the electricity generation process.

5.3.2 The table below outlines the energy (by fuel type) that is used in Cornwall primarily to produce (or capable of producing) heat and the amount of energy consumed for each fuel type.

<table>
<thead>
<tr>
<th>Fuel Source</th>
<th>Current consumption (ktoe)</th>
<th>Projection consumption in 2025 (ktoe)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas</td>
<td>259</td>
<td>209</td>
</tr>
<tr>
<td>Petroleum</td>
<td>167</td>
<td>100</td>
</tr>
<tr>
<td>Coal/Manufactured fuels</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>The biofuel proportion of the renewable energy production (in the current and projected energy mix)4</td>
<td>2.5</td>
<td>29</td>
</tr>
</tbody>
</table>

*Table 5: Cornwall’s heat generating energy mix

Taken from Appendix A of the Energy Projections for Cornwall report.

5.3.3 Note: the total electricity consumption includes the assumption that half of the energy that comes or is projected to come from

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4 Note that the current and projections for the future energy mix include a proportion of energy sourced from renewables and biofuels.
renewable energy sources (see table 1) is used as electricity and half as heat.

5.3.4 These figures do not include the energy used in the transport sector, because this energy is used to power vehicles rather than generate heat.

5.3.5 The table below summarises the proportion of Cornwall’s current heat-generating energy mix that could be met from renewable/low carbon energy sources within the County and how it relates to existing national renewable electricity targets.

Table 6: The proportion of Cornwall’s heat energy needs that can be met from Cornwall’s renewable energy resources

<table>
<thead>
<tr>
<th></th>
<th>Current situation</th>
<th>Projected situation in 2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total consumption of heat generating energy (ktoe)</td>
<td>438.5</td>
<td>341</td>
</tr>
<tr>
<td>Total renewable/low carbon heat generating resource potential (ktoe)</td>
<td>93.6285</td>
<td></td>
</tr>
<tr>
<td>Total resources as a proportion of the consumption (%)</td>
<td>21.4</td>
<td>27.5</td>
</tr>
<tr>
<td>Relevant target/s</td>
<td>12% of the total electricity use by 2020</td>
<td></td>
</tr>
</tbody>
</table>

5.3.6 The table demonstrates that there are sufficient unconstrained renewable/low carbon energy resources in Cornwall to provide approximately 27.4% of our annual energy needs for producing heat in 2025.

How does this relate to the UK targets?

5.3.7 The 2009 UK Renewable Energy Strategy sets the UK a target of 12% of its final heat energy consumption to come from renewable/low carbon sources by 2020. The renewable/low carbon energy resource potential indicates that Cornwall can achieve a significantly higher deployment as proportion of our own energy needs in 2020 (approximately 28.2%). The table above demonstrates that this figure decreases to 27.2% by 2025.

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5 The total heat energy potential as identified by the report A Renewable Energy Resource Assessment of Cornwall (2011).
5.4 Meeting requirements for domestic heating from renewable/low carbon energy resources

5.4.1 It is also possible to consider what contribution our renewable heat-generating resources might make to specific energy requirements. For example, it is possible to calculate the proportion of household heating that we might be able to generate from renewable sources in Cornwall.

5.4.2 Currently, the total annual domestic energy requirements in Cornwall require 332 ktoe. This equates to 1.45 tonnes of oil equivalent per household. Estimates for the UK suggest that 58% of domestic energy is used for space heating. This means that on average each home requires 0.841 tonnes of oil equivalent to meet its heating requirements.

5.4.3 In 2025 the total domestic energy consumption is expected to be 277 ktoe. This equates to 1.01 tonnes of oil equivalent per household. The Energy Projections for Cornwall report did not project the amount of domestic energy used for space heating in 2025. Therefore the following assumptions have been used to estimate the amount of energy to be used for domestic space heating to enable a comparison between potential supply from renewable/low carbon sources and consumption in 2025.

1. On average all new homes built up to 2025 are 50% more thermally efficient than current homes.
2. The space heating consumption for all homes projected to exist in 2025 (new and old) will reduce proportionate to the drop in overall energy demand in the domestic sector.
3. The number of new homes built each year has been taken from the figure proposed in the Cornwall Core Strategy (2400 dwellings/year).

5.4.4 The following calculation provides an illustration (rather than a precise projection) of the domestic heat consumption in 2025.

1. Total space heating requirement for homes built between the baseline year (referred to as new homes) and 2025 = 43,200 X (0.841/2) = 18.1656 ktoe (rounded up to 18.17).

5.4.5 The table below shows the proportion of the total homes standing in 2025 that are new and already existing and their total annual
energy requirement as a proportion of the projected total for the sector in 2025.

Table 7: Proportion of new and old homes in 2025 and their total energy consumption

<table>
<thead>
<tr>
<th>Home</th>
<th>Proportion of total homes (%)</th>
<th>Total projected energy consumption (ktoe)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Already existing homes</td>
<td>84</td>
<td>232.7</td>
</tr>
<tr>
<td>New</td>
<td>16</td>
<td>44.3</td>
</tr>
</tbody>
</table>

2. Total domestic space heating in 2025 for homes that have already been built = 58% of 232.7 which is 135 ktoe. This means that the proportion of the total energy per already built home that is used for space heating will drop to 0.59 toe by 2025 (from the current figure of 0.841 toe).

3. Total domestic space heating requirement for all homes in 2025 = 135 + 18.17 = 143.17 ktoe.

5.4.6 Based on these estimations the average home in Cornwall will require 0.52 tonnes of oil equivalent a year to meet its heating requirements in 2025.

5.4.7 The table below summarises the proportion of Cornwall’s household heating needs that could be met from renewable/low carbon energy sources within the County.

Table 8: The proportion of Cornwall’s heat energy needs that can be met from Cornwall’s renewable energy resources

<table>
<thead>
<tr>
<th>Current situation</th>
<th>Projected situation in 2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total heat energy consumption for domestic space heating (ktoe)</td>
<td>192.56</td>
</tr>
<tr>
<td>Total renewable/low carbon heat resource potential (ktoe)</td>
<td>93.6285</td>
</tr>
<tr>
<td>Total resources as a proportion of the consumption (%)</td>
<td>48.6</td>
</tr>
<tr>
<td>Number of properties that could be heated from Cornwall’s renewable heat potential</td>
<td>111,780</td>
</tr>
</tbody>
</table>
5.4.8 The table indicates that, if all of our heat generating renewable energy sources were used to heat our homes in 2025 we would be able to heat 63.6% of our homes (173,755 homes) with renewable/low carbon energy.
6 **Transportation Fuel**

6.1 An assessment of the renewable/low carbon diesel resource has not yet been conducted and it is therefore not possible to assess the proportion of our transportation energy needs that can be met from renewable/low carbon sources at this stage. However, the consumption forecast predicts that 5 thousand tonnes of oil equivalent will be consumed by the transport sector in the form of electricity in 2025. The renewable electricity resource assessment shows that this figure can be met entirely from renewable/low carbon electricity sources in Cornwall.
7 Conclusion

7.1 The resource assessment is based on technology and resources that are currently understood and in use or being extracted. It does not seek to estimate the potential for untested or unknown sources. There is, however, potential for such unknown sources to contribute to the provision of renewable energy generation in Cornwall. One example of this is deep geothermal energy. Two planning applications have been granted for this technology, but to date no systems are in operation in the UK. Should geothermal prove to be successful and sustainable then a higher overall level of energy generation may be achieved than is expressed in the resource assessment.

7.2 The renewable energy resource assessment used to underpin this report set out to quantify the amount of energy that could reasonably be extracted from Cornwall’s renewable energy resources. The assessment indicates that it would be possible to achieve a quarter of our total energy needs from renewable/low carbon sources over the next 15 years subject to the renewable energy development coming forward within that time frame.

7.3 It might be possible to generate higher levels of renewable energy in Cornwall, but it is likely that a higher level of generation would result in compromises being accepted. For example a higher level of wind energy deployment is possible if decision makers are willing to accept significant changes to the Cornish landscape or our residential amenity. A higher biomass yield might be achieved if we are prepared to give over a larger proportion of our higher grade agricultural land. Alternatively a higher proportion of our needs could be met if we are prepared to undertake enhanced measures (above that set to be implemented through national policy and regulation) to reduce our consumption of energy. This is likely to include further physical changes to our infrastructure and changes to the way we use it (behavioural change).