

DRAFT ONLY

Appendix 1

Swansea Council

Energy and Carbon Management Plan

Framework 2020 to 2030



DRAFT ONLY

1 Version Control

VERSION CONTROL				
Version	Status	Author	Notes	Issue Date
1	DRAFT	Antony Moss	First Draft Issue	May 2020

2 Foreword

Swansea Council recognise and understand the importance of effective energy and carbon management and the implications and risks of climate change, rising energy costs and the preservation of finite energy sources. The preservation of our natural environment on a regional and national level and safeguarding of the wellbeing of our communities for current and future generations is a vital aim of the Authority.

It is within this context that the Energy and Carbon Management Strategic plan was developed. The council has pledged to “*Act in Response to the Climate Emergency*” within the Corporate Plan 2020-23, aiming for net carbon neutrality by 2030. It is proposed that the strategic priorities would be underpinned by three key principles:

- Raising awareness with all stakeholders and partners.
- Reducing our impact on Climate Change.
- Improved Resilience, ensuring we have robust plans in place to prepare for the impacts and minimise risks to our communities.

This Energy and Carbon Management Plan provides a co-ordinated approach which will identify and analyse energy and carbon emissions from the delivery of the Authority’s operational service deliveries and will

- Provide an overarching programme that will align and integrate all legislations and policies that relate to energy, carbon management and climate change
- Clearly define Swansea Council strategic ambition and intent for addressing energy and carbon management
- Quantify the Authority’s baseline carbon emissions from its service property activities.
- Identify and evaluate energy saving projects towards reducing energy costs
- Welsh Government carbon reduction target of 3% per annum
- Adoption of a low carbon / renewable technology way of working, reducing the dependency on conventional energy supplies.

In addition, there is a continued commitment to engage with local people and businesses and help them be smarter and better prepared for the impacts of climate change which will be enhanced by the introduction of the ‘Climate Change Charter’

The Energy and Carbon Management plan is a dynamic and live document and it will be modified as and when necessary and reviewed annually through the Council Annual Review of Performance Report section on corporate objective – “Maintaining and enhancing Swansea’s natural resources and biodiversity”.

DRAFT ONLY

1	Version Control	2
2	Foreword	3
3	Introduction: Swansea Council	5
4	Background	6
5	Strategic Aims	7
5.1	Vision	7
5.2	Aim.....	7
5.3	Objectives	7
5.4	Legislative Drivers and Standards	8
5.5	Financial Drivers.....	8
5.6	Carbon Reduction Target	9
6	Embedding Energy and Carbon Management within the Authority	10
6.1	Governance Structures, Roles and Responsibilities	10
6.1.1	Biodiversity and Corporate Climate Change Working Group Structure	11
6.1.2	Energy Management Structure.....	11
6.2	Energy Hierarchy.....	12
6.3	Achievements in Reducing Carbon Emissions.....	13
6.4	Capital Maintenance Budget.....	14
6.5	Display Energy Certificates and Advisory Reports.....	14
6.6	Renewable Energy	15
6.6.1	Renewable Energy Procurement.....	16
6.6.2	Renewable Energy Opportunities	16
6.7	Community Energy.....	17
6.8	The Swansea Bay City Deal.....	17
7	Emissions Baseline	18
7.1	Measurement	18
7.2	Scope 1 Emissions.....	18
7.3	Scope 2 Emissions.....	19
7.4	Scope 3 Emissions.....	19
8	Energy and Carbon Management Action Plan (2020 – 2030)	20
9	Carbon Emissions Reduction and Carbon Budget Projection	21
9.1	Carbon Emissions Reduction Projection.....	21
9.2	Carbon Off Setting.....	22
9.3	Carbon Budget Projection	22
10	Funding Opportunities	23
10.1	Internal Funding	23
10.2	External Funding	24
11	Income Generation	24
11.1	Power Purchase Agreement.....	24
11.2	Smart Export Guarantee.....	24
11.3	Renewable Heat Incentive (RHI)	25
11.3.1	Renewable Heat Incentives (RHI) – Non Domestic.....	25
11.3.2	Renewable Heat Incentives (RHI) – Domestic	25
12	Support and Partnerships	25
13	Appendix A - Notice of Motion – Climate Emergency	29
14	Appendix B – Scope 1: Carbon Emissions 2019/20	30

3 Introduction: Swansea Council

Swansea Council is an Authority with a mixture of urban and rural communities. Situated in the middle of the South Wales coast, Swansea is the second largest city in Wales and the regional centre of South West Wales. Swansea's two neighbouring local authorities are Carmarthenshire to the west and Neath Port Talbot to the east.

The latest official estimate of the population of the Swansea Council stands at 246,500 (mid-2018, Office for National Statistics / ONS). Swansea has the second highest population of the 22 Welsh local authorities, representing almost 8% of the total population of Wales (3,138,600).

Swansea Council, which has a land area of around 380 square kilometres, can be broadly divided into four geographic areas: the open moorlands of the Lliw Uplands in the north; the rural Gower Peninsula in the west, containing the UK's first Area of Outstanding Natural Beauty; the suburban area stretching from the edge of Swansea towards settlements in the west and around the M4 corridor; and the coastal strip around Swansea Bay, which includes the city centre and adjacent district centres such as Uplands, Sketty and Mumbles.

The Authority delivers a number of key services throughout the geographical area of the City and County and they consist of: Provision of Social Care, Provision and management of Public Parks, Library Services, Education provision, Street Lighting, Regeneration, Highways Management, Promotion of Tourism. The authority also works in partnership with other external bodies to deliver services.

In the provision and management of the aforementioned service areas the Authority employs approximately 11,000 employees who manage and occupy over 800 service based operational sites (with utilities), the total energy expenditure (gas and electricity) of the Authority in 2019/20 was £7.1 million.

4 Background

In May 19, the UK became the first major economy in the world to pass a net zero carbon emissions target into law. This target will require the UK to bring all greenhouse gas emissions to net zero by 2050, compared with the previous target of at least 80% reduction from 1990 levels. The UK's 2050 net zero target is one of the most ambitious in the world and was recommended by the Committee on Climate Change (CCC).

Globally, the UN has put in place a 2030 framework to drive forward sustainable development and climate change through the UN Sustainable Development Goals and the Paris Agreement, which commits to keeping global temperature rise this century well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5°C.

In June 2019, Swansea Council members declared a ' Notice of Motion' Climate Change Emergency and calling on Westminster to provide the powers and resources necessary to achieve the target for Swansea to strive towards becoming net carbon neutral by 2030 – see Appendix A for full text.

Subsequently, the Policy Development Committee (PDC) meeting held in Feb 20 recommended to review all current strategies and action plans to be aligned into six key policies – Energy Strategy; Local Development Plan; Green Infrastructure Strategy; Sustainable Development Policy; Local Biodiversity and Sustainable Transport Strategy within the scope of the Climate Change Charter Action Plan.

This Energy and Carbon Management Plan will build on those existing energy saving initiatives and strategies developed from the last Energy Strategy Paper (2016), but focusing exclusively on the many aspects of energy efficiency across the Authorities owned buildings, looking at the building fabric, the building services and the management of the building (including renewable technology options). To ensure that the Plan reaches its full potential within the Authority, the establishment of the Corporate Climate Change Working Group to bring together the governance of the other six key carbon related strategies under one co-ordinated programme and meeting the aspirations of becoming a net zero carbon emissions Authority by 2030 is essential.

The Plan supports the Authority's 'Outcome Agreements' with a particular effect on the Sustainable theme of 'Growth & Sustainable Jobs', the outcome of which is creating a sustainable low carbon economy with a commitment to 'reduce Swansea's impact on climate change through reducing carbon emissions'.

Implementation of the Plan will assist the Authority to reduce its energy usage, associated costs and carbon emissions, improving the built environment and ensuring a consistent and standard method for considering implementation of renewable technology systems across the authority's assets. As part of this strategy the Authority will also explore any commercial opportunities available as well as building on the success of the Swansea Community Energy Enterprise Scheme (SCEES) and EGNi community initiatives and large infrastructure projects such as implementation of the Swansea Bay City Deal, implementation of Refit: Low Carbon Project (Phase 1), develop long-term retrofit Phase 2 and Phase 3 projects (including evaluating decarbonisation of the heat network), and potential development of 3MW Solar PV farm.

5 Strategic Aims

5.1 Vision

Swansea Council has adopted a series of core values for carbon management. These include a statement of concern for sustainability and the relationship with the environment. It is also a very important element in achieving the well-being of future generations in Wales. In order to achieve Swansea's vision 'to create a safer, greener, smarter, fairer, healthier and richer Swansea', we must act now to mitigate risks associated with the supply, affordability and carbon impact of energy consumption.

- The legislative focus on Energy and Climate Change has increased significantly over the last few years - energy efficiency standards e.g. BREEAM; Energy Efficiency in Buildings Regulations.
- Deliver against Welsh Government carbon emissions targets.
- Investing in renewable technology way of working, preservation of finite energy resources.
- Reducing the dependency on conventional energy supplies.
- Investment in Energy Conservation Measures (ECMs) such as LED lighting,
- Review innovative energy generation and saving initiatives, which can create economic benefit, including employment and inward investment in Swansea, building on world class projects like the potential Tidal Lagoon.
- Reduction of energy, fuel and water costs and those of our communities.

5.2 Aim

Swansea Council will contribute towards a sustainable low carbon economy by delivering an Energy and Carbon Management strategy that delivers real benefits to society, the economy and the environment and sets out our wider and long term aims for energy across Swansea the place, as well as the council within the context of national and international developments.

5.3 Objectives

- Objective 1: To reduce energy consumption and improve the energy efficiency of Swans Council's public buildings.
- Objective 2: To invest in renewable technologies that will benefit Swansea Council and the wider community
- Objective 3: To secure or facilitate community access to affordable low carbon/renewable energy and fuel poverty
- Objective 4: Explore and maximise commercial opportunities to benefit community wellbeing and/or financial gain
- Objective 5: Ensure Energy Strategy and action plan are delivered in line with current legislation.

Through implementation of this Energy and Carbon Management Plan Swansea Council will mitigate the:

- Effects of Climate change by reducing their carbon emissions
- Risks associated with energy security by sourcing low carbon/renewable energy sources
- Risks associated with increased energy costs

5.4 Legislative Drivers and Standards

- Welsh Legislation

In Wales we are already delivering on our international commitments through the Environment (Wales) Act and the Well-being of Future Generations Act 2015. The goals in the Well-being of Future Generations Act provide a shared national vision for all public bodies and, along with the Sustainable Development Principle it provides a clear framework for public sector decision-making.

The Environment (Wales) Act 2016 sets a target for Welsh Government to reduce greenhouse gas emissions by at least 80% (on 1990 levels) by 2050. Welsh Government declared a climate emergency on 29th April 2019 and, as a response, accepted the recommendations from the UK Committee on Climate Change for emission reduction of 95% by 2050 with ambition to be net zero by 2030.

Prosperity for All: A Low Carbon Wales' (March 2019) sets out the Welsh Government's approach to cut carbon emissions and increase efficiency in a way that maximises wider benefits for Wales, ensuring a fairer and healthier society. It sets out 100 policies and proposals that directly reduce emissions and support the growth of the low carbon economy

Welsh Government has an ambition for a net carbon neutral public sector by 2030, and will be supporting the public sector to baseline, monitor and report progress towards carbon neutrality (Policy 20, 'Prosperity for All: A Low Carbon Wales') with Net Zero Carbon Reporting Guide to be published in Apr 20.

- Energy Performance of Building Regulations

To ensure that Swansea Council are compliant with the Energy Performance of Buildings Regulations which requires buildings occupied by a public authority and which is frequently visited by the public, with a floor area of 250m² or above to have a valid Display Energy Certificate to be publicly displayed. A Display Energy Certificate must be accompanied by a valid Advisory Report which contains recommendations for improved energy efficiency and energy performance of the building.

- BREEAM

BREEAM is a sustainability assessment method for planning projects, infrastructure and buildings. It recognises and reflects the value in higher performing assets across the built environment lifecycle, from new construction to in-use and refurbishment. BREEAM does this through third party certification of the assessment of an asset's environmental, social and economic sustainability performance, using standards developed by BRE. This means BREEAM rated developments are more sustainable environments that enhance the well-being of the people who live and work in them and help protect natural resources.

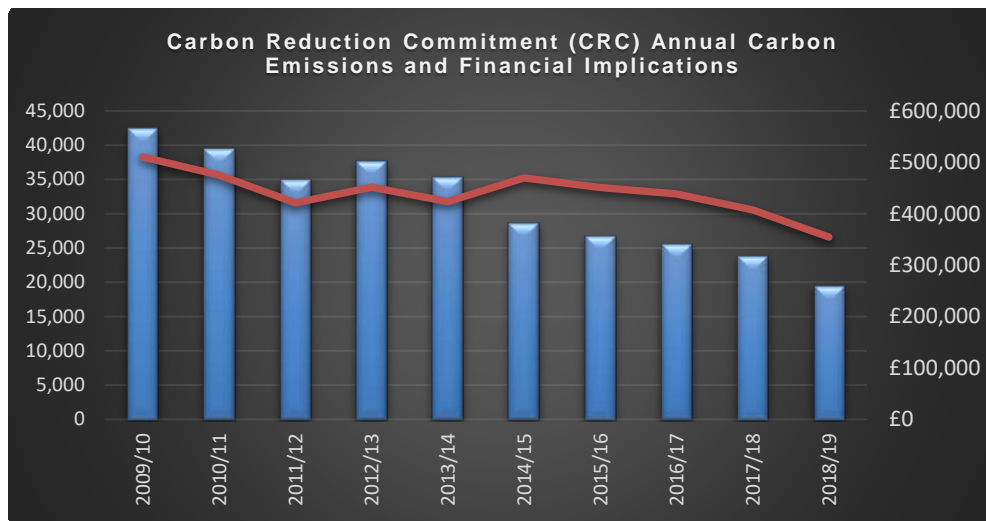
5.5 Financial Drivers

Under the current financial climate and the consequential budget limitations experienced by public sector organisations there has never been no greater need for the implementation of energy and carbon management and the potential financial efficiency savings that can be achieved from its effective delivery.

Energy markets over the past decade have been volatile due to the World's dependency on this resource and various factors affecting supply. Therefore the future price risk of utilities and security of supply are enough of a driver on its own to increase the priority of energy and carbon efficiency.

Since 2010, the Authority has been a participant under the mandatory UK-wide Carbon Reduction Commitment (CRC) Energy Efficiency Scheme. Consequently, it has been required to purchase non-refundable allowances for each qualifying tonne of carbon arising from its electricity and gas consumption.

The Authority reported to the Environment Agency during 2018/19 carbon emissions of 19,378 t/CO₂, purchasing £354,614 of carbon allowances. Whilst the Council's emissions have continued to reduce, the cost level of 'tax' levied for each tonne of carbon emitted increases annually to further incentivise carbon reduction – see table below. The CRC Energy Efficiency Scheme was abolished following the 2018/19 compliance year, however this cost will not disappear as the Climate Change Levy will be raised to compensate. Welsh Government is to consult on options for a successor to the CRC Scheme (Policy 19, 'Prosperity for All: A Low Carbon Wales').

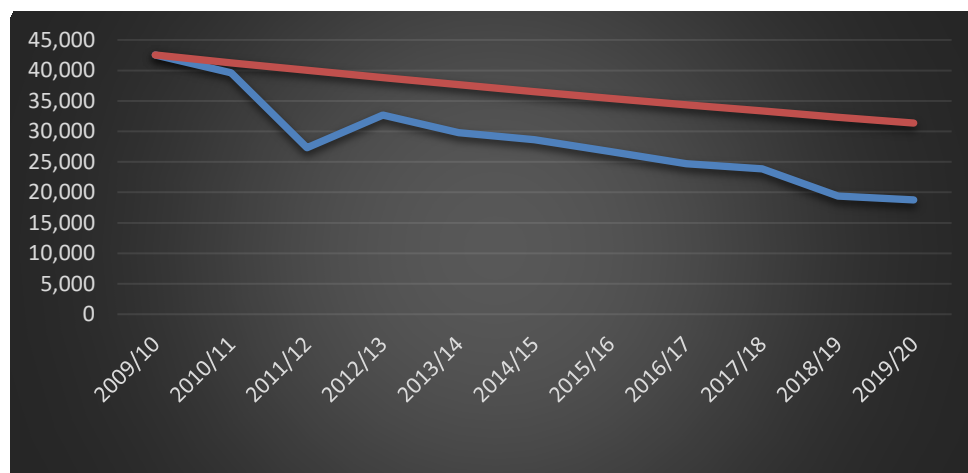


Source: Carbon Emissions Reported to the Environment Agency

5.6 Carbon Reduction Target

Swansea Council is committed to reducing its carbon emissions by 30% by 2020 on a 2009/10 baseline (42,532 t/CO₂) which equates to Welsh Government 3% per year reduction target from the base year until 2019/20. The Council is exceeding in meeting this target, achieving a 54.43% reduction in 2018/19 (19,378 t/CO₂) against the 2009/10 carbon baseline.

This target is reported in the annual Corporate Performance Report EEF002 - Measurement of carbon reduction across all CCS public building portfolio.



Source: Carbon Emissions Reported to the Environment Agency

6 Embedding Energy and Carbon Management within the Authority

In moving towards a net zero carbon Authority will require the need for whole holistic approach. Key areas that Swansea Council will require to commit to deliver directly include aligning its governance, infrastructure, strategies and policies to ensure that the organisation rises to the challenge of the climate emergency.

6.1 Governance Structures, Roles and Responsibilities

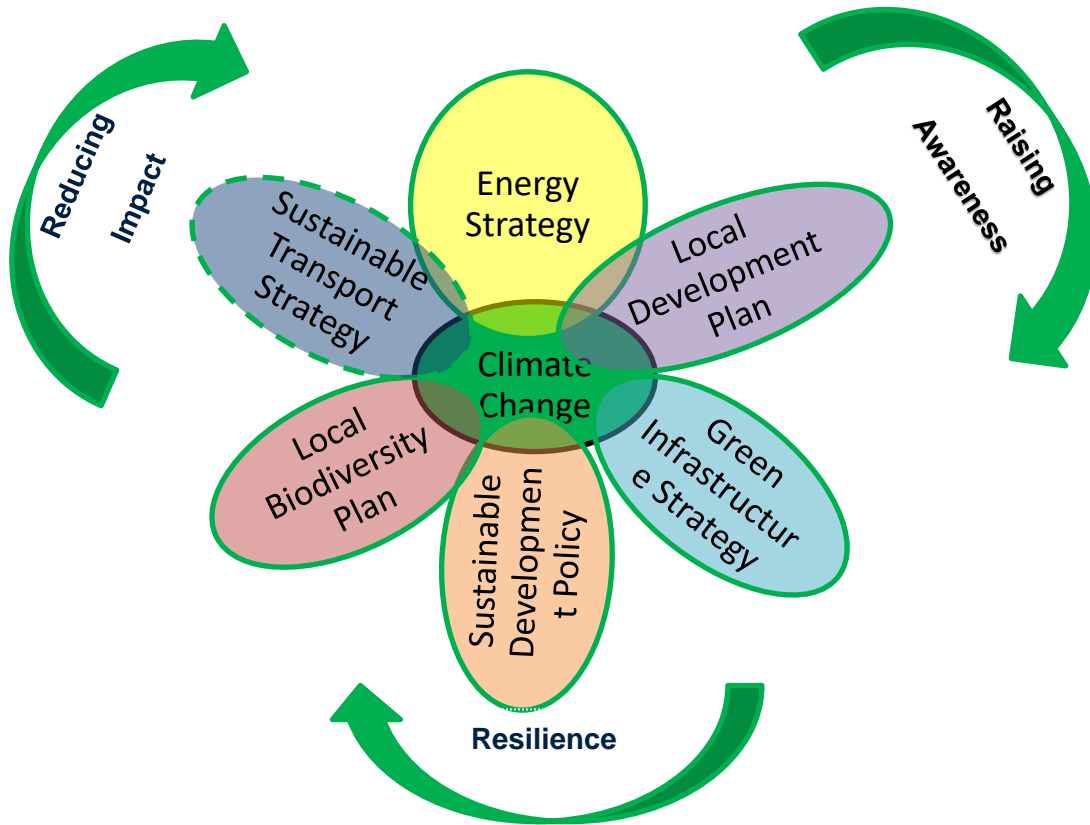
The Policy Development Committee (PDC) meeting held in Feb 20 recommended the establishment of a 'Biodiversity and Corporate Climate Change Working Group' to review all current strategies and action plans with a carbon emissions reporting obligation and aligning governance structures, roles and responsibilities under six key policies, as illustrated below:
– Energy Strategy; Local Development Plan; Green Infrastructure Strategy; Sustainable Development Policy; Local Biodiversity and Sustainable Transport Strategy.

In addition, there will be continued commitment to engage with local people and businesses and help them be smarter and better prepared for the impacts of climate change will be enhanced by the introduction of the Climate Change Charter.

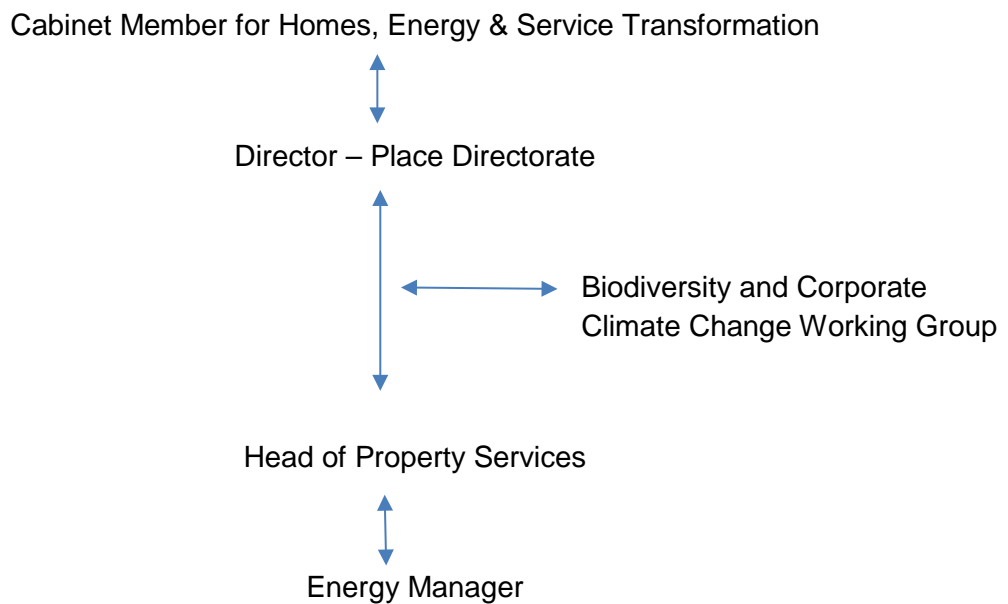
This Energy and Carbon Management Plan is one of the six key policies as illustrated below. Roles and Responsibilities for each of the other key policies will need to be issued ensuring consistent approach and measurement of our carbon footprint is achieved.

- Energy Strategy: Energy Manager
- Local Development Plan: Head of Planning
- Green Infrastructure Strategy: Sustainable Policy Officer,
- Sustainable Development Plan: Sustainable Policy Officer
- Local Biodiversity: Strategic Planning and Natural Environment Manager
- Sustainable Transport Strategy: Team Leader – Transport Strategy and Monitoring

6.1.1 Biodiversity and Corporate Climate Change Working Group Structure

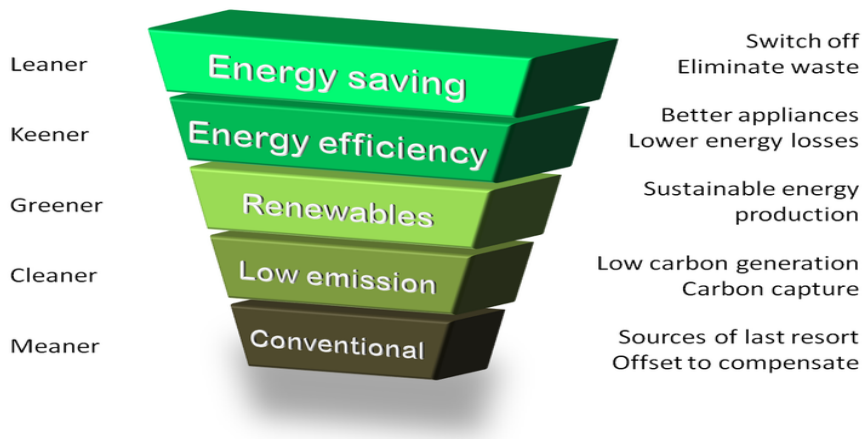


6.1.2 Energy Management Structure

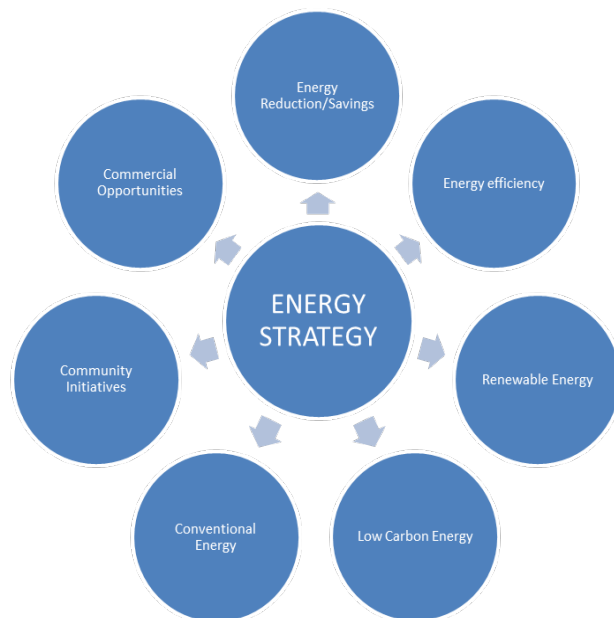


6.2 Energy Hierarchy

Swansea Council's Energy and Carbon Management Strategy is based on the Energy Hierarchy shown below. It shows that reducing energy demand and increasing energy efficiency are the best starting points (Fabric First approach). Energy efficiency actions reduce energy demand and enable us to use energy wisely. Maximising energy savings and energy efficiency will be essential to the feasibility of increasing reliance on low carbon sources of energy.



The key elements that the Strategy will therefore focus on are illustrated below:



6.3 Achievements in Reducing Carbon Emissions

Adhering to this hierarchy a wide range of sustainability initiatives have been developed in recent years to improve the environmental impact and limit its impact on climate change through good housekeeping techniques; investment in energy saving technologies; ensure efficient use of assets such as buildings; and embrace renewable technologies. This has shaped some of the authority's achievements to date.

- Since 2010 Swansea Council has been a participant under the mandatory UK-wide Carbon Reduction Commitment (CRC) Energy Efficiency Scheme reporting a carbon reduction of 23,154 t/CO₂ to the Administrator of the Scheme, Environment Agency, along with financial saving on purchase of carbon allowances of £155,676 (2018/19).
- Swansea Council procures its energy using Crown Commercial Services Framework Agreements, via the National Procurement Service (NPS), for the vast majority of supplies. All electricity procured via the NPS framework is from 100% renewable energy sources; 41% sourced from Wales (Apr 20 – Mar 21); Gas – Total Gas and Power (TGP) procured as new gas supplier (Apr 21 – Mar 22); Green Gas tariffs - dependant on viability and cost impact; pricing option available with TGP later in the year.
- Refit Low Carbon Programme - Swansea Council is participating in the Welsh Government supported Re:fit Low Carbon Programme in order to implement energy efficiency saving opportunities in non-domestic buildings. A £1.3 million interest free loan has been secured from Welsh Government Wales Funding Programme (Salix) to deliver a Re:fit Cymru (Energy Efficiency) Phase 1 project comprising over 18 buildings which is projected to save an estimated 400 tCO₂e every year. Quantifying the energy savings delivered by the Energy Conservation Measures (ECMs) will be validated using the Measurement and Verification (M&V) process.
- Solar Farm Projects - Collaborating with Welsh Government Energy Services on model size scenarios and financial appraisal assumptions towards the development of a 3MW Ground Mounted Solar PV farm. The projected finance model is currently being evaluated, it is predicted over the asset lifespan (35 years; assuming no downtime) that 101,302,731 kWh of renewable energy will be generated or 3,189,600 kWh/year (projected as the electricity generated by a PV module decreases over time), equating to 688 t/CO₂ year. This represents 3.6% renewable generation against 2019/20 carbon emissions of 18,757 t/CO₂.
- Progressing work towards a world-leading Swansea Bay Tidal Lagoon, estimated electricity generation of 504,854 MWh, equating to carbon emission savings of 94,913 mT CO₂e.
- Supporting community owned renewable energy schemes to deliver clean energy and benefit local schools and communities, like:



Solar PV on three comprehensive schools Pentrehafod, Gowerton and Pontardulais.

a. Swansea Community Energy Enterprise Scheme (SCEES), During 2019/20, the SCEES Solar PV project (covering 11 schools and 1 care home) generated 135t/CO₂

b. Egni Co-op, Swansea Council have been working in collaboration with Egni Co-op and have recently (Sept 20) successfully installed 220kW of rooftop

- Additional Solar PV installations generated 50 t/CO₂ from Swansea Council properties such as Guildhall and Schools.

6.4 Capital Maintenance Budget

Energy maintenance budget allocation has been 'ring-fenced' to invest in energy saving initiatives, replacement of mechanical and electrical equipment selected as a result of nearing the end of their life expectancy; statutory compliance and business continuity concerns. This will ensure energy efficient equipment is being installed reducing our carbon emissions which will in turn assist in maintaining a sustainable asset portfolio in line with the overarching asset management plan.

- The Energy Technology List (ETL), is a government list of energy efficient technologies, plant and machinery. The Energy Technology List, managed on behalf of Department for Business, Energy & Industrial Strategy (BEIS) by the Carbon Trust and their ETL team.

Current Listed products - the energy performance of ETL listed products in each technology category and find details of the manufacturers and suppliers who have listed the products.

<https://www.gov.uk/guidance/energy-technology-list>

- Endotherm - Heating additive designed to increase the efficiency of wet central heating systems; potential 15% savings on heating costs. Business case submitted to Building Services for funding approval to undertake trial and monitor performance of financial and carbon savings. Potential rollout dependant on results and funding approval.

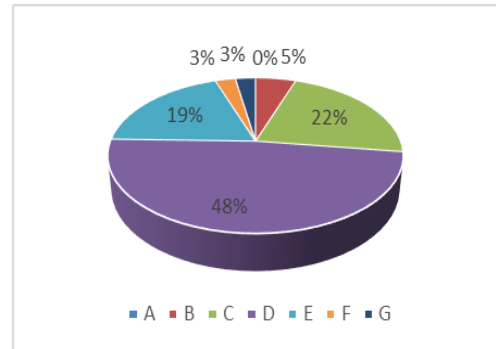
<https://www.endotherm.co.uk/>

6.5 Display Energy Certificates and Advisory Reports

To ensure that Swansea Council are compliant with the Energy Performance of Buildings Regulations which requires buildings occupied by a public authority and which is frequently visited by the public, with a floor area of 250m² or above to have a valid Display Energy Certificate to be publicly displayed. A Display Energy Certificate (DEC) must be accompanied by a valid Advisory Report (AR) which contains recommendations for improved energy efficiency and energy performance of the building.

DECs provide an energy rating of the building from A to G, where A is very efficient and G is the least efficient and are based on the actual amount of metered energy used by the building over the last 12 months within the validity period of the DEC. The table and pie chart below illustrates the energy ratings across Corporate Buildings and Schools during 2019/20.

Energy Rating	Comprehensive Schools	Primary and Infant Schools	Corporate Buildings	Total DECS
A	0	0	0	0
B	1	3	2	6
C	1	22	2	25
D	9	40	6	55
E	5	15	2	22
F	1	1	1	3
G	0	1	2	3
Total	17	82	15	114



The information contained in the Display Energy Certificates and Advisory Reports will be used to prioritise Capital Maintenance Funding towards improving the energy efficiency of the building, well-being of occupants and financial return on investment.

Guidance about the regulations for Display Energy Certificates of public buildings:
<https://www.gov.uk/government/publications/display-energy-certificates-and-advisory-reports-for-public-buildings>

6.6 Renewable Energy

Swansea Council are already planning positively towards facilitating renewable and low carbon energy development opportunities which will also support Welsh Government Legislations and aspirations for 70% of energy consumed in Wales to be from renewable energy generated in Wales by 2030.

Renewable energy sources can offer a wide range of additional benefits including lower energy bills, energy price stability, security of energy, 'green' credentials, and the possibility of selling electricity back to the grid at a premium.



Solar PV modules installed on the Guildhall

A number of renewable projects have already been installed which include:

- Solar PV Systems at: YGG Llwynderw, St Thomas, Burlais and Gowerton Primary Schools and Penyrheol, Cefn Hengoed and Morryston Comprehensive Schools
- Solar Thermal Systems: at Penyrheol Comprehensive School, Sketty and St Thomas Primary schools.

- A 45KW Solar PV array on the refurbished Guildhall roof.

6.6.1 Renewable Energy Procurement



All electricity for Swansea Council properties are procured via the National Procurement Service framework and is from 100% renewable energy sources; 41% sourced from Wales.

The option to purchase Green Gas will be available with the new gas supplier Total Gas and Power from Apr 21 – this will be dependent on viability and cost impact.

6.6.2 Renewable Energy Opportunities

It is the intention of Swansea Council to promote the development of renewable and alternative energy generated on council owned properties (new and refurbishments) and land (car parks, waste land) and the wider community of Swansea. Examples of renewable and alternative energy include solar; wind; biomass; and geothermal; current renewable energy projects include.

- Swansea Council with the support of Welsh Government Energy Services have carried out model financial scenarios towards the development of a 3MW Ground Mounted Solar PV farm located on a capped waste land filled area. It is predicted over the asset lifespan (35 years) that 101,302,731 kWh of renewable energy will be generated equating 28,454 t/CO₂. Part of this capital expenditure cost could be recovered as it would create revenue for the Authority, mainly in the form of Power Purchase Agreements (PPA) and Smart Export Guarantee payments for exporting electricity to the grid. There is the potential opportunity of extending the Solar PV site in future years as current additional waste land is capped
- Carbon Reduction Retrofit Project (Phase 1): Solar PV installations of 14.85kw (Swansea Market); 23.22kw (Glynn Vivian Art Gallery); 100.17kw (guildhall); 29.97kw (Quadrant bus station); 29.97kw (building services depot). The project also includes the installation of Energy Conservations Measures (ECMs) including LED lighting and controls, building insulation.
- Carbon Reduction Retrofit: Potential to develop long-term retrofit Phase 2 and Phase 3 projects (including evaluating decarbonisation of the heat network)
- Public Sector Hub: Cabinet are considering moving from the Civic Centre to a new public sector hub in the heart of the city centre as part of Swansea Bay Central Phase 2, the £1bn project to revitalise the St David's area of the city centre. This is an opportunity for the Authority to show its commitment towards meeting its net zero carbon aspirations by 2030 incorporating renewable technologies into the design specifications.

6.7 Community Energy

Community energy covers aspects of collective action to reduce, purchase, manage and generate energy. Community energy projects have an emphasis on local engagement, local leadership and control and the local community benefiting collectively from the outcomes. There are financial incentive schemes from the Government to generate low-carbon electricity using small-scale systems and installing renewable heat technologies that are currently still open to Community groups.

Community-led action can often tackle challenging issues around energy, with community groups well placed to understand their local areas and to bring people together with common purpose. There are at least 5000 community groups in the UK undertaking energy initiatives – further advice and support can be found at the following Government web link:

<https://www.gov.uk/guidance/community-energy>

Swansea Council have been exploring options to promote community energy schemes which not only reduce carbon emissions but create a platform for local social and economic benefit.

- Swansea Community Energy and Enterprise Scheme (SCEES):
This is a scheme exploring how local people in some of Swansea's most economically deprived areas can benefit from community renewable energy projects. They have installed solar PV on a number of schools and a care home which will lead to a reduction in carbon emissions. Surplus profits will be allocated to a community benefit fund to support the local community to develop skills, enterprise, economic growth and job creation. The scheme is aligned to the corporate plan objectives, notably tackling poverty, building sustainable communities and safeguarding vulnerable people.

A total of 360kW of solar PV has been installed on nine schools and one care home in and around areas of Swansea.

<https://gov.wales/sites/default/files/inline-documents/2019-09/swansea-community-energy-and-enterprise-scheme.pdf>

- Egni Co-Op
Is a community organisation which funds and manages PV installations in Wales. It was set up by Awel Aman Tawe (AAT), a community energy charity. A total of 220kW of rooftop Solar PV on three comprehensive schools Pentrehafod, Gowerton and Pontardulais was successfully installed in Sept 20.

<http://awel.coop/>

6.8 The Swansea Bay City Deal

The Swansea Bay City Deal is a £1.3bn investment in 11 major projects across the Swansea Bay City Region – which is made up of Carmarthenshire, Neath Port Talbot, Pembrokeshire and Swansea together with the Abertawe Bro Morgannwg and Hywel Dda University Health Boards, Swansea University, the University of Wales Trinity Saint David, and private sector partners. The City Deal is being funded, subject to the approval of project business cases, by the UK Government, the Welsh Government, the public sector and the private sector. Over the next 15 years, the City Deal will boost the regional economy by £1.8bn and generate almost 10,000 new, high-quality jobs. The new Swansea arena is part of the council's £135m Swansea Central Phase One transformation scheme which includes almost 1,000 parking spaces. The arena's external skin will be covered in tens of thousands of LED lights. It is due to open in 2021.

7 Emissions Baseline

7.1 Measurement

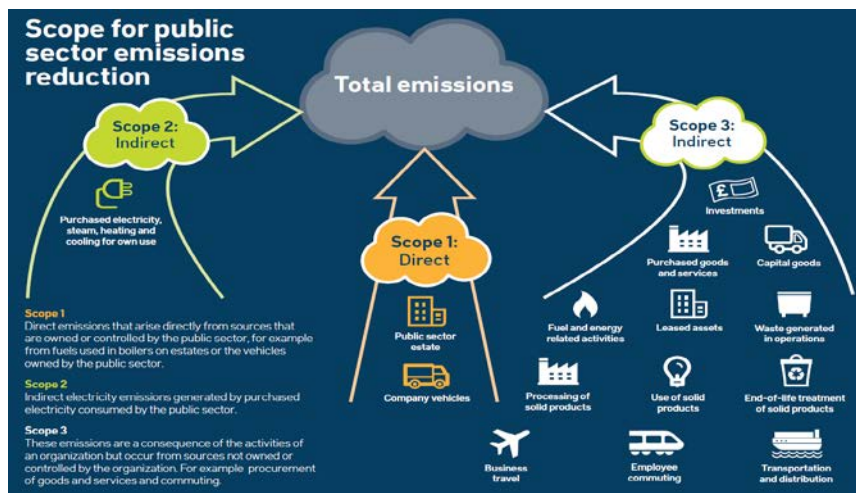
Measuring our performance is essential; we cannot manage something we cannot measure. It is important to define our methodology and scope for calculating our carbon footprint, to ensure consistent measurement. Our approach to measuring is based on the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard (GHG Protocol).

Throughout this Plan, carbon is expressed in terms of Carbon Dioxide Equivalent (CO₂(e)). This is calculated from metered energy consumption using conversion factors published by DECC (or using other recognised conversion factors where there are no appropriate factors provided by DECC).

Welsh Government are developing a Welsh Public Sector Net Zero Carbon Reporting Guide to be published in Apr 20 which will provide greater clarity on reporting requirements.

The Authority contributes to climate change directly, such as emissions from its owned buildings (inclusive of schools); and indirectly, through emissions associated its demand for goods and services. These emissions are categorised as ‘scopes’ in the Greenhouse Gas Protocol (GHG Protocol), which are defined as follows:

- Scope 1 covers direct emissions from Council owned properties
- Scope 2 covers indirect emissions emissions linked to purchased electricity and heat
- Scope 3 All other indirect emissions which are a consequence of the activities of the organisation, but occur from sources not owned or controlled by the organisation. Water emissions from Council owned properties are also reportable.



Overview of Greenhouse Gas Protocol scope and emissions across the value chain. Source: **GHG Protocol**.

7.2 Scope 1 Emissions

Direct emissions from Swansea Council owned properties

The energy management team operate Team SIGMA Monitoring and Targeting software system (M&Ts) that provides the tools to analyse consumption data and assist to manage activities at scale. This supports the energy and carbon management Plan enabling access to timely, relevant information on energy use, indicators for action needed and energy reports to support accountability. Consumption data is imported through EDI billing from our energy suppliers, supported with a rollout programme of upgrading to Automatic Meter Reader (AMR) / Smart metering to capture Half Hour (HH) data.

DRAFT ONLY

The table below shows a breakdown of energy consumption, cost and carbon emissions from operational service areas:

a. Operational Service Areas

The consumption and financial data has come from the Team Sigma M&Ts imported from energy suppliers EDI billing; the carbon emissions data uses the UK Department for Business, Energy and Industrial Strategy (BEIS) conversion factors.

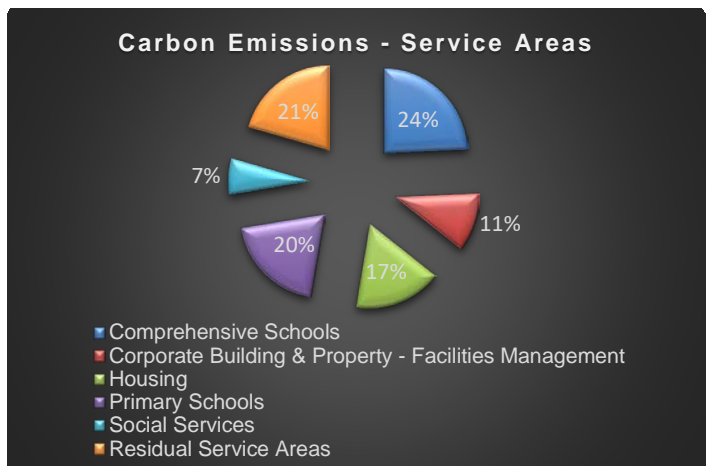
	2019 / 20				2018 / 19			
	kWh	£	t/CO ₂	Percentage	kWh	£	t/CO ₂	Percentage
Electricity	25,435,260	£5,068,418	6,997	37.31%	29,198,101	£4,073,676	8,900	45.46%
Gas	64,081,124	£2,073,459	11,760	62.69%	58,140,862	£1,669,385	10,676	54.54%
Total	89,516,384	£7,141,877	18,757	100%	87,338,963	£5,743,061	19,576	100%

Note: The continuing decarbonisation of the electricity distribution network (National Grid) will help in the reduction of carbon emissions from the Council's consumption of electricity. The performance data quoted in this document uses UK emission conversion factors issued by the Department for Business, Energy and Industrial Strategy (BEIS) where appropriate. These emission conversion factors are published annually at:

<https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting>

The pie chart below illustrates the percentage split of the Service Areas with the highest carbon emissions during 2019/20 (electricity and gas). A comprehensive breakdown of all Service Areas is at Appendix B.

Service Areas	t/CO ₂	Percentage
Comprehensive Schools	4,552	24%
Corporate Building & Property - Facilities Management	2,126	11%
sing	3,195	17%
Primary Schools	3,702	20%
Social Services	1,325	7%
Residual Service Areas	3,857	21%
Total	18,757	100%



7.3 Scope 2 Emissions

Indirect emissions linked to purchased electricity and heat:

- Swansea Council procures its energy using Crown Commercial Services Framework Agreements, via the National Procurement Service (NPS), for the vast majority of supplies.
- All electricity procured via the NPS framework is from 100% renewable energy sources; 41% sourced from Wales.
- Gas –Green Gas tariffs - dependant on viability and cost impact; pricing option will be available from our gas supplier later in the year.

7.4 Scope 3 Emissions

This covers carbon emissions not controlled or owned by the authority and only has powers of influence/ support / engagement to seek the necessary changes and can be divided into the following elements:

1. The authority's own work and the wider economy, for example engaging with procurement covering environmental impacts as part of contract of services; housing

DRAFT ONLY

(i.e. sustainability); collaborating with Welsh Government / working with other public sector organisations (Swansea University / Health Service).

2. The second element of this strategy is to work with everyone else to achieve a significant Swansea change area wide, for example engaging with Low Carbon Swansea Bay & Swansea Environmental Forum / Community Enterprises / private sector.
3. Introduce emissions reporting requirements into major contracts.
4. Reporting of water emissions from supply and treatment should be reported for water. Further information is available from the following web site:
<https://discoverwater.co.uk/energy-emissions>

Broadening the range of the Scope 3 emission sources will be a challenge, primarily because of the difficulties in gathering reliable data. However, we recognise that increasing the number of Scope 3 emission sources included within our reporting is necessary to better understand and reduce the impacts of our operations as well as those of our supply chain. This will require the assistance of external energy consultants to support this study.

8 Energy and Carbon Management Action Plan (2020 – 2030)

Swansea Council have adopted proactive programmes to reduce its carbon emissions over a number of years; renewable projects that have been implemented and agreed to proceed (paras 6.6 and 6.7) represent circa 10% renewable generation of our property portfolio carbon footprint.

Implementation of the Energy and Carbon Management Action Plan will assist the Authority to significantly move forwards towards reducing its carbon emissions by 2030 from across its property portfolio, in addition to improving the built environment and ensuring a consistent and standard method for considering implementation of renewable technology systems across the authority's assets. However, this will require commitment and support of Cabinet Members in order to assist the prioritisation and allocation of funds to invest in renewable projects; Heads of Services and Officers in its delivery.

The Energy and Carbon Management Action Plan aligns its carbon emissions actions with the widely used international reporting tool, the Greenhouse Gases (GHG) Protocol which categories Greenhouse gas emissions into the three Scopes.

Under the following section headings are a suite of measures identified towards Swansea Council reducing its carbons emissions. Some of the measures have already been implemented and are delivering financial and environmental benefits whilst others are new and will require rolling out in phases across the Authority:

- | | |
|---------|--|
| Scope 1 | Energy Strategy and Management Actions
Energy Trend Analysis
Renewable Technology
Energy projects / Technical Actions
Energy Awareness Programmes
Procurement of Energy |
| Scope 2 | Energy Procurement – see Para 6.3 |
| Scope 3 | Wider Swansea Area – See para 6.4. |

DRAFT ONLY

Water emissions - consumption from supply and treatment is reportable for water. Further information available from:

<https://discoverwater.co.uk/energy-emissions>

It is proposed that the Action Plan be rolling in nature, with formal annual reviews. At this stage, the targets have been set in terms of Short (0 -3 years); Medium term (4 -7 years) and long term (7 – 10 years).

This will be a dynamic and live document, objectives modified as and when necessary and reviewed annually through the Council Annual Review of Performance Report and Annual Corporate plan; published annually.

9 Carbon Emissions Reduction and Carbon Budget Projection

Long term investment planning for a renewable future addressing the challenges of Welsh Government commitments and the Authorities 'Climate Emergency' motion is a key strategic requirement towards implementing the Energy and Carbon Management Plan.

Reporting of all carbon emissions which fall within each of the three scopes will be the responsibility of the Corporate Climate Change Working Group implementing governance structures, roles and responsibilities under six key policies - Energy Strategy, Local Development Plan; Green Infrastructure Strategy; Sustainable Development Policy; Local Biodiversity and Sustainable Transport Strategy.

9.1 Carbon Emissions Reduction Projection

The tables below shows the projection of carbon emissions covering Scope 1 direct emissions from Swansea Council owned properties (table 1) towards the Authority becoming net zero carbon by 2030 profiling- :

Table 1: This table illustrates that between 2016/17 and 2019/2020 significant progress has been made towards reducing Swansea Council carbon emissions. The static projected carbon emissions for the following 10 years (2020/21 onwards) shows that no additional renewable projects are currently being planned to be implemented (beyond the renewable energy opportunities under section 6.7.2).

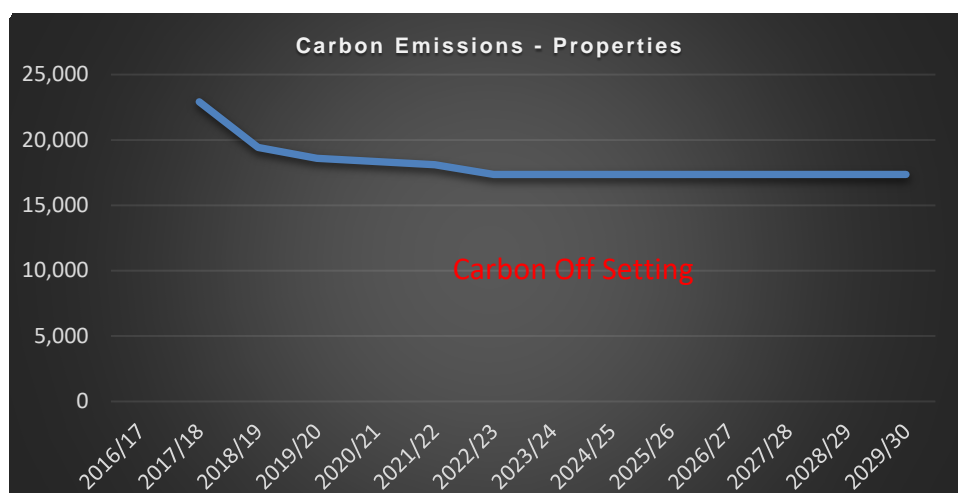
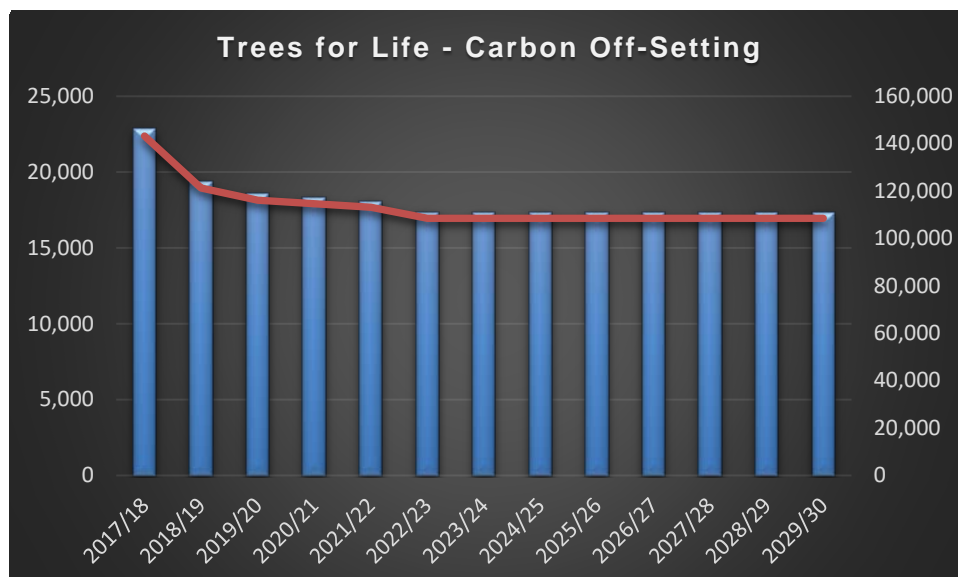


Table 1 – Swansea Council Owned Properties

9.2 Carbon Off Setting

Whilst Swansea Council is committed to significantly further reduce its carbon emissions, it recognises that however carbon efficient its Services become it will inevitably still have a residual carbon footprint. This residual carbon footprint can be reduced by implementing the energy hierarchy principles; generation of renewable energy and through carbon offsetting working with the new Biodiversity and Green Infrastructure team. An example of this strategy is the Swansea Central Phase One scheme working alongside the Swansea Trees group and The Woodland Trust to deliver significantly more trees than currently at the site and a much greater biodiversity mix once the scheme is complete.

Trees for Life calculates that six trees offsets a t/CO₂. As a guide, the table below illustrates the number of trees required to Carbon offset the Councils carbon emissions:



9.3 Carbon Budget Projection

Although Swansea Council has been reducing its carbon emissions over a number of years, Welsh Government ambition for a net carbon neutral public sector by 2030 will require a significant financial investment in renewable energy technologies and/or carbon off setting if we are to fully achieve becoming a net zero carbon emissions Authority.

The following budget projection comes with a caveat caution as each renewable project will require an individual financial assessment of current CAPEX costs and potential revenues (supported with a business case) when considering any new investment; for example decarbonisation of the heat network compared with Solar PV will have higher CAPEX costs and payback periods to be delivered

On the assumption that Swansea Council intended to install Solar PV towards reducing its carbon emissions within GHG Scope 1 (Authority owned properties), analysis of the financial appraisals for three current Solar PV projects has been undertaken calculating the average £-t/CO₂ for each project as illustrated in the table below:

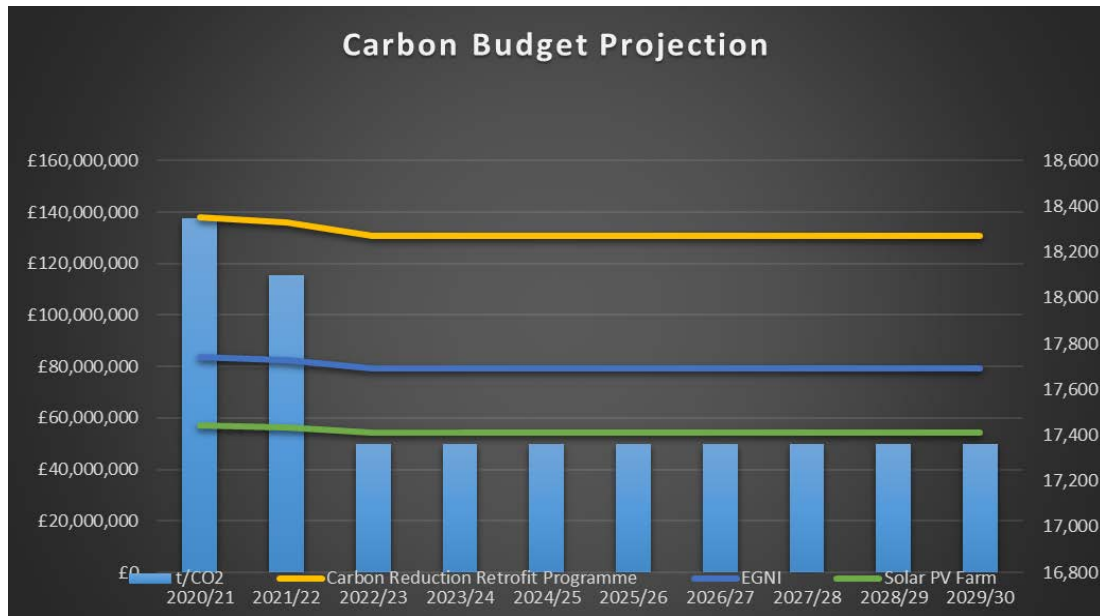
1. Carbon Reduction Retrofit Programme –The Service Provider are installing Solar PV systems across five sites ranging between 100.17kWp and 14.85kWp

DRAFT ONLY

2. EGNU Community Scheme – Installing Solar PV systems across 15 schools ranging between 185kWp and 30kWp.
3. A 3MW Solar PV farm

Project	kWh Savings	t/CO ₂ Savings	CAPEX	£-t/CO ₂
Carbon Reduction Retrofit Programme	161,202	37	£280,157	£7,522
EGNI	893,250	206	£941,048	£4,560
Solar PV Farm	3,189,600	737	£2,300,000	£3,121

The illustration below shows the potential Carbon Budget Projection of capital investment required for each project towards Swansea Council becoming net carbon emissions Authority



10 Funding Opportunities

Saving energy reduces carbon emissions; energy costs and releases funds for further investment opportunities in energy efficiency measures or for other purposes. Energy efficiency should be taken seriously if we are to meet legislative drivers, carbon targets and reducing the effect caused by the sensitivity in energy prices. All submitted energy projects seeking funding approval will be supported with a business case and financial appraisal.

10.1 Internal Funding

- Internal Funding - Projects funded by borrowing from Public Works Loan Board (PWLB) or 'top slicing' existing core budget Service Area allocations with the support of Head of Services. Any schemes which use PWLB funding will need to demonstrate commercial viability and a capital repayment period in line with CCS' MRP of up to 40 years.
- Capital Maintenance Budget – Energy maintenance budget allocation has been 'ring-fenced' to invest in energy saving initiatives, replacement of mechanical and electrical equipment selected as a result of nearing the end of their life expectancy; statutory compliance and business continuity concerns. This will ensure energy efficient equipment is being installed using with less energy and reducing our carbon emissions which will in turn assist in maintaining a sustainable asset portfolio in line with the overarching asset management plan.

The Energy Technology List (ETL), is a government list of energy efficient technologies, plant and machinery. The Energy Technology List, managed on behalf of Department for Business, Energy & Industrial Strategy (BEIS) by the Carbon Trust and their ETL team. Current Listed products - you can view the energy performance of ETL listed products in each technology category and find details of the manufacturers and suppliers who have listed the products. <https://www.gov.uk/guidance/energy-technology-list>

10.2 External Funding

- The Wales Funding Programme and the Welsh Energy Loan Fund

Salix Finance Ltd, a not-for-profit organisation funded by the Department for Energy and Climate Change, the Department for Education, the Welsh Government, the Scottish Government and Higher Education Funding Council for England, removes this barrier by making this capital accessible to the public sector. Upfront capital is a common barrier for public sector organisations seeking solutions that cut their energy consumption. Salix enables public sector organisations across England, Scotland, Wales and Northern Ireland to take a lead in tackling climate change by increasing their energy efficiency. Salix provides 100% interest-free capital for the public sector to reduce their energy costs by enabling the installation of modern, energy efficient <https://www.salixfinance.co.uk/>

11 Income Generation

There are Government incentive schemes to support the investment in renewable energy technologies which include:

11.1 Power Purchase Agreement

A power purchase agreement (PPA) is a contractual agreement between energy buyers and sellers. They come together and agree to buy and sell an amount of energy which is or will be generated by a renewable asset (for example, Solar PV farm). PPAs are usually signed for a long-term period between 10-20 years.

11.2 Smart Export Guarantee

Smart Export Guarantee (used to be known as 'feed-in tariff' (FIT) are payments from your energy supplier if you generate your own electricity, for example with solar panels or a wind turbine.

Installing new Small Scale Low Carbon Generation may apply for the Smart Export Guarantee (SEG) instead. This new scheme has been developed following a Government consultation which took in to account the views of members of the public, energy suppliers, NGOs and other key stakeholders. It will be available to technologies up to a capacity of 5MW, including:

- solar photovoltaic
- hydro
- micro-combined heat and power (with an electrical capacity of 50kW or less)
- onshore wind
- anaerobic digestion

Further details are available from the following web portal: <https://www.simpleenergyadvice.org.uk/pages/smart-export-guarantee>

DRAFT ONLY

11.3 Renewable Heat Incentive (RHI)

The Renewable Heat Incentive has two schemes - Domestic and Non-Domestic. They have separate tariffs, joining conditions, rules and application processes. OFGEM administer both. You can only apply to one the schemes:

11.3.1 Renewable Heat Incentives (RHI) – Non Domestic

The non-domestic Renewable Heat Incentive (RHI) helps businesses, public sector and non-profit organisations meet the cost of installing renewable heat technologies.

Types of heating you can claim for:

- biomass
- heat pumps (ground source, water source and air source)
- deep geothermal
- solar thermal collectors
- biomethane and biogas
- combined heat and power (CHP) systems

Payments are made over 20 years and are based on the heat output of your system. The money is paid through the Non-domestic Renewable Heat Incentive (RHI) scheme. You can apply if your equipment was installed in England, Scotland or Wales on or after 15 July 2009.

Further details are available from the following web portal:

<https://www.gov.uk/non-domestic-renewable-heat-incentive>

11.3.2 Renewable Heat Incentives (RHI) – Domestic

The Domestic Renewable Heat Incentive (Domestic RHI) is a government financial incentive to promote the use of renewable heat. Switching to heating systems that use eligible energy sources can help the UK reduce its carbon emissions and meet its renewable energy targets. You can claim quarterly payments for seven years for the amount of clean, green renewable heat it's estimated their system produces. The money is paid through the Domestic RHI scheme

You can claim for:

- biomass boilers
- solar water heating
- certain heat pumps

Further details are available from the following web portal:

<https://www.gov.uk/domestic-renewable-heat-incentive>

12 Support and Partnerships

The list below are key organisations that Swansea Council have approached for guidance and advice; there are other organisations that can provide similar support.

Western Power Distribution

Western Power Distribution (WPD) have released their The Energy Data Hub to enable easy access to all of the existing data that they currently share with the industry, regulator and the customer:

DRAFT ONLY

- System and Network Data: Information and data related to our networks assets and system operation
- Costs and Charging: Data relating to connection and use of system charges
- Low Carbon Technologies: The amount of low carbon technologies connecting to WPD network is growing. This section contains more information on how we are enabling this
- Strategic Information: Find out what WPD are doing to build a smarter system and are investing to meet the future needs of our customers.
www.westernpower.co.uk/our-network/energy-data-hub

Energy Technology List

The Energy Technology List (ETL) - Government list of energy efficient technologies plant and machinery. In order for a product to be listed, it must meet the ETL's robust energy saving criteria - typically set at the top 25% of products in the market. The ETL features products such as boilers, electric motors, air conditioning and refrigeration equipment. The list functions as an easy-to-use procurement tool for energy managers, procurement professionals, facilities managers and a wide variety of other professions and organisations. The ETL gives the added reassurance to purchasers of measured and verified energy performance. The ETL is managed on behalf of Department for Business, Energy & Industrial Strategy (BEIS) by the Carbon Trust and ETL team.

<https://www.gov.uk/guidance/energy-technology-list>

Association for Public Service Excellence (APSE)

APSE (Association for Public Service Excellence) is a not for profit local government body working with over 300 councils throughout the UK. Promoting excellence in public services, APSE is the foremost specialist in local authority front line services, hosting a network for front line service providers in areas such as energy, waste and refuse collection, parks and environmental services, leisure, school meals, cleaning, housing and building maintenance.

APSEInfoServices@apse.org.uk

Welsh Government Energy Service Framework

Brings together the support services Welsh Government provided as Green Growth Wales and the Local Energy Service. The service provides a single point of contact for public sector organisations to provide the technical, commercial and project management support needed to deliver energy and resource efficiency and renewable energy projects. The Wales Funding Programme and the Welsh Energy Loan Fund together provide loans, including low or interest-free loans, to support installations

Charlotte.Norton@energyservice.wales

<http://www.government-online.net/welsh-government-energy-service-framework/>

Carbon Trust – Public Sector

The Public Sector Network is an innovative, sustainability-focused platform to support knowledge sharing and collaboration. The network delivers easily accessible information and engaging content across a range of topics, contributing to the wider green agenda and supporting the public sector in the reduction of its carbon footprint.

<https://www.carbontrust.com/what-we-do/strategy-and-advice/public-sector-sustainability>

Welsh Government National Procurement Service

The National Procurement Service promotes Welsh public sector procurement collaboration to deliver a good deal for Wales. They offer a number of collaborative procurement frameworks for a range of goods and services. Under the Utilities category framework; support is available from your energy supplier

Electricity: EDF Energy -

Nick.Mullett@edfenergy.com

DRAFT ONLY

Gas: Corona Energy - debbie.ridgway@coronaenergy.co.uk
Water: Welsh Water - Amy.Steed@dwrcymru.com

SIGMA Monitoring and Targeting

SIGMA Monitoring and Targeting software system provides the tools to analyse consumption data and manage Monitoring and Targeting (M&T) activities at scale

Kim Gower

Customer Success Trainer

01908 690018 Ext 209

07462 137992

kgower@teamenergy.com

Zero Carbon Places

Zero Carbon Places is a network of local authorities with the principal aim of working together to achieve their carbon targets, free to join.

<https://www.zerocarbonplaces.org/>

Consortium of Local Authorities in Wales (CLAW)

CLAW is the Consortium of Local Authorities in Wales that supports the professional and technical interests of property management in local government in Wales. CLAW was formed in 1962 and now works with representatives from the elected members and officials of all Welsh local authorities together with a number of associate member organisations for the promotion of excellence in the management of property assets.

Bethan.LloydDavies@ceredigion.gov.uk

Welsh Government NEST Scheme

Energy Saving Trust delivers the marketing, customer engagement and telephone advice service for the Welsh Government's Nest scheme which aims to combat fuel poverty in Wales.

The Nest scheme offers a range of advice and support on energy efficiency, money management, energy tariffs and benefit entitlement checks to households across Wales. The scheme also offers householders in receipt of a means tested benefit and living in the most energy inefficient homes a range of improvement measures to help heat their homes more efficiently and save them money on their energy bills.

<https://nest.gov.wales/en/>

Local Partnership Support

Low Carbon Swansea Bay & Swansea Environmental Forum

Low Carbon Swansea Bay (originally Low Carbon Swansea) was set up in 2011 by Swansea Environmental Forum to help reduce Swansea's carbon footprint. It's overarching purpose is to develop a co-ordinated, integrated and sustainable approach to reducing carbon emissions across all sectors in Swansea and south-west Wales. It's more specific aims are:

- To develop and champion a coordinated approach to carbon reduction.
- To ensure that reductions are measurable and meet or exceed national targets.
- To maximise opportunities for carbon reduction projects in the region to access resources and share good practice

Low Carbon Swansea lcs@environmentcentre.org.uk

Swansea Bay City Deal

DRAFT ONLY

The Swansea Bay City Deal is a £1.3bn investment in 11 major projects across the Swansea Bay City Region – which is made up of Carmarthenshire, Neath Port Talbot, Pembrokeshire and Swansea together with the Abertawe Bro Morgannwg and Hywel Dda University Health Boards, Swansea University, the University of Wales Trinity Saint David, and private sector partners. The City Deal is being funded, subject to the approval of project business cases, by the UK Government, the Welsh Government, the public sector and the private sector.

Georgia Mostyn
Development Manager
Georgia.Mostyn@energyservice.wales

13 Appendix A - Notice of Motion – Climate Emergency

The Meeting of the Council of the City and County of Swansea held on Thursday 27th June 2019 unanimously approved that the Notice of Motion – Climate Emergency be supported:

...This Council therefore declares climate emergency, and calls upon the government of the United Kingdom to do the same. We commit to:

- Call upon the UK and Welsh governments to provide us with the necessary powers and resources to ensure Swansea becomes carbon neutral by 2030.
- Publicise climate emergency and promote a greater awareness of the truth of climate change amongst the local population.
- Work with relevant experts in research and development to:
 - a. Review our current strategies and action plans for addressing climate change.
 - b. Identify any further policy changes or actions which we could undertake, within the scope of our powers and resources, to meet the challenge of climate emergency.
 - c. Seek the help of local partners such as Swansea University and other research bodies to, within one year, produce a report to share with the community, explaining work already underway and achievements already made, as well as targets for the future.
- Update on further work undertaken by the Council in this area on an annual basis through the Council Annual Review of Performance Report section on corporate objective - *Maintaining and enhancing Swansea's natural resources and biodiversity.*

The full text can be found on the Council's website.

<https://democracy.swansea.gov.uk/documents/g8473/Public%20reports%20pack%20Thursday%2027-Jun-2019%2017.00%20Council.pdf?T=10&LLL=0>

Appendix B
Energy and Carbon Management Strategy

14 Appendix B – Scope 1: Carbon Emissions 2019/20

Financial Year - 2019 / 2020	Gas	Electricity	Total	Percentage
Services / Units	t/CO ₂	t/CO ₂	t/CO ₂	%
Burials & Cremation Division	147	63	210	1%
Car Parks & Park and Ride	0	204	204	1%
City Centre Management (Swansea Market; Big Screen; feeder pillars)	0	81	81	0%
Community Buildings	215	92	306	2%
Comprehensive Schools	2950	1602	4552	24%
Corporate Building & Property – Estate (Workshops / Depots)	0	15	15	0%
Corporate Building & Property - Facilities Management (Civic Centre, Guildhall)	981	1145	2126	11%
Culture & Tourism (Grand Theatre)	211	150	361	2%
Economic Regen & Planning (Bishop Woods Visitors Centre)	0	3	3	0%
Education Otherwise than at School (Mynyddbach Site; Brondeg House)	156	67	223	1%
Highways & Transportation (Environment Eng & Transport Depot; CTU / Pipehouse Wharf Depot; Quadrant Bus Interchange)	244	248	492	3%
Housing (District Housing Offices; Sheltered Housing)	2662	534	3195	17%
Indoor Leisure (Pentrehafod Sports Centre)	250	8	259	1%
Libraries	59	75	134	1%
Life Long Learning (Bryn House Community Learning Centre)	2	3	6	0%
Municipal Waste Sites	0	150	150	1%
Museum Services (Swansea Museum; Glynn Vivian Art Gallery)	159	185	344	2%
Nursery Schools (Sea View Flying Start)	0	3	3	0%
Other (Phoenix Centre; temp supply at Parc y Helig)	0	9	9	0%
Out of School Activities (Borfa House Activity Centre; Rhossili Outdoor Pursuit Centre)	0	14	14	0%
Outdoor Leisure (Blackpill Lido; Park Cwmdonkin; Park Pontlliw Pavilion; Parc y Werin; Park Coedbach; Bowls Pavilion)	4	56	59	0%
Parks	295	165	460	2%
Pollution Control (Equipment and Air Monitoring)	0	20	20	0%
Poverty and Prevention (Action Resource Centre; Topic House; Communities First-East Cluster)	27	6	32	0%
Primary Schools	2257	1445	3702	20%
Pumping Station (Swansea Vale; George Bros Yard; Wychtree Roundabout)	0	6	6	0%
Social Services (HFA and Day / Residential Centres)	932	394	1325	7%
Special Schools (Ysgol Penybryn; Ysgol Crug Glas)	181	51	232	1%
Swansea Marina	0	121	121	1%
Waste Management (Public Convenience)	0	33	33	0%
Youth Services (Youth Centre Gorseinon; Youth Centre Stadwen; Youth Centre Blaenymaes; Dynevor Information Centre)	30	53	83	0%
TOTAL	11,760	6,997	18,757	100%