

## CHAPTER 7.

# ECONOMY AND RESOURCES

## Devon's economy: just, smart, circular, regenerative and rich in natural capital

Humans rely on planet Earth to meet our needs. It provides all our raw materials from the air we breathe, to food and iron ore for example, which we process producing waste products. But Earth's ability to provide for us and to absorb our waste is not without limits.<sup>1</sup>

In recent history we have made products, used them and then discarded them without recovering all of the materials they are made from or questioning the extent to which we really need them in the first place. This linear economy exceeds planetary boundaries because it is ecologically damaging as well as carbon intensive. This consumption and disposal behaviour creates greenhouse gas (GHG) emissions during manufacture, transport to the consumer and from disposal itself. How the economy functions influences GHG emissions associated with every section of this Plan. Of note to this section of the Plan is that 9% of the GHG emissions produced in Devon are emitted by waste disposal activity.<sup>2</sup>

In addition to the GHG emissions produced in Devon's boundary, our consumption habits also contribute to emissions overseas due to our purchasing of goods produced abroad. These emissions represent over half of the GHG emissions produced in Devon. This is discussed further at Section 3.2 "Greenhouse Gas Emissions in Devon".

But we can use resources better, for example recycling aluminium drink cans saves up to 95% of the energy needed to make aluminium from its raw materials.<sup>3</sup>

If Devon is proactive and innovative, we can benefit from the opportunities already emerging to shape a new model of resource use and economic organisation. Whilst there are excellent examples of innovation already in Devon and the southwest, Devon's anchor institutions could engage further with the increasing interest in Devon for commissioning and procurement to extend its local positive impact. Organisations could be more proactive in nurturing local, sustainable service and product supply chains and place higher value on the carbon and social impact of procurement decisions, including supporting the circular economy. The "community wealth building" model focuses on the purchasing power of organisations that are unable to relocate due to their inherent function, such as councils, hospitals and educational establishments, known as "anchor institutions". It is also referred to as the "Cleveland Model" due to its inception in the city of Cleveland, Ohio.

We must ensure that people and organisations in Devon are well positioned and opportunities are available to them to develop skills to take up these opportunities with the access to the finance they need to do so.

## 7.1 WHAT NEEDS TO HAPPEN?

We need to:

1. Enable the economy to **meet everyone's needs more equally without exceeding planetary boundaries**
2. **Avoid creating waste**, by buying less, buying second hand, repairing the things we have and sharing rather than each individually owning items
3. **Transition to a circular economy**, by designing products for disassembly so we can recover materials for reuse and recycling
4. **Reduce emissions from biodegradable waste and wastewater treatment**
5. **Accelerate the transition to net-zero carbon** by targeting the **purchasing and commissioning** power of Devon's organisations to get best value locally
6. **Support communities and businesses** to make the transition to net-zero livelihoods using innovative channels of **finance**, fostering **innovation** and ensuring we have the **skills** we need for the emerging economy.

### 7.1.1 Economy, Resources and Cross-Cutting Themes

A number of the Plan's Cross-Cutting Themes interface with the economy and resource use actions required to achieve net-zero, particularly:

- Behaviour change and community engagement
- Knowledge sharing, skills and learning
- Finance, economy and resource access
- Procurement and commissioning

Specific actions are tagged with the cross-cutting theme they relate to.

### 7.1.2 Doughnut Economics – Meeting our Social and Planetary Needs

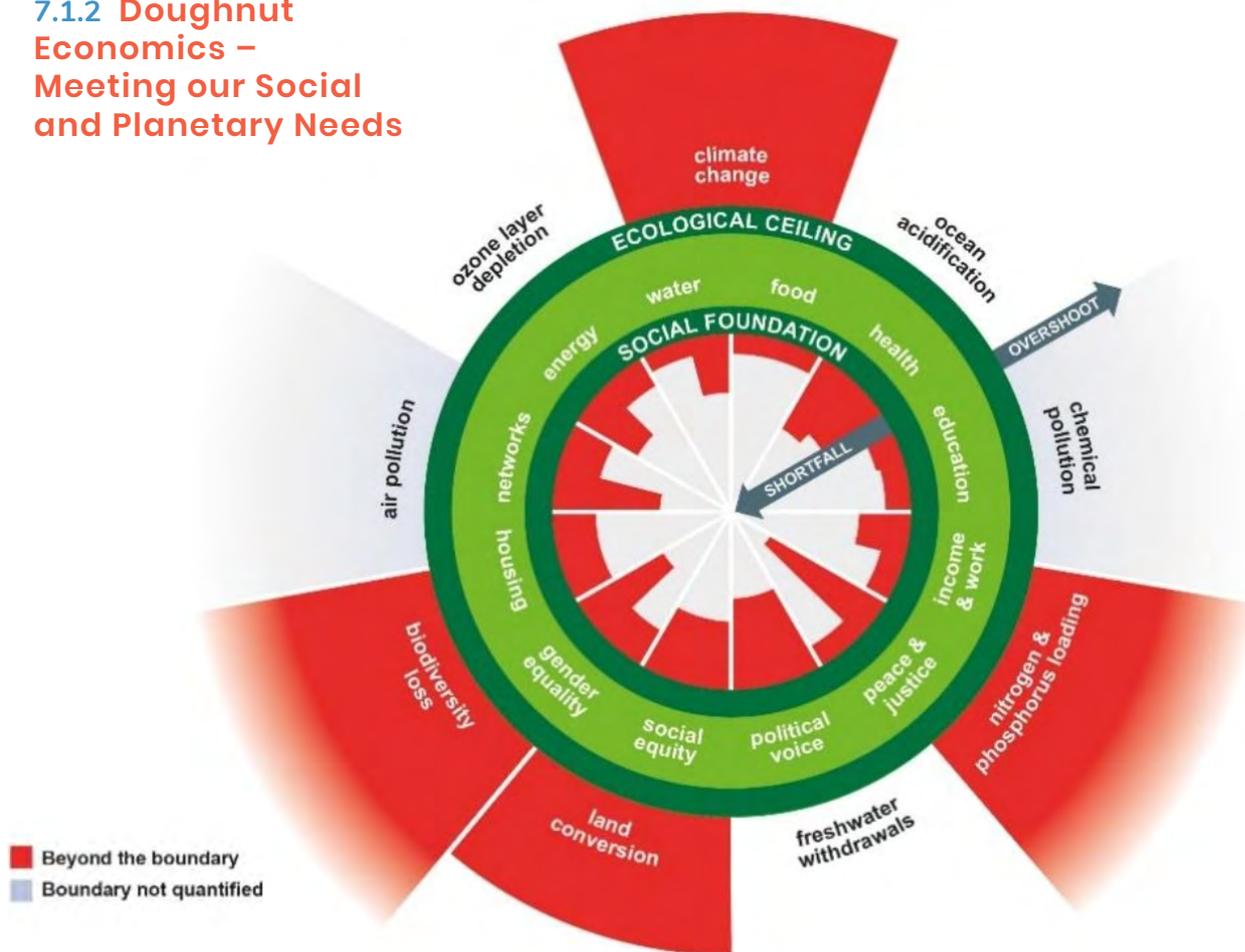


Figure 7.1 The Doughnut of social and planetary boundaries, Raworth, K. 2017 <sup>4</sup>

Economist Kate Raworth has introduced the idea of Doughnut Economics, where our use of resources must fall between the minimum needed to keep everyone healthy and to achieve social justice, but not more than the Earth’s boundaries that keep our planet habitable,<sup>1</sup> see Figure 7.1.<sup>5</sup> This is a useful tool to think about future policy and projects, including our strategy for achieving net-zero.

Doughnut Economics is different to government policy in recent decades, which has given equal weight to the “three pillars” of economy, society and environment. It is increasingly clear that planetary boundaries must take priority for society and the economy to function safely. But this doesn’t need to mean our well-being and quality of life are reduced. In fact, well-being is at the very heart of Doughnut Economics.

### 7.1.3 Reducing our GHG Emissions through a Circular Economy

To reduce our GHG emissions we need to move away from a linear use of resources to a circular economy, which the Ellen Macarthur Foundation defines as “based on the principles of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems.”<sup>6</sup> See Figure 7.2. Exeter University’s Centre for Circular Economy is helping demonstrate that circular economies can regenerate the environment and enhance well-being.<sup>7</sup>

Figure 7.2, Resource flow in a circular economy, WRAP<sup>8</sup>



### 7.1.4 Waste Prevention, Reuse and Recycling

We can avoid creating waste by consuming less, through reuse and repairing what we have. Then minimise the impact of unavoidable waste through recycling, recovering materials and energy, before disposal to keep resources in circulation for longer. This is summarised in Figure 7.3, the Waste Hierarchy.

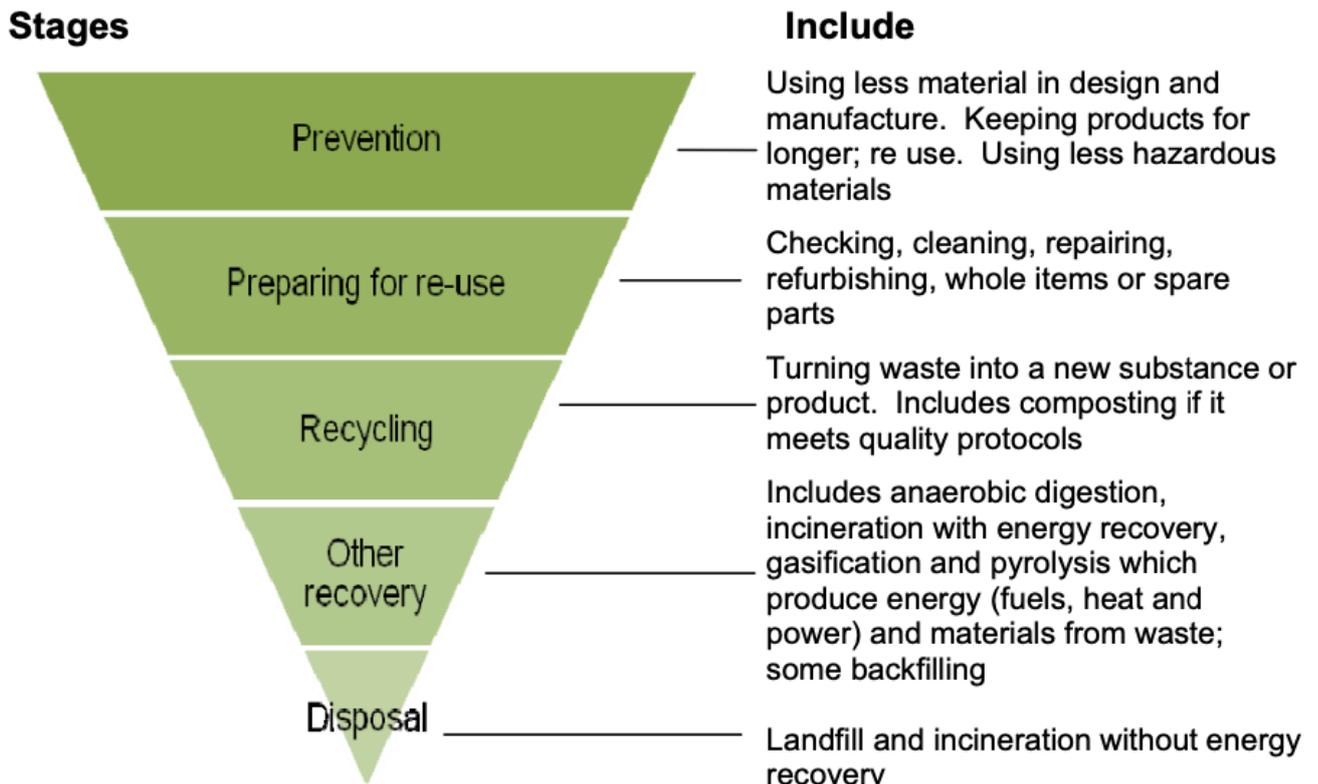


Figure 7.3 The Waste Hierarchy

### Behaviour Change, its Role and Limits

Reducing the volume of virgin-materials we use will require behavioural and cultural change, such as, consuming less by cultivating a culture of “enoughness”, normalising sharing practices such as leasing or through the gift economy (where items are passed on without being sold), buying second hand and repairing, and increased recycling.

However, there are limits to an emphasis on individual choice. If simultaneous shifts in culture, technology, infrastructure, institutions, policy and the economy do not occur, then it is evidenced that behaviour change won't happen or at least alone it is insufficient to meeting the challenge of climate change.<sup>910</sup>

Sustainable production is required to enable sustainable consumption; barriers to sustainable consumption include planned obsolescence, where products are designed not to last very long with composite materials or component parts that cannot be easily reused or recycled. For example, most mobile phones are difficult to repair or upgrade, however the Fair Phone has demonstrated that it is possible to design replaceable modules and a phone that is possible to repair yourself with a single screwdriver. Therefore we need to work with national government to help tackle whole system issues of how products are produced, distributed and regulated.

### Public Awareness and Engagement

Public awareness and engagement will be essential. Local authorities are well placed to communicate with households and schools, as well as through Household Waste Recycling Centres.<sup>9</sup> The Thematic Hearings identified that we need to work with residents and communities, to help them understand their consumption, recycling systems and their carbon footprint. Educating young people has impacts on wider

family habits, with children speaking with siblings and parents about environmental issues and advocating for better practices within the home. Devon's Resource and Waste Education Strategy for Schools<sup>12</sup> (covering the areas administered by Devon County and Torbay councils) recognises the benefits that children can bring to improving waste management at home.

The 'Don't let Devon go to Waste' successful information campaign is operated by the Devon Authorities Recycling Partnership, covering Torbay, Plymouth and the area administered by Devon County Council. The continuation and expansion of these programmes is key. A number of non-governmental organisations also run awareness campaigns, such as WRAP's Clear on Plastics campaign<sup>13</sup>.

### Increasing our Ambition for Waste Management Needs National Support

There is a national ambition of recycling 65% of municipal waste by 2035 in England. Municipal waste includes both household waste and that from other sources which is similar in nature and composition, which will include a significant proportion of waste generated by businesses that is not collected by Local Authorities. However the Committee on Climate Change identifies that to achieve net-zero by 2050 we need: “An increase in recycling rates of all municipal waste across England ... to 70% by 2025”.<sup>40</sup>

The 70% by 2025 performance proposed by the Committee on Climate Change will not occur without achieving the following: realising unprecedented rates of behaviour change; the immediate funding and fast-tracking of additional waste processing facilities and collection vehicles by national government; viable markets and technology for the remaining materials such as plastic film. Given that 2025 is only 5 years away this plan recommends aligning municipal waste recycling targets across Devon with the existing national ambition.

### 7.1.5 Diagram of Economy and Resources Actions

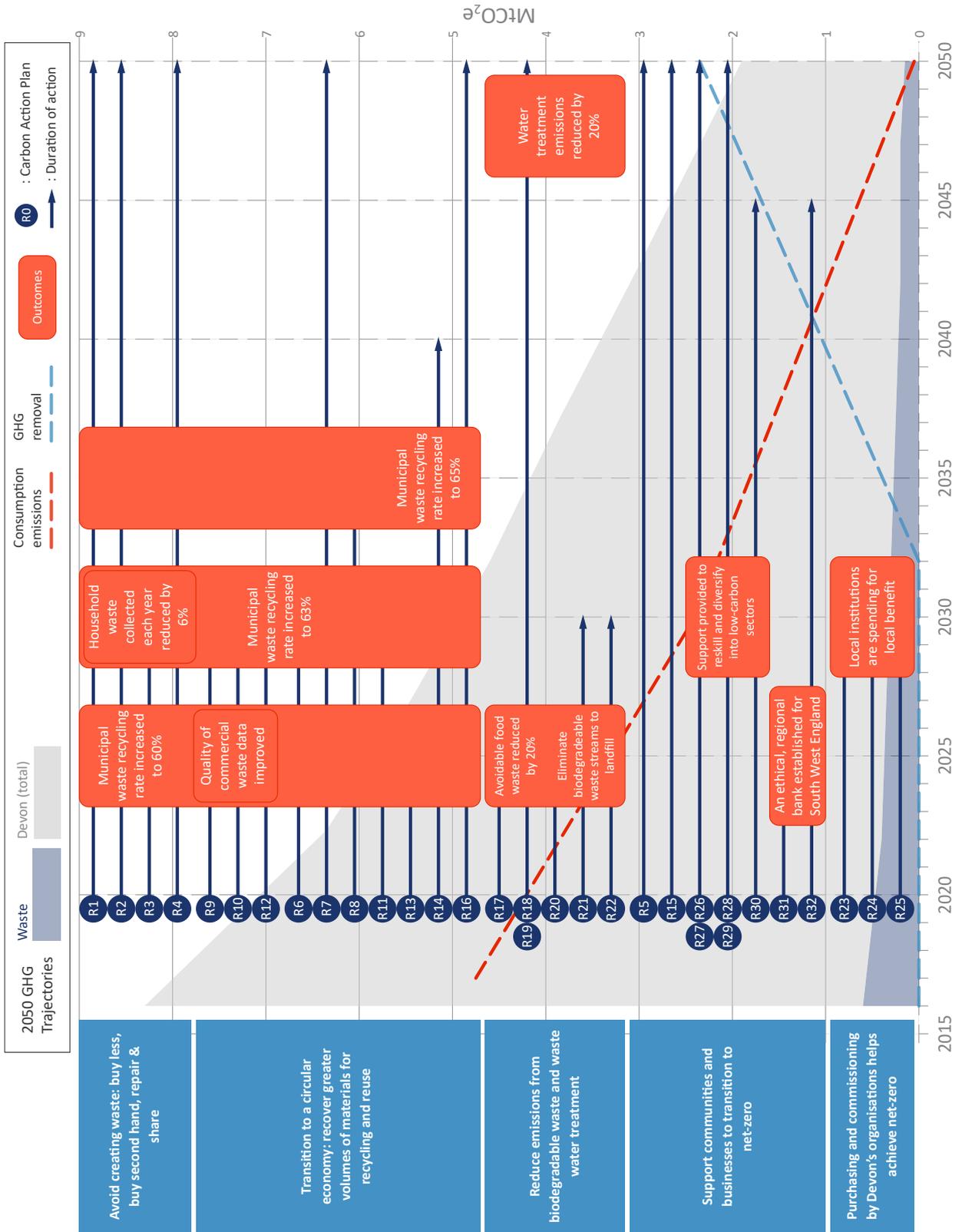


Figure 7.4 Diagram of the Resources and waste actions, showing the key trajectory for GHG emission reductions over time and the anticipated timing of actions. As the actions relating to the economy relate to emissions across sectors only the waste emission related actions are shown here.

### 7.1.6 Priority Actions

- **R1** Deliver ongoing, targeted communication and engagement to: empower all social groups in Devon to act on the impacts of how things are made and distributed, promote more sustainable consumption habits, the prevention of waste (particularly food) and shift to a culture of reduction, reuse and recycling. [Cross Cutting Theme: Behaviour transformation and community engagement]
- **R8** Achieve a 65% municipal waste recycling rate by 2035. To do so, local authorities and commercial waste carriers to separately collect a wider variety of materials for recycling (including food waste) and household waste collection systems to be harmonised across Devon as far as viable.
- **R23** “Anchor institutions” to embed social and environmental value further into tendering processes to effect meaningful change and sustainable procurement [Cross Cutting Theme: Procurement and commissioning]
- **R29** Develop training and reskilling opportunities with higher education providers and the Local Enterprise Partnership to enable workers in carbon-intensive sectors to redeploy into emerging sectors to ensure the low Knowledge sharing, skills and learning; Finance, economy and resource] carbon skills base is available. [Cross Cutting Theme: Knowledge sharing, skills and learning; Finance, economy and resource]

## 7.2 OPPORTUNITIES AND BENEFITS

**There are many co-benefits to reorienting the economy towards net-zero. It is important that Devon invests in research, development and innovation in the zero-carbon economy to capture the opportunities for job creation and emissions reduction.**

- Reducing emissions in Devon through changing our resource use, including reconsidering our current waste streams, has real opportunities to increase productivity, catalyse innovation and improve resource efficiency all of which will help Devon transition towards a more circular economy.
- More efficient resource use will save Devon’s businesses money, allowing them to invest savings made in staff or technology.

There is evidence that employees prefer to work for socially and ecologically responsible companies, with ethical practices reducing employee turnover.<sup>14</sup>

- The Great South West: The Devon Climate Emergency is linked with similar initiatives elsewhere in the region. There are ambitious plans to create the UK’s first net-zero carbon region in the South West, to deliver a massive £45 billion boost and create 190,000 new jobs by 2035. In February 2020, the then Chancellor of the Exchequer, Sajid Javid, was urged to back the Great South West in the 2020/21 Budget and help kick start this job creation. The Local Enterprise Partnerships that together form the Great South West alliance will continue to seek support for the Great South West from government.

## 7.3 KEY OUTCOMES

- Better understanding and reduction of household and commercial waste flows
- A circular economy – we reuse and recycle more, creating business efficiencies
- Net-zero and social value outcomes accelerated through anchor institution procurement
- Retain more value locally (Cleveland model)
- The creation and use of green finance and investment products
- A reskilled workforce redeployed into low-carbon sectors, e.g. renewable energy, low-carbon aviation, electricians, energy assessors, agro-economic advisors, carbon sequestration accreditors, circular economy equipment engineers, cycle technicians, electric vehicle maintenance and robotics and artificial intelligence

## 7.4 GOAL: WE AVOID CREATING WASTE THROUGH CONSUMING LESS, SHARING AND REPAIRING

To reduce our emissions, we need to avoid creating waste through consuming less and sharing and repairing things we use.

Local authorities are responsible for collecting waste from households. Some local authorities offer commercial waste collections, with the remaining commercial and industrial waste collected and managed by private contractors appointed by businesses.<sup>15</sup>

Total household waste collected in Devon in 2018/19 was 519 kt.<sup>27</sup> The latest estimate for commercial waste within the area administered by Devon County and Torbay councils is 560 kt, of which the proportion classified as municipal waste due to its 'household-like' nature is 186 kt.<sup>28</sup> An estimate for construction, demolition and excavation waste within the same administrative area is 1,206 kt<sup>16</sup>. Consuming less and avoiding waste creation not only reduces emissions

associated with making new products, it also helps avoid emissions associated with managing that waste such as transport, energy supply and built environment emissions.

Preventing waste is the shared responsibility of everyone – government, businesses, local authorities, civil society and others.

### **Avoiding Waste: Reduce, Share and Repair**

To align average consumption related emissions in Devon with planetary boundaries most of us need to reduce our material consumption<sup>17</sup>. Reducing how many things we buy not only decreases the emissions associated with producing products, but also with disposing of them.

Many of us own appliances which we rarely use

such as DIY tools or camping equipment. Overall, we would require fewer items if we shared more or transitioned from ownership to leasing models.

Repairing items rather than replacing them helps to extend their lifetime and delays their disposal. However, there is a lack of skills for repairing goods, which is linked to the issue of planned obsolescence, where items are not designed to last a long time, be easily fixed or with reuse in mind.

### 7.4.1 What Needs to Be Done?

#### Empowering Citizen-Consumers

We must promote and support a culture of enoughness, sharing, leasing, buying second hand and repairing, as well as the consumption of experiences and services which can be lower carbon – such as the arts, time in nature, education, community celebrations and social care. These experiences and services are an economic opportunity for Devon.

We can help inform people how they can be ‘citizen-consumers’ who demand lower resource products and services from producers, and each use our spending power to prefer lower resource commodities, boycotting high resource commodities, thus sending strong market signals and demanding change. We must also support financially inclusive models to lower our impact, so that all of Devon’s residents can be part of the solution, not just a few who can afford to be conspicuously “green”.

It will be vitally important to promote the benefits of reuse e.g. better skills, keeping resources in our communities, providing employment, improving community resilience and reducing social isolation. We must support networks of repair groups across Devon so that learnings can spread.

There is a deep cultural shift required away from buying things as a form of status and self-reward<sup>18</sup>, currently encouraged by advertising and deeply engrained in our dominant economic growth model. Whilst individual behaviour change is important, change needs to be made easier through addressing supply chains, awareness of options and facilities for leasing models, sharing, repairing and reuse. Lower carbon impact and lower resource options can also be more expensive, limiting who can afford to choose these items, with social justice implications.

#### Community Action Groups

Devon’s Community Action Groups (CAG) are already doing a fantastic job of bringing citizens together so that they can learn from each other, to share experiences and skills. The CAG Devon network supports communities to develop projects and organise events to reduce waste and promote sustainable living<sup>19</sup>. When change comes from the community, there is often better buy in through positive effects of the peer-to-peer social network.

Groups can require, and find useful, skills training and assistance with insurance, health and safety, managing volunteers, communications etc. Networks such as CAG can deliver this effectively. CAG is currently focused in Mid Devon and Teignbridge, however informal groups across Devon would benefit from greater support and sharing.

Figures from the 2019–2020 Devon Community Action Groups Impact Report: <sup>20</sup>

- 14 community action groups taking action on waste reduction and reuse
- 265 events across Devon such as repair cafes,

food surplus cafes, refill campaigns, community larders, litter picks, composting, clothes swishes, tree planting and more, with 8,548 attendees

- 4.8 tonnes of waste prevented
- 2.7 tonnes of waste diverted from landfill or incineration
- 18.5 tonnes of carbon emissions avoided.

### **Avoiding Waste: Reduce, Share and Repair**

We can reduce our waste related emissions by sharing resources, for example by using libraries instead of buying a book or using a car club instead of owning a car<sup>21</sup>. Devon already has good examples of this such as The Share Shed in the South Hams – “a mobile library of things” which offers over 350 items to be borrowed, including: tools, household appliances, camping and gardening equipment, sewing machines and suitcases.<sup>22</sup>

New leasing models are being offered; Mud Jeans in the Netherlands allow customers to lease jeans.<sup>23</sup> When customers feel like a change, they can send them back and exchange them for a new pair and Mud Jeans will recycle the old pair. Leasing models can help businesses to retain control over materials which can be recycled on an ongoing basis to create new products. This demonstrates the principle of the circular economy. We need to help such initiatives spread.

Buying second-hand goods also reduces waste. This is now facilitated by popular online platforms such as eBay, Depop and Gumtree. Devon has several high-quality second-hand clothes stores, which curate collections of quality clothes, as well as charity shops and vintage stores. Second-hand purchases should become more mainstream. Platforms such as Freecycle, active in Devon, encourage people to give away things for free that they no longer want. Devon also has resale shops at its Household Waste Recycling Centres such that waste can be reused rather than

recycled or disposed. Markets for second-hand and unwanted goods help manage waste higher up the hierarchy, but can also help low income groups – various charities in the County specialise in providing a valuable services to those on very low incomes in need of items such as furniture and electricals, usually on referral.

An important part of enabling reuse is supporting the repair sector and empowering Devon’s citizens with skills to repair items themselves. Devon already has 14 community run “Repair Cafes” which help people repair a range of items.<sup>24</sup> Communities across Devon participated in the Big Fix 2020, a UK wide event. Sixty-eight Repair Cafés were held simultaneously across the country with 14 cafes held in Devon alone. Devon’s Big Fix involved 203 menders, 580 items fixed and saved 7 tonnes of CO<sub>2</sub>.<sup>25</sup>

Materials may also be repurposed, such as the use of old duvet covers to make scrubs for the NHS during the Covid-19 outbreak.<sup>26</sup>

All this activity will contribute towards the target of reducing the waste produced per household each year by at least 6% by 2030 to 416kg within the area administered by Devon County and Torbay councils.

### 7.4.2 The Actions

**R1.** Deliver ongoing, targeted communication and engagement to: empower all social groups in Devon to act on the impacts of how things are made and distributed, promote more sustainable consumption habits, the prevention of waste (particularly food) and shift to a culture of reduction, reuse and recycling. [Cross Cutting Theme: Behaviour transformation and community engagement]

**R2.** Support communities to establish and promote repair cafes, share sheds and community composting schemes, for example by providing funding or premises. [Cross Cutting Theme: Knowledge sharing, skills and learning]

**R3.** Review the provision of resale and reuse facilities at all household waste recycling centres and implement improvements where needed.

**R4.** Encourage the consumption of low carbon experiences, such as the arts, nature, education and social care, rather than material consumption. [Cross Cutting Theme: Finance, economy and resource access]

**R5.** Support immature industries with the potential to contribute to delivering a net-zero Devon. [Cross Cutting Theme: Finance, economy and resource access]

### 7.4.3 Case Study

#### Proper Job Community Reuse Centre

Proper Job is a community reuse centre on the northeast edge of Dartmoor in Devon. The charity aims to keep reusable items from being disposed of by putting them on sale in an “Aladdin’s cave of pre-loved treasures”.

Everything from baths, crockery and clothes to garden furniture and building materials is on sale, often at a fraction of their original cost, helping people to both reduce their carbon footprints, by buying second-hand goods rather than new and to save money at the same time.

Proper Job also offer training and skill sharing sessions to promote the benefits of reusing, recycling and reducing, such as composting workshops.

They also help and encourage other communities to follow their lead because every town deserves a Proper Job!

#### 7.4.4 Co-benefits:

As well as creating new opportunities for growth and reducing waste, a more circular economy will benefit in the following ways:

- Repair cafes can help boost social capital and community cohesion, reducing social isolation
- Help move away from a 'throw-away culture' of waste disposal to one more interconnected and in tune with nature
- An increase in people's skills e.g. repair skills
- Keep resources in our communities
- Provide employment

## 7.5 GOAL: ENHANCE MATERIALS CAPTURED FOR RECYCLING AND REDUCE EMISSIONS FROM WASTE TREATMENT

Eliminating emissions from municipal waste streams will require both increasing the recycling rate and making changes to the ways in which non-recyclable (residual) waste is managed.

### **Increasing our Ambition for Waste Management Needs National Support**

The average recycling rate of waste from households across the Devon County, Torbay and Plymouth City council areas is 56%, 41% and 35% respectively<sup>27</sup>. In the national context, the Devon County Council area performance is an impressive rate.

There is a national ambition of recycling 65% of municipal waste by 2035 in England. Municipal waste includes both household waste and that from other sources which is similar in nature and composition, which will include a significant proportion of waste generated by businesses that is not collected by local authorities. This is in line with the Committee on Climate Change scenario for an 80% reduction of emissions from 1990 levels by 2050.<sup>39</sup>

However, the Committee on Climate Change identifies that to achieve net-zero by 2050 we need: "An increase in re-cycling rates of all municipal waste across England ... to 70% by 2025".<sup>40</sup> Nevertheless, 70% by 2025<sup>40</sup> will not occur without achieving the following: realising unprecedented rates of behaviour change; the immediate funding and fast-tracking of additional waste processing facilities and collection vehicles by national government; viable markets and technology for the remaining materials such as plastic film.

Currently 41% of what ends up in household black bins in Devon is recyclable, which highlights the extent to which people's behaviour has considerable opportunity to help the transition to a circular economy. In order to achieve 70% recycling rates Devon would need to recycle over 60,000 additional tonnes a year. Given that new reprocessing facilities usually take almost five years to become

operational from securing funding, owing to planning permission and securing environmental permitting, 70% by 2025 is not achievable within the current policy and funding environment. Additionally, demand for recycled materials needs to increase to create a stronger market for recyclable materials, otherwise stockpiling of the recyclable materials would occur. This will require national government intervention to stimulate these markets.

### Commercial Waste

Data availability on commercial waste collected by private waste carriers within each local authority area is very poor compared to household waste and the fraction of commercial waste collected by local authorities. Government estimates that the recycling rate of commercial waste is somewhere between 34 and 40%.<sup>28</sup> Making better use of commercial waste will be difficult without a greater understanding of how much is produced, where from, and how it is reprocessed or disposed. The latest estimates (2009) suggest that 87% of construction, demolition and excavation waste is recycled in the area administered by Devon County Council.<sup>16</sup> Through the GovTech Catalyst project, governments and regulators across England, Northern Ireland, Scotland and Wales are looking at how we can digitise waste tracking processes. In particular, how we record what happens to waste as it moves from production to recovery or disposal.

Existing legislation gives local authorities limited levers to affect how commercial waste is managed. Waste collection authorities are not obliged to provide collection of commercial waste, although some do currently offer these services. However, the Resources and Waste Strategy for England, 2018<sup>29</sup>, sets out government's ambition to ensure businesses segregate recyclable waste and food waste separately to waste that cannot otherwise be reused or recycled (residual waste) so the waste can be recycled and avoids biodegradable waste being sent to landfill. This is in the process of being legislated through the new Environment Bill.

### Recycling and Resource Recovery

Some kerbside recycling collections in Devon offer a less comprehensive service than others, resulting in some plastics and other potentially recyclable materials not being captured and causing confusion over what can be recycled due to the differences between locations. This can result in non-recyclable materials becoming mixed up with recyclable materials, lowering the quality of the collected material or the final recycled product. Ease of recycling is key to increasing its rate.

Government targets for the recycling of municipal waste are currently weight-based. This leads to decisions to ensure the heaviest wastes are collected for recycling which may not necessarily be the priority for the shift towards a lower carbon and circular economy. Therefore, there is an opportunity to work with national government to incentivise recycling of materials that achieve the greatest GHG saving by avoiding the need to produce virgin materials. For recycling to succeed, market demand for recycled materials by manufacturers is important, and so targets based on environmental performance would need to be accompanied by incentives for producers to use recycled materials in products.<sup>30</sup>

The UK Plastics Pact is bringing together businesses from across the entire plastics value chain with UK governments and non-governmental organisations (NGOs) to phase out problematic plastics which can't be recycled.

<sup>31</sup> Recently there has been an increase in the number of plastics recycling facilities in the UK, prompted in part by China's halting of the export

of plastic waste to the country, but also consumer and political pressure. This pressure has led to Plastic Packaging Tax which comes into force in the UK in 2022 and applies to packaging that does not contain at least 30% recycled plastic.<sup>32</sup> The industry estimates suggest the UK's reprocessing capacity may need to double to handle the increased demand for recycled material resulting from this tax.

The Thematic Hearing on Energy and Waste heard that more local recycling and recovery facilities are needed in the South West. Where materials do get exported from the region, there are GHG emissions associated with transportation and public concern over UK waste ending up in Asia and the southern hemisphere.<sup>33</sup> Although, there may be occasions when sending materials for recycling outside of the region is more carbon efficient than processing it locally, or will be required due to financial viability.

The electrification of transport and increased use of batteries for renewable energy storage will generate larger volumes of Waste Electrical and Electronic Equipment (WEEE) in Devon. The recovery and reuse of the rare earth metals found in WEEE will be vital to minimise global ecological and climate impact and address resource scarcity.

### **Design for Material Recovery**

Product and service design can inhibit the ability to recycle and maintain natural resources and materials for longevity. More sustainable design is needed to support a circular economy by enabling easy disassembly of components and separation of materials.

Manufacturers need to take greater responsibility for the disposal and recycling of the products they design and sell. We also need better information systems to track the materials in use so that they can be recycled and reused at the end of product and service life, for example in buildings.

### **Treatment of Waste that cannot be Reused or Recycled**

Devon County Council stopped landfilling all but a very small fraction of waste collected from households and businesses by local authorities in February 2019. Waste is now either recycled, composted or used for energy recovery.

Devon has two combustion Energy Recovery Facilities (ERF) in Exeter and Plymouth, that treat residual waste to produce usable energy. The steam produced can be used either to deliver heat to buildings or to generate electricity, or both. There is considerably more energy lost using steam to generate electricity compared to directly using the heat. Exeter's plant produces enough electricity to power 5000 homes but doesn't use the heat directly.<sup>34</sup> The Plymouth facility supplies heat to the Devonport dock yard and electricity to the national grid.

ERFs combusting residual waste are considered a comparatively low carbon energy source, as it prevents residual biodegradable wastes like food going to landfill, where it would produce the powerful greenhouse gas methane. The production of energy also reduces the need for fossil fuels for heating and electricity.

Burning or composting or anaerobically digesting biomass, such as food waste, is considered carbon neutral as the emissions associated with it can be re-captured through the regrowth of food or wood for example. However, if the residual waste includes plastic, this is effectively burning fossil fuels as most plastics are made from oil. The remaining plastics going to ERF are difficult to recycle, such as plastic films and absorbent hygienic products (nappies and menstrual products). Therefore significant reductions in the amount of remaining plastics being processed in ERFs will be challenging to make.

### **The Danger of Lock In**

Given the high cost of investment in waste disposal facilities and their long life, there are concerns that lock-in to a pathway of action can occur, making other waste management strategies less viable for a long period of time. There is evidence of lock-in effects in other European countries threatening progress on recycling.<sup>35</sup> In Devon there are long term contracts in place for the ERFs however these have not impacted on Devon's overall recycling rate.

## **7.5.1 What Needs To Be Done?**

### **The Role of the Circular Economy**

There needs to be cultural change amongst organisations across Devon to see waste as a resource and an opportunity, not a cost. Then Devon can seize the new markets and business opportunities of the circular economy. There is research expertise on the circular economy in Devon's universities that should be embraced by the Devon Climate Emergency partners and Devon's businesses to help with the transition.

But industry want the government to provide a level playing field. The Extended Producer Responsibility (EPR) system is intended to transfer the costs of managing waste from products at end of life to the producers of the goods. Reforms of the EPR system for packaging were due to be introduced in 2023. However, at the time of writing neither the 2020 consultation on EPR nor the anticipated Environment Bill, which contains the primary powers for implementing these measures, have been forthcoming. However, government states it is committed to 2023.

It is expected that EPR will come into force for Waste Electrical and Electronic Equipment (WEEE), batteries and end of life vehicles in coming years. Consideration will also be given to extending EPR into new areas such as textiles, bulky wastes, some construction and demolition wastes, tyres, and fishing gear, with a commitment to consult on two new EPR schemes by the end of the current Parliament in 2022. More detail on the waste streams identified is given in the government's Resources and Waste Strategy 2018.<sup>36</sup>

EPR should improve the quality of the recycled materials and increase markets for them, and hence increase investment in reprocessing facilities.

Another example of a way by which the government could help accelerate the transition to a circular economy, is the use of digital building passports which require the material composition of buildings to be recorded with a view to make the end of life reuse or recycling easier.<sup>37</sup>

We must work with government to identify and bring forward measures that will accelerate Devon's transition towards a more circular economy.

## Recycling and Resource Recovery

To increase overall recycling rates, we need to reduce differences between the items collected for recycling at the kerbside across Devon, so that a more consistent collection service is offered by all.<sup>38</sup> Since 2016, Devon County Council has shared 50:50 with the waste collection authorities any savings made on waste disposal as a result of changes made to waste collection services. For example, if a district starts to collect food waste separately the subsequent saving from the lower cost per tonne of food waste processing is shared. In some cases, the increased volume of a material achieved through collaboration might make a contract with a re-processor more cost effective. To date Teignbridge, Mid Devon, Torridge, North Devon and East Devon councils have improved their services and shared in savings made on treatment/disposal. This is helping to bring greater consistency to kerbside collections in Devon.

Plastic recycling is important given its high carbon intensity relative to other materials if combusted in an Energy Recovery Facility.<sup>38</sup> We must also work with national government to progress national incentives for material recycling based on carbon intensity, not just weight.

A recent report for Devon County Council, on The Carbon Impacts of Waste Management in Devon County, by Eunomia, recommended restricting residual waste (black bin) capacity through the frequency of collection or bin size, or both, which are known to help stimulate greater uptake of recycling services. They report that “East Devon has introduced three weekly collections in 2017 and now has the highest recycling rate and lowest weight of residual waste per household in Devon.”<sup>38</sup>

Choosing to purchase recycled goods is important to stimulate demand for, and to increase the financial viability of, recycled materials globally.

### Commercial Waste

Making better use of commercial waste will be difficult without a greater understanding of how much is produced, where from, and how it is disposed, therefore better data is required. Legislation to obligate businesses to improve waste separation is on its way, but the provision, ease of access to and cost of commercial waste services that separate out these materials needs to improve in order to encourage greater uptake. Small businesses will need greater support to comply with the upcoming new Environment Bill legislation.

Business Improvement Districts (BIDs) in Devon could establish collaborative commercial waste contracts that will improve the business

case for greater recycling through economies of scale.<sup>38</sup> These can make separation a contractual requirement. Devon has BIDs in Exeter, Plymouth, Tavistock and Torquay. BIDs in Bath, Bristol, Leeds, Aberdeen and elsewhere have established commercial waste contracts that encourage recycling, reduce waste vehicle movements and reduce costs for businesses.

Additionally, more waste collection authorities in Devon could explore offering high performing commercial waste services to BIDs.

### Minimising the Impact of Unavoidable Waste

Even with waste reduction, reuse and recycling initiatives, there will still be some residual waste to be treated at Energy Recovery Facilities (ERF).

Making better use of heat from these facilities would reduce the carbon impact of ERFs, such as by connecting the Exeter ERF to a district heating system which pumps the steam to buildings for heat. This opportunity has been, and continues to be, pursued by Devon and Exeter City councils.

Devon will need to explore installing technology to the ERFs that will prevent the carbon dioxide produced from the combustion process from entering the atmosphere (technology called 'carbon capture and storage'). However, this technology is in its infancy and is currently subject to innovation trials by national government. Pilots may be able to be secured in Devon but are likely to be more usefully focussed on larger industrial emitters elsewhere in the country. Once mature, beyond 2030, Devon should look to trial the technology.

## 7.5.2 The Actions

### Waste Management

**R6.** Reduce fossil-fuel based materials, for example plastics and textiles going to Energy Recovery Facilities. [Cross Cutting Theme: Behaviour transformation and community engagement]

**R7.** Consider the net carbon impact in decisions regarding the reprocessing of local authority collected waste, which may lead to collaborating with neighbouring counties to achieve viable scale. [Cross Cutting Theme: Procurement and commissioning]

**R8.** Achieve a 65% municipal waste recycling rate by 2035. To do so, local authorities and commercial waste carriers to separately collect a wider variety of materials for recycling (including food waste) and household waste collection systems to be harmonised across Devon as far as viable.

### Commercial Waste Management

**R9.** Business Improvement Districts or Chambers of Commerce to consider jointly procuring commercial waste management contracts to achieve economies of scale in each locality and increase recycling. [Cross Cutting Theme: Procurement and commissioning]

**R10.** Waste collection authorities that do not currently offer a commercial waste service to consider implementing services, including collaborating with neighbouring authorities.

### Needing Action Beyond Devon

**R11.** Work with government to incentivise the recycling of materials based on their carbon intensity as well as weight.

**R12.** Work with government to support and incentivise businesses to comply with the new Environment Bill requirements on commercial and industrial waste separation to divert it from landfill.

### **Waste Avoidance**

**R13.** Continue to work with government on the specific nature of upcoming reforms of the Extended Producer Responsibility (EPR) system for packaging and a possible Deposit Return Scheme for drinks containers to ensure cohesive measures that support Devon's net-zero ambitions. Work with government on the extension of the scope of EPR to other waste streams.

**R14.** Work with government to achieve circular economy enhancements e.g. material and building passports and further market support for reclaimed/recycled materials.

**R15.** Local authorities to remain engaged with government funding opportunities to pilot carbon capture and storage technology on industrial facilities in Devon, such as the ERF plants.

### **7.5.3 Co-Benefits:**

As well as creating new opportunities for growth and reducing waste, a more circular economy will:

- Drive more efficient use of resources, with resulting productivity gains
- Deliver a more competitive UK economy
- Position the UK to better address emerging resource security/scarcity issues in the future
- Help reduce the environmental and social impacts of our production and consumption in both the UK and abroad
- Improved air quality from ERFs and reduced HGVs from more efficient commercial waste collection services.

### **7.5.4 Case Study**

#### **Countess Wear Wastewater Treatment Works, Exeter**

Countess Wear Wastewater Treatment Works treats Exeter's sewage and wastewater and is one of South West Water's largest treatment works. The site consumes around 8.5 GWh of electricity per year in treating around 22,500 m<sup>3</sup> of wastewater per day with a population equivalent within the catchment of around 165,000 people. The majority of the electricity consumed by the site is imported via the electricity grid however a significant proportion of the site's power needs, around 30%, is supplied by two types of zero carbon renewable energy technologies embedded on the site itself.

Sewage sludge which is separated from the liquid wastewater is fed through an anaerobic digestion process producing methane gas which is used as the fuel for the site's four combined heat and power engines. Electricity self-generated by this process is fed back into the treatment process providing up to 30% of the site's power needs. The heat produced by the process is also put to good use by being fed back into the anaerobic digestion process to keep the process at a steady 37°C, as well as being used for the site's hot water needs.

The site also has a 50 kW roof mounted Solar PV array installed on the roof of the sludge storage area. This adds around 40 MWh towards the site's renewable energy generation and again all this generated power is used by the site.

Whilst the site is not self-sufficient in renewable energy generation the current anaerobic digestion with CHP and the Solar PV array are reducing the sites carbon emissions by around 650 tCO<sub>2</sub>e per year, in comparison to using solely grid electricity.

## 7.6 GOAL: IMPROVE DATA ON COMMERCIAL WASTE MANAGEMENT IN ORDER TO EFFECTIVELY REDUCE IT

A significant volume of commercial and industrial waste, including biodegradable waste, is still sent to landfill.<sup>38</sup> However, there is currently not enough data on the volume and composition of commercial waste in Devon to aid effective action on tackling it.

A recent report for Devon County Council, on The Carbon Impacts of Waste Management in Devon County, by Eunomia stated:

*“There are no exact figures relating to current Commercial & Industrial waste tonnages, which is currently collected by an unknown number of private waste contractors”<sup>38</sup>*

Commercial waste has been much less regulated than household waste nationally. However, legislation to obligate businesses to improve waste separation is on its way through the new Environment Bill. Therefore, national reporting requirements are expected, but are not yet in place.<sup>38</sup> Currently local authorities only collect a small proportion of the commercial and industrial waste that Devon produces and therefore the data is spread between private contractors and not collated effectively.

However national statistics imply that the net carbon impact of commercial waste is considerably worse than household waste in Devon.<sup>38</sup> This is important to note as we can only get to net-zero carbon by tackling commercial waste as well as household waste.

### 7.6.1 What Needs To Be Done?

Devon's organisations and local authorities must work with national government, through public consultations and other means of communication with the relevant departments to ensure that the forthcoming legislation in the Environment Bill, and ongoing government funded work to build the UK's first comprehensive digital waste tracking system, facilitates better data on commercial and industrial waste.

Devon needs reliable and up to date information on the volume and composition of non-household waste streams to enable accurate emissions assessments and to monitor the effectiveness of action on commercial waste.

## 7.6.2 The Actions

### Needing Action Beyond Devon

**R16.** Work with government to develop a much better understanding of commercial waste generation and treatment in Devon to enable monitoring and regulation with the aim of reducing waste volumes and increasing recycling.

## 7.7 GOAL: REDUCE POTENT GREENHOUSE GASES GIVEN OFF BY DECOMPOSING BIODEGRADABLE WASTES

### Emissions from Biodegradable Wastes

Biodegradable wastes, such as food and sewage give off methane, as well as some other gases, when they break down in lower oxygen conditions, anaerobically, as is usually the case in landfill and sewage treatment. Methane is a potent greenhouse gas, with a 21-36 times higher global warming potential than carbon dioxide. Emissions from biodegradable waste in landfill were 6.7% of Devon's GHG emissions in 2018.<sup>2</sup>

Old landfill sites continue to emit methane. Efforts are made to capture this to burn to generate electricity. There may be opportunities to enhance capture where feasible but marginal gains will be challenging to achieve.

Nationally, emissions from waste have fallen by 69% since 1990, due to the UK's landfill tax, which has reduced the amount of biodegradable waste going to landfill, and due to an increase in methane captured at landfill sites.<sup>39</sup> Still, for net-zero emissions to be achieved by 2050, the Committee on Climate Change recommend that avoidable food waste must be reduced by 20% by 2025, relative to 1990, and no biodegradable wastes, including food waste, should enter landfill after 2025.<sup>39</sup>

Collecting food waste separately diverts it from landfill or energy recovery and allows it to be recycled to produce compost or digested to produce biogas and rich digestate. There are many facilities across Devon. These processes result in lower GHG emissions than landfill and produce useful by-products. The biogas can be used to create useful heat, electricity or be injected straight into the gas grid.

### Household Food Waste

Whilst Devon's household residual waste is now mostly sent for energy recovery rather than to landfill, the Thematic Hearing on Energy and Waste heard that 30% of waste in household residual bins in the Devon County Council area is food waste, despite 7 of the 8 local authorities in the area already collecting this.<sup>40</sup> The eighth authority, Exeter City Council, is planning to introduce food waste collection in 2022.

### Commercial Food Waste

There is still a significant volume of commercial and industrial waste that is sent to landfill, including biodegradable wastes.<sup>38</sup> The new Environment Bill will include a requirement for greater separation of commercial and industrial waste for recycling – including food waste.

### **The Courtauld Commitment**

The Courtauld Commitment is a voluntary agreement that brings together organisations from across the food system to make food and drink production and consumption more sustainable and reduce food waste.<sup>41</sup>

The Devon Authorities Recycling Partnership continues to support the Courtauld commitment by promoting the Love, Food, Hate Waste campaign, through various channels including social media and a website with tips to help people reduce their food waste. This is in addition to the Devon Waste Education Programme which works with primary and secondary schools, through visits and workshops, to address all aspects of waste in the school environment.

More organisations need to take significant action on food waste.

### **Food Waste and the Circular Economy**

Unavoidable food waste can be a resource for other industries and within the food system, for example waste cooking oil can be used as transport fuel and unwanted bread can be used for brewing. Devon company GroCycle uses spent coffee grounds to grow oyster mushrooms and delivers online courses to mushroom farmers in over 50 countries.<sup>42</sup> Devon County Council is participating in the ECOWASTE4FOOD project, which brings together seven local and regional authorities from seven countries throughout Europe. Its ambition is to reduce food waste enhance resource efficiency by finding innovative new uses waste food.<sup>43</sup>

### **Tackling Food Waste through the Sharing Economy**

Some communities in Devon, such as South Molton and Chudleigh have set up Community Fridges to redistribute food waste in the community, from households or businesses.

These are food storage areas where anyone can put food in, and anyone can take food out. There are also schemes addressing food waste from supermarkets, such as Devon and Cornwall Food Action and Exeter Food Action.

### **Wastewater Treatment**

Wastewater treatment accounts for 0.5% of Devon's 2018 GHG emissions. Wastewater treatment facilities use electricity to drive the processes and this currently accounts for 85% of these emissions. Fugitive emissions are quite small by comparison, 15%, and are mostly methane and nitrous oxide.<sup>44</sup> Fugitive emissions are GHGs which escape from the waste-water network, for example from pipe connections or manholes. The relative contribution of methane and nitrous oxide emissions is growing however as the power related emissions reduce, primarily due to grid decarbonisation.

Decarbonising the emissions from waste-water is more challenging than reducing emissions related to electricity. Current barriers to enhanced capture of waste-water treatment gases include prohibitively high costs for reducing nitrous oxide from aeration tanks, which is not a current practice in the UK.<sup>45</sup> Many treatment plants are also distant from potential energy users, reducing the opportunities for combined heat and power generation from captured methane. The Committee on Climate Change calls for wastewater treatment plants to achieve a reduction in methane and nitrous oxide emissions of least 20% by 2050 through incentive mechanisms for water companies.<sup>40</sup>

### 7.7.1 What Needs To Be Done?

#### Food Waste

Devon already has considerable expertise in programmes to target and reduce food waste. This important work to reduce food waste across the food supply chain needs to be continued and furthered. Citizens must be convinced to better separate their waste.

Improvements to commercial waste separation will significantly contribute to reducing food waste and other biodegradable waste emissions from landfill. There are opportunities to ensure resources are better used; there will be learnings from the ECOWASTE4FOOD project, as well as the Food and the Circular Economy South West project led by the University of Exeter Business School, and more organisations could engage with the Courtauld Commitment.<sup>45</sup>

Food waste that can't be avoided or reused should be processed by anaerobic digestion, to produce digestate, electricity, heat and biogas. This can contribute to Devon's renewable energy strategy.

#### Wastewater Treatment

Further renewables investment by South West Water along with the potential for enhanced capture of methane can both contribute to the Devon wide energy strategy discussed in the Plan's Energy Supply section. Not only does capture reduce methane released into the atmosphere, but it can displace natural gas use. South West Water have collaborated fruitfully with Exeter University on several combined heat and power projects in the past, these sorts of collaborations will be key to delivering further emissions reductions. There is an opportunity to capture the methane and clean it up either for the grid or for vehicles. Biomethane will be a particularly important transport fuel for hard to electrify vehicles, such as tractors and HGVs.

#### The Need for National Legislation

A clear message from the Thematic Hearing on Energy and Waste was that more could be done in national legislation to improve incentives to continue and improve methane capture – for example through providing a replacement subsidy following the closure of the Renewables Obligation.

A national ban on biodegradable waste to landfill would ensure the Committee on Climate Change's ambition that biodegradable waste streams sent to landfill are eliminated by 2025 at the latest.<sup>40</sup>

### 7.7.2 The Actions

#### Reducing Food Waste

**RI.** Deliver ongoing, targeted communication and engagement to: empower all social groups in Devon to act on the impacts of how things are made and distributed, promote more sustainable consumption habits, the prevention of waste (particularly food) and shift to a culture of

reduction, reuse and recycling. [Cross Cutting Theme: Behaviour transformation and community engagement]

**R9.** Business Improvement Districts or Chambers of Commerce to consider jointly procuring commercial waste management contracts to achieve economies of scale in each locality and increase recycling. [Cross Cutting Theme: Procurement and commissioning]

**R17.** Encourage Devon's food supply chain businesses to implement the Courtauld Agreement using the toolkit provided by WRAP [Cross Cutting Theme: Behaviour transformation and community engagement]

### **Food Waste and the Circular Economy**

**R8.** Achieve a 65% municipal waste recycling rate by 2035. To do so, local authorities and commercial waste carriers to separately collect a wider variety of materials for recycling (including food waste) and household waste collection systems to be harmonised across Devon as far as viable.

**R18.** Seize opportunities for wastes within the food supply chain to be used as a resource by other sectors of the supply chain

### **Capturing Methane**

**R19.** South West Water to enhance the capture of process emissions from waste water treatment facilities.

**R20.** Establish a partnership to look at the feasibility in Devon of using biomethane for electricity generation, gas grid injection and vehicle fuel.

**R21.** Assess performance of methane capture at commercially operational landfill sites and enhance where feasible, targeting efforts at worst performing sites.

### **Needing Action Beyond Devon**

**R22.** Work with government to provide a financial incentive to ensure the continued and improved capture of methane from commercial landfill sites.

## **7.7.3 Case Studies:**

### **Water Industry Plans to Reach Net-Zero Carbon by 2030**

The water sector has committed to reach net-zero by 2030 and their Routemap for getting there was launched in November 2020. Each water company, including South West Water will need to develop their own plans and business case to reach their net-zero commitments. As a regulated business any such investments must be done in consultation with their water customers and the regulator Ofwat.

Since power consumption dominates the carbon footprint of all water companies the focus of the carbon reduction strategies will be on reducing these emissions through both demand reduction, energy efficiency and decarbonisation of the remaining power use. The good news is these emissions are reducing anyway due to the increasing contribution of renewables to the UK's power supply. However, this can be accelerated through investment in on site renewable generation and through the purchasing of 100% renewable power. So the solutions for tackling the majority of water sector emissions are available.

## 7.8 GOAL: PROCUREMENT BY ORGANISATIONS IN DEVON WILL REALISE ITS FULL POTENTIAL TO ACCELERATE THE TRANSITION TO A NET-ZERO

The Thematic Hearing on Cross Cutting Themes concluded that procurement needs to be realigned to more powerfully support the transition to net-zero carbon. Procurement refers to the process by which organisations purchase works, goods or services from others<sup>46</sup>. The European Commission published report "Public Procurement for a Circular Economy", 2017, recognised public procurement as a key driver towards a circular economy and its contribution to lowering carbon.<sup>48</sup>

### Barriers to Procurement Fulfilling its Potential

However, the Thematic Hearing highlighted barriers to procurement fulfilling its potential. Firstly, that financial requirements for organisations to participate in procurement processes are a hurdle to smaller organisations. Secondly, whilst local authorities and other organisations aim to get the most value

financially, socially and environmentally from their procurement, there are often budget constraints pushing them to put the financial cost first.

### Beyond Purely Financial Procurement Criteria

However, market prices seldom adequately capture the full social and environmental costs, including contributions to climate change, of the products and services. For example, larger service and product providers may be able to offer lower prices, however if their shareholder profits and employment are realised outside of Devon then the contract represents a financial leak in the Devon economy. Procurement spend with locally owned institutions can achieve economic multiplier effects, as wages and profits are more likely to be spent within Devon by resident employees and shareholders.

### 7.8.1 What Needs To Be Done?

#### Using Purchasing Power to Deliver Maximum Social and Ecological Benefit

We need to more effectively target the spending of organisations, including public institutions, to deliver maximum social and ecological benefit, especially towards tackling climate change.

Sustainable Procurement is a key method for delivering an organisation's environmental and social priorities.

*“Sustainable procurement – in short using procurement to support wider social, economic and environmental objectives, in ways that offer real long term benefits”*

Sir Neville Simms – Chairman, UK Sustainable Procurement Taskforce 2006.<sup>47</sup>

Sustainable procurement looks beyond economic measures and makes decisions based on the whole life-cycle cost, the associated risks, measures of success and implications for society and the environment. Making decisions in this way requires setting procurement into the broader strategic context of corporate and community priorities as well as value for money.

### Community Wealth Building

The “community wealth building” model focuses on the purchasing power of organisations that are unable to relocate due to their inherent function, such as councils, hospitals and educational establishments, known as “anchor institutions”. It is also referred to as the “Cleveland Model” due to its inception in the city of Cleveland, Ohio. Anchor Institutions in Devon collectively manage budgets of billions of pounds and employ significant proportions of Devon’s population.<sup>48</sup>

Community wealth building approaches have been used by Preston, UK, where it has been successful in boosting the local economy. Preston “anchor institutions” like Preston City Council, shifted spending worth millions of pounds to local firms and in doing so met pro-social and environmental criteria.<sup>50</sup> There has already been significant interest expressed by Devon based community organisations in seeing community wealth building approaches used in their area. Local Spark Torbay is committed to working with local anchor institutions to develop strategies to apply the Cleveland Model in Torbay.<sup>50</sup>

New Prosperity Devon has published a report highlighting case studies and opportunities for community wealth building “to stimulate conversation and support learning and is particularly aimed at local authority officers and staff from anchor institutions like hospitals and universities”.<sup>49</sup> It asks “How can responding to the climate emergency be part of the ‘social value’

that spending creates?” and emphasises that these questions were never more relevant than in the aftermath of Covid-19 and the call to “Build Back Better”.

New Prosperity Devon outline the principles of Community Wealth Building as:

1. Plural ownership of the economy
2. Making financial power work for local places
3. Fair employment and just labour markets
4. Progressive procurement of goods and services
5. Socially productive use of land and property.<sup>51</sup>

Their report paints a picture of a collaborative approach between anchor institutions and communities to identify where suppliers can be found in the local economy (the Innovate UK funded Supply Devon project is creating an online system to help Devon organisations easily find local suppliers), to actively build capacity within local supply chains and where gaps in provision exist, supporting start-ups or the evolution of existing supplier services to meet local needs. Furthermore, there is an explicit call to support Small and Medium-sized Enterprises (SMEs) to engage in procurement and build delivery capacity.<sup>51</sup> This echoes points made at the Thematic Hearing on Cross Cutting Themes. In some cases, the commissioning of services can help to achieve financial value and more sustainable options; the States of Jersey involved the community in commissioning all

bus services for the island; a social enterprise, 50% owned by the States of Jersey, was set up to fulfil the tender. The result has been a cost-effective service, increasing usage and declining petroleum imports.<sup>50</sup> Pre-contract engagement with potential local suppliers can also be helpful, particularly with goal aligned organisations, e.g., social enterprises and charities; there is good precedent for this in many organisations already.

Whilst there are excellent examples of innovation already in Devon and the southwest, Devon's

anchor institutions could engage further with the increasing interest in Devon for commissioning and procurement to extend its local positive impact. Organisations could be more proactive in nurturing local, sustainable service and product supply chains and place higher value on the carbon and social impact of procurement decisions, including supporting the circular economy.

### 7.8.2 The Actions

**R23.** “Anchor institutions” to embed social and environmental value further into tendering processes to effect meaningful change and sustainable procurement [Cross Cutting Theme: Procurement and commissioning]

**R24.** Raise awareness with “anchor institutions” of the opportunity and benefits from specifying reclaimed and recycled materials so that markets for these products are developed further. [Cross Cutting Theme: Procurement and commissioning]

**R25.** “Anchor institutions” to coordinate packages of start-up funding to community owned companies that can provide goods and services back to those institutions to stimulate local economies. [Cross Cutting Theme: Procurement and commissioning; Finance, economy and resource access]

## 7.9 GOAL: GOAL: DEVON'S SOCIETY AND ECONOMY ARE JUST, SMART, CIRCULAR AND RICH IN NATURAL CAPITAL

The rallying call for the response to Covid-19 to “Build Back Better”, particularly with regards to the economic stimulus, recognises that much economic growth has been achieved at the cost of producing greenhouse gases (GHGs) and contributing to the joint climate

and ecological emergency. But it also includes concerns about the levels of obesity and other physical and mental health conditions associated with the way we live, work and trade at present and the unequal distribution of economic benefits. It is the latest line in an

ongoing societal conversation about how support for society and the economy should prioritise human wellbeing and sustainability.

### **Doughnut Economics**

In her book *Doughnut Economics* Kate Raworth outlines seven ways to think like a 21st century economist, summarised below:

1. “Change the goal” from growth of Gross Domestic Product in itself to “meeting the human rights of every person within the means of our life-giving planet”;
2. “See the Big Picture”, don’t forget that the economy is inseparable from society and the natural world.
3. “Nurture Human Nature”, recognise the inherent interdependence between individuals, other people and nature;
4. “Get savvy with systems”, learn from new insights from systems thinking, including feedback loops, in the economy and nature;
5. “Design to distribute” create systems that distribute wealth by default;
6. “Create to regenerate” support a circular economy that doesn’t degrade ecosystems;
7. “Be agnostic about growth” – “what we need are economies that make us thrive, whether or not they grow”.<sup>5</sup>

The three day online “Regenerate Devon Summit”, held in July 2020, spent a day exploring the doughnut economic lens with the Doughnut Economics Action Lab team “as a tool to help guide Devon’s economic regeneration”.<sup>51</sup>

The idea of doughnut economics is influencing Devon and is well aligned with the ambitions of the Devon Carbon Plan and supported by it.

### **The Heart of the South West Local Enterprise Partnership Strategy: Clean and Inclusive**

The Heart of the South West Local Enterprise Partnership (HotSWLEP), which covers Devon and Somerset, has put clean and inclusive growth at the heart of its Local Industrial Strategy. It recognises the transformational change taking place in the global and local economies, the centrality of a new approach to economic growth in order to address climate change and the rise of new industries.<sup>52</sup> HotSWLEP highlights the world class potential of the region’s economy and the presence of high value sectors, many of which align well with addressing the climate emergency. The HotSWLEP also runs the Devon Growth Hub, to support start-ups, so that any low carbon business idea could get support.

High value sectors of the region’s economy with potential to contribute to green growth – as identified by HotSWLEP

- A high-tech electronic and photonics cluster around Torbay and engineering in Plymouth
- A marine cluster within Plymouth including specialist research organisations
- A cluster of climate and environmental science expertise in Exeter including Europe’s most powerful supercomputer at the Met Office, feeding into strengths in big data and digital futures

- Healthcare research expertise and facilities in Exeter, Plymouth, Torbay and Devon
- Clean energy, associated with technical development for offshore renewables
- A high growth corridor along the A38 and M5.

The UK Clean Growth Strategy suggests that the low-carbon sector has the potential to create up to 700,000 jobs across England by 2030;<sup>53</sup> nearly half of these jobs will be in clean electricity generation and low-carbon heat manufacture and installation, a fifth will be in energy efficiency equipment installation, a further fifth in low-carbon services (finance, IT, legal) and the remainder in manufacturing low-emission vehicles and the associated infrastructure.

### **Rural Low Carbon Livelihoods**

However, the evidence gathering phase of the Net-Zero Task Force has also highlighted the importance of rural low carbon livelihoods in our predominantly rural county, including farming and the ongoing role of tourism and positioning ourselves as a low carbon destination. Additionally, in order to reduce travel, we will need a well spatially distributed economy and so need to recognise the role of micro-enterprises and trends of greater working from home, which raise the importance of high quality broadband and facilities such as rurally based work hubs.

The Thematic Hearing on Cross Cutting Themes emphasised the need to support communities to locate the conversations around climate change in their local economy and neighbourhoods to look at their distinct challenges, such as the dominance of the visitor economy.

## **7.9.1 What Needs To Be Done?**

### **Support for Organisations**

Devon's existing organisations, enterprises and economy will need support to move away from high-carbon industries and realise the opportunities of a net-zero society. For some this will mean an evolution of existing activities and for others the change may be more pronounced.

Therefore, a mixture of practical assistance is needed which could include helping businesses to understand their carbon footprint and to decarbonise their operations, through building retrofit, energy efficiency, fleet management and innovation. For example, free energy audits for Small and Medium Enterprises and advice on changes they can make in their operations to reduce their footprint.

Organisations also need support to ensure they have the tools and capacity to assess if the plans, decisions and investments they are making achieve progress towards net-zero. For example, Cornwall Council has developed a decision-making wheel based on Kate Raworth's Doughnut Economics model to help them assess how projects and decisions affect the environment, climate and people.<sup>54</sup> Organisations may need to develop more appropriate metrics for use in programme and project evaluation, that capture more than Gross Domestic Product.

### **Start-ups and Immature Industries**

Start-ups and immature industries will need support, including for R&D, to gain market share from high-carbon industries and to achieve economies of scale where necessary.

Existing programmes such as the Exeter based Environmental Futures & Big Data Impact Lab, which offers free, collaborative support from world-class scientists and technologists to develop new products, services or processes will be important.<sup>55</sup> As will local economy support networks such as Local Spark Torbay and Totnes' REconomy Centre, which runs an annual Local Economic Forum, with a "community of dragons" events, inspired by Dragon's Den.

### Support for Communities

Communities need to be empowered to collectively support each other through the

transition to net-zero. Networks of information sharing and collaboration can spread good practices and avoid pitfalls. Support for community groups could include helping them set up, helping groups with ongoing monitoring and evaluation, nurturing a culture of continuous improvement towards net-zero and rewarding change. For example, Transition Streets is a project which took place in the South Hams where groups of neighbours formed a group and met to work through a booklet guiding them through reducing their energy use and creating an action plan for their street, signposting local grants.<sup>56</sup>

## 7.9.2 The Actions

**R26.** Support immature industries with the potential to contribute to delivering a net-zero Devon by offering packages of finance, training and expertise on legal matters, marketing and procurement, as well as assisting with premises and land as appropriate. [Cross Cutting Theme: Finance, economy and resource access]

**R27.** Provide a support service to businesses and organisations to help them decarbonise their operations and culture. [Cross Cutting Theme: Finance, economy and resource; behaviour transformation and community engagement]

**R28.** Provide a support service to communities to collectively support each other through a low-carbon transformation. E.g. Transition Streets [Cross Cutting Theme: Behaviour transformation and community engagement]

## 7.10 GOAL: ENSURE WE HAVE THE SKILLS IN DEVON TO DELIVER NET-ZERO AND THE TRAINING OPPORTUNITIES FOR PEOPLE TO MAKE THE TRANSITION

### Skills as a Limiting Factor to the Rate of Decarbonisation

The Committee on Climate Change identifies skills as a limiting factor to the rate of decarbonisation.<sup>39</sup> This can limit the capacity to install newer technologies, such as heat pumps to houses. As we move towards net-zero, some sectors will shrink, whilst others will grow and Devon will need to support its

employees and citizens to learn new skills. This is increasingly pertinent in the context of the post-Covid 19 economic impacts. There will also be new technologies which require skills and it will be important to ensure no one is left behind and that the transition to new industries is socially inclusive.<sup>40</sup>

### Skills We'll Need More of

A Devon wide appraisal of skills and opportunities will be needed, however the Committee on Climate Change identified the likely need to enhance skills nationally to achieve net-zero and specifically in the following areas: <sup>40</sup>



#### BUILT ENVIRONMENT

- The design and build of low carbon homes
- The supply and use of timber in construction
- Hydrogen and carbon capture and storage
- Renewable energy development and construction
- Electricity system infrastructure, such as the maintenance of interconnectors and storage technology and supporting information technology
- Installation of measures to retrofit buildings to reduce their energy demand and increase their ability to generate their own electricity, such as: secondary glazing, insulation and heat pump installation, including skills for heritage homes.



#### TRANSPORT

- Battery cell manufacture
- Transport innovation and manufacture
- Retrofitting ships to run on ammonia and new ship building skills.



#### AGRICULTURE AND LAND USE

- Skills for land managers to transition to new low carbon management and techniques
- Crop and livestock Research & Development
- Forestry

The simultaneous shifts towards circular and sharing economies required will create opportunities and skills requirements. For the circular economy this includes design for disassembly; strong digital skills such as for building information managers to track energy use, construction components and material assets; repair technicians for maintenance; demand planners; waste stream processing operators and managers e.g. battery recycling; agronomic advisors and procurement professionals with new skills.<sup>57</sup>

The sharing economy, where people share access to assets, resources, time and skills will itself require new skills. Digital skills to manage the online platforms used for booking and leasing of the shared assets, is just one example.

Devon already has good examples of this such as The Share Shed in the South Hams, “a mobile library of things” which offers over 350 items to be borrowed, including: tools, household appliances, camping

and gardening equipment, sewing machines, suitcases and more.<sup>58</sup>

Globally new leasing models are being offered furthering the sharing economy, Mud Jeans allow customers to lease jeans,<sup>23</sup> when you feel like a change you can send them back and exchange them for a new pair, they will recycle the old pair.

### 7.10.1 What Needs To Be Done?

We will need to ensure that Devon's education providers continue to offer the training required for Devon to have the workforce skills it needs and to be competitive. Businesses and other institutions will need support to develop their workforces to take advantage of emerging sectors. There are a range of opportunities for reskilling and upskilling Devon's citizens, including on the job learning such as apprenticeships, for example in the building trades.

Individuals in carbon-intensive sectors which shrink as a result of legislative and technological developments will need support to redeploy their skills and develop new skills. Disruptive changes to society in 2020 further emphasise the need for a just transition to net-zero, we must be committed to leaving no one behind and ensure all have the skills to participate.

### 7.10.2 The Actions

**R29.** Develop training and reskilling opportunities with higher education providers and the Local Enterprise Partnership to enable workers in carbon-intensive sectors to redeploy into emerging sectors to ensure the low carbon skills base is available. [Cross Cutting Theme: Knowledge sharing, skills and learning; Finance, economy and resource]

**R30.** Provide support for individuals and communities experiencing lifestyle changes due to a transition to net-zero [Cross Cutting Theme: Behaviour transformation and community engagement]

## 7.11 GOAL: INCREASE ACCESS TO FINANCE TO ACCELERATE REACHING NET-ZERO, EMBRACING INNOVATIVE MECHANISMS AND ALLOWING CITIZENS TO INVEST IN THEIR COMMUNITIES

### Access to Finance for Small and Micro- Businesses

The Thematic Hearing on Cross Cutting Themes heard that 60% of businesses in Devon are sole

traders and can struggle with access to finance. This is not helped by the UK's lack of substantial local community and regional banking sector, still found in much of continental Europe and the USA.<sup>61</sup> The New Economics Foundation, in their report "A Local Banking System" accuses the major banks of "failing to provide loans to small business" and puts this down to the replacement of local bank managers and their knowledge, by credit scoring software when it comes to decision making.<sup>59</sup> They conclude that our existing banking system "is not fit for purpose when it comes to rebuilding local economies and supporting UK entrepreneurship."<sup>61</sup> Banks are decreasingly present on the high street and their decision-making software preferentially evaluates property loans over productive business loans, which tend to require local knowledge.<sup>61</sup> Although greater access is needed to green mortgages and loans for upfront costs of building retrofit.

Households, businesses, civic and public organisations will need to access finance in order to invest in the changes required for the transition to a net-zero Devon, for example for housing retrofit, where loans could be repaid through savings in energy bills over time.

### Understanding Regional Differences

Founder of the South West Mutual, Tony Greenham's submission to the Public Call for Evidence, highlighted that looking at finance through a regional lens is very important because the economy differs so much between different parts of the UK, so important local differences often get lost in the averages at UK level. "For example, 20.9% of SMEs in Devon are in the agriculture sector, compared with just 4.2% in England. Accommodation and food service is 9.4% versus 5.5%."<sup>60</sup>

### New Finance Models for the Public Sector

A decade of austerity measures has constrained access to public finance and made investing in public infrastructure challenging.<sup>65</sup> In this context, coupled with mounting challenges for local authorities, many have become increasingly interested in novel approaches to funding. In 2018, The University of Leeds was awarded a grant by the Government's Inclusive Economy Unit, to research the suitability of crowdfunding for local authorities, culminating in the report Financing for Society. One of the organisations it worked with as part of the research was the Royal Devon & Exeter Trust,

Elderly Care Facility. The research identified three different crowdfunding options for local authorities: Donation-based crowdfunding, debt crowdfunding and community municipal bonds. There is a place for each form of crowdfunding, however community municipal bonds have gained particular interest.

*A municipal bond is a debt security issued by a state, municipality or county to finance its capital expenditures, including the construction of highways, bridges or schools. They can be thought of as loans that investors make to local governments.*

Municipal Bond definition from Investopedia<sup>61</sup>

Essentially, Devon's citizens and businesses could invest in Devon's public authorities through municipal bonds, which would pay back interest on their investments. The report by the University of Leeds finds evidence that "investment-based crowdfunding [municipal loans] offers the potential to deliver a competitive new model of finance for the public sector, while also providing a new way to engage and communicate with residents in a way that builds new local networks of trust."<sup>65</sup> The use of low-cost crowdfunding approaches to offer the bond, facilitated through digital

platforms such as Abundance Investment, can lead to competitive borrowing rates potentially cheaper than the Public Works Loan Board, as well as creating a powerful new model for local authorities to engage with citizens as investors.<sup>62</sup>

Until recently, Swindon Borough Council is the only local authority to use investment-based crowdfunding to finance projects in their local economy.<sup>63</sup> In 2020, West Berkshire Council launched its first community municipal investment which is now fully funded, raising £1m. The money raised from this investment was used to build new rooftop solar power at council-owned sites.<sup>64</sup> Whilst many local authorities are keen to use the mechanism to raise funds for renewable energy, in Devon we have a strong network of community energy organisations already experienced in using debt crowdfunding to deliver energy schemes and therefore it is more likely that local authorities would seek to use the finance for other

infrastructure, such as transport initiatives, and should be encouraged to work with new and existing community energy organisations on energy projects.

The UK is a global leader and innovator in creating regulated investment-based crowdfunding that brings together individuals as investors and lenders with businesses and projects to meet a range of finance needs.<sup>64</sup> Devon has home-grown expertise in crowdfunding, through institutions such as Exeter based Crowdcube, which is aimed at “sophisticated investors”.

Investment based finance may not be most appropriate for all institutions, for example schools and hospitals which do not have the profit earning potential of transport and energy. However, donation-based crowdfunding and other less profit motivated mechanisms may be possible.

### 7.11.1 What Needs To Be Done?

#### Increasing Access to Finance to Accelerate a Net-Zero Devon

We must enable Devon’s citizens, not for profit sector, businesses and local authorities to access the finance they need to invest in the systems and technologies of the future, those required to achieve net-zero carbon. To do so we ought to support the creation of a regional mutual bank to finance a just transition to net-zero and raise awareness of mechanisms for crowdsourcing funding. Especially given that Devon has a high proportion of SMEs, which are ill-served by the major banks and that international examples suggest would be better served by a regional bank.

Not for profit organisations will also play an important role in Devon’s transition to net-zero and will need finance. For example, the community energy sector is very strong in Devon and South West region.

#### A Bank Fit for Purpose

A regional bank is already in development. The South West Mutual aims to establish a high-street cooperative bank for the South West of England. It has already raised over £500,000 in a 2019 Founder Share Offer. They are working towards launching in 2022.<sup>65</sup> Several of Devon’s local authorities have already invested. New Prosperity Devon identify local government investment in local financial institutions as a mechanism for community wealth building.<sup>66</sup>

### **New Finance Mechanisms**

Multiple channels of finance will be needed; we must be innovative in how we finance the changes we need to make in Devon. It is unlikely that enough funding for local authorities will come from national government alone. Therefore, we ought to learn from the approach of other local authorities, such as Swindon and West Berkshire and consider the use of crowdfunding for local authorities, as well as any other mechanisms to allow the community to invest in municipal infrastructure.

We must also ensure citizens and organisations are aware of innovative finance approaches. Crowd-sourced funds are a great opportunity for community led initiatives. Exeter Community Energy recently raised £75,000 from the community for a Solar PV installation. We should share good practice about successful use of crowd-sourcing funds for civil society groups.

#### **7.11.2 The Actions**

**R31.** Provide the South West Mutual with start-up funding. [Cross Cutting Theme: Finance, economy and resource]

**R32.** Consider the use of mechanisms to allow the community to invest in municipal infrastructure and share good practice about successful use of crowd-sourcing funds for civil society groups. [Cross Cutting Theme: Finance, economy and resource]

#### **7.11.3 Co-benefits**

The establishment of a regional bank has the opportunity to reach out to the unbanked in Devon, thereby aiding social inclusion.

#### **7.11.4 Case Study**

##### **Summary of Swindon Brough Council Case Study, Reproduced from Leeds University report Financing for Society**

“Across 2016-2017 Swindon Borough Council, working with the crowdfunding platform Abundance Investment, raised a total of £4.3m of project finance for two companies wholly owned by Swindon Borough Council which developed and subsequently operated a solar park each.

- 1,200 individuals invested
- 18% invested £100 or less
- 35% of investors came from Swindon or local postcodes
- 2% invested £5.<sup>65</sup>

The council also reported that the exercise helped build local understanding of the council’s low carbon and financial strategy.”

In Devon we have a strong network of community energy groups already able to deliver schemes and therefore it is more likely that local authorities would seek to use the finance for other infrastructure, such as transport.

## 7.12 ACTION SUMMARY TABLE FOR ECONOMY AND RESOURCES

Cross Cutting Theme	Action Number	Action	Prioritisation Score
Behaviour transformation and community engagement	R1	Deliver ongoing, targeted communication and engagement to: empower all social groups in Devon to act on the impacts of how things are made and distributed, promote more sustainable consumption habits, the prevention of waste (particularly food) and shift to a culture of reduction, reuse and recycling.	
Knowledge sharing, skills and learning	R2	Support communities to establish and promote repair cafes, share sheds and composting schemes, for example by providing funding or premises.	
Finance, economy & resource access	R3	Review the provision of resale and reuse facilities at all household waste recycling centres and implement improvements where needed.	
Finance, economy and resource access	R4	Encourage the consumption of low carbon experiences, such as the arts, nature, education and social care, rather than material consumption.	
Finance, economy and resource access	R5	Support immature industries with the potential to contribute to delivering a net-zero Devon.	
Behaviour transformation and community engagement	R6	Reduce fossil-based materials, for example plastics and textiles, going to Energy Recovery Facilities.	

**Figure 7.5 Action summary table for Economy and resources showing the action prioritisation scores, who the action should involve, where it should take place and its financial status**

KEY				
Potential Carbon Impact				
High	3			
Medium	2			
Low	1			
		1	2	3
	Ease of implementation	Hard e.g. requiring change in	Medium e.g. requires multi-agency	Relatively easy e.g. local actions

	Who Does this Action Involve?	Where Should This Action Take Place?	Financial Status	Potential Funding Stream Where Identified
	National Park Authorities, County Council, Unitary Councils, District and Borough Councils, Town and Parish Councils, Community Organisations and Education Establishments	Will occur everywhere	New local resource required - yet to be identified	Collaborate with Recycle Devon
	County Council, Town and Parish Councils, Unitary Councils, District and Borough Councils, Community Organisations,	City and Town, Suburbs	New local resource required - yet to be identified	
	County Council, Unitary Councils	Will occur everywhere	New local resource required - yet to be identified	
	Local Enterprise Partnership, Local Nature Partnership, County Council, Unitary Councils, District and Borough Councils, Town and Parish Councils, Community Organisations, NHS and Public Health	Will occur everywhere	Within existing resources	
	Local Enterprise Partnership, Local Nature Partnership, County Council, Unitary Councils, Businesses	Will occur everywhere	New local resource required - yet to be identified	
	County Council, Unitary Councils, District & Borough Councils, Businesses, Individuals	Will occur everywhere	New local resource required - yet to be identified	

Cross Cutting Theme	Action Number	Action	Prioritisation Score
Procurement and commissioning	R7	Consider the net carbon impact in decisions regarding the reprocessing of local authority collected waste, which may lead to collaborating with neighbouring counties to achieve viable scale.	
Behaviour transformation and community engagement	R8	Achieve a 65% municipal waste recycling rate by 2035. To do so, local authorities and commercial waste carriers to separately collect a wider variety of materials for recycling (including food waste) and household waste collection systems to be harmonised across Devon as far as viable.	
Procurement and commissioning	R9	Business Improvement Districts or Chambers of Commerce to consider jointly procuring commercial waste management contracts to achieve economies of scale in each locality and increase recycling.	
	R10	Waste collection authorities that do not currently offer a commercial waste service to consider implementing services, including collaborating with neighbouring authorities.	
	R11	Work with government to incentivise the recycling of materials based on their carbon intensity as well as weight.	
	R12	Work with government to support and incentivise businesses to comply with the new Environment Bill requirements on commercial and industrial waste separation to divert it from landfill.	
	R13	Continue to work with government on the specific nature of upcoming reforms of the Extended Producer Responsibility (EPR) system for packaging and a possible Deposit Return Scheme for drinks containers to ensure cohesive measures that support Devon’s net zero ambitions. Work with government on the extension of the scope of EPR to other waste streams.	

	Who Does this Action Involve?	Where Should This Action Take Place?	Financial Status	Potential Funding Stream Where Identified
	County Council, Unitary Councils, District & Borough Councils	Will occur everywhere	Within existing resources	
	County Council, Unitary Councils, District & Borough Councils, Businesses, Individuals	Will occur everywhere	New local resource required - yet to be identified	
	Town and Parish Councils, Community Organisations and Businesses	City and Town	New local resource required - yet to be identified	
	District & Borough Councils	Will occur everywhere	Within existing resources	
	County Council, Unitary Councils, District and Borough Councils, Town and Parish Councils and Businesses	Will occur everywhere	Within existing resources	
	District and Borough Councils, Local Enterprise Partnership, Businesses	Will occur everywhere	New local resource required - yet to be identified	
	County Council, Unitary Councils, District and Borough Councils	Will occur everywhere	Within existing resources	

Cross Cutting Theme	Action Number	Action	Prioritisation Score
	R14	Work with government to achieve circular economy enhancements e.g. material and building passports and further market support for reclaimed/recycled materials.	
	R15	Local authorities to remain engaged with government funding opportunities to pilot carbon capture and storage technology on industrial facilities in Devon, such as the ERF plants.	
	R16	Work with government to develop a much better understanding of commercial waste generation and treatment in the county to enable monitoring and regulation with the aim of reducing waste volumes and increasing recycling.	
<b>Behaviour transformation and community engagement</b>	R17	Encourage Devon’s food supply chain businesses to implement the Courtauld Agreement using the toolkit provided by WRAP	
	R18	Seize opportunities for wastes within the food supply chain to be used as a resource by other sectors of the supply chain	
	R19	South West Water to enhance the capture of process emissions from waste water treatment facilities.	
	R20	Establish a partnership to look at the feasibility in Devon of using biomethane for electricity generation, gas grid injection and vehicle fuel.	

	Who Does this Action Involve?	Where Should This Action Take Place?	Financial Status	Potential Funding Stream Where Identified
	County Council, Unitary Councils, District and Borough Councils	Will occur everywhere	New local resource required - yet to be identified	
	County Council, Unitary Councils, District and Borough Councils, Businesses	City and Town	New local resource required - yet to be identified	
	County Council, Unitary Councils, District and Borough Councils, Businesses	Will occur everywhere	New local resource required - yet to be identified	
	County Council, Unitary Councils, District and Borough Councils	Will occur everywhere	Within existing resources	Devon Authorities Recycling Partnership
	Local Enterprise Partnership, County Council, Unitary Councils, Community Organisations and Businesses	Will occur everywhere	New local resource required - identified but not secured	Potenital to develop projects thorough exisiting research partnerships with Universities
	Businesses - South West Water	Will occur everywhere	New local resource required - yet to be identified	
	County Council, Unitary Councils, District and Borough Councils, National Park Authorities, Education Establishments, Businesses, Farmers	Rural	New local resource required - yet to be identified	Potential continuation of the existing AgroRes project

Cross Cutting Theme	Action Number	Action	Prioritisation Score
	R21	Assess performance of methane capture at commercially operational landfill sites and enhance where feasible, targeting efforts at worst performing sites.	
	R22	Work with government to provide a financial incentive to ensure the continued and improved capture of methane from landfill sites.	
Procurement and commissioning	R23	“Anchor institutions” to embed social and environmental value further into tendering processes to effect meaningful change and sustainable procurement	
Procurement and commissioning	R24	Raise awareness with “anchor institutions” of the opportunity and benefits from specifying reclaimed and recycled materials so that markets for these products are developed further.	
Procurement and commissioning	R25	“Anchor institutions” to coordinate packages of start-up funding to community owned companies that can provide goods and services back to those institutions to stimulate local economies.	
Finance, economy and resource access	R26	Support immature industries with the potential to contribute to delivering a net-zero Devon by offering packages of finance, training and expertise on legal matters, marketing and procurement, as well as assisting with premises and land as appropriate.	

	Who Does this Action Involve?	Where Should This Action Take Place?	Financial Status	Potential Funding Stream Where Identified
	County Council, Unitary Councils and Businesses	Will occur everywhere	New local resource required - yet to be identified	
	County Council, Unitary Councils, Businesses	Will occur everywhere	Within existing resources	
	County Council, Unitary Councils, National Park Authorities, District and Borough Councils, Town and Parish Councils, NHS and Public Health, Businesses, Education Establishments	Will occur everywhere	Within existing resources	
	County Council, Unitary Councils, National Park Authorities, District and Borough Councils, Town and Parish Councils, NHS and Public Health, Education Establishments, Businesses, Community Organisations	Will occur everywhere	New local resource required - yet to be identified	
	County Council, Unitary Councils, National Park Authorities, District and Borough Councils, Town and Parish Councils, NHS and Public Health, Businesses, Education Establishments	Will occur everywhere	New local resource required - yet to be identified	
	County Council, Unitary Councils, District and Borough Councils, Local Enterprise Partnership, Local Nature Partnership, Businesses	Will occur everywhere	New local resource required - yet to be identified	

Cross Cutting Theme	Action Number	Action	Prioritisation Score
Finance, economy and resource; behaviour transformation and community engagement	R27	Provide a support service to businesses and organisations to help them decarbonise their operations and culture.	
Behaviour transformation and community engagement	R28	Provide a support service to communities to collectively support each other through a low-carbon transformation. e.g. Transition Streets	
Knowledge sharing, skills and learning; Finance, economy and resource	R29	Develop training and reskilling opportunities with higher education providers and the Local Enterprise Partnership to enable workers in carbon-intensive sectors to redeploy into emerging sectors to ensure the low carbon skills base is available.	
Behaviour transformation and community engagement	R30	Provide support for individuals and communities experiencing lifestyle changes due to a transition to net-zero	
Finance, economy and resource	R31	Provide the South West Mutual with start-up funding.	
Finance, economy and resource	R32	Consider the use of mechanisms to allow the community to invest in municipal infrastructure and share good practice about successful use of crowd-sourcing funds for civil society groups.	

	Who Does this Action Involve?	Where Should This Action Take Place?	Financial Status	Potential Funding Stream Where Identified
	Local Enterprise Partnership, County Council, Unitary Councils, District and Borough Councils	Will occur everywhere	Within existing resources	
	County Council, Unitary Councils, District and Borough Councils, Town and Parish Councils, Community Organisations	Will occur everywhere	New local resource required - yet to be identified	
	Local Enterprise Partnership, Education Establishments, County Council, Unitary Councils, District and Borough	Will occur everywhere	New local resource required - yet to be identified	
	Local Enterprise Partnership, County Council, Unitary Councils, District and Borough Councils, Community Organisations	Will occur everywhere	New local resource required - yet to be identified	
	Local Enterprise Partnership, County Council, Unitary Councils, District and Borough Councils	Will occur everywhere	New local resource required - yet to be identified	South Hams, West Devon and East Devon Councils have already done so. However more will be required.
	County Council, Unitary Councils, District and Borough Councils, Town and Parish Councils, National Park Authorities, Businesses and Community Organisations	Will occur everywhere	Within existing resources	

<sup>1</sup> Rockström, J., W. Steffen, K. Noone, Å. Persson, F. S. Chapin, III, E. Lambin, T. M. Lenton, M. Scheffer, C. Folke, H. Schellnhuber, B. Nykvist, C. A. De Wit, T. Hughes, S. van der Leeuw, H. Rodhe, S. Sörlin, P. K. Snyder, R. Costanza, U. Svedin, M. Falkenmark, L. Karlberg, R. W. Corell, V. J. Fabry, J. Hansen, B. Walker, D. Liverman, K. Richardson, P. Crutzen, and J. Foley. 2009. Planetary boundaries: exploring the safe operating space for humanity. *Ecology and Society* 14(2): 32. [online] URL: <http://www.ecologyandsociety.org/vol14/iss2/art32/>

<sup>2</sup> Mitchell A. et al. (2020) Greenhouse Gas Emissions Report – Devon, Plymouth, Torbay 2018. Centre for Energy and Environment, University of Exeter.

<sup>3</sup> Recycle More, 2020, Recycling facts, accessed 23/09/2020 <https://www.recycle-more.co.uk/household/recycling-facts>

<sup>4</sup> Raworth, K. 2017, What on Earth is the Doughnut? Accessed 23/09/2020 <https://www.kateraworth.com/doughnut/>

<sup>5</sup> Raworth, K. 2017, Doughnut Economics, Seven Ways to Think Like a 21st Century Economist, Penguin

<sup>6</sup> The Ellen Macarthur Foundation, 2020, What is the circular economy? Accessed 23/09/2020 <https://www.ellenmacarthurfoundation.org/circular-economy/what-is-the-circular-economy>

<sup>7</sup> The Exeter Centre for Circular Economy (ECCE) <http://business-school.exeter.ac.uk/research/centres/circular/>

<sup>8</sup> WRAP, 2020, Wrap and the Circular Economy <https://www.wrap.org.uk/about-us/about/wrap-and-circular-economy>

<sup>9</sup> Evans, D. Welch, D. & Swaffield, J. (2017) Constructing and mobilizing 'the consumer': Responsibility, consumption and the politics of sustainability, *Environment and Planning A* 49(6): 1396- 144

<sup>10</sup> Evans D (2011) Blaming the consumer – once again: the social and material contexts of everyday food waste practices in some English households. *Critical Public Health* 21: 429- 40

<sup>11</sup> Fairphone 3 Accessed 18/8/2020 [https://shop.fairphone.com/gben/?msclkid=ldde086280191cb1af0957597aa6999d&utm\\_source=bing&utm\\_medium=cpc&utm\\_campaign=uk\\_brd\\_core\\_exact&utm\\_term=fairphone&utm\\_content=fairphone](https://shop.fairphone.com/gben/?msclkid=ldde086280191cb1af0957597aa6999d&utm_source=bing&utm_medium=cpc&utm_campaign=uk_brd_core_exact&utm_term=fairphone&utm_content=fairphone)

<sup>12</sup> Recycle Devon, 2017, Devon Resources and Waste Education Strategy 2017 – 2022, <https://zone.recycledevon.org/our-strategy/>

<sup>13</sup> WRAP, 2020, New Campaign to Clear Up Citizen Confusion on Plastics <https://www.wrap.org.uk/content/new-campaign-clear-citizen-confusion-plastics#:~:text=Clear%20on%20Plastics%20has%20been%20designed%20to%20give,balance%20between%20the%20benefits%20and%20drawbacks%20of%20alternatives.>

<sup>14</sup> Lindzon, J. 2015, How Corporate Responsibility Affects Recruiting and Retention, *Fast Company* accessed 23/9/2020 <https://www.fastcompany.com/3052763/how-corporate-responsibility-affects-recruiting-and-retention>

<sup>15</sup> D. Lash, A. Norton & T. A. Mitchell , August 2020, Net Zero Devon, Plymouth and Torbay, CENTRE FOR ENERGY AND THE ENVIRONMENT, Internal document 989

<sup>16</sup> Devon County Council (2014) Devon Waste Plan. Available at: <https://www.devon.gov.uk/planning/planning-policies/minerals-and-waste-policy/devon-waste-plan>

<sup>17</sup> Jason Hickel (2018): Is it possible to achieve a good life for all within planetary boundaries?, *Third World Quarterly*, DOI: <https://doi.org/10.1080/01436597.2018.1535895>

<sup>18</sup> The Equality Trust, 2020, Equality and Global Warming, accessed 18/8/2020 <https://www.equalitytrust.org.uk/equality-and-global-warming>

<sup>19</sup> CAG Devon Community Action Groups, 2020, About <https://cagdevon.org.uk/about/>

<sup>20</sup> CAG Devon Community Action Groups, 2020, Impact Report 2019-2020

<sup>21</sup> Washington Post, 2017, The sharing economy helps fight climate change, but not as much as you think <https://www.washingtonpost.com/news/energy-environment/wp/2017/09/18/the-sharing-economy-helps-fight->

climate-change-but-not-as-much-as-you-think/ ; <https://www.sciencedirect.com/science/article/abs/pii/S0921800917300721>

<sup>22</sup> Shareshed <https://www.shareshed.org.uk/>

<sup>23</sup> Mud Jeans, Lease a Jeans <https://mudjeans.eu/lease-a-jeans/>

<sup>24</sup> Recycle Devon, 2020, Repair Café, accessed 19/9/2020 <https://www.recycledevon.org/reuse/repair-cafe>

<sup>25</sup> Email correspondence with Catherine Causley, Devon County Council, 17th November 2020

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<sup>27</sup> Defra, 2020, Local authority collected waste generation from April 2000 to March 2019 (England and regions) and local authority data April 2018 to March 2019. Table 1: Local Authority Collected and Household Waste Statistics 2014-15 to 2018-19, England. URL: <https://www.gov.uk/government/statistical-data-sets/env18-local-authority-collected-waste-annual-results-tables>

<sup>28</sup> Devon County Council and Torbay Council, 2020, Draft Resource and Waste Management Strategy for Devon and Torbay, 2020-2030.

<sup>29</sup> Defra, 2018, Resources and Waste Strategy [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/765914/resources-waste-strategy-dec-2018.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/765914/resources-waste-strategy-dec-2018.pdf) , p69

<sup>30</sup> Environmental Services Association, 2018, Why Wait? Weight isn't working. [http://www.esauk.org/application/files/3215/3589/6450/20180820\\_Why\\_Wait\\_Weight\\_isnt\\_working\\_Smarter\\_measures\\_for\\_the\\_circular\\_economy.pdf](http://www.esauk.org/application/files/3215/3589/6450/20180820_Why_Wait_Weight_isnt_working_Smarter_measures_for_the_circular_economy.pdf)

<sup>31</sup> WRAP, the UK Plastics Pact <https://www.wrap.org.uk/content/the-uk-plastics-pact>

<sup>32</sup> HM Revenue & Customs, 2020, Policy paper Plastic packaging tax, <https://www.gov.uk/government/publications/introduction-of-plastic-packaging-tax/plastic-packaging-tax>

<sup>33</sup> Parker, L. 2018, Where does your plastic waste end up? National Geographic, accessed 18/8/2020 (<https://www.nationalgeographic.co.uk/environment-and-conservation/2018/11/where-does-your-plastic-waste-end#:~:text=After%2025%20years%20as%20the%20world%E2%80%99s%20salvage%20king%2C,of%20the%20world.%20%28Read%20more%20about%20that%20here.%29>).

<sup>34</sup> Recycle Devon, Energy from Waste, <https://www.recycledevon.org/energy-from-waste/>

<sup>35</sup> Blanco G., R. Gerlagh, S. Suh, J. Barrett, H. C. de Coninck, C. F. Diaz Morejon, R. Mathur, N. Nakicenovic, A. Ofosu Ahenkora, J. Pan, H. Pathak, J. Rice, R. Richels, S. J. Smith, D. I. Stern, F. L. Toth, and P. Zhou, 2014: Drivers, Trends and Mitigation. In: Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Edenhofer, O., R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlömer, C. von Stechow, T. Zwickel and J.C. Minx (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA., [https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc\\_wg3\\_ar5\\_chapter5.pdf](https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_chapter5.pdf) p391

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