

Decarbonisation Strategy:

REDUCE - PRODUCE -
OFFSET - BUY

www.caerphilly.gov.uk



A greener place
Man gwyrdach





EV charging point, Council Offices, Penallta House

1. Delivering Net Zero

Foreword

As Cabinet Member for Economy and Enterprise, I am pleased to introduce the Decarbonisation Strategy for Caerphilly County Borough Council, which was agreed by Cabinet on...

On the 4th June 2019 the Council formally declared a climate emergency as a Notice of Motion, with full support from all political parties. As a result of this, Caerphilly County Borough Council has committed to being net carbon neutral by 2030.

In response, the Decarbonisation Strategy - 'Reduce, Produce, Offset, Buy' has been produced. This Strategy focuses on reducing the Council's own carbon footprint and sets out the overarching objective of being a net carbon neutral authority by 2030.

The Strategy is accompanied by an Action Plan which details the actions the Council can take and an Energy Prospectus outlining potential commercial projects both of which will help us achieve our ambitious target. These are living, breathing documents that will react and change over time to reflect external influences and Government policy.

The Council has an excellent track record of implementing initiatives that benefit the environment and the Decarbonisation Strategy - Reduce, Produce, Offset, Buy builds upon this. The suite of documents focus on four broad categories:-

REDUCE
Reducing the amount of energy we use

PRODUCE
Generating our own 'green' electricity and heat

OFFSET
Offsetting any carbon emissions

BUY
Everything we purchase has embedded carbon associated with it and this will need to be considered in the procurement process

As a Council, we are leading by example. In addition to tackling the climate emergency there are financial and social benefits to be gained from working towards becoming net carbon neutral and it is hoped and anticipated that our actions will stimulate our residents and other stakeholders to follow our lead.



**CABINET MEMBER FOR
ECONOMY AND ENTERPRISE**
Cllr. Sean Morgan

Caerphilly County Borough Council

2. Introduction - Reduce, Produce, Offset and Buy

2.1 Caerphilly County Borough Council (Caerphilly CBC) has an excellent track record of implementing initiatives that benefit the environment. The authority has reduced carbon emissions by investing in technologies that reduce consumption and we have worked hard to raise awareness of the importance of carbon reduction with our staff, pupils and residents across the county borough.

2.2 However it is acknowledged there is still much more to do at a time when the climate continues to warm and sea levels continue to rise. Changes to climate will have a significant impact on the well-being of both current and future generations, with extreme weather events caused by climate change putting increasing pressure on ecosystems, infrastructure, the built environment and our landscape. Reducing emissions from our activities will improve our well-being and demonstrate Caerphilly CBCs contribution to the global effort on climate change.

2.3 Decarbonisation is the right thing to do. The Council can also help stimulate green initiatives across Caerphilly county borough by cutting emissions and moving towards a low carbon economy there are enormous opportunities to create a vibrant and socially low carbon economy.



The Effects Of Global Warming

2.4 There is consensus supported by overwhelming statistical evidence that the world is facing challenging times as scientific research continues to underline and reinforce the dangers of global warming.

2.5 A key document in the World's understanding on global warming was published by the Intergovernmental Panel on Climate Change (IPCC), in 2018 titled "Global Warming of 1.5°C". The report draws comparisons between pre industrial emissions levels, our present day emissions levels and the impact on the world should temperatures rise by 1.5°C, and up to 2°C.

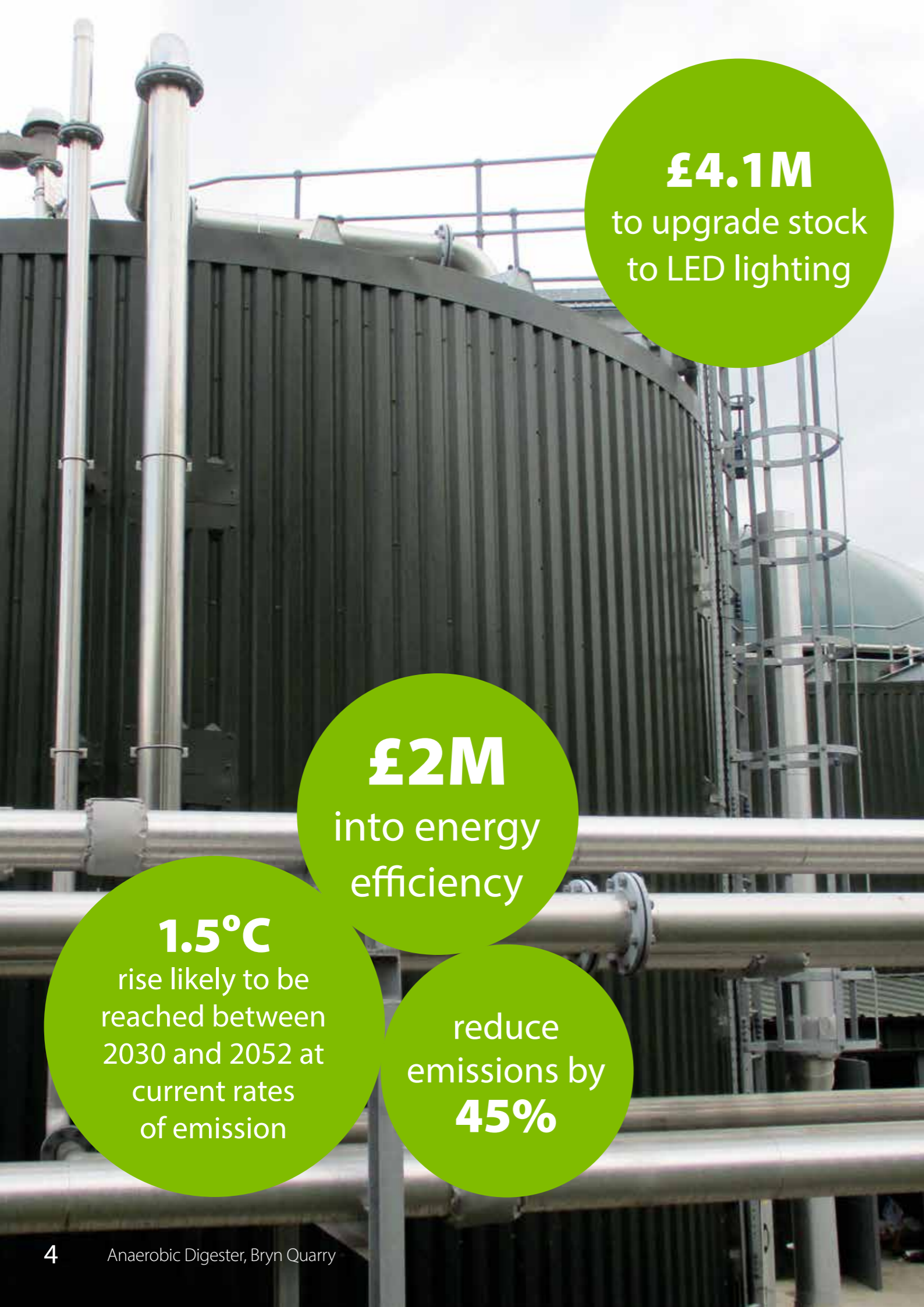
2.6 The overriding warning from the IPCC is that any rise in temperature should be avoided, however an increase by 2°C would result in far harsher environmental impacts than if the temperature increase can be kept to 1.5°C or lower.

2.7 The IPCC acknowledge that:

- Many land and ocean ecosystems have already been changed.
- Future climate related risks depend on the rate, peak and duration of warming.
- Adaptation and mitigation is already helping but future risks will be reduced by upscaling and accelerating such activities.



Adaptation
and mitigation
are already
helping



£4.1M
to upgrade stock
to LED lighting

£2M
into energy
efficiency

1.5°C
rise likely to be
reached between
2030 and 2052 at
current rates
of emission

reduce
emissions by
45%

2.8 Lower risks are predicted at 1.5°C than at 2°C, namely:

- There will be variations to climate across the world with some seeing hot extremes in most inhabited regions, heavy precipitation in several regions and drought and precipitation deficits experienced in some regions. Increases in mean temperatures will be experienced in most land and ocean regions.
- Land impacts on biodiversity and ecosystems will be lower below 1.5°C and for oceans there will be reduced acidity and oxygen levels.
- There will be climate related risks to health, livelihoods, food security, water supply, human security and economic growth.
- At the lower temperature adaptation needs will be lower, therefore less adaptation to natural and managed ecosystems.

2.9 Modelled pathway scenarios that limit temperature rise to 1.5°C rely on deep reductions in emissions of Methane and Carbon Dioxide. Cooling aerosols, non CO2 emissions such as Nitrous Oxide and Methane from agriculture and from the waste sector also need to be reduced. If deep reductions are met global CO2 emissions will decline by about 45% from 2010 levels by 2030 and reach Net Zero by 2050. Pathways limiting global warming to 1.5°C require rapid and far reaching transitions in energy, land and infrastructure. Energy use must lower through enhanced energy efficiency and faster electrification of energy end use.

2.10 Carbon Dioxide Removal (CDR) including afforestation, land restoration and soil carbon sequestration must play a major role. A 1°C rise in temperature has arisen since pre industrial levels, with the 1.5°C rise likely to be reached between 2030 and 2052 at current rates of emission.

2.11 The world needs to act now and that means Caerphilly CBC needs to act and play its part.

2.12 This strategy acknowledges the focus of the Cardiff Capital Region and it's ambition that the region generates the equivalent of approximately 50% of its total energy consumption in 2035 from regional renewable sources. The Council is keen to work towards regional decarbonisation goals and to help to meet this target by identifying opportunities for green energy production.

Covid-19

2.13 This strategy has been finalised in the midst of the COVID-19 pandemic, which is having a profound effect on the lives of millions of people around the world, bringing unprecedented challenges for our economy, our society and our communities. There is uncertainty around its long-term implications, including how the measures put in place to tackle the pandemic may also impact on our lives.

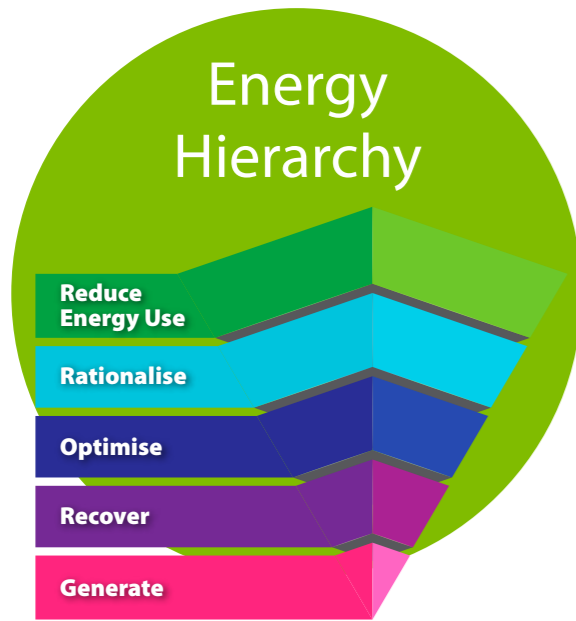
2.14 Covid-19 has made a massive impact on people's working, commuting and living habits and it is conceivable that some aspects of society will be permanently altered and this will undoubtedly impact on decarbonisation. Opportunity exists to maximise the potential of these changes, for example through agile working, increased active travel and reduction in travel by car. We must recognise that our approach to the economic recovery that will follow provides us with a unique opportunity to sustainably rebuild our economy and make greener investments and climate positive decisions that set us on a pathway to achieve our climate target.

2.15 During the preparation of the Decarbonisation Plan careful consideration has been given to the potential impacts of Covid-19 including how it could influence the Action Plan and its implementation and we are mindful that the documents need to be kept under review and updated when, and how, our emergence from the COVID-19 crisis becomes clearer.

3. Achievements To Date

3.1 Over the last 10 years the authority has followed the principles of an energy hierarchy, and will continue to do so.

3.2 The general principle of an energy hierarchy is outlined as:



3.3 Adhering to this hierarchy over the last 10 years has helped the authority to: reduce its carbon emissions through good housekeeping techniques; make good investment in technologies; ensure efficient use of assets such as buildings; and embrace renewable technologies. This has shaped some of the authority's achievements to date.

3.4 Caerphilly CBC has a good record of implementing projects that benefit the environment and reduce carbon emissions. In 2009 the authority launched its Carbon Reduction Strategy which focussed on reducing carbon emissions from its buildings and street lighting assets. Its target was to reduce emissions by 45% of those recorded in the 2008 baseline year and it actually achieved a commendable 42% reduction.

3.5 The Carbon Reduction Strategy focussed on 4 key areas which are still very relevant:

- Good Housekeeping;
- Invest To Save;
- Asset Management; and
- Renewable Energy Technologies.

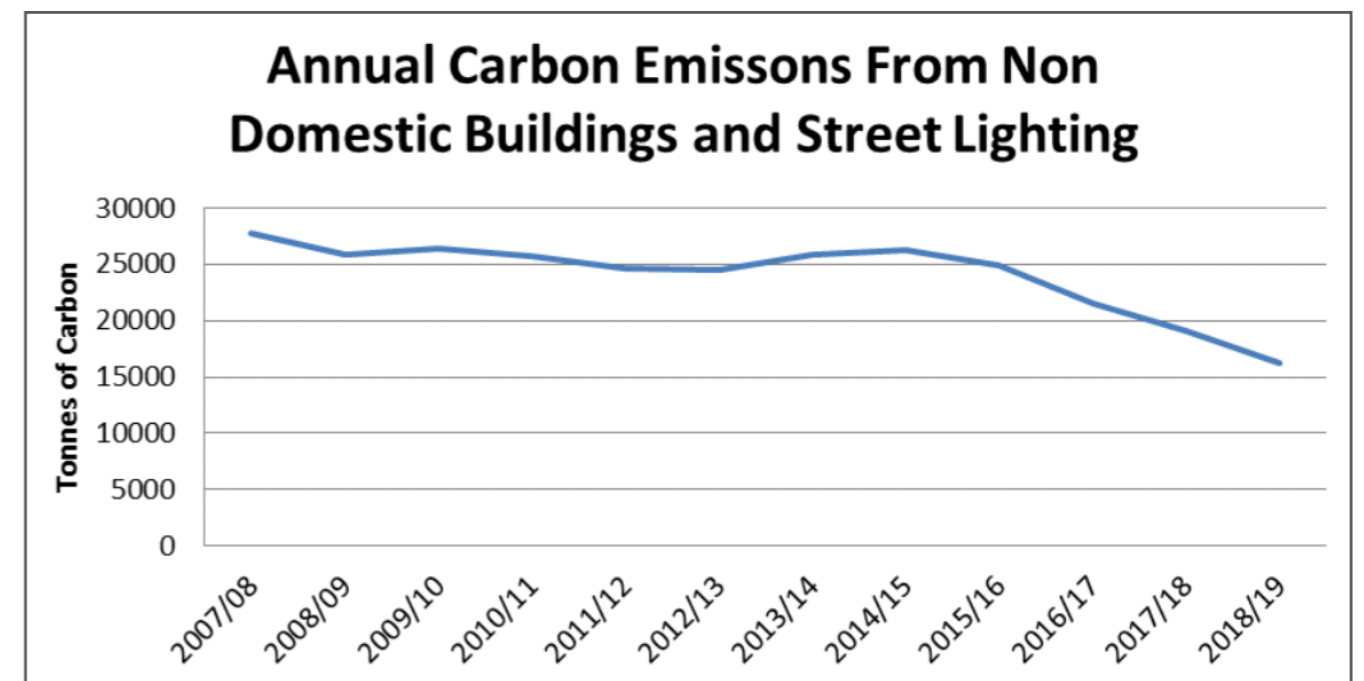
3.6 The authority has introduced and executed numerous initiatives in working towards the 45% emission reduction target, not all of which can be outlined here. However a sample of what has been achieved is précised below:

- The authority has invested over £2million into energy efficient technologies in its own non domestic buildings though its Invest to Save scheme called LAEF and have saved 35,000 tonnes of carbon and has reduced it's energy bills at the same time.
- The Council's Street Lighting service is investing £4.1 million to upgrade its lamp-heads to LED lighting. This is expected to save approximately 1,900 tonnes of carbon each year at current carbon conversion rates and again will reduce our energy bills.
- There have been various Housing and WHQS initiatives aimed at reducing fuel consumption in homes including Arbed; CESP and Cy Cymru.
- ICT Services has introduced measures to reduce energy consumption in IT equipment.
- Caerphilly Solar Schools project was developed in 2009 which resulted in a number of schools having solar panels installed. 45 schools benefitted from small scale PV schemes with a further 8 schools having larger arrays installed.

- Wind Turbines. A partnership project between CCBC, led by Economic Development, and Partnership for Renewable successfully installed two 2MW wind turbines on Oakdale Business Park. Both the Council and local community benefit from income derived from this project.
- In September 2018 the Electric Vehicle Strategy and Action Plan was approved by Cabinet and a number of actions are being implemented, including the introduction of charging points throughout the authority.
- Greenhill Primary school was completed in May 2011 and was awarded BREEAM outstanding, with high scores in the pollution category and energy. The school has a rain water harvesting system, small wind turbines and an extensive PV array.
- Islwyn High Comprehensive school was completed in April 2016 and was awarded BREEAM Excellent. The school has a large PV array. During high PV generation periods the school is a net exporter of electricity to the grid.

- The authority signed a Sustainable Development Charter which, committed the authority to make sustainable development our central guiding principle.
- The authority has declared a climate emergency.

3.7 The following graph gives an indication of the reduction in the Council's emissions specifically from its non-domestic buildings and street lighting, through the direction of the Carbon Reduction Strategy.



4. Notice Of Motion Declaring A Climate Emergency

4.1 On the 4th June 2019 Caerphilly County Borough Council formally declared a climate emergency as a Notice of Motion which was fully endorsed by the Environment and Sustainability Scrutiny Committee and received full Council support from all political parties.

4.2 Caerphilly CBC has already engaged with local residents, key stakeholders and internal officers, through a series of workshops to establish what is needed to produce an effective decarbonisation strategy and to achieve the 2030 target.



As a result of this Caerphilly CBC has committed to:

- Becoming net carbon neutral by 2030
- Develop a clear decarbonisation strategy to allow us to hit the 2030 target

Cycle Path, Maesycwmmr

5. Vision Statement

5.1 By 2030 Caerphilly CBC will be Net Carbon Neutral:- The local authority will dramatically REDUCE consumption levels, PRODUCE its own green clean electricity, OFFSET carbon emissions and look to limit its carbon impact through the goods and services that the authority BUYS.

Objectives

5.2 Over the next 10 years:

5.3 Caerphilly CBC will have quantified its Carbon Footprint and worked towards negating that value. The Council will do its utmost to identify and implement some easy carbon wins where they are available and all departments will work collaboratively to make the harder carbon savings become a reality. Along the way the authority will continue to liaise with our community and key stakeholders to ensure it delivers on all key carbon reduction targets.

5.4 By becoming net carbon neutral by 2030, the Authority will help to create a more robust county borough by stimulating jobs in the “Low Carbon” Sector. This will not only make our environment greener and more stable, but will help local residents into work and out of poverty, making communities more resilient to change

5.5 Caerphilly CBC will explore all opportunities for reducing carbon emissions. It will greatly reduce its carbon emission rate by improving control on what the authority buys, on goods, works and services. In 18/19 Caerphilly CBC spent £65 million just on construction. There are enormous opportunities to refine how the authority builds so that it improves energy efficiency through product selection and energy generation.

5.6 Caerphilly CBC will focus on constructing buildings without fossil fuelled heating systems and existing buildings will be improved so that they embrace energy efficiency initiatives and utilise renewable energy sources where possible.

5.7 Caerphilly CBC will look to minimise waste as much as possible and explore opportunities around these waste streams which will include procurement, treatment & disposal.

5.8 Caerphilly CBC will greatly reduce the volume of miles travelled and those miles that are covered will be done so from more sustainable modes of transport.

5.9 Caerphilly CBC will continue to improve its carbon reduction by exploring afforestation, creation of new wetlands, development and changes in land use to maximise carbon capture through sequestration. If technological advancements allow, consideration will be given to physical Carbon Capture Storage options as well as biological storage.

5.10 Caerphilly CBC will act as a leader in technology where possible to stimulate carbon reduction.

5.11 The Authority’s Decarbonisation Strategy seeks to implement these objectives over the next 10 year period.



Anaerobic Digester, Bryn Quarry

6. A New Approach

6.1 Some UK areas have taken a narrow approach to decarbonisation. Welsh Government is following a more wide reaching route and is expected to ask Welsh Public Sector organisations to become carbon neutral across all of their activities. Welsh Government will expect organisations to measure themselves against Scope 1, 2 and 3 emission criteria (which are explained in more detail later in this strategy). This approach requests organisations to factor in all emissions, from direct emissions resulting from combustion of fossil fuels in cars and boilers, to indirect emissions resulting from processes such as the production of electricity at power plants and finally emissions generated from our daily activities.

6.2 These upstream and downstream activities that produce carbon emissions are significant contributors to Caerphilly CBC's overall emission baseline level. The authority purchases goods, works and services from a wide catchment area with many goods purchased being carbon intensive in their production and haulage and this needs to be investigated to see how this can be changed. The authority will also need to consider the emissions resulting from its disposals. This is an approach that is not widely accepted within public bodies across the UK and will require a major shift in public sector thinking and a rate of change that will be significant.

6.3 At present, the Council does not have in place all of the central guidance necessary to help in the full development of a Decarbonisation Strategy and the authority has tried to anticipate the approach that Welsh Government guidance will take on this subject, however the authority acknowledges that it may need to modify its plan as Welsh Government policy advice changes.

Welsh Government Mandate

6.4 When Caerphilly CBC made its pledge to be net carbon neutral, it lobbied Welsh Government to provide the necessary support and resources to enable itself and other Welsh local authorities to effectively reduce carbon emissions.

6.5 Welsh Government has acknowledged this and is working collaboratively with local authorities, providing support and guidance. It recognises the scale of the task of attaining the 2030 target and are committed to achieving this goal.

6.6 In March 2019, the Welsh Government published Prosperity for All: A Low Carbon Wales, which includes some key policies:

- To replace the Carbon Reduction Commitment scheme (CRC), with another reporting mechanism for reporting carbon emissions on gas and electricity consumption.
- To support the public sector to baseline, monitor and report progress towards carbon neutrality.

6.7 Welsh Government will need to report its progress on attaining its net zero carbon 2030 targets and will therefore require authorities to report to them. In order to measure impact, we need to better understand our current carbon footprint, our baseline. There are currently no mandatory targets or reporting mechanisms, however this is expected to change. The Council will be evolving its own reporting protocol based on UK Government guidance.

Cardiff Capital Region Energy Strategy

6.8 Cardiff Capital Region (CCR) recognises that there needs to be a regional focus on the decarbonisation agenda. The draft Cardiff Capital Region Energy Strategy has been developed with support from regional stakeholders, including local authorities. The overall objective being to develop a pathway identifying key interventions to deliver on the region's ambitions for decarbonising its energy system.

6.9 An Energy Vision Scenario has been modelled to set out a potential decarbonisation route that will put the region on track to achieve a net zero energy system by 2050.

The CCR vision is:

6.10 To create the conditions for a transition to a carbon neutral economy and society in the CCR, using low carbon energy as an enabler of economic regeneration, growing our regional income whilst maintaining guardianship of our environment through a laser-focus on clean growth.

6.11 The strategy includes five priorities for achieving its vision:-

- Energy Efficiency and Heat
- Electricity and Flexibility
- Decarbonise Transport
- Grow Business and Jobs
- Coordination, planning, regional support and ownership of the plan

6.12 Caerphilly CBC has acknowledged and responded to the Cardiff Capital Region Energy Strategy in developing its own objectives and key intervention areas. The Council is responding to the need to deliver decarbonisation, encouraging the use of green technology, enhancing collaboration, sparking innovation and stimulating market activity in this field.



7. Establishing An Emissions Baseline

7.1 To establish the baseline for our net zero target the authority will:

- Collect and analyse energy and CO2 emissions data;
- Identify and assess intervention options and impact on emissions projections;
- Define a route-map and action plan to meet the 2030 target.



Green House Gasses (GHG)

7.2 The main GHG in terms of the quantity of emissions and the overall warming impact for the Welsh Public Sector is carbon dioxide. However there are other GHG such as methane (CH4) and nitrous oxide (N2O). These additional gases are often expressed as carbon dioxide equivalents (CO2e), which is the equivalent amount of CO2 that would produce the same amount of global warming over a 100 year timescale.

7.3 Caerphilly will focus on Carbon Dioxide emissions in the early stages of the Decarbonisation Strategy but will look to include other GHG at a later point in the plan's development.



Baseline Carbon Assessment

7.4 Measuring the carbon emissions associated with a large authority is not a simple task. Some information will be readily available and in the correct format, such as carbon emissions from electricity and gas consumption on non domestic buildings. However other information will be much harder to collect.

7.5 This will be a key actions of this Decarbonisation Strategy - to establish a comprehensive carbon value where there are currently large gaps in available data.

7.6 Where information is unavailable or partly available carbon emissions will need to be estimated. Inevitably there will be uncertainty around some data but as the Decarbonisation Strategy progresses the data sets will improve over time, and it is anticipated that the Welsh Net Zero Reporting Guide will further assist in this.

Greenhouse Gas Protocol

7.7 Key to understanding how net zero targets are set and monitored is the Green House Gas Protocol. This outlines what emissions should be monitored. Emission sources are divided into three scopes. Guidance to date from Welsh Government is that public sector organisations would be expected to follow this same protocol. However, the Council will also consider UK Government reporting protocol and guidance.

Scope 1 – Direct Emissions straight to atmosphere

7.8 These are direct emissions from operations that are owned or controlled by Caerphilly CBC. Our Scope 1 emissions must be included in the Decarbonisation Strategy. These include emissions from our non domestic building boilers, our fleet vehicles, bottled gas use, and diesel for generators on our main campus at Tredomen.

7.9 Direct emissions also include fugitive emissions such as gases that could leak undetected from an air conditioning system. Tracking fugitive emissions across Caerphilly CBC will be resource intensive and would provide little early gains for this reason this will not be the top priority in the early stages of the Decarbonisation Strategy but will be included at a later stage.

7.10 Direct emissions (excluding fugitive ones) should be relatively straight forward to quantify in the majority of areas as part of the baseline assessment. There will be some data gaps however such as distances travelled from home to work by employees in their own vehicles.

Scope 2 - Indirect Emissions associated with consumption of purchased electricity or cooling

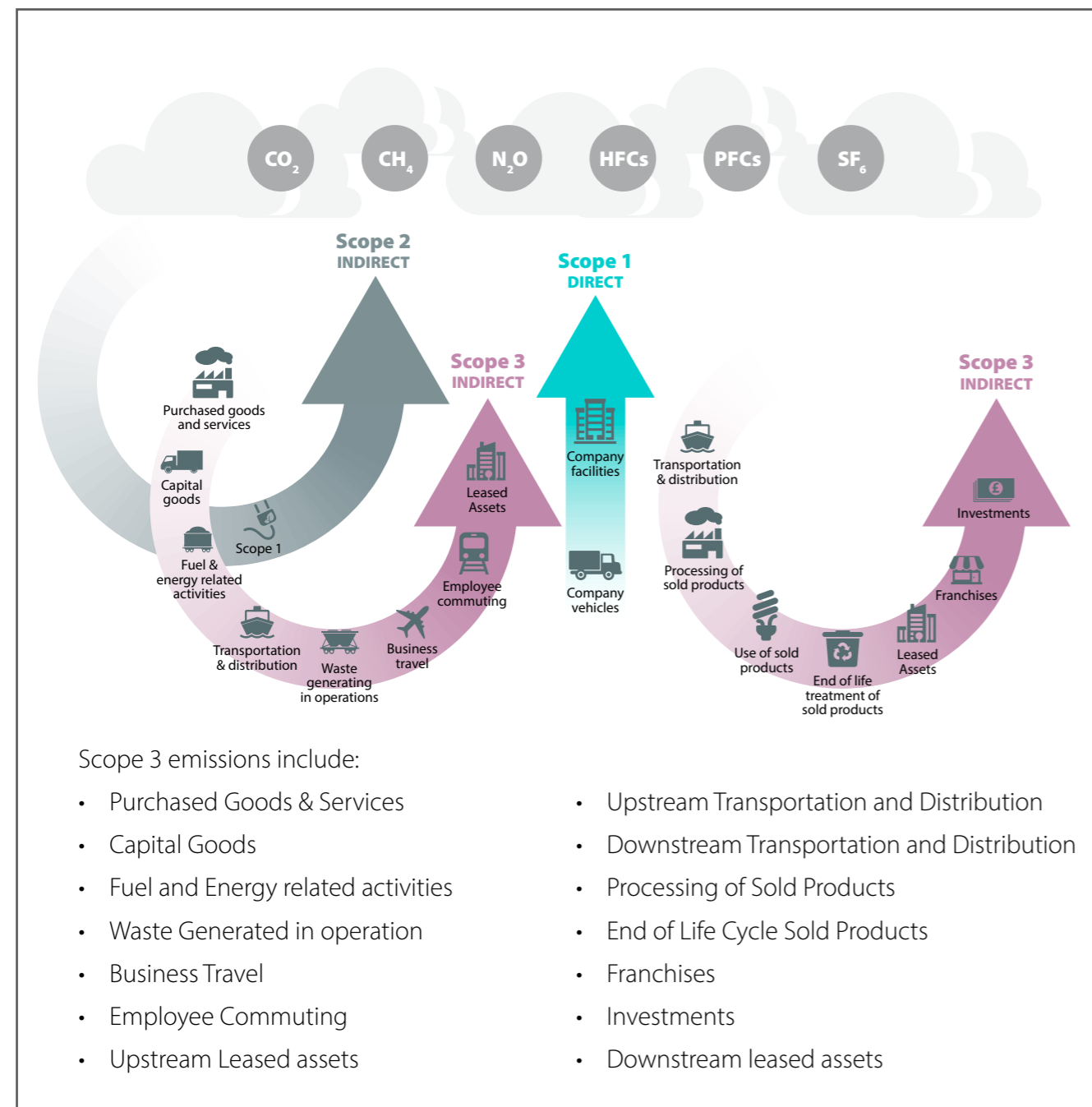
7.11 These are emissions from the generation of purchased or acquired electricity consumed by Caerphilly CBC. Our Scope 2 emissions will be included in the Decarbonisation Strategy even though all of the electricity consumed on council owned non domestic buildings is already from a renewable energy source. The Greenhouse Gas Protocol (GHG Protocol) advises that organisations report their carbon emissions from electricity derived from renewable sources against the national carbon emission factors at the time of reporting. This will include all non domestic buildings and some housing properties.

7.12 In the majority of areas, it is anticipated that indirect emissions should be relatively straight forward to establish as part of the baseline assessment but will be time consuming.

Scope 3 – Indirect emissions that are a consequence of Caerphilly CBC actions

7.13 It is Scope 3 emissions where Caerphilly CBC and Welsh Governments aspirations differ to the majority of the UK where public sector organisations focus purely on Scope 1&2 emissions. It is these Scope 3 emissions that will require the most effort due to data and information gaps.

7.14 Scope 3 emissions will cover nearly all Caerphilly CBC activities and purchases. They include both upstream and downstream emissions. The following diagram summarises the activities of Scope 1, 2 & 3 emissions. (It is worth noting that there are a higher volume of actions to be found within Scope 3).



7.15 Caerphilly CBC will now work to establish its carbon emission baseline as one of the early actions of the Decarbonisation Strategy. It is acknowledged that some data sets are not readily available so the baseline will be established using estimated data and where available accurate data. Over time the accuracy of the estimated data will improve.

7.16 As the baseline is being developed, carbon reduction projects will be delivered at the same time ensuring there is continual improvement in emission reductions.



8. Decarbonisation Strategy:

REDUCE - PRODUCE - OFFSET - BUY

8.1 The Decarbonisation Strategy and associated Action Plan and Energy Prospectus will focus on four broad categories of Reduce, Produce, Offset and Buy which align with those being used by the Welsh Government and have emerged through our workshops and stakeholder consultation events.

REDUCE

8.2 Reducing energy use is the first step in the energy hierarchy. There are many ways in which the authority can further reduce its impact on the environment and specifically reduce the volume of carbon emissions it emits. Some primary target areas are outlined below.

Existing Corporate Buildings

8.3 Good housekeeping principles will bring carbon reductions in each of the Council run buildings. The authority has a proven track record of delivering energy and carbon improvement projects by investing to save. The authority was a founding member (2004) of the National Salix scheme, which provides interest free loans to building managers for technology that reduces carbon emissions. Caerphilly CBC is the leading Welsh Authority when it comes to tonnes of carbon saved and figures highly in the UK league tables. To date, the authority has invested over £2million in property focused projects in this way. This approach has already helped the authority reduce its carbon footprint in direct relation to carbon emissions from buildings utilising gas and electricity.

8.4 Having buildings that are partially occupied is not efficient and the closure of under occupied corporate buildings will result in significant savings. The authority's "Asset Management Strategy- Property & Land 2019" will help to consolidate corporate property assets and sets out the following objective: "To have the

appropriate land and property, in the right place, operating in the right way, to facilitate safe and effective delivery of the Council's services".

8.5 The authority is developing an Agile Working plan as part of the emerging Workforce Plan. This will reduce the need for staff to travel unnecessarily and should provide the opportunity for the Council to reduce its current requirement for office space.

Corporate New Build

8.6 The authority's 21st Century Schools programme has already delivered some of the most sustainable and energy efficient schools in Wales, such as the recently completed Islwyn High School at Oakdale. This programme of new build will continue with the same green ethos and will be an important contributor to meeting our net zero target.

Housing - Existing Stock

8.7 Reducing energy consumption has been the key objective of the Council when considering its own housing stock. Over a third of the Council's stock has now benefitted from external wall insulation. A large proportion has also benefitted from the introduction of more efficient condensing boilers and loft insulation. This work has been supplemented by the introduction of double glazing on the Council's housing stock. Further opportunities will be explored to further reduce energy consumption and to establish properties as mini power stations, producing their own heat and power.

Housing - New Build Programme

8.8 The Council is committed to delivering new council housing, either by building ourselves or in partnership with Registered Social Landlords. Innovative housing techniques such as modular build and passivhaus will be considered by the

authority on its "new build stock", helping to reduce fuel consumption by its tenants and in doing so helping to contribute positively towards addressing fuel poverty.

Street Lighting

8.9 Caerphilly CBC has approximately 27,500 street lighting units. Since 2009 the Council has introduced a number of energy saving measures, the primary ones being inter-urban road part-night lighting and the replacement of conventional lamps with low-energy alternatives and dimming.

Travel and Transport

8.10 The authority approved an Electric Vehicle Strategy and Action Plan in 2019 setting out its vision to "Introduce an electric vehicle infrastructure across Caerphilly county borough, to maximise the economic, social and environmental benefits and opportunities that the electric vehicle agenda will provide, and for electric vehicles to be a fundamental part of our fleet".

8.11 Work is underway to dramatically improve the charging infrastructure throughout the county borough to encourage residents to go electric with their vehicles.

8.12 The authority is also reviewing its whole internal fleet of vehicles to identify carbon and emissions savings where it can. This work will include reviewing and reducing grey fleet mileage – the travel that employees undertake in their own vehicles on behalf of the council.

Resource Use/Waste Management

8.13 Prosiect Gwyrdd is a high profile waste management facility that generates electricity for sale to the grid with the Council playing a major role in its development. In addition, the authority

has local arrangements in place, such as food waste being disposed of at Bryn Quarry where it is converted into green energy via the Anaerobic Digester.

8.14 Each Council service area will have examples where they can REDUCE consumption. Easy gains can be made through the reduction of plastic and paper use and other simple changes to service provision such as a reduction in the frequency of grass cutting on council owned land assets will all help. In addition, investigations on recovering waste heat and reducing and using food waste has good potential for further reductions.

PRODUCE

8.15 Generating our own "green" electricity and heat at the point of use will reduce carbon emissions and will bring the added benefit of offsetting grid demand and reducing system losses associated with grid supplied electricity.

Solar and Wind

8.16 The authority has already installed Photovoltaic (PV's) panels on roofs of its buildings. In some instances these are small demonstration arrays on schools but the authority has also installed larger arrays to good effect and is currently investigating its collective non-domestic roof space for medium sized PV arrays.

8.17 To make the radical carbon reductions that are needed, the authority is also in the process of reviewing our land assets, in collaboration with the Welsh Government Energy Service, with a view to establishing large scale renewable technology at several of its land holdings. This work include identifying potential opportunities for solar and on shore wind farms.

8.18 The Council already has been instrumental in a partnership project between Caerphilly CBC and the Partnership for Renewables, where two wind turbines have been installed on council owned land on Oakdale Business Park. Each turbine has a generating capacity of 2 Megawatts, capable of powering 2,000 homes.

Hydro Electric

8.19 The authority has undertaken a review of its capacity to generate electricity from hydro. To date there is minimal opportunity to progress projects although Cwmcarn Forest may provide some opportunity to generate electricity for on site use at the visitor centre.

Anaerobic Digester

8.20 As outlined above, the Council has local arrangements in place at Bryn Quarry where Council collected food waste is converted into green energy via an Anaerobic Digester. Opportunities to take electricity directly from this site and utilise it at the Tredomen Campus is a real possibility. Anaerobic Digesters (AD) break down feeder fuels such as food waste and maize to generate a biogas which is used to generate electricity. By utilising a locally generated electricity supply it will reduce the transmission system losses (wasted electricity) and free up additional capacity on the local grid.



Solar Panel Installation

OFFSET

8.21 In order to achieve net zero carbon the authority will need to offset any carbon emissions. There are a number of ways that the Council can do this:

Existing Woodland

8.22 It is imperative that the Council effectively manages its current land holdings to ensure that its woodland remains healthy. The recent onslaught of disease such as ash dieback and Phytophthora ramorum makes it even more important that no more woodland is lost. A full inventory of council owned woodland is available and the Council works hard to maintain and improve its tree stock with the resources it has to its disposal.



Wind Turbine Installation

Tree planting

8.23 It is widely acknowledged that tree planting helps to lock in carbon emissions. Longer living trees such as yew, lime and chestnut will lock carbon in for very long timeframes, a process known as sequestration.

8.24 Carbon Dioxide removal through afforestation will play a major role in Caerphilly CBC achieving its net zero target, and the quantity of new tree planting that the Council aspires to is anticipated to be significant. The authority will need to undertake a land review to identify suitable areas that can be planted. Welsh Government is looking to establish a new National Forest within Wales and this provides an opportunity whereby Caerphilly CBC can look beyond its physical boundaries to join national schemes to offset our local carbon emissions.

Wetland Rewilding and sustainable drainage solutions

8.25 Wetland creation and rewilding offer similar opportunities to tree planting for carbon sequestration, as do sustainable drainage solutions designed into new developments.



Tree Planting

Fossil Fuel Divestment

8.26 In parallel to developing policies to reduce emissions in Wales, the authority will also recognise that the decisions it makes leads to increased emissions both in Wales and globally. Fossil fuel based companies have long been a source of investments for specialist fund managers. Over a relatively short time horizon however, a decision to divest from fossil fuel companies and consciously make investments in industries delivering sustainable products and services could be made particularly with investments made with local authority pensions fund. Taking such an approach gives an important indication of our intent to go green wherever possible.

BUY

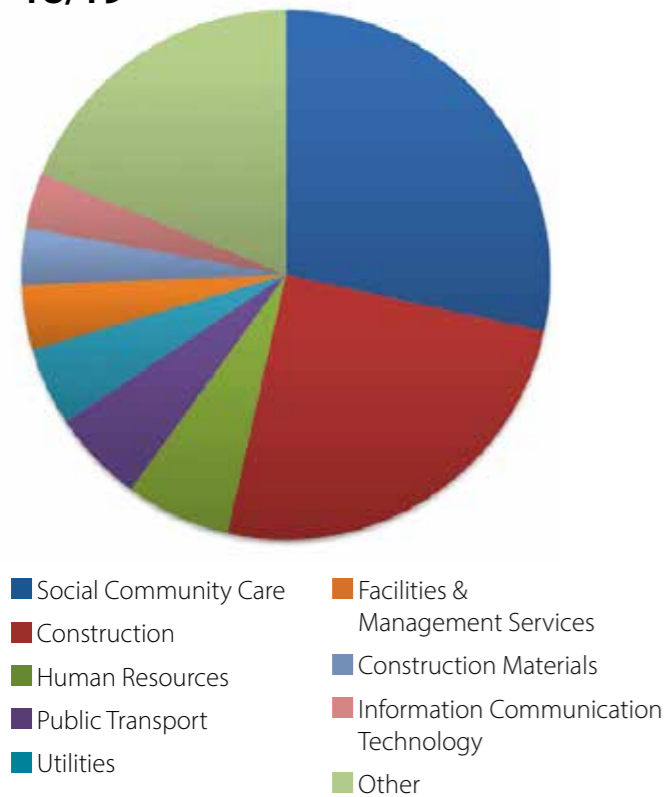
8.27 The new way of thinking required for the authority to achieve its net zero carbon goal will also focus on how the authority purchases goods and services. Everything the authority purchases has embedded carbon associated with it and this will need to be considered in the procurement process.

8.28 In 18/19 £200million was spent across 161,000 transactions by Caerphilly CBC with £65 million on construction activities alone.

8.29 Establishing the carbon implications for each purchase the authority undertakes will be extremely difficult and some carbon indicators are not readily available. However Welsh Government has stated from their estimates of the carbon emissions resulting from the purchase of goods, works and services, that procurement is one of the most significant categories of carbon emissions for the public sector.

8.30 In the short term, the authority should consider procuring/purchasing goods that generate the lowest level of carbon emission whilst operating. Likewise if the authority is about to secure the services of an external contractor, a significant factor should be their overall carbon footprint.

Graph 1 - Total Authority Spend 18/19



8.31 As shown in the Graph 1 over half of Caerphilly CBC spend in 18/19 is on Social Community Care and Construction.

8.32 Within Social Services there will be opportunities for travel mileage reductions, with better hi-tech ways of engaging with customers/clients. Other opportunities linked to Care provision functions such as energy saving measure on care homes will be explored.

8.33 Construction currently accounts for 25% of Council spend. Materials used in construction such as steel and aggregates are carbon intensive to produce and manufacture. Substituting steel for timber products would not only reduce energy demand at source, a Scope 2 emission, it would also lock carbon in the timber for many years if incorporated into a building, through cladding, flooring, internal walling or possibly structural timbers.



9. Action Plan

9.1 Implementing the objectives of the Decarbonisation Strategy will require a myriad of actions to be taken forward by a wide range of stakeholders. The Action Plan attached in appendix 1 sets out these actions in more detail and will help focus activity around target areas. Although the Council recognises the importance of data collection for benchmarking and reporting, the action plan will prioritise practical action over data collection as a means of driving forward change.

9.2 In order to affect change, there will be a requirement to drill down deeper into the Action Plan and provide more granular detail on how each proposal within it will be delivered. In order to achieve this, it will be necessary to develop detailed action plans for each of the 4 main themes of Reduce, Produce, Offset and Buy. These themed action plans will effectively hang together to form the main action plan and provide service areas with the action/steps required to achieve the goals and objectives set out in the main suite of documents.



10. Energy Prospectus

10.1 The Energy Prospectus is a document that supports the Decarbonisation Strategy. It sets out the key areas in which we will focus that could result in major reductions in carbon emissions, highlighting key energy projects that the authority is investigating. The list of projects is not definitive and will change and develop over time.



Wind Turbine, Oakdale

11. Financing

11.1 Local Authorities find themselves under enormous financial pressure and it will be difficult for Caerphilly CBC to identify resources to drive forward the changes necessary to achieve the goal of becoming net carbon neutral by 2030. A commitment is therefore expected from all council service areas to acknowledge this target and work towards it using their own existing core budget allocations. CCBC will also continue to be proactive in identifying external funding sources to implement change. Funding streams such as Salix have been used since 2004 to make radical changes in the county borough and it is expected that these funding sources will continue to be used to instigate positive change.

11.2 The Council, through the energy prospectus, has identified initial key projects that will allow the council to not only reduce its carbon footprint but also take some commercial gain from implementation. The Council is rich with resources such as land and property; assets that can be exploited to derive a commercial profit which can then be fed back into other green projects. In order to develop the suite of projects identified in the prospectus the Council is willing to invest under an "invest to save" mandate.

11.3 The Council also has a healthy relationship with a range of public sector bodies, government departments and external partner organisations. It is fully intended to use these existing strong relationships to deliver the changes set out in this decarbonisation strategy by 'tapping into' using these organisation resources where and when available.

11.4 In terms of investment, achieving the decarbonisation strategy requires additional investment as opposed to "business as usual". However, multiple economic assessments state that the return on this investment is far greater than leaving things as business as usual, for example in terms of jobs created, value added to the local economy and commercial return on investment.



12. Governance And Reporting

12.1 The Decarbonisation Strategy is a living, breathing document that will react to external changes and influences. It is important that the plan has ownership to drive it forward and to adapt to take advantage of these external influences.

12.2 The Council has an established Regeneration Energy Project Group who will be responsible for ensuring the plan's proposals and objectives are delivered. They will be tasked with liaising with each Departmental head to ensure that every opportunity is taken to meet the net carbon zero target by 2030.

12.3 Representatives from the Regeneration Energy Project Group will monitor and report on progress on the Decarbonisation Strategy,

along with its supporting documents (the action plan and energy prospectus) to the Council's Regeneration Project Board twice a year. This Board consists of senior council officers and Members from each of the main political groups represented within the authority and is well placed to oversee delivery.

12.4 While the Regeneration Project Board plays a role in overseeing the development & implementation of this plan, further reporting from the Regeneration Project Board to the relevant committee(s) & cabinet will also take place on a regular basis.





**Cardiff
Capital
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