

## EXECUTIVE SUMMARY

1. This report by the South West Energy Centre (SWEC) <sup>1</sup> was commissioned by Devon County Council to:
  - 1.1. Identify lessons learnt from biomass support undertaken between 2012-2014
  - 1.2. Provide an overview of current support and interventions available
  - 1.3. Identify the main needs of business
  - 1.4. Produce a draft design for project(s) to support the biomass sector
  - 1.5. Identify any other potential areas of support
  
2. We have analysed the sector from a number of angles, including:
  - 2.1. Reports and proceedings of the various programmes
  - 2.2. Conducted discrete interviews with key personnel
  - 2.3. Sent out a business survey to over 130 Devon biomass - related companies
  - 2.4. Undertaken an evening seminar session to review and discuss provisional findings
  - 2.5. Summarised key outputs in two Strengths, Weaknesses Opportunities and Threats (SWOT) diagrams, reflecting our analysis of the programmes and the ‘Voice of Industry’ from the feedback.
  
3. From these we have identified specific opportunities and then consolidated them into four key recommendations. Our key recommendations are:

**Strand 1 – District Heating, Biomass Hierarchy and Planning Guidance. Devon County Council should continue to pioneer District Heating/Energy Service Company development, incorporating future provision for biomass where appropriate. It should also develop a hierarchy of biomass use to ensure all resources are used in the most effective manner. This should also be reflected in guidance to the planners and community groups/public in general.**

**Strand 2 – ‘Joined Up’ Approach to Biomass (and renewable energy) through Devon Local Nature Partnership. Devon County Council has been innovative in forming the Devon Local Nature Partnership. This is an ideal group for bringing all parties for the biomass sector together in cross-cutting functional groups to facilitate coherency and knowledge sharing as well as consistent messages in public awareness - raising.**

<sup>1</sup> <http://www.southwestenergycentre.com/>

**Strand 3 – Promotion and Awareness-Raising / Support to Customer Journey / Increasing Uptake.** Devon County Council has been very successful in both leading and supporting programmes, but there is still much more awareness-raising to be undertaken to build confidence in the sector, and a public body is a natural confidence - booster. This is a consistent and loud message from both customer and supplier alike. We have proposed an awareness-raising project centred on existing sector providers.

**Strand 4 – ‘Whole Forest’ Approach to Timber and Wood Fuel Outside of the biomass study,** we consider that Devon County Council, through its close working relationship with the Forestry Commission, should support a programme of ‘whole forest’/woodland development, to develop the wider forestry sector. This will give greater emphasis not only to sustained Woodfuel production, but assist the wider increase in management of woodlands through increased and diversified forestry and sawmill product outputs.

## INTRODUCTION - THE MARKET FOR BIOMASS 2012-2014

### 5. POLITICAL/LEGAL ASPECTS

5.1. There are two dominant political drivers towards the use of biomass:

1. 2020 climate change targets for emissions and uptake for renewable energy
2. Drive to bring UK woodland into active management and development.

5.2. **2020 Targets.** The main political drivers and programmes are summarised by the Department of Energy and Climate Changes' website<sup>2</sup>. With a 15% target for the uptake of renewable energy by 2020, the South West is predicted to currently fall short of that by some 37%<sup>3</sup>.

5.3. **Woodland Management.** Bringing undermanaged woodland into active management, and expanding the amount of woodland cover in the UK has been a consistent drive of the Forestry Commission. England now has the same woodland cover as in 1300; at 10% (from 5% at the end of World War 1) and the target is to achieve 12% by 2060 and bring 66% (currently 53%) of woodland back into active management by 2018-19<sup>4</sup>. The Forestry Commission's three priorities are to Protect, Improve and Expand our woodland resource within a framework of the economic, social/leisure and environmental aspects of forestry. Wood fuel production is a key and consistent driver for the Commission.

5.4. **Political Drivers.** There has been general cross-party political consensus on renewable energy and renewable heat in particular. The current political drivers in achieving the 2020 targets and those beyond are:

1. energy efficiency and demand reduction, particularly in the domestic sector
2. incentive - based payments in both the domestic and non-domestic sectors to customers to mitigate the initial higher equipment and installation costs of initially small volume installation in a new market sector.
3. Community-based energy.

5.5. All the incentive schemes are designed to gradually reduce, based on a sliding scale of volume of uptake, as it is expected that as the market grows, so the cost of installations will fall through volume production and competition. In the period in question, the shift in the market from a political/legal aspect is the movement from up-front grant-based incentive schemes, to incentive schemes based on meeting the difference in higher

<sup>2</sup> <https://www.gov.uk/government/policies/increasing-the-use-of-low-carbon-technologies>

<sup>3</sup> <http://www.regensw.co.uk/projects/building-renewables-in-the-sw/renewable-energy-manifesto>

<sup>4</sup> [http://www.forestry.gov.uk/PDF/FCE\\_corp\\_plan\\_2013-14.pdf/\\$FILE/FCE\\_corp\\_plan\\_2013-14.pdf](http://www.forestry.gov.uk/PDF/FCE_corp_plan_2013-14.pdf/$FILE/FCE_corp_plan_2013-14.pdf)

installed cost of equipment recovered through a payment linked to the production of heat (and electricity in combined heat and power systems).

6. **Renewable Heat Incentive<sup>5</sup>**. Following on from feed in tariff payments for Solar Photovoltaic (PV) System introduced by the Labour Government, the Conservative/Liberal Democrat Coalition Government introduced the non-Domestic Renewable Heat Incentive Scheme in November 2011, some two years after the closure of the last round of the predecessor Bio-Energy Capital Grants Scheme. Although the intention was to also introduce a parallel domestic Renewable Heat Incentive (RHI), for various reasons associated with scheme administration and management, this was not introduced until April 2014. The lack of incentive funding support for renewable heat in the domestic sector has been offset by an interim Renewable Heat Premium Payment; a simple one-off grant recoverable against the eventual RHI payment. This has been delivered in a two-phase programme; and following the introduction of the domestic RHI in April 2014, retrospective applications will be allowed to the scheme backdated to a July 2009 installation date (when the intention to launch RHI was announced), although the amount of RHI payment will have a deduction made for any RHPP payments made. Retrospective applications from installers in the domestic sector will be allowable after an initial bedding down period for the scheme to prevent a flood of applications. The main differences between the domestic and non-domestic scheme is that the non-domestic (often erroneously referred to as the ‘commercial’ RHI) scheme includes not only business use of buildings but also multiple buildings served by a single boiler. It is a 20 year tariff – based scheme based on metered or ‘useful’ heat produced. The Domestic RHI is a simpler, 7 year system based on a calculated ‘deemed heat’ payment based on the energy efficiency assessment and heat loss calculation listed in the building Energy Performance Certificate. The certainty of RHI funding has also led to developing options from installers to supply
  
7. **Green Deal<sup>6</sup>**. Alongside the incentive scheme for installations of renewable heat system, the current Government introduced the ‘Green Deal’ in 2013. Aimed primarily at increasing the energy efficiency of buildings, the scheme consists of an energy assessment of the property conducted by a qualified adviser, and a report into both energy efficiency measures and potential renewable energy solutions (albeit in a very simplistic overview). Green Deal is also linked to financing options from either a dedicated funder or private funding if an individual chooses; the basic principle of the Green Deal financing package is that the energy efficiency measures are funded through a loan which is calculated at a repayment rate that is less than or equal to the energy savings realised by the consumer; thus making it affordable. The loan is recovered through the utility bill. There is also a supporting Energy Company Obligation (ECO) which is a fund from the main utilities to support very low income households with additional support.

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<sup>5</sup> <https://www.gov.uk/government/policies/increasing-the-use-of-low-carbon-technologies/supporting-pages/renewable-heat-incentive-rhi>

<sup>6</sup> <https://www.gov.uk/green-deal-energy-saving-measures/overview>

7.1. It should be noted that applications cannot be made for the RHI until a Green Deal Assessment has been made of the premises, and the mandatory measures of loft insulation and cavity wall insulation (if applicable) are implemented.

8. **Community Energy**<sup>7</sup> The Community Energy Strategy for heat is an additional incentive scheme to promote community-based district heating in both the urban and rural sectors, and complements the non-domestic RHI. It recognises the additional complexity and costs of a district heating scheme, and provides two – phased funding of an initial grant for project concept/definition development and a loan for detailed development/implementation.

## 9. TECHNOLOGICAL

9.1. The marketplace for biomass is dominated by imports of European, mainly Austrian and German, advanced technology biomass boilers running on either wood chip or wood pellet, or a combination of both (and energy crops too in some cases). A large-scale manufacturing industry has built up in both countries, to initially meet local demand. This has now grown into a world-wide export business of high-technology boilers, from fully automated production lines producing in excess of 40,000 units per year (See in particular Biomass Heating in Upper Austria – Green Energy, Green Jobs)<sup>8</sup>.

9.2. With modern logistic pipelines there is a good supply chain, and given the relative small size of the market, it is unlikely that any European manufacturers will set up a second manufacturing base outside of their home area, even as the market grows as expected. There is a risk of supply chain delay, especially with spare parts; but as the industry sector is growing, the larger installers are forward-holding key parts and components. For larger scale/multiple site installations, the in- service support and maintenance should be considered like any other contract, at the outset of the project or programme. This should not therefore be a significant risk factor if adequately covered in any in-service support contract. For the domestic user it is slightly more complex; guarantee of annual servicing is a condition of the RHI; but the onus is on the user to establish individual arrangements dependent upon company callout and response times. New start-up and small companies can be weak at this, and can lead to customer frustration. There is some growth in the market for Scandinavian, predominantly Swedish, boilers, but these are relatively small scale at present. It appears that Scandinavia is somewhat behind in understanding the potential of the UK market, and UK start-up companies have tended to look towards the Austrian/German boiler manufacturers.

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<sup>7</sup> <https://www.gov.uk/government/publications/community-energy-strategy>

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[http://www.oec.at/fileadmin/redakteure/ESV/Englisch/Publikationen/Biomass\\_heating\\_Upper\\_Austria\\_engl\\_US\\_Letter\\_216x279\\_2013\\_Sicht.pdf](http://www.oec.at/fileadmin/redakteure/ESV/Englisch/Publikationen/Biomass_heating_Upper_Austria_engl_US_Letter_216x279_2013_Sicht.pdf)

- 9.3. The batch-burning log boiler market is dominated by imports from the former Soviet Block/Warsaw Pact Countries. These efficient boilers require manual batch loading once or twice a day; storing heat in a thermal store which functions as an accumulator (reservoir of heat) and buffer (for peak demand). They are cheaper than the automated wood chip and pellet systems, but do require manual intervention. They are particularly suited to those that can self-supply logs, such as farms and small woodland owners.
- 9.4. Below the RHI threshold, Devon has a buoyant industry in log burning stoves; which provide a very cheap and cost-effective way of heating a room or water through a back boiler. An established part of the market, they also contribute a 'lifestyle effect'. Examples of stoves being fitted to very energy efficient/near passive house standard buildings have been noted. They are fitted to cope with the exceptional cold weather/peak demand, and also to create a lifestyle look and feel in the room.
- 9.5. On the supply side, Devon based businesses have established and grown across the range of fuels. The County possesses a mix of local and national wood fuel (Chip and Pellet) suppliers, local Pellet, log and wood chip producers, and commercial as well as Community Interest/Co-operative production for wood fuel and Miscanthus. Miscanthus is another opportunity crop for Woodfuel. Like the fibre and panel board industry, the use of land for Miscanthus (crops versus energy) is an emotive debate, but one which must be addressed in the future development of the biomass sector.
- 9.6. All parts of the County are now covered by multiple fuel suppliers, offering competition and price competitiveness.

## 10. ENVIRONMENTAL/SOCIAL

- 10.1. Devon has a strong environmental context. As a County it possesses 5 areas of outstanding natural beauty (AONB), two national parks, and a UNESCO World Biosphere Area<sup>9</sup>. With the Transition Town movement originating in Totnes, it can be said that Devon is a very socially and environmentally-aware County.
- 10.2. At the University of Exeter, the Centre for Energy and Environment has been a source of expertise and been involved in a number of Devon's projects, including the Cranbrook and FOREST Programmes, as well as producing the Microgeneration Certification Scheme Guide with Regen SW for Devon County Council<sup>10</sup>. It also engages with local authorities in the South West Energy and Environmental Group (SWEEG).

<sup>9</sup> <http://www.devon.gov.uk/devonaonbsleaflet.pdf>

<sup>10</sup> [www.devon.gov.uk/mcs\\_accreditation\\_toolkit.pdf](http://www.devon.gov.uk/mcs_accreditation_toolkit.pdf)

10.3. Reflecting the strong environmental focus in the County, the Devon Local Nature Partnership is developing a series of strands of activity, one of which is 'Wood for Good'<sup>11</sup>

10.4. Whilst progressive in renewable energy and environmental awareness, Devon could not be considered a homogenous County in this respect, and there are various competing challenges to biomass production and uptake. Also based in Devon is a significant biomass user: Norbord; one of the main panel –board producing industries. The uptake of virgin biomass in particular has been seen as a threat to their business (which has relied on very low cost feedstock); and this has resulted in them, and other members of the industry, instituting a 'use wood wisely' campaign.<sup>12</sup>

## 11. ECONOMIC

11.1. For biomass, the potential availability of wood fuel from woodland in the County is high:

	Total	Managed	Unmanaged	Percentage Managed
	ha	ha	ha	%
<b>Devon County</b>				
East Devon District	9,373.5	3,707.4	5,666.1	39.55%
Exeter District	390.5	130.7	259.8	33.46%
Mid Devon District	9,171.2	3,245.5	5,925.7	35.39%
North Devon District	11,253.0	4,347.7	6,905.2	38.64%
South Hams District	8,340.1	3,480.9	4,859.2	41.74%
Teignbridge District	13,099.2	6,520.9	6,578.3	49.78%
Torridge District	13,593.7	6,573.4	7,020.3	48.36%
West Devon District	12,420.1	5,418.9	7,001.2	43.63%
<b>Devon County Total</b>	<b>77,641.3</b>	<b>33,425.4</b>	<b>44,215.9</b>	<b>43.05%</b>
Torbay Unitary Authority	565.1	103.7	461.4	18.35%
City of Plymouth Unitary Authority	833.2	389.6	443.6	46.76%
<b>All Devon</b>	<b>79,039.6</b>	<b>33,918.7</b>	<b>45,120.8</b>	<b>42.91%</b>

Source: Forestry Commission, 2013 data

11.2. As reflects the national trend, the management of woodland is not particularly high – an overall average of 43% that masks some particularly low figures. The comparison overall national figure is 53%, so Devon is still some way behind. We have included the figures for the unitary areas for Devon as a county out with the control of the County Council for completeness of data across the County as a whole. Energy Crops such as Miscanthus have been planted in the South West and in Devon; uptake is relatively low but the potential for use of this low maintenance crop is variable and very much customer driven. The use of Miscanthus, it is considered, will very much be driven by market forces and customer choice, particularly farmers and landowners wishing to obtain a degree of 'energy independence' from the grid. The opportunity for energy crops is best summed up in Crops for Energy's Report 'Why We Need Energy

<sup>11</sup> <http://www.naturaldevon.org.uk/priorities-and-projects/wood-for-good/>

<sup>12</sup> <http://www.usewoodwisely.co.uk/>

Crops in the South West<sup>13</sup>. Figures are highly variable and difficult to quantify, as discussed previously, but a figure of around 7,000 hectares (ha) of **Miscanthus for Devon, equivalent to 441,000MWh** (Megawatt – hours) is considered feasible. There is also around **22,000 Km of hedgerow (source: Devon Hedge Group) that could be utilised. At 50% coppicing this could yield some 1,650 MWh/year** – again a very high and possibly unrealistic figure, but the significant contribution it could make should be noted.

- 11.3. In summary; there is a significant long term resource potential available in Devon, and focus needs to be centred on monitoring wise usage.

### SIZE AND GROWTH OF THE MARKET

## 12. FUTURE POTENTIAL

- 12.1. The South West Region currently has some 245,000 ha of Forestry, producing some 491,000 oven dried tonnes of wood fuel per annum. At 77,000 ha of woodland, Devon’s pro-rata production at an average of 43.05% management is:

$$(77/245) \times 0.4305 \times 491 = \mathbf{66,000 \text{ tonnes/annum}}$$

- 12.2. **If a target of 66% of woodland management is achieved in line with FC targets, Woodfuel potential is increased to 101,000 tonnes/annum**

- 12.3. **At an energy conversion figure of 10.3MWh/ha, (Megawatt hours per hectare) this equates to between 680 MWh/a (Megawatt hours per year) and 1,000 MWh/a potential respectively**

- 12.4. From the latest report to the Department of Energy and Climate Change<sup>14</sup>, the National Non Food Crops Centre (NNFC) assessed that for biomass heat-only installations for every 1MWh/a of additional heat generated produces 3.57 jobs and add £200K of GVA to the economy.

- 12.5. **This would equate to a total uptake of around 2,390 and 3,570 jobs at a GVA of £134-£200M**

<sup>13</sup> <http://www.crops4energy.co.uk/why-we-need-energy-crops-sw/>

<sup>14</sup> UK jobs in the bioenergy sector by 2020 - Project Number 11-025 - A Report for DECC - Apr 12  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/48341/5131-uk-jobs-in-the-bioenergy-sectors-by-2020.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48341/5131-uk-jobs-in-the-bioenergy-sectors-by-2020.pdf)

12.6. **These jobs represent design and implementation/construction; a sensible reduction of 50% could be assumed from NNFC estimates for the ‘steady state’ market post 2020.**

12.7. The Economic drivers for biomass are good in the County, based on the rising trend in fossil fuel process and large areas of off the gas grid, and reliant upon predominantly oil or liquid propane gas (or coal) for heating. Devon is also a concern for fuel poverty; the County Council, in acknowledging the ‘Cosy Devon Programme, identified 90,000 low income homes and 31,000 homes in fuel poverty, with an anticipated oil price rise of 8-10% in the following year<sup>15</sup>, <sup>16</sup>.

12.8. For off gas grid areas, particularly rural areas, biomass is an ideal solution; and wood chip or pellet district heating schemes in new urban or rural development are ideal opportunities to introduce and utilise biomass to reduce costs.

12.9. Devon’s Off Gas Grid potential. From Lower Super Output Area (LSOA) Datasets (Source: CSE), **the approximate number of Devon households off the gas grid is 83,055**

12.10. **At a conservative 10kw boiler (or equivalent) capacity and minimum heating season of 1314 hrs (as per RHI) this equates to 1,091 MWh of capacity per annum.**

12.11. **A 50% target for conversion to biomass broadly equates to the Devon capacity (assuming growth in woodland management), and does not include hedgerows, etc.**

12.12. Obviously all cannot be biomass for practical consideration, due to space and location for fuel stores. Biomass in domestic use can account for a load of between 10-50kW; 10kw average load is not unreasonable as an assessment, as with increased energy efficiency, especially new build, heat demand will fall considerably (i.e. new developments like Cranbrook) and thus 10kw is a more realistic future average target. Also, the LSOA data makes the potential for barn conversion and district heating of small communities/outbuildings or business diversification (i.e. farms converting buildings to holiday lets)

### 13. CHANNELS

<sup>15</sup> [http://www.devon.gov.uk/cma\\_report.htm?cmadoc=report\\_pte1421.html](http://www.devon.gov.uk/cma_report.htm?cmadoc=report_pte1421.html)

<sup>16</sup> <http://www.devonhealthandwellbeing.org.uk/health-and-wellbeing/determinants/housing/>

13.1. In summary, there are four channels of development of biomass implementation in Devon:

1. **The Domestic Sector** as defined by the RHI.
2. **The Non – Domestic Sector** (Commercial and Multiple Buildings) as defined by the RHI.
3. As part of **wider Forestry** development as defined in the report 'Opportunities to Add Value to South West Timber'<sup>17</sup>.  
And outside of the scope of this report, but relevant to it:
4. **Waste Management.** Energy from Waste is part of the biomass hierarchy, including Woodfuel derived from recycling activity. It is noted that recent reports have highlighted that Devon has some 6-10 years of landfill capacity available.

13.2. The opportunity for Biomass in general in the |UK is best summed up by Stuart Boyle, in his book 'the Sleeping Giant awakes':

*"Bio-energy is an exciting, pragmatic and affordable low-carbon solution for The UK. It offers viable 24-7 heat, power and transport solutions and can plug in to the existing infrastructure. It suffers from a lack of awareness and understanding, confused political support, and has been unfairly criticised by vested interests in the paper board sector, aided and abetted by green NGO (Non-Government Organisations sic) groups."<sup>18</sup>*

13.3. It is interesting to note that whilst Boyles' observations of the sector are very valid regarding opportunities and blockers; the role of the NGO network in Devon, through DLNP, is actually growing to support wood fuel, and potentially biomass.

## 14. DEVON COUNTY COUNCIL PROGRAMMES 2012-2014

14.1. Devon made a pioneering start in Renewable Energy and Energy efficiency across all technologies with the Renewable Energy for Devon (RE4D) programme, which included winning the prestigious Ashden Award. Devon has followed this with other programmes, most notably the Ward Forester, and SEACs initiative in the timescale in question. It is noted that not all installations have been exemplars; the installation of a biomass boiler at County Hall was less than successful. However, as an early installation it pioneered learning; and corrective action taken should be presented as an internal and external positive learning benefit, reflecting the County Councils raised awareness and learning. It is of note that Biomass does not feature as an action

<sup>17</sup> [Opportunities to add Value to South West Timber 2012 \(John Clegg Consulting Ltd for Forestry Commission \(England\), South West Woodland Renaissance, CONFOR and UKFPA \(UK Forest Products Association\)](#)

<sup>18</sup> <http://oneplanetmedia.co.uk/wp/wp-content/uploads/2013/08/Chapter-1-The-Sleeping-Giant-Awakens-with-cover-v25-.pdf>

line (alongside wind and solar, or district heating), in Devon's current strategic plans for renewable energy.

- 14.2. **Ward Forester**<sup>19</sup> Ward Forester is probably the most innovative programme Devon has undertaken, to bring small undermanaged woodlands back into active management through grouping them together in clusters or 'wards' to make it economical to bring foresters in to manage them for productive output (not just Woodfuel). The programme has national significance in bringing unmanaged woodland back into active management for long-term sustainability. The project took some time to really build up a series of Wards, primarily because of the difficulty in breaking into a culture steeped in non-intervention, and delays in new funding for Woodfuel infrastructure implementation from the Forestry Commission. That said, 5 wards are now established and self-sustaining, and there is growing interest in adding new wards, including outside of the county. A community interest company has been set up to continue the programme post funding, and it is continuing to slowly increase the volume of woodland being managed.
- 14.3. Ward Forestry has also been an exemplar in effectively engaging with European collaborative partners, and in also integrating with programmes like FOREST, this providing the maximum opportunities to cost-effectively gain, share and disseminate best practice and learning. Study Tours, allowing in-depth analysis and investigation by key interested parties and stakeholders can yield significant short term programme benefits, if the right participants are selected.
- 14.4. **Sustainable Energy Across the Common Space (SEACS)** has now completed as a European project funded by the Interreg (Inter Regional) programme. It was officially launched in May 2011, as a €2 million exchange project in conjunction with Dorset County Council and Wiltshire Council along with the French county council of Côtes d'Armor, and agglomeration of Lannion-Trégor in Brittany.
- 14.5. The aim of the project was to create opportunities to reduce energy demand, implement energy efficiency measures and use clean/renewable energies. The project aimed to raise awareness on the importance of acting now on climate and energy issues and encourage people to change attitudes and behaviours towards energy usage for the long term.
- 14.6. **'Cranbrook'/East Devon Growth Point District Heating Scheme.** This was an innovative programme to bring developers together to implement a wide-scale district heating scheme to the East of Exeter for new homes and businesses, as well as energy from waste plant. That such a large scale district heating scheme has been implemented is a testament to the tenacity of the Growth Point/County Council Team,

<sup>19</sup> <http://www.wardforester.co.uk/>

and acts as a springboard for future schemes of all sizes. There is no certainty of the type of feedstock to be used at Cranbrook; and as discussed later, this in general is a concern.

- 14.7. **Renewable Heat at Work.** During 2013 a small study and event around promoting renewable heat in Devon was delivered for Devon County Council by Regen SW and Forest Fuels, acting in a consultancy role. The question for industry in Devon was around the need for a Devon -brand identity/trade association/body; and the discussions with industry pointed favourably to one, but lacked commitment from them to fund it. Since that time, the national Woodheat Association has ‘stood up’; and although not yet fully engaged and operating, is probably the better way forward for the sector at this moment in time. A successful open day was held across a number of Devon sites, attracting a small but engaged customer range leading to a series of successful sales. Companies reported varying success from very positive to negative; one common thread was that it didn’t really attract a new potential customer base, but attracted those that were already knowledgeable and committed to having a biomass installation.
- 14.8. **CORDIALE**<sup>20</sup>,<sup>21</sup> this was a European programme, in which the Tamar Valley Area of Outstanding Natural Beauty (AONB) participated in. The aim was to examine the use of hedgerows for the production of Woodfuel through long term coppicing techniques. Partners included Normandy (France), and it is the French style of coppiced hedgerow that is suitable to the Devon hedgerow. With some 22,000km of hedgerow, there is a significant resource to be utilised for wood fuel. The programme has produced a set of guidance notes and tools which are in final course of drafting and issue. It is a potentially extremely valuable project in taking forward wood fuel development options, along with Ward Forestry.
- 14.9. **Microgeneration Certification Support Tool**<sup>22</sup>. This support tool was provided as part of a wider support package for renewable energy businesses carried out for Devon County Council by Regen SW and the Centre for Energy and the Environment (CEE) at the University of Exeter. The business consultation and support exercise carried out for the project identified the Microgeneration Certification Scheme (MCS) as an area where additional advice and information was required by installers.

## 15. PROGRAMMES BY OTHERS 2012-2014

- 15.1. During the period, the Regen SW led South West Bioheat and FOREST (FOsterRing Efficient Supply parTnerships) programmes, with the Forestry

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<sup>20</sup> <http://www.cordialeproject.eu/en/toolkit>

<sup>21</sup> <http://www.tamarvalley.org.uk/projects/cordiale/toolkits/>

<sup>22</sup> [www.devon.gov.uk/mcs\\_accreditation\\_toolkit.pdf](http://www.devon.gov.uk/mcs_accreditation_toolkit.pdf)

Commission, developing the Woodfuel market, supply chain and providing business support and grant assistance (SW Bioheat) and then a European dimension (FOREST).

- 15.2. As part of Ready for Retrofit programme from Regen SW and partners, the Cosy Devon<sup>23</sup> initiative strongly supported by Devon County Council is now addressing fuel poverty/energy efficiency in low income homes.
- 15.3. Alongside this programme, the South West Energy Centre has developed a dynamic partnership facilitated by South Devon College bringing together key public and private sector providers in a visionary project that sits in the heart of the Government's policies for the transition to the Green Economy. It is a physical hub acting as a catalyst to drive demand from business and domestic customers to open up innovative new market opportunities for renewable technologies and to stimulate sustainable growth.
- 15.4. The College has been awarded £1.2m from the BIS Regional Growth Fund, £2m from Skills Funding Agency (Enhanced Renewal Grant) to support the development of the Energy Centre in Torbay (opened Sep 2013). A further support of £2.4m from the Competitiveness ERDF programme will enable the full potential of this development to be realised and provide a long-term sustainable investment for the area.
- 15.5. The South Devon Energy Centre project is part financed by the South West European Regional Development Fund Competitiveness and Employment Programme 2007 to 2013. The Department for Communities and Local Government is the managing authority for the European Regional Development Fund Programme, which is one of the funds established by the European Commission to help local areas stimulate their economic development by investing in projects which will support local businesses and create jobs. For more information visit [www.communities.gov.uk/erdf](http://www.communities.gov.uk/erdf)
- 15.6. Key partners involved in this dynamic partnership facilitated by South Devon College are as follows: Schneider, Worcester Bosch, SEMA, MITIE Group, Western Electric, Nu-Heat, British Ceramic Tiles, Havmain, Romag, Sunfarming, Torbay Development Agency, Green Tourist Business Scheme, Energy Saving Trust, REGENSW and others in a visionary project to kick start the green economy in the Torbay area.

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<sup>23</sup> <http://www.regensw.co.uk/events/regen-sw-events-/cosy-devon-meet-the-buyer>

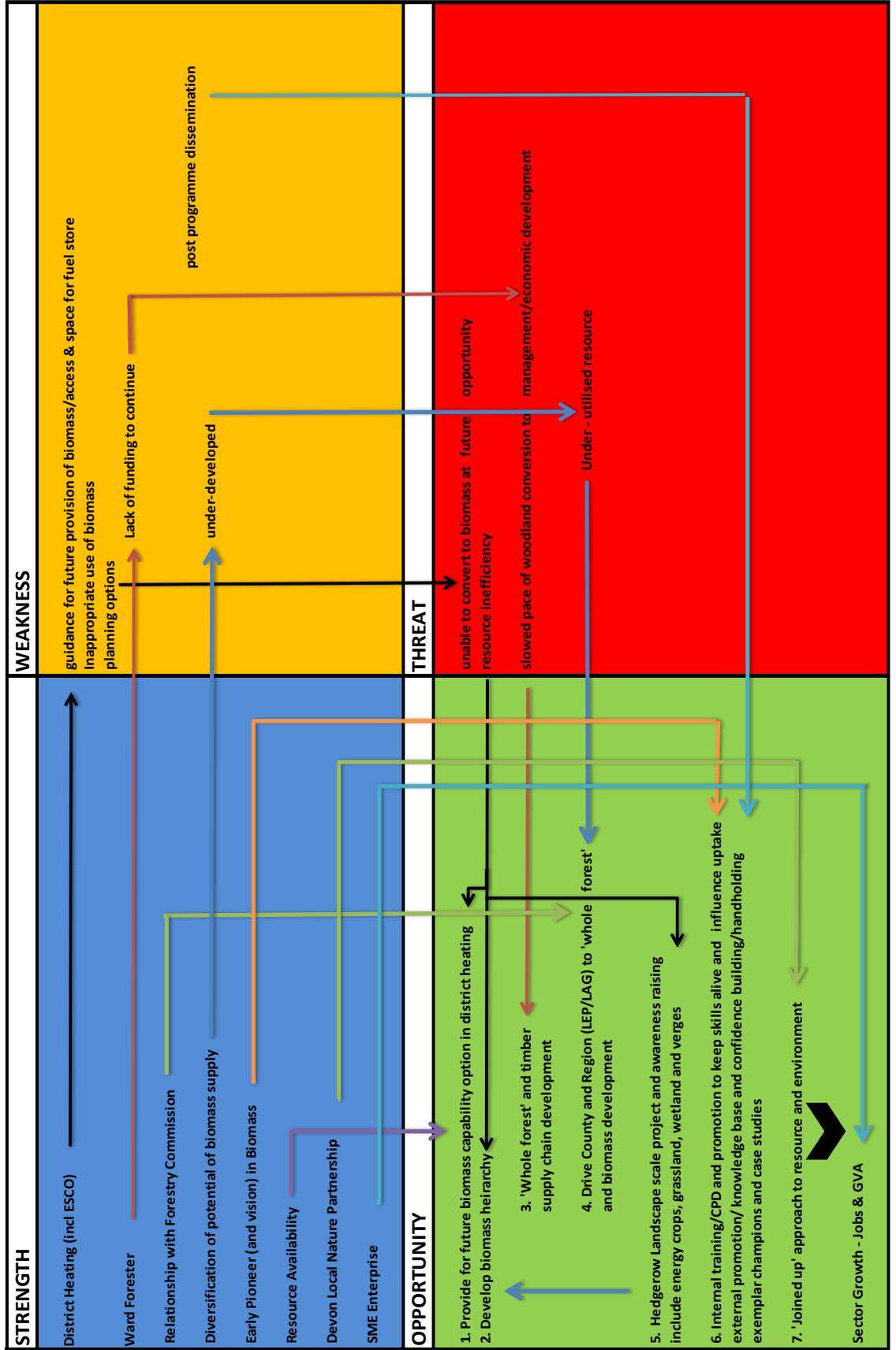
## **16. PROGRAMME ANALYSIS**

- 16.1. WE have analysed the programmes in Devon from two angles: from analysis of the Devon County Council programmes it has either initiated or engaged with, and taken a separate ‘voice of industry’ view through a series of interviews with key personnel, an online survey and a seminar session held at Cullompton Community College on 3<sup>rd</sup> June 2014.
- 16.2. We have drawn both lines of approach together in a SWOT (Strengths, Weakness, Opportunity, and Threat) diagram from which we have produced list of potential opportunities for future programme development and support.

### **DEVON COUNTY COUNCIL PROGRAMME ANALYSIS**

- 16.3. We have identified from our SWOT (Figure 1) of the Devon County Council (DCC) programmes and interventions 8 key strengths of the Biomass Sector, which flow through to a series of eight opportunities. The key strengths are:
1. District Heating (including ESCO)
  2. Ward Forester
  3. Relationship with the Forestry Commission
  4. Diverse potential Biomass Supply Chain
  5. Early Pioneering and Vision
  6. Resource Availability
  7. Devon Local Nature Partnership
  8. Small-Medium Enterprise Growth

# DEVON COUNTY COUNCIL PROGRAMMES AND SUPPORT



## DISTRICT HEATING

17.1. The successful incorporation of a District Heating System at the Cranbrook development has been a pathfinder for follow-on programmes. Initially running on gas until a critical mass is established to incorporate biomass (similar to the development approach in European Countries such as Sweden), we foresee potential weaknesses in the future provision of biomass use in other schemes unless tendering is very explicit to include not only provision for biomass incorporation within the developed boiler room, but planning space is left for the associated fuel store and access/delivery system (i.e. lorry). There is also a danger of an inappropriate use of biomass resource. As yet, Cranbrook has not finalised supply details, but will use the market to best serve its customers with price - competitive heating and hot water. Whilst market forces must apply, there is a threat that the potential resources of the county, and wider, are inappropriately used. Equally, there is a valid case for crops for energy, such as Miscanthus, which must also be taken into consideration. Large scale schemes should be utilising the poorer quality fuels, eventually through to waste, and not virgin biomass. On the opposite side, the needs of the panel board/fibre board industry need to be taken into consideration. Although outside the formal scope of this report, we have included a recommendation regarding a ‘whole forest’ approach by Devon County Council.

17.2. **We have identified the opportunity for:**

1. **future tenders to contain an option for district heating conversion to biomass, and**
2. **the County Council to develop planning guidance for the ‘Hierarchy of Biomass’ describing appropriate usage of source material for use by both planners and developers, as well as community groups and local independent initiatives.**

17.3. It is also of note that Devon County Council is taking forward the approach to Cranbrook in current future tendering options.

## WARD FORESTER

17.4. Ward Forester has been a ground-breaking approach to bring undermanaged woodland back into active management through a collaborative approach. Despite the challenges of an economic recession, delays to the domestic Renewable Heat Incentive and later than anticipated Woodland Woodfuel grants from the Forestry Commission, the initiative has been a major success in developing 5 independent wards, which are now self- sustaining, and indeed slowly growing, after the project has concluded and funding support ceased. There is currently a lack of funding to continue further development work, despite strenuous efforts to secure it from other sources. This has undoubtedly delayed the further adoption of the programme, as closure of the website

to new applicants has removed the chain of direct access and registration that encouraged potential new joiners. The formation of a Community Interest Company, Trees and Land Ltd to continue the Ward Forester programme, is a major positive step forward. Whereas the deliverables from most projects seem to fade away and be 'opaque' to public visibility and access post project completion, Ward Forestry is very much being kept alive, and is a potential national exemplar and pathfinder for further development.

17.5. Ward Forestry has an all-embracing approach to wider woodland management, not just for biomass, but also for higher value timber and building products, as well as sound ecological and environmental benefits.

**17.6. There is a clear opportunity to incorporate, and develop, Ward Forestry as part of a wider 'whole forest' and timber supply chain development.**

## **RELATIONSHIP WITH FORESTRY COMMISSION**

17.7. The County Council maintains a close working relationship with the Forestry Commission, and has a seat as one of the members of the South West Forestry and Woodland Advisory Committee.

**17.8. This presents a great opportunity for coherency, consistency and certainty in future policy direction and implementation for biomass, as well as a route for feedback from businesses and the users; and it is a key link in developing both the forestry sector and also the biomass supply chain. We also see the opportunity to use this role to support the Leader Programme and it's Local Action Groups (LAGs) for local development initiatives, and also in advising the wider Heart of the South West Local Enterprise Partnership (LEP).**

## **DIVERSE BIOMASS SUPPLIES**

17.9. As well as the wood fuel potential, Devon has the potential for wider biomass usage, including over 22,000km of hedgerow. Devon County Council has supported the Tamar Valley Area of Outstanding Natural Beauty (AONB) with its European (INTERREG) programme, CORDIALE, which is developing a set of tools for hedgerow management, taking best practice and advice from European regional partners. Devon County Council has also supported the work of the Devon Hedge Group in spreading this knowledge wider.

17.10. In addition, there have been private sector initiatives to bring in Miscanthus growing and harvesting as a fuel, both for chip and pellet boilers, and there are some 500 Ha currently under cultivation in Devon. This low maintenance energy crop is also

a potential resource, and further opportunity, that needs to be included in any hierarchy of biomass use.

17.11. In general, the utilisation of non-woodland Woodfuel, and energy crops such as Miscanthus is at a relatively embryonic stage, but shows significant potential for the future and it should be included in future supply chain developments. There are also associated European and nationally funded programmes out with Devon that should be reviewed and considered. The Combine project, of which the National Trust (Wales) and Severn Wye Energy Agency prototyping the principle of a mobile grass and Miscanthus processor for briquettes and pellets, and the AG-BAG project supported by the Department of Energy and Climate Change, investigating the harvesting and processing of wetland biomass for fuel, are two interesting emerging opportunities that should be considered. Non-woodland derived biomass fuel has a weakness in visibility and uptake; and there is a risk that this resource will be overlooked, and the corresponding environmental benefits realisation achievement. Equally, the use of land for energy crops like Miscanthus is an emotive issue, and a risk – based approach and detailed stakeholder engagement will be needed to take any major activity forward.

**17.12. There is a significant capacity of woody biomass to be obtained from Hedgerow Management, and there is an opportunity to take this forward by moving to a larger, landscape – size project to demonstrate feasibility and stimulate interest and wider uptake. Other energy crops, and emerging technology projects to utilise them, should also be considered as part of the longer term biomass hierarchy, as well as in wider public and industry awareness-raising.**

## **AN EARLY PIONEER**

17.13. Devon County Council has been an early pioneer in the installation of biomass boilers and has built up a wealth of experience, as well as that gleaned through support to other installations and knowledge gained through the programmes run in the period.

**17.14. Having built up a wealth of learning through implemented biomass installations and supporting programmes, there is a clear opportunity to:**

- 1. continue to develop County Council personnel knowledge and skills**
- 2. disseminate information down to local councils (especially planning and resource hierarchy guidance) , organisations and bodies (such as local authority managed schools and other public buildings)**
- 3. Contribute as an independent and trusted adviser to the public at large.**

## WOODFUEL RESOURCE AVAILABILITY

- 17.15. Previous sections have identified and discussed some of the resources available; wood fuel from woodland and forestry management is the predominant resource.
- 17.16. On average, only 43% of Devon's woodland is currently being managed. Through initiative such as Ward Forestry, and its close relationship with the Forestry Commission, Devon County Council is already well placed to develop and utilise the resource. However, as previously stated, the opportunity to 'use biomass wisely' in a hierarchy of use is a clear opportunity that must be taken. A potential concern is that future development activities may be predicated by further wood/resource potential studies. Whilst these are considered invaluable at the outset, they have the potential to be repetitive and inconclusive. It would be more productive to monitor resource utilisation against the hierarchy of use proposed earlier as an opportunity. With woodland coverage and use actively monitored by the Forestry Commission, and the RHI sustainability reporting requirements automatically generating usage and sourcing data, for Woodfuel this is relatively straightforward.
- 17.17. Hedgerow management, as well as other biomass crops, it is suggested, could be included in the future Rural Development Programme for England (RDPE) type programmes, and usage monitored through that, and what develops from it.
- 17.18. It should also be remembered that the market for biomass functions at various levels, including waste used as fuel. At one scale is the small, local or community supplier/user, using fuel produced from local sources a relatively short distance, and within the County, of the boiler. These produce very efficient, local supply chains but are limited by geographic radius. A prime example here is the Dartmoor Woodfuel Co-Operative. At the other extreme there are regional, and national supply companies, utilising material derived from both within and outside the County. Ultimately, for pellets at the moment, and increasingly for chip, it is predicted<sup>24</sup>, there will be a significant volume imported to support the market. It should therefore be realised that the local/county resources alone are not the limiting factor on biomass installations.
- 17.19. As we have already highlighted, there are conflicts of resource use with the panel board industry; these are not new to such a growing sector as biomass; Sweden experienced the same problems towards the end of the 20<sup>th</sup> century. A collaborative approach across industry, and we suggest, a hierarchy of biomass for Devon, would help support in the County. The Department of Energy and Climate Change (DECC) are already well underway in work in this area; it is an area that Devon should therefore be closely engaged with DECC in.

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<sup>24</sup> UK trade in Woodfuel - an overview (Geoff Hogan, Forest Research Report), March 2013 ([www.biomassenergycentre.org.uk](http://www.biomassenergycentre.org.uk))

17.20. Another potential area of risk that Devon should be aware of is the long term resource availability for Woodfuel, based on future woodland production figures. For the UK as a whole, both hardwood and softwood production are scheduled to rise until around 2036; and then decline; not recovering until around 2072 onwards at current projections<sup>25</sup>

17.21. **The opportunities for resource utilisation lie within the opportunities for a hierarchy of biomass as earlier proposed.**

## **DEVON LOCAL NATURE PARTNERSHIP**

17.22. The Devon Local Nature Partnership is an all-embracing body of organisations associated with rural and ecological issues. From its latest plan, it has a distinct strategy strand of wood fuel development. Such an all-encompassing body has a wealth of experience, advice and expertise to give, and is a powerful voice in the debate over crops verses energy, etc. As it is impractical, indeed impossible, to draw barriers between biomass production and wider economic, environmental and social aspects, it is natural that this forum be used in the future of biomass in Devon.

17.23. **It is suggested that the industry sector could be included in local working/advisory programmes. This presents a real opportunity to present a ‘joined up’ approach to biomass in Devon for wider promotion and benefits.**

## **SMALL-MEDIUM SCALE ENTERPRISE**

17.24. Devon has emerged as the springboard for a range of both new business and existing business diversification into renewable energy. In wood fuel, early entrants such as Forest Fuels have grown from start-up local, to regional and now national companies, and are a major provider of biomass in the UK. Equally on the boiler installation side a new start-up company, Treco Ltd, has grown from one employee in 2006 to over 45 employees in 2014 based in Devon. Along with partner installers, it now installs boilers nationally. Established companies have diversified into Biomass products; Green Resource Engineering specialise in the ‘Combipacks’ interface for district heating schemes, which contains all the interface, heat metering and controls for a district heat main into a simple to fit household consumer unit. Perrys of Oakley, producers of agricultural feed handling and storage equipment, have adapted their range to offer biomass fuel stores and transfer augers.

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<sup>25</sup> Forestry Commission Statistics on UK Wood Production and Trade, 2013, [www.forestry.gov.uk/inventory](http://www.forestry.gov.uk/inventory) and ‘The Missing Millions’ CONFOR Forestry and Timber News, June 2014 pp 4-5.

17.25. Equally, the Dartmoor Woodfuel Co-Operative has proved to be a very successful and self-sustaining operating model in developing local supply chains for boiler owners. There is the potential to replicate, and expand on this model as Ward Forester is developed<sup>26</sup>.

### THE VOICE OF INDUSTRY

18. The 'Voice of Industry' has been compiled from:

1. online survey (results at Annexe)
2. Interviews (listed at Annexe)
3. General Feedback
4. Stakeholder Engagement Event 3<sup>rd</sup> Jun 2014 at Cullompton

23. The outputs of these four stands of activity, in terms of Opportunity, can be summarised as:

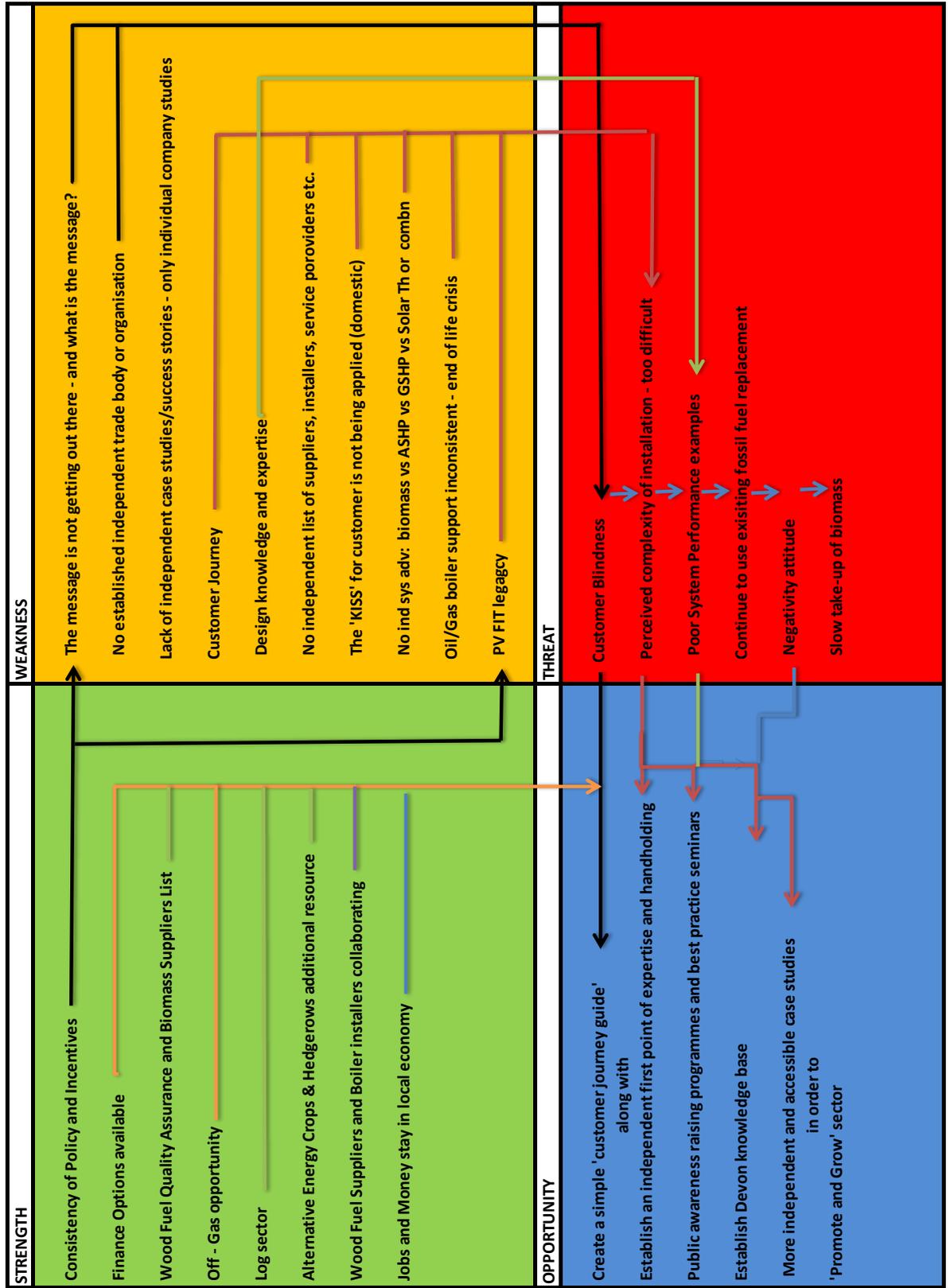
1. The need to create a simple 'customer journey'
2. Establish an independent first point of expertise and handholding
3. Raise public awareness at events and best practice/CPD seminars and training for industry
4. Establish a 'Devon' knowledge base
5. Provision of more independent and accessible case studies

24. We have summarised our feedback and analysis into a SWOT, illustrated in the Table below. Our feedback from industry in general has been concentrated in the areas of weakness, and barriers to market growth, so our analysis is based on noting the strengths, and then analysing the weaknesses as a first starting point, relating them back to strengths (or not) and deriving opportunities.

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<sup>26</sup> Dartmoor Woodfuel Co-Operative - Reasons for Success. Unpublished paper Stephen green & Andy Bradford, Apr 2014.

# VOICE OF INDUSTRY



## STRENGTHS

27. The sector strengths are summarised below and discussed in the following paragraphs:

1. Consistency of policy and incentives
2. Availability of finance
3. Wood Fuel Quality Assurance (such as HETAS/Woodsure) and sustainability through the Biomass Suppliers List (BSL)
4. Off-Gas Grid opportunity
5. Vibrant log market
6. Potential for alternative energy crops and hedgerows for Woodfuel
7. Jobs and money stay in local economy

## WEAKNESSES

28. With overall strengths such as these it should appear that the biomass sector is growing from strength to strength. Whilst the sector is growing, and biomass uptake is increasing, the sector remains bedevilled by weaknesses that are holding the sector back:

### **THE MESSAGE IS NOT GETTING OUT**

28.1. There is a general consensus that the public at large remain poorly informed and largely unaware of the Renewable Heat Incentive (RHI). Paradoxically, there is an equal amount of disbelief in the actual financial benefit and return on investment given by the RHI.

### **NO ESTABLISHED INDEPENDENT TRADE BODY OR ORGANISATION**

28.2. There is as yet no established independent trade body or organisation to be the public facing voice of industry. There has been a Woodfuel Suppliers Group (WSG), managed jointly by the Confederation of Forestry Industries (CONFOR) and the Renewable Energy Association (REA), both national trade associations. This group has never as yet effectively 'stood up' as an entity, and it has led to the formation of a new, and as yet not fully established, Woodheat Association in 2013. Still in its implementation phase, the association has the potential to be the Trade body that the sector requires, but as yet is not sufficiently developed and active to fulfil this role. As of summer 2014, there are no external public relations or campaign focus on promoting the wood heat sector.

28.3. Whatever the success of the Woodheat Association, it will not, by definition, cover the whole of the biomass sector. The very wide diversity of fuel types for biomass will mean that larger organisations such as the REA will need to play a notional role in promotion. The issue therefore remains that the customer will remain 'blind', or at best

opaque, not only biomass, but renewable heating opportunities in general (and see below)

## CUSTOMER JOURNEY

28.4. The customer journey is identified as difficult: for biomass, does a customer approach a fuel supplier or a biomass boiler supplier, or an independent consultant/designer in the first instance? Interviews and experiences to date show that that this is a key issue, especially for the public and the domestic RHI sector. Whilst industry level, non-domestic installations naturally involve a degree of project management consultancy/support in one form or another (i.e. appointed project manager, architect, etc.) this is a largely unviable solution for the smaller domestic customer. There have been phrase from customers of ‘I felt like giving up’, or ‘it seems bewildering – who do I talk to first’ that vividly illustrate the issue. Linked with this, equally, is a clear message the industry should aim to **KEEP IT SIMPLE** for the customer, and not overcomplicate the technical details but should be more driven by the customers’ requirements rather than what their particular equipment can do.

## INDEPENDENT CASE STUDIES

28.5. Companies are now producing their own case studies, demonstrating successful projects undertaken in order to promote their own products and services. However there is a need, as part of a general awareness raising exercise, to produce an independent, trusted source of case studies, backed by contact with independent advisers who can talk through and develop awareness with potential customers, and assist in a handholding approach to contact with industry in a more coherent manner. This body of knowledge would be bolstered by updating early case studies with the experience of in-service operation and performance, as well as an evaluation of benefits realisation.

## DESIGN KNOWLEDGE AND EXPERTISE

28.6. Design knowledge and expertise is largely growing organically within companies. Knowledge tends to come from the boiler supplier. This supply chain is mainly from well-established boiler manufacturing companies in Austria and Germany, the two world leaders in the technology, and their collective experience and advice is invaluable in the growth of Devon - based businesses. Once the hydraulic interface between boiler and thermal store and its relationship to the total (maximum) heat demand of the building and its profile of use (i.e. how much heat at what times for the day and night, summer or winter, etc.) are understood by the designer, then the skills levels and associated training are the same as for existing plumbers, electricians and engineers/technicians in general.

28.7. But within this process of ‘organic’ learning, there have inevitably been system installations, particularly in the early days of biomass, that have under-performed, or not performed to their full potential due to lack of full understanding of system design. To a degree there is an inevitable learning experience for companies, but equally there is a very British tradition of only remembering the bad examples. This is not peculiar to biomass, but is part of the national psyche. For every perceived poor installation, the public at large need to be convinced by many more future successes before the bad example is expunged from the corporate memory, and this makes future or potential customers reluctant to investigate solutions that could suit their needs.

28.8. There are no real national design guidelines specifically for biomass and its critical elements (Store, Boiler and Heat Load and Profile) beyond Microgeneration Certification Scheme (MCS) requirements or specific rules for compliance with the Renewable Heat Incentive registration process. A Biomass Design Guide has been under draft status by the Chartered Institute of Building Service Engineers (CIBSE) for some time. Similarly, there are no national training courses for design and operation of heat mains or the set-up and management of Energy Service Companies (ESCOs), who provide infrastructure and fuel and derive income from the sale of metered heat to customers.

## INDEPENDENT SUPPLIERS LIST

28.9. Whatever the customer journey, there is not as yet a single list, including online searchable directories, of companies involved in delivering biomass goods, services and products. There are separate lists such as the Biomass Energy Centre (BEC) National Biofuels Database, the Regen SW Company Directory, South West Woodshed and Devon Renewable Heat at Work directories, as well as CONFOR and My FOREST that all give company listings based on search criteria, but they are inconsistent and incoherent in their results. In compiling the survey, a list from the following sources was drawn up, which was considered to be a definitive list:

Regen SW

1. Company Directory
2. South West Woodshed
3. Devon Renewable Heat @ Work

Biomass Energy Centre (Forestry Commission) National Biofuels Database

My FOREST

Woodsure Directory

HETAS Website

28.10. In addition non-biomass suppliers with the potential to include this as a business offer (i.e. oil/gas boiler installers) were targeted by mailshot. It is noticeable that not only was there inconsistency of databases, but a high degree of bounce-back (up to

22%) from the three mailshots for the event that went out was experienced. This would indicate not only that all databases contain out of date data, but also that some companies listed have ceased trading. Such a high error rate is likely to present a difficult and confusing, if not demoralising, picture to a potential customer.

## **INDEPENDENT ADVICE**

28.11. A theme of independence pervades throughout the weaknesses of the sector; and it extends to that of advice. With a difficult customer journey and no single point of entry to the sector for a prospective customer, the importance of an initial independent source of advice was considered to be essential. Discussion with industry at the Event on 3<sup>rd</sup> June centred on whether this should be from a body such as Regen SW or other body/organisation engaged in promoting renewable energy. Along with the importance of independence, an ability to look at all renewable heat technologies to offer a prospective client an unbiased and ‘holistic’ solution of either a single system or combination of systems as well as provide technical expertise in the analysis of heat loss data and heat load profile and use for the property and evaluate broad system parameters in terms of boiler, thermal store and fuel store sizings, along with appropriate Rough Order of Magnitude (ROM) Costings.

## **OIL/GAS BOILER END OF LIFE**

1. There is also concern from industry is that there is a barrier to biomass installation regarding the ‘end of life’ issue for boilers: when boilers reach end of life, or are near end of life, there is a feeling that the customer has insufficient time to effectively consider and plan biomass (or renewable heat in general) as an alternative solution. The requirement to avoid loss of heating, especially in winter, predominates! There is clearly a need for advanced education and awareness-raising of the customer needed to pre-empt this to enable the customer to plan ahead. Existing installer/servicing engineers could play a part in this, as it may also offer an opportunity to diversify and grow their business.

## **PV FIT LEGACY**

28.12. Coupled with a degree of scepticism with the RHI is the memory of the sudden change and consequences to industry and customers made to the Photo-Voltaic (PV) Feed – In Tariff (FIT)

## **THREATS**

29. The weaknesses outlined manifest as a series of threats to the sector:

1. Customer blindness – they remain unaware of opportunities

2. A perception that biomass installations are far too difficult and complex
3. Poor system installation examples remain an issue
4. Potential renewable heat customers continue to take the easy path and continue with fossil fuel heating.
5. There is a negative/disbelieving attitude to the RHI, whether biomass works, and fuel sustainability.

### **OPPORTUNITIES**

30. Drawing the SWOT to a conclusion leads our analysis to the following Opportunities, from an industry/customer perspective:

1. There is a need to create a simple customer journey guide and experience
2. Establish an independent first point of expertise that can undertake a technical feasibility of all renewable heat solutions in order to offer the client the best solution, and provide handholding/introduction to companies along the process to installation.
3. Hold public awareness- raising programmes and best practice seminars and training industry.
4. Establish a Devon knowledge base of biomass companies, published by a respected/trusted source such as Devon County Council
5. Provide more independent and accessible case studies

### **CONSOLIDATED OPPORTUNITES**

31. From the comparison of issues raised and opportunities generated, we can identify four opportunity strands for biomass development in Devon, and the launch of possible projects or programmes. They are highlighted on the shaded sections below, with like opportunities shaded in the same colour for grouping purposes.

DEVON COUNTY COUNCIL	VOICE OF INDUSTRY
District Heating - Include provision for future biomass fit in district heating scheme/ESCO development	Create a simpler customer journey
District Heating – advice to planners and developers	
Develop biomass hierarchy	Establish an independent first point of expertise that can undertake a technical feasibility of all renewable heat solutions in order to offer the client the best solution, and provide handholding/introduction to companies along the process to installation
Adopt Whole Forest approach to timber and Woodfuel supply	Hold public awareness- raising programmes and best practice seminars and training industry
Raise awareness in opportunities from hedgerows, wetlands and grasslands as well as energy crops	Establish a Devon knowledge base of biomass companies, published by a respected/trusted source such as Devon County Council
Promote internal training/CPD to keep skills alive and act as external promoter of biomass to give confidence building to the sector, and promote exemplar champions, case studies and an independent knowledge base	Provide more independent and accessible case studies
Promote a joined up approach to environmental and renewable energy issues, particularly biomass/wood fuel, through the Devon Local Nature Partnership	

32. These four different consolidated opportunities are presented below:

## PROGRAMME DEVELOPMENT OPPORTUNITIES

### Strand 1 – District Heating, Biomass Hierarchy and Planning Guidance

33. We recommend that Devon County Council remain proactive on the development and implementation of district heating schemes/Energy Service Company (ESCO) developments, and ensure, where appropriate, that provision is made in schemes that are currently fossil fuel based for additional space in the boiler room (or an additional boiler room) for biomass, and that there is adequate biomass fuel store provision and access for delivery vehicles. From the delivery of exemplar installations, the role of the Council will shift from leading, to dissemination through other groups, and then facilitating/advising, in an ever-diminishing role as expertise and experience builds up, to one of finally ensuring continued professional development for staff

34. In order to maximise the resource potential, and to raise awareness both internally and externally, it is recommended that a biomass hierarchy be produced. This should show examples and opportunities, linked with case studies, of how biomass resources can be successfully used in various scenarios for development in Devon, and include both wastes, recycled wood fuel, and incorporate Combined Heat and Power at the larger scale. We consider such guidance could be extremely useful to planners and developers, as well as community groups and individuals considering biomass as a heating option. This resource hierarchy is also an ideal way to explain the role of district heating and its applicability (or not) at various sizes and scales. Energy Crops inclusion should also be considered in the context of future farming/land use policy under the Common Agricultural Policy: there are impacts from environmental stewardship and previous set-aside policies; it would be wise to consider use of ‘redundant’ agricultural land for energy crops to increase the resource potential (and this includes planting woodland too). Once the strategy is produced, the Council’s role comes down to monitoring outputs, and ensuring dissemination of advice (See Strand 2 below).
35. In general, there is also an opportunity for Devon County Council to support and develop community heating and ESCOs with community based groups, sharing its knowledge and expertise of schemes it has developed.

## Strand 2 – ‘Joined Up’ Approach to Biomass (and renewable energy) through Devon Local Nature Partnership

36. In this recommendation, we believe that Devon has an ideal, and low cost, way of developing the wider renewable energy section alongside that of environmental protection and management. The Devon Local Nature Partnership (DLNP) already has a main strand of activity of Woodfuel development. This is a strong natural lead, and serves to promote a balance and informed debate and opinion between environmental and renewable energy issues. By bringing together environmental groups alongside Woodfuel producers and wider industry gives the opportunity for a single forum and voice for Devon’s views as a whole. It can do much to assist and inform wider public awareness, and alleviate concerns regarding future sustainability. Both the hedgerow groups and Ward Forester projects already participate in this forum and it seems a natural and logical development to add the biomass industry sector to work within this forum.
37. We recommend that the DLNP extend its wood fuel scope to that of having functional and cross-cutting working groups for biomass, and that it also include engagement with the installers and associated supporting businesses in Devon. This sub group (or even groups) could then be utilised to inform the main workings and outputs of the DLNP. As a result, we consider it would provide a coherent and structured ‘voice of Devon biomass business’, as well as be informed on, and part of, wider management of the Devon environment.

38. Such a forum is also an ideal platform to generate and form alliances and project teams to participate in and to engage in obtaining funding (as well as a conduit for responding to external collaboration requests) through either national (such as successor RDPE programmes) or European funding. Devon County Council has a wealth of experiencing in developing and successfully obtaining funding support, and could act as a mentor to groups, as well as providing some limited funding to support bid development. Equally, engaging with industry as both participants and members of the DLNP not only provides additional partnership and knowledge/skill transfer opportunities, but also can focus project bids to implement outcomes needed to grow the sector as well as also being contributing funding partners. Collaboration with European Programmes has brought a tremendous wealth of knowledge and experience to Devon as a whole, through the Ward Forester, Cordial, SEACS, and FOREST programmes, and this provides for a structured approach to future bids.

### Strand 3 – Promotion and Awareness-Raising / Support to Customer Journey / Increasing Uptake

39. The County Council serves as a trusted, independent source of information on biomass, and it is clear there is strong industry support for the Council to play a continued role in supporting the sector through awareness-raising and associated activities. We would recommend that at the heart of this awareness-raising is both a publicity campaign and source of independent technical advice backed by online information and advice. To raise the profile and awareness, a simple ‘biomass factsheet’, aimed at the domestic customer, giving simple and informative information could be an initial start. This could be followed up by a straightforward ‘customer journey’ short flowchart/checklist type document, to steer potential customers through the biomass process. It could equally be targeted at, and used by, industry to educate and inform customers.

40. It is envisaged that these two documents would be backed by independent technical advisers, that would be able to visit site and conduct an initial feasibility assessment across all renewable energy types, and give additional advice on energy efficiency measures (in order to signpost the potential Green Deal route). The technical adviser should be sufficiently able to perform basic heat loss calculation assessments and provide outline design specifications and rough order of magnitude costings. In undertaking this, it would be ideal for a centre, or centres to be both working with industry already, and for the technical advisers to have specific industry technical experience. The technical advisers would then be able to signpost and support the potential customer in engaging with potential suppliers, in order for them to evaluate and select their preferred installer or installers. As a starting point, both the Forestry Commission’s Biomass Energy Centre (BEC) have produced Systems Guides for small

log/pellet boilers<sup>27</sup>, medium scale chip and pellet boilers<sup>28, 29</sup> and a guide to Feasibility Studies<sup>30</sup>. There is also an overall system guide produced by the FOREST Programme<sup>31</sup>. All of these could be re-utilised. It is also of note that the Forestry Commissions BEC website contains a very good biomass resource library in general, and as a public body, can be regarded as another independent and valued source of advice. An example of a public sector/local authority support to the sector is illustrated through the Upper Austria Energy (roughly equivalent to the former Regional Development Agency) which identified three success factors for biomass<sup>32</sup>:

1. *'The Carrot'* – the incentive scheme
2. *'The Stick'* – regulatory measures to ensure uptake
3. *'The Tambourine'* – celebrating success.

41. These three strands are underpinned by consistency: the Austrian programme has run since the early 1980's
42. To raise awareness both within Devon County Council and in industry and the public at large, there remains a need to hear about, and visit, exemplar installations, particularly those that have applied multiple technologies. We would envisage that a series of 'sector champions' could be established across the region, with a small amount of funding (or they be facilitated to seek funding through community, partner co-funding (i.e. National Trust) or industry, or lottery type funding) to promote awareness within their sector in return for holding a series of demonstration events and visits, and in providing feedback on effectiveness of the system(s) used. This is not of course tied to biomass, but could apply to energy efficiency and renewable energy in the round. Examples we have identified could be (but are not exclusive to):

27

[http://www.biomassenergycentre.org.uk/pls/portal/docs/PAGE/BEC\\_TECHNICAL/BEST%20PRACTICE/36491\\_FOR\\_BIOMASS\\_1.PDF](http://www.biomassenergycentre.org.uk/pls/portal/docs/PAGE/BEC_TECHNICAL/BEST%20PRACTICE/36491_FOR_BIOMASS_1.PDF)

28

[http://www.biomassenergycentre.org.uk/pls/portal/docs/PAGE/BEC\\_TECHNICAL/BEST%20PRACTICE/37821\\_FOR\\_BIOMASS\\_2\\_LR.PDF](http://www.biomassenergycentre.org.uk/pls/portal/docs/PAGE/BEC_TECHNICAL/BEST%20PRACTICE/37821_FOR_BIOMASS_2_LR.PDF)

29

[http://www.biomassenergycentre.org.uk/pls/portal/docs/PAGE/BEC\\_TECHNICAL/BEST%20PRACTICE/CORRECTED%20LOW%20LOSS%20HEADER%20DIAGRAM.PDF](http://www.biomassenergycentre.org.uk/pls/portal/docs/PAGE/BEC_TECHNICAL/BEST%20PRACTICE/CORRECTED%20LOW%20LOSS%20HEADER%20DIAGRAM.PDF)

30

[http://www.biomassenergycentre.org.uk/pls/portal/docs/PAGE/BEC\\_TECHNICAL/BEST%20PRACTICE/38215\\_FOR\\_BIOMASS\\_3\\_LR.PDF](http://www.biomassenergycentre.org.uk/pls/portal/docs/PAGE/BEC_TECHNICAL/BEST%20PRACTICE/38215_FOR_BIOMASS_3_LR.PDF)

<sup>31</sup> [http://www.forestprogramme.com/files/2012/08/Forest-Specifiers-Guide\\_FINAL.pdf](http://www.forestprogramme.com/files/2012/08/Forest-Specifiers-Guide_FINAL.pdf)

32

[http://www.oec.at/fileadmin/redakteure/ESV/Englisch/Publikationen/Biomass\\_heating\\_Upper\\_Austria\\_engl\\_US\\_Letter\\_216x279\\_2013\\_Sicht.pdf](http://www.oec.at/fileadmin/redakteure/ESV/Englisch/Publikationen/Biomass_heating_Upper_Austria_engl_US_Letter_216x279_2013_Sicht.pdf)

1. Okehampton College – multi system and energy reduction
  2. Castle Drogo – National Trust (and collaboration in Fit For Future Programme)
  3. Dartmoor Woodfuel Co-Operative – Co-Operative Work
  4. Bideford College – new build multi system college
43. Schemes (all based in Devon) could be proposed by owners/volunteer groups/community interest groups or installers; subject to a ‘peer review’ panel to approve the standard (and a case study produced by the proposer) and it then be supported and advertised.
44. A vital part of the process would be feedback on success and production of a case study (and follow-ups to earlier case studies to see how they have performed), lessons learnt and best practice. This can then be fed straight back into the industry through the provision of training and best practice seminars
45. This is a development of the SW Bioheat and RE4D programme, as we believe more responsibility should be transferred to bodies and organisations already supporting the industry. Centres such as the South West Energy Centre (SWEC) already support industry and develop and deliver accredited training courses and certified Continued Professional Development (CPD) courses, as well as injecting additional materials into developing core skills through apprenticeship programmes and foundation/higher degree pathways for education. This would also support the development of a more vocational curriculum in line with national policy (2014 National Curriculum). It is suggested that such a role could be undertaken by centres such as the South West Energy Centre, which is already operating in much of this arena.
46. To structure such a project, we would recommend setting a target of 1,000 surveys (for renewable heat) across a two year period, as part of an awareness raising programme. Such a survey, leading to a report/request for quote document, would cost £150-00 to produce by a technical expert, including survey. However we would recommend that a sliding scale of contribution be made by potential customers:

Customer Numbers	Charge to Customer	Total Cost to Funder
<b>1-300</b>	0	£45,000
<b>301 – 600</b>	£50-00	£30,000
<b>601-1000</b>	£100-00	£20,000
<b>1000+</b>	£150-00	0
<b>Total Cost</b>		<b>£95K</b>

47. Early adoption is incentivised, to promote uptake, and there is a clear exit strategy for funding bodies and takeover by the provider organisation. Most importantly, the survey would be entirely independent, and would assist customers in being introduced to suitable companies who could then undertake the detailed work in response to a tender/request for quote in a competitive bid. After 1,000 customers the scheme is self –funding. An additional option would be to assist community groups with a similar survey, in order to get the group to grant application stage for the Rural/Urban Community Energy Fund. The South West Energy Centre would then offer, as an option to the group, to assist with technical expertise and support to the project funded from the grant application, as a separate arrangement if the group wished.
48. For the website facility, adding and maintaining online information can be expensive and onerous. The key to continued success is up to date information. However, the design of the SW Woodshed and FOREST website, maintained by Regen SW, is already a low cost route to implementation. FOREST and SW Woodshed, whilst appearing as totally independent websites, are actually one website but two communities. As the SW woodshed is now largely redundant (and out of date), it is suggested that this be rebranded the ‘Devon Woodshed’ and is utilised to provide the Devon portal of information. The site has the additional advantages of an editable self-teach training package and a case study search facility ‘spider’ that would enable Devon businesses to link and advertise their case studies through the website. Quality control and access is retained by the website manager, so a vetting process for the controlled release of appropriate case studies can be achieved. The website is largely developed, funded by the former South West Regional Development Agency and Forestry Commission under the SW Bioheat Programme, as well as European FOREST Funding. Utilising Regen SW as co-ordinators and managers of this would fit within its strategic role, with operations and execution of the programme it is suggested, delivered through the South West Energy Centre (SWEC).

## ADDITIONAL OPPORTUNITY

### Strand 4 – ‘Whole Forest’ Approach to Timber and Wood Fuel

49. We have additionally identified an opportunity out with the scope of this report. The County Council, in exercising its close working relationship with the Forestry Commission, sits on the Forestry and Woodland Regional Advisory Council. We have identified the potential risk in woodlands being over-developed solely for wood fuel, and that developing

the wider timber and forestry opportunities could add additional jobs and GVA (Gross Value Added) as well as further stimulating the production of wood fuel as a co-product. The Forestry Committees Opportunities Report has identified areas for development. Through Devon's role on the advisory committee, there is the advantage to utilise the growing role of the Heart of the South West Local Enterprise Partnership (LEP) for developing the Timber economy, as well as acting as a conduit and providing guidance and direction for the 5 Devon-based Leader Local Action Groups. The Marches LEP has already started some work in this direction, with its aim of developing the Timber economy<sup>33</sup>

50. **Funding.** The main sources of additional funding identified to run future programmes are:

1. Farming and Forestry Infrastructure Scheme (FFIS)(now closed) but to be incorporated in Farming and Forestry Productivity Scheme (to be launched)
2. Forestry Commission funding (Woodland Grants)
3. **Rural and Urban Community Funds** Targeted at District Heating and Community Groups. A community group is not just a fixed geographic area; it could be bringing woodland and boiler owners to form wood fuel co-ops like Dartmoor Woodfuel Co-Op.
4. **There are two main European Programmes of Funding support:**
  - a) **PROJECT HORIZON 2020** (formerly Intelligent Energy Europe) – open for bids from now through to 2015 in all aspects of energy efficiency and renewable energy business sector development through European collaboration and innovation:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/1150-lce-14-2015.html>

- b) **INTERREG EUROPE** (formerly INTERREG IV – now closed), opening for proposals from Jun 14

<http://www.interreg4c.eu/programme/2014-2020/>

<sup>33</sup> <https://sites.google.com/site/marchestimberstudy/home>

52. Annexes:

- A. Survey Results
- B. List of Companies Consulted
- C. About the South West Energy Centre.