Cyngor Castell-nedd Port Talbot
Neath Port Talbot Council

Decarbonisation and Renewable Energy Strategy

(May 2020)

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Foreword

I am pleased to introduce the Council's Decarbonisation and Renewable Energy Strategy (*DARE Strategy*), which has been subject to a public consultation exercise.

Climate change is the single biggest problem facing society today and the scale of the challenge ahead for us all is unprecedented. We must all take urgent action now if the worst case scenarios of climate change are to be avoided. Tackling the issue head on requires collective action by every individual, community, business and public service.

Neath Port Talbot Council takes its own role in this very seriously and welcomes the announcement made by the Welsh Government in declaring a climate emergency across Wales. This declaration has highlighted the magnitude and significance of the latest evidence and issues a call for rapid and decisive action.

The DARE Strategy sets out how the Council will lead by example and reduce its own carbon footprint when carrying out its operations and functions. It also sets a proactive agenda for the Council in its role as community leader, landowner, employer, regulatory body and service provider so that we can work in partnership with other public and private sector organisations as well as joining forces with local residents to deliver the step change required.

Much progress has already been made, but there remains a lot to do if we are to meet the kind of expectations required. As a Council, we remain determined to embrace the task ahead and help influence those areas of local life where we can make the most impact when it comes to decarbonisation and climate change.

Councillor Annette Wingrave

Cabinet Member for Regeneration and Sustainable Development

Foreword

1 Introduction

1.1 Background

1.1.1   Limiting future climate change is regarded internationally as the single most serious issue faced by society. Reducing carbon emissions is considered critical to addressing the issue and in the UK, and Wales in particular, there is already much activity aimed at reducing fossil fuel usage.

1.1.2   Reducing carbon emissions, alongside increasing carbon sequestration (i.e. the long term storage of carbon in 'sinks' such as plants and soils), is considered critical to addressing the issue. In the UK, and Wales in particular, there is already much activity aimed at reducing fossil fuel usage and there is increasing awareness and activity in the use of natural resources to draw down, and store carbon in plants, soils and wetlands.

1.1.3   Renewable Energy and the 'decarbonisation' agenda is now an integral and constantly growing part of the national and local energy mix. The decarbonisation agenda at the same time presents both opportunities and enormous challenges.

1.1.4   The *'energy trilemma'* summarises the business needs and describes three core dimensions of energy sustainability – energy security, energy equity, and environmental sustainability.

Figure 1.1 The 'Energy Trilemma'

Trilemma Element	Need / Deliverable
Security	Energy Self-Sufficiency
Sustainability	Enhanced energy / carbon performance with reduced dependency on finite energy sources
Equity	Release of disposable income / revenue expenditure, alleviation of fuel poverty

1.1.5   These three goals constitute a 'trilemma', entailing complex interwoven links between public and private sectors, governments and regulators, economic and social factors, national resources, environmental concerns and individual behaviours.

1.1.6   Delivering policies which simultaneously address energy security, universal access to affordable energy services and environmentally sensitive production and use of energy is a formidable challenge facing government and industry.

1.1.7   The 'Energy Trilemma' provides a clear framework within which to deliver the 'Decarbonisation and Renewable Energy Strategy' which will enable energy transformation and making sustainable / flexible energy systems a reality.

1.2 What is 'Decarbonisation' and 'Renewable Energy'?

1.2.1   A *'decarbonised economy'* or *'low-carbon economy'* is an economy that has a minimal output of greenhouse gas emissions into the environment, but specifically refers to the greenhouse gas Carbon Dioxide (CO_2)[1].

1.2.2   As a result of increasing concerns regarding the production of greenhouse gases and the implications for climate change together with the availability of energy resources, the production of energy from renewable resources and the need to make efficient use of energy has become increasingly important.

1.2.3   *'Renewable Energy'* sources are those which are continuously and sustainably available in our environment (e.g. the sun, wind and the fall/movement of water). Renewable and low carbon energy developments can include schemes such as Wind Farms (on and off-shore), Energy from Waste (EfW), Combined Heat and Power (CHP), Biomass, Hydro-Power and Solar technologies.

1.2.4   The role of our natural resources is equally important in addressing climate change. Carbon sequestration is the long term storage of carbon in 'sinks' such as plants, soils and the oceans, effectively removing this carbon from the atmosphere. Tree planting is increasingly gaining interest as a method to achieve this, however vegetation in general stores carbon, and peatland restoration, wetland and woodland management has just as vital a role to play in this respect. Preventing further damage and restoring healthy ecosystem functions must therefore be a key element of any strategy to address climate change.

1.3 Why have a Council Strategy / Action Plan?

1.3.1   The Council has a range of legal duties placed upon it. These include economic development, protecting and enhancing the natural environment, proper stewardship of public monies and obtaining value for money. The Council is also a community leader, as well as being a landowner, an employer, a regulatory body and service provider. It is therefore essential that the Council leads by example.

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1   Whilst the Council recognises that carbon reduction is a primary goal in the challenge to reduce greenhouse gases, the Strategy also seeks to address other greenhouse gases.

1.3.2 Neath Port Talbot County Borough Council is therefore committed to doing its fair share to reduce carbon emissions to help achieve national targets. This strategy is an integral part of the Council's overall sustainability drive and will contribute to the Council's carbon footprint reduction aspirations.

1.4 Structure and Content

1.4.1 This strategy document is structured into the following five parts:

- **Part 1: Introduction** – sets the context of this strategy.
- **Part 2: Regulatory Framework & Key Drivers** – provides a summary of the legal requirements and identifies the key drivers in the national, regional and local context.
- **Part 3: Neath Port Talbot Issues & Influences** – provides a brief summary of the issues, influences and challenges faced across the County Borough.
- **Part 4: Strategy Development** – outlines the overarching vision and objectives of the strategy, what the Council has already achieved and what the Council proposes to do and achieve moving forward.
- **Part 5: Implementation and Monitoring** – identifies an action plan detailing how the Council will set out to achieve the aspirations and monitor / evaluate the outcomes.

2 Regulatory Framework and Key Drivers

2.0.1 There are a range of key drivers that collectively provide the backdrop against which a reduction in CO_2 emissions has to be set. The drivers are summarised below.

2.1 International / UK

2.1.1 UK commitments to renewable and low carbon energy follows European Union directives, including the ***EU Renewable Energy Directive (2009)***, which included objectives to reduce CO_2 emissions by 20% from 1990 levels, boost renewable fuel use by 20% and reduce predicted energy consumption by 20%, by 2020.

2.1.2 To meet these objectives, the UK has set a legally binding target of 15% of energy from renewable sources by 2020 ***[UK Renewable Energy Strategy (2009)]***. Modelling, undertaken on behalf of the Department for Energy and Climate Change (DECC), suggests that by 2020 this could mean more than 30% of electricity, 12% of heat and 10% of transport energy being generated from renewable energy sources.

2.1.3 The ***UK Climate Change Act (2008)*** sets goals of a 34% reduction in greenhouse gas emissions by 2020 and a reduction of at least 80% in greenhouse house gas emissions by 2050. Five yearly carbon budgets have been introduced to help ensure that the targets are met and the ***UK Low Carbon Transition Plan: National Strategy for Climate and Energy (2009)*** outlines how the 34% target will be met. It also states that by 2020, 40% of electricity will be from low-carbon sources, nuclear, clean coal and renewable energy generation. The ***UK Renewable Energy Road Map (2011)***, published jointly by the four UK administrations in July 2011, outlined a plan of action to accelerate renewable energy deployment while driving down costs.

2.1.4 The **Committee on Climate Change** (CCC) has recently released a report entitled 'Land Use: Policies for a Net Zero UK (2020)'. This report presents the committee's first ever in-depth advice on UK land use policies. The report maps out the changes in land use practices required in order to deliver the UK Government's Net Zero greenhouse gas emissions target by 2050. A key finding of the report is that policies be implemented to deliver restoration of at least 50% of upland peat and to increase UK forestry cover from 13% to at least 17% by 2050. Additionally, the report highlights the need to reduce food waste and consumption of the most carbon-intensive foods, such as beef, lamb and dairy.

2.1.5 The UK Government provides financial support for renewable energy generation through the ***Renewables Obligation***. In Wales, the 'Renewables Obligation' places an obligation on electricity suppliers to generate a certain portion of electricity from renewable sources and is regulated by the 'Office for Gas and Electricity Markets' (Ofgem). Eligible renewable technologies include wind energy; hydropower; tidal and tidal stream energy; wave energy; photovoltaics; geothermal; all biomass material; landfill gas; sewage gas; and co-firing of biomass with fossil fuel.

2.1.6 Six ***National Policy Statements (NPSs)*** for Energy Infrastructure were issued by the Department of Energy and Climate Change in 2011. Major energy project proposals (i.e. greater than 50MW) are dealt with at UK government level by the National Infrastructure

Directorate (part of the Planning Inspectorate) and the NPSs set out national policy against which such proposals are to be assessed. Within Wales, Developments of National Significance (including energy generation proposals greater than 10MW but less than 50MW) are determined by Welsh Ministers. The exception to this is on-shore windfarms of all capacities above 10MW which are determined by Welsh Ministers.

2.2 National Context

2.2.1   Applying these UK wide principles, the *Climate Change Strategy for Wales (2010)* outlines the importance of renewable energy generation in meeting the energy demand in Wales and sets out a vision for the country up to 2050.

2.2.2   The Strategy which includes the targets of achieving 3% emission reduction per year and at least 40% emissions reduction by 2020 compared to 1990, intends to ensure that:

- Climate change is considered in all decision-making;
- Increased energy efficiency is delivered through making low carbon transport a reality;
- The skills are developed to ensure that Wales can make the most of opportunities from a low carbon economy;
- Opportunities are taken to cut emissions and adapt to climate change where natural resources, land management pattern, and economic position allow;
- The approach to Research & Development (R&D), technology, innovation and skills helps Wales gain maximum benefits from climate change related business and research; and
- Land use and spatial planning promote sustainable development and enable a move towards a low carbon economy which takes account of future climate impacts.

2.2.3   In March 2010, the Welsh Government published *'A Low Carbon Revolution – The Welsh Assembly Government Energy Policy Statement'* which set out the potential for 22.5GW of installed capacity from renewable sources by 2020/2025, 2GW of which would be from onshore wind. The policy statement set out how this installed capacity should be achieved with individual 'aspirations' for different renewable energy technologies in Wales.

2.2.4   *Energy Wales: A Low Carbon Transition (2012)* subsequently set out the Welsh Government's ambitions and intentions with regard to the move towards low carbon energy. The measures outlined included: improving the planning and consenting regime; putting in place a 21st Century energy infrastructure; coordinating and prioritising delivery through an energy programme; ensuring Wales benefits economically from energy developments; ensuring Wales' communities benefit from energy developments; focusing on energy projects of greatest potential benefit; unlocking the energy in our seas; and leading the way to smart living. This document was supported in 2014 by *Energy Wales: A Low Carbon Transition Delivery Plan* setting out progress so far, priorities for action and delivery targets for high level milestones.

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2.2.5 As part of the ***Well-being of Future Generations (Wales) Act 2015***, public bodies need to take account of the issues around health, resource consumption, the environment etc. on our future generations as well as the impacts of climate change when developing their well-being objectives. Addressing these issues along with the climate change impacts and decarbonisation are crucial to achieving the objectives of the Act.

2.2.6 ***The Environment (Wales) Act 2016*** puts in place the legislation needed to plan and manage the natural resources of Wales in a more proactive, sustainable and joined up way, with the intention of building greater resilience into our ecosystems. The Act also provides a stronger legislative framework for biodiversity, introducing an enhanced biodiversity and resilience of ecosystems duty for public bodies. Delivery against this agenda will support efforts to address, and mitigate for, climate change, particularly in terms of better land management practices.

2.2.7 Progress on the decarbonisation agenda is also essential if the target to deliver 80% carbon reductions by 2050 is to be met and in delivering on obligations set out in the ***Air Quality Standards (Wales) Regulations 2010.***

2.2.8 These regulations bring into law in Wales the limits set out in EU Directives on air quality and require Welsh Ministers to divide Wales into air quality zones. Since the introduction of the Environment Act 1995 and the National Air Quality Strategy (NAQS), all Councils have a duty to review and assess the local air quality and, if necessary, take steps to improve air quality at any location where national standards are not met.

2.2.9 In 2016, the National Assembly for Wales 'Environment and Sustainability Committee' published ***A Smarter Energy Future for Wales***. This document identified a total of 19 action points which Wales must implement in order to deliver a transformation in the national approach to energy.

2.2.10 As part of the their 'Decarbonisation Programme', the Welsh Government published a consultation document in July 2018 entitled ***Achieving our Low-Carbon Pathway to 2030***. The consultation sought views on what actions should be taken to reduce emissions by 2030 and the results of the consultation has informed the first low carbon delivery plan for Wales entitled ***Prosperity for All: A Low Carbon Wales.***

2.3 Regional Strategies

2.3.1 As part of the Institute of Welsh Affairs ***'Re-Energising Wales Project'***, 'Regen' has conducted an analysis of the future energy demands and potential sources of energy generation to create a low carbon energy system vision for the Swansea Bay City Region (SBCR) in the time period to 2035.

2.3.2 The project has developed an overall vision and defined a set of objectives including:

- Step change in energy efficiency;
- Renewable energy generation;
- Decarbonisation of heat;
- A transport revolution;

- Local energy generation and ownership; and
- Flexibility and smart energy.

2.3.3 The *'Swansea Bay City Deal - Internet Coast'* is a Government initiative to empower cities and regions to drive forward economic growth. The 'Swansea Bay City Deal' was signed in March 2017 and is an agreement between the UK and Welsh Governments and four local authorities across the Swansea Bay City Region. The City Deal will, through successful private and public collaboration, address the economic under-performance of the region, specifically by uplifting productivity, skills, employment and prosperity.

2.3.4 In terms of the challenge, the Swansea Bay City Region's GVA has fallen from 90% of the UK average to 77% over the last three decades and is dominated by low productivity, high economic inactivity and poor health. There is a reliance on traditional primary industries and the public sector. Without intervention, the region risks falling further behind the rest of the UK. The region's manufacturing industry is under severe threat from international competition.

2.3.5 By 2035, the region will address some of the most pressing global challenges of our time: well-being, energy and the digital revolution by:

- Investing and growing indigenous industries and businesses to make them resilient, sustainable and competitive;
- Diversifying the economy to establish and advance 'next generation industries';
- Creating an economy that works for everyone in the region;
- Driving economic innovation and growth in rural and urban communities through a hyper-connected region;
- Creating high value jobs through start-ups and attract inward investment; and
- Align and deliver the strategic aspirations of both UK and Welsh Government.

2.3.6 It is proposed that the City Deal investment programme will transform the regional economy, establish and maintain an effective and aligned skills base, create, prove and commercialise new technologies and ideas, and be a recognised regional centre of excellence in the application of digital technologies, life science and well-being, energy and advanced manufacturing.

2.3.7 Neath Port Talbot CBC is the local authority lead on the following three City Deal projects:

1. Homes as Power Stations;
2. Swansea Bay Technology Centre; and
3. Centre of Excellence for Next Generation Services (CENGS) - located within the Swansea Bay Technology Centre.

2.3.8   The Swansea Bay City Deal Internet Coast is focused on four themes, of which energy is one. The 'Internet of Energy' theme proposes to *'...offer the region to the 'Energy Industry' as a test bed for the demonstration, integration and commercialisation of 'Future Energy Systems'* and *'...provide access to the test bed for renewable energy providers to pilot solutions to combat climate change'.*

2.3.9   The ***Swansea Bay City Region Economic Regeneration Strategy (2013-2030)*** is an evidence based strategy comprising five strategic aims to deliver the ambitious vision: *'By 2030, South West Wales will be a confident, ambitious and connected City Region, recognised internationally for its emerging knowledge and innovation economy'.* The five strategic aims of this strategy are:

- Business growth, retention and specialisation – supporting the creation of new industry in the region, supporting locally-based business growth and creating a sustainable supply chain;
- Skilled and ambitious for long-term success – working closely with the Skills and Talent City Deal programme to ensure the region's workforce has the appropriate skills to maximise the opportunity of HAPS;
- Maximising job creation for all – supporting diversification of the economy, through the creation of employment opportunities linked to the green growth economy and a sustainable indigenous supply chain.
- Knowledge economy and innovation – establishing the Swansea Bay City Region as a test bed for smart, low carbon, energy efficient homes and associated product development and commercialisation of innovation; and
- Distinctive places and competitive infrastructure – providing an attractive infrastructure asset for the region.

2.4 Local Strategies and Policies

2.4.1   The ***Neath Port Talbot Public Services Board (PSB) Local Well-Being Plan (2018-2023)*** highlights six well-being objectives for the Neath Port Talbot PSB. Developing a 'Decarbonisation and Renewable Energy Strategy' would contribute to delivering upon a number of these objectives including resilient communities, health and well-being and environmental action areas. By working together collaboratively across partner organisations, the actions will help bring about longer term improvements in the well-being for our residents.

2.4.2   The ***Neath Port Talbot Corporate Plan (2019-2022) 'ShapingNPT'*** sets out the Council's well-being objectives, improvement priorities, the steps that will be taken to achieve them and how they will be measured. A number of the proposed City Deal projects referenced focus on low carbon technologies and create the capability to exploit the potential of digital technologies.

2.4.3   Local planning policy is set out in the ***Neath Port Talbot Local Development Plan (2011-2026)***. Policy SP18 is a strategic policy which sets out the overall strategy for renewable and low carbon energy, while detailed policies RE1 and RE2 deal respectively with proposals for renewable / low carbon energy development and the incorporation of

renewable / low carbon energy within other types of development. The *Renewable and Low Carbon Supplementary Planning Guidance (July 2017)* provides additional advice on the way in which the policies will be applied.

2.4.4 The *Neath Port Talbot Local Air Quality Strategy: 'Air Wise – Clean Air for Everyone' (2013)*, sets out the Council's strategic policy for achieving cleaner air in partnership with the whole community. It links with the Council's aims and values and in particular with those relating to 'Sustainable Communities and Environment' and 'Prosperity for All', which includes improving air quality and regenerating the area's physical and industrial environment.

2.4.5 The *Neath Port Talbot Digital Strategy (2018-2022) 'Smart & Connected'* sets out the Council's approach to achieving the ambition of the improvement to everyday life in Neath Port Talbot by being smart and connected. Providing services online will assist the Council in reducing its carbon footprint, compared with the more traditional ways of providing services. Moving forward, the Council will seek to exploit technology to protect the environment.

2.4.6 The **Neath Port Talbot Biodiversity Duty Plan (2017)** outlines the Council's approach to meeting the biodiversity and ecosystem resilience duty set out by the Environment (Wales) Act, 2016. Given the importance of more sustainable management of our natural resources in tackling climate change, delivery of this Plan will contribute towards decarbonisation efforts, whilst also improving ecosystem resilience and addressing the decline of biodiversity.
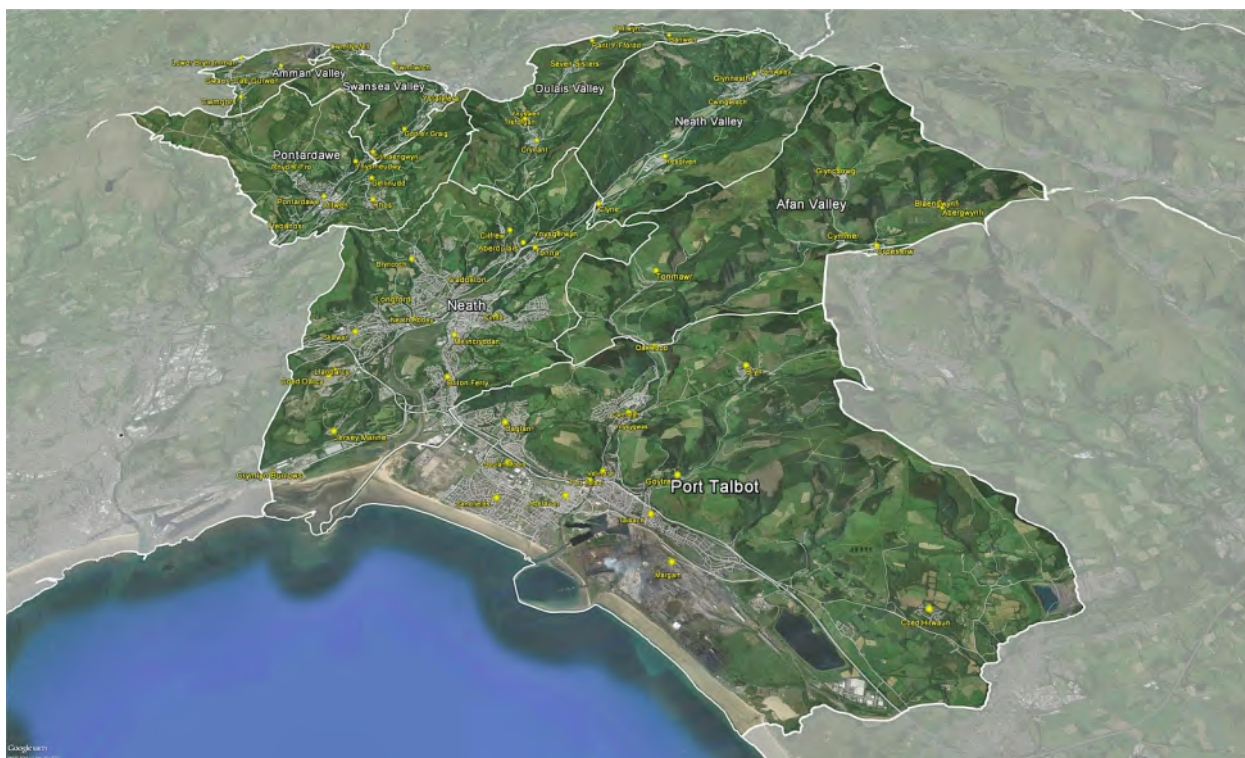
3 Neath Port Talbot - Issues and Influences

3.1 Local Characteristics

3.1.1   Covering an area of over 44,217 hectares, the physical characteristics of the County Borough can be broadly divided into two areas, namely the coastal corridor and valleys.

3.1.2   The coastal corridor encompasses a relatively narrow area extending around Swansea Bay where the main centres of population, employment and the M4 corridor are located. The valleys are characterised by the landscape setting of river valleys separated by upland plateaus and mountains. These physical characteristics are illustrated below.

Figure 3.1 Topography and Main Settlements of Neath Port Talbot

3.1.3   Neath Port Talbot is important as an employment base nationally and within the City Region, with some long established heavy industries (e.g. Tata Steel) located along the narrow coastal strip. As a result, there are high levels of energy use and energy generation locally and as a consequence, there are high levels of emissions and poor levels of air quality (refer below) within the County Borough.

3.1.4   Transport is also a major contributor to greenhouse gas emissions and air quality with the M4, A465(T) and local traffic all contributing. In addition, the County Borough contains some 62,000 households and a wider variety of industrial, business and extractive activities. Both new development and the performance of existing buildings and activities are increasingly under scrutiny in respect of their climate change impacts.

3 . Neath Port Talbot - Issues and Influences

3.1.5   Furthermore, there are significant amounts of carbon stored / locked up within the administrative area, for example in soils (especially peat), trees, woodlands and forests, which has the potential to be released as a result of land use changes or development, which needs to be taken into account and protected wherever possible. In addition, the area also presents opportunities for increased carbon sequestration through restoration of degraded peatland.

3.1.6   Whilst Neath Port Talbot has a higher than average percentage of tree coverage, there is a disparity between the rural and urban areas, with the urban coverage estimated at an average of 16.6%[2], with some areas as low as 8.2%. Given that space and opportunity for tree planting may be limited in some urban areas, green infrastructure enhancements, which may include tree planting, would provide additional benefits for local communities.

3.2 Air Quality and Health

3.2.1   Good air quality is a basic requirement and is fundamental to good health. The Council is required to assess certain air pollutants which relate to UK air quality objectives. Where objectives are not met, Air Quality Management Areas (AQMAs) must be declared and Air Quality Action Plans produced in order to restore compliance.

3.2.2   The Council's Air Quality Strategy: 'Airwise - Clean Air for Everyone' sets out the strategy for achieving clean air across the County Borough. The strategy identifies four main areas of air quality concern including air quality (PM_{10}) in Port Talbot; traffic related air quality; nickel from industrial processes; and nuisance dust from sites across the County Borough.

3.2.3   Air quality is affected by a number of factors including the weather, topography, emission sources from both inside and outside the local area, and is particularly related to the steelworks, construction industries and transport.

3.2.4   Exceedances in PM_{10} in the Margam / Taibach area led to the declaration of an AQMA in 2000. Air quality in Port Talbot has shown great improvements in recent years but further improvement is sought. Traffic related air quality is weather dependant, very local and constantly measured across the County Borough. Monitoring has indicated the Victoria Gardens area of Neath requires action and steps to improve this area is ongoing.

3.2.5   Industrial nickel has long been a concern, particularly in the Swansea Valley. Great strides have been made in improving levels but more improvements are being actioned as new potential sources are identified. Nuisance dust is not a physical health risk but does cause people concern so affects their behaviour and enjoyment of life. Using the number of complaints as a measure, levels have improved but the Council still strives to improve even further.

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2   Town Tree Cover in Neath Port Talbot County Borough (NRW – 2016).

3.3 Fuel Poverty / Affordable Warmth

3.3.1   A household is considered fuel poor if more than 10% of household income is spent on energy and if more than 20% of household income goes on energy bills the household is deemed to be in extreme fuel poverty. The Council has implemented a number of previous, current and proposed improvement programmes to address and alleviate fuel poverty, including:

- Warm Wales (2006-2008) – a Council wide energy efficiency scheme;
- Renewal Areas (2004-2017);
- Regeneration - Port Talbot Vibrant & Viable Places Programme (2014-2017);
- Homes as power stations; and
- Affordable Warmth Solutions / Warm Homes Scheme (2019-2020).

4 Strategy Development

4.1 Vision and Objectives

4.1.1   With an understanding of the opportunities and challenges that exist, rather than replace existing strategies and policies, this document seeks to build upon, inform and complement the Council's wider strategies and policies.

4.1.2   This section sets out the overall vision and identifies the objectives that will seek to deliver the vision.

> **Vision**
>
> To introduce a series of interventions and improvement measures across the County Borough to maximise the economic, social and environmental benefits and opportunities that the decarbonisation agenda provides.

4.1.3   The vision will be delivered through the following series of objectives:

> **Objectives**
>
> - To take a coordinated approach across the Council to introduce a variety of measures to reduce the Council's own carbon emissions whilst carrying out its business.
> - To reduce energy consumption or where reduction is not possible, to use fuel sources that are less harmful to the environment.
> - To address any barriers to the development of renewable energy across the County Borough and to promote the sustainable and appropriate use of renewable resources.
> - To maximise opportunities for carbon sequestration and minimise carbon release through the appropriate management of our natural resources.
> - To work with all our partners and local businesses on joint actions, to share good practice, maximise assets and encourage the adoption of a similar approach.
> - To raise awareness so that our employees and the public can understand the options for and benefits of the choices that can be made.
> - To maximise the benefits of Welsh Government funding opportunities.

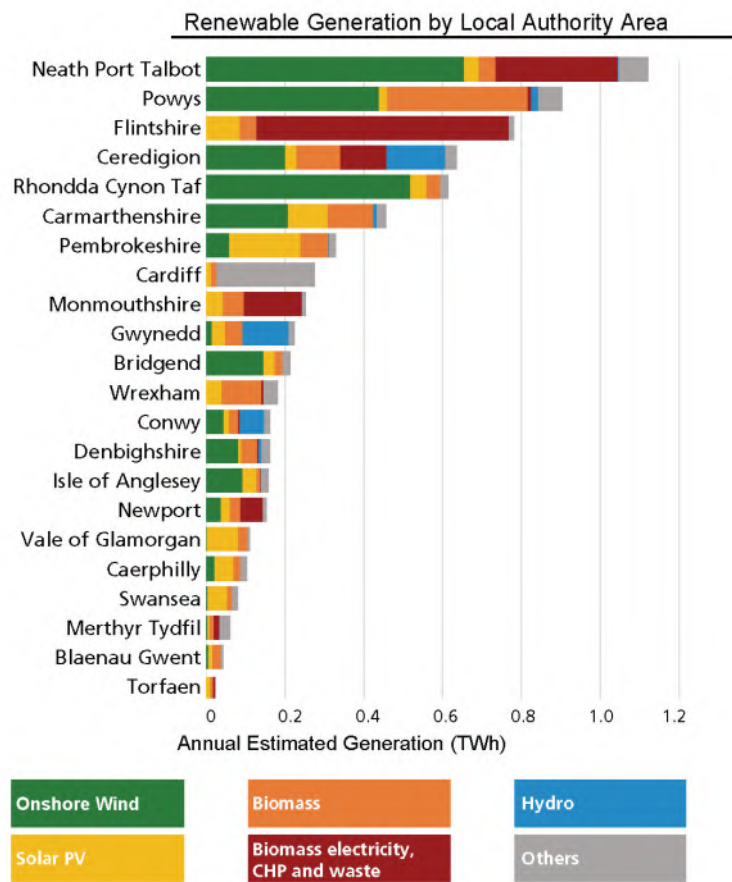### 4.2 Current Progress and Future Opportunities

4.2.1 Overview

4.2.1.1   In October 2018, the Welsh Government published the 'Energy Generation in Wales 2017' report which sets out the latest national picture in respect of energy generation and how it has changed over time.

4.2.1.2   The report breaks down energy generation deployment by local authority area and to illustrate the range of different technologies and scales of deployment in Wales, the report includes case studies of some of the energy projects that were installed in 2017. The headlines from the report include:

- Renewable energy capacity growth across Wales was greatest in Neath Port Talbot in 2017;
- Neath Port Talbot has the highest total installed renewable energy capacity with 358MW and the greatest renewable energy generation with an estimated 1,122GWh;
- 77% of Neath Port Talbot's electricity consumption is met by renewables;
- A significant portion of the renewable energy growth in 2017 was as a consequence of the commissioning of the 40MWe wood-fired 'Margam Green Energy Plant' power station and the Awel Aman Tawe, Lynfi Afan and Mynydd Brombil onshore wind projects;
- Neath Port Talbot has the highest onshore wind capacity of all the local authorities in Wales, with 236MW from only 11 projects. Wind turbines in Neath Port Talbot can produce the equivalent energy annually for nearly half of the local authority area's total electricity consumption; and
- The Pen y Cymoedd development is currently the largest wind farm in England and Wales, generating 228MW from a total of 76 turbines.

Figure 4.1 Renewable Energy Generation by LA Area (2017)

4.2.1.3   The following sections provide a more detailed overview of what the Council is already pursuing and what has been achieved in respect of addressing concerns regarding air quality and the need to be more sustainable in terms of energy generation and use. Furthermore, the section also considers the potential future opportunities that exist.

4.2.1.4   The section is structured around the following three strategic themes:

- Transportation;
- Buildings and Spaces; and
- Influencing Behaviour.

4.2.2 Transportation

Upgrading of Council Fleet

4.2.2.1   The Council currently operates a fleet of approximately 376 vehicles including school minibuses and contract hired vehicles (this figure does not include plant equipment). Whilst the fleet only currently has 4 fully electric vehicles, the Council is actively looking to increase the fleet to include additional vans, pool cars and a bus as part of the 'Annual Renewals Programme'.

4.2.2.2   Technology in this area is progressing rapidly and the Council will continue to research and trial new technologies that come to the market. The Council will continue to assess the suitability of alternative fuelled vehicles within the fleet, work closely with departments to ensure these vehicles can be introduced at the right times, and continue to move with the latest standards for both vehicles and plant, in line with the Annual Renewals Programme. The Council will also continue to research and trial new technologies that come to the market and conform to warranty conditions from the manufacturers.

4.2.2.3   In respect of hydrogen operated vehicles, the Council has recently conducted a trial of a hydrogen bin lifting unit on a refuse freighter. Data was collected to determine the saving on miles/gallon (MPG) and CO_2. The trial concluded that the cost benefit of fitting electric bin lifting units was greater and as a result full electric bin lifters have now been introduced on all refuse freighters which reduces MPG, CO_2 emissions and noise pollution.

Electric Vehicle Charging Infrastructure

4.2.2.4   Electric Vehicles (EVs) are expected to play an important role helping the UK meet its targets for decarbonising transport and reducing air pollution. Moving forward it is predicted that the number of EVs on our roads will significantly increase and that this growth will lead to a surge in demand for publicly accessible charge points.

4.2.2.5   Local Authorities have a crucial role to play in helping to deliver these charge points, both in locations that already have an electricity supply as well as in strategic sites that require a new electricity connection.

4.2.2.6   The Council is therefore in the process of seeking external funding to work with a specialist partner to provide charging facilities at strategic locations across Neath Port Talbot. Initially, the Council will look to provide charging points in the key centres and buildings before considering further installations across the wider County Borough. Any scheme adopted however would need to be at no ongoing cost to the Authority.

4.2.2.7   In addition, the Council will be establishing an internal project team to formulate a medium to long term plan for EVs which will consider the following actions for development and implementation:

- Prepare and publish an EV Charging Infrastructure Strategy/Plan;
- Develop a business case for appointing an EV/Low Emission Vehicle officer;
- Work collaboratively with the Swansea Bay City Region and neighbouring authorities to ensure a consistent approach across administrative boundaries (refer below); and
- Identify support from key organisations including Welsh Government, academia and other funding bodies.

4.2.2.8   The Council is also currently seeking to commission a feasibility study into the identification of a strategic site to develop an 'Electric Vehicle Charging Park / Hydrogen Filling Station' complete with ancillary / complementary services. Such a development would be a showcase exemplar project for Wales as well as contributing to the reduction of harmful emissions and improvements in air quality.

4.2.2.9   One of the core projects emerging out of the Swansea Bay City Deal is the development of an 'EV Charging Infrastructure Route Map' for the region. The project has been developed in response to the need to decarbonise transport and address the new challenges posed by the increasing number of electric vehicles. The project consists of three phases:

- Phase 1 – to consult with leading academics and industry partners to produce an effective, impactful and future-proof electric vehicle charging strategy;
- Phase 2 – will focus on the physical implementation of smart charging stations and the grid infrastructure required to support modern charging technologies; and
- Phase 3 – to use information gathered from the implemented smart charging stations to build a detailed dataset of electric vehicle charging behaviours within the area. This will be used to fuel research into topics including vehicle-to-grid transfer for flexible energy systems, virtual power plants, and future economic / business models for electric vehicle charging stations.

4.2.2.10   This aim of this project is to inform the development and implementation of an EV charging network that meets the demands of residents, businesses and visitors in line with changes to national planning policy and will contribute towards solving Wales' lag in electric vehicle charging infrastructure and coverage compared to the rest of the UK. Predicted outputs include:

- An evidence based electric vehicle charging strategy;
- An Increase in the number of charging points in the region; and
- Monitoring of behaviour and data analytics to inform future EV charging infrastructure developments.

Integrated Transport Hub

4.2.2.11   A new Integrated Transport Hub has been constructed adjacent to the recently constructed Port Talbot Parkway Station. The Integrated Transport Hub brings together various modes of transport including rail, bus, car, taxi, walking and cycling.

4.2.2.12   Bringing together the various modes of transport will encourage a change in commuting habits from car to public transport, thereby reducing the number of vehicles on the road and reducing harmful emissions. Moving forward, the Council will continue to look at the feasibility of creating Integrated Transport Hubs at other key destinations.

Picture 4.1 Integrated Transport Hub, Port Talbot

Picture 4.2 Integrated Transport Hub, Port Talbot

Taxi Licensing

4.2.2.13   The Council has adopted a 'Taxi Licensing Policy' which sets out vehicle specifications and conditions which must be met before consideration will be given to the licensing of a vehicle. Whilst the Council does not currently promote or require vehicles to be low emission, it would be possible to introduce such a requirement via the taxi policy in the future.

4.2.2.14   Discussions with taxi operators with regards to electric vehicles shows that there is certainly an appetite amongst the licensed trade to consider a switch to this type of vehicle; the economic and environmental benefits being obvious. The main obstacle at the moment however, is the lack of charging infrastructure. It is therefore acknowledged that on-street charging points particularly at taxi ranks or taxi holding areas would have to be installed before electric taxis could realistically be considered by the Council.

4.2.2.15   A dedicated officer has now been appointed by the WLGA to work directly with Welsh Government to drive forward improvements and consistent standards in taxi licensing. A task and finish group bringing together individuals that possess relevant knowledge and experience of the taxi industry has been created to undertake detailed work around safety, environment, accessibility and customer experience. The task and finish group will be working to deliver the Welsh Government's aim of a zero emission taxi/private hire vehicle fleet by 2028.

4.2.2.16   Whilst the Council is keen to explore any proposals to promote and encourage the take up of low emission taxis, the Council will await how Welsh Government develop their proposals before any decision is made in respect of the Council's Taxi Licensing Policy.

Mainline Rail / M4 Corridor

4.2.2.17   Whilst rail electrification works are ongoing between London and Cardiff, the Council considers it disappointing that electrification between Cardiff and Swansea was cancelled by UK Government in July 2017. Instead, services between Cardiff and Swansea will be provided by bi-mode trains running in diesel mode. The UK Government argued that on this route, electric trains would have offered little saving in journey times over bi-mode trains. Electrification would however, have brought other clear advantages, including fewer emissions.

4.2.2.18   The Welsh Government has also commissioned a study into the M4 Port Talbot J41 to J42 - i.e. the consideration of measures along the M4 and trunk road network for nitrogen dioxide reduction. Whilst at present, the existing 50mph speed limit zone has been extended from J41 to J42, the Welsh Government has not ruled out further measures including the closure of slip roads.

Production of BioFuels

4.2.2.19   The Council is currently working with a company called 'Lanzatech' who have undertaken extensive research into the re-use of waste gases from industrial processes to enable its conversion into a biofuel for use within the aviation industry. This is an exciting project and sits within the objectives of the Well-being of Future Generations Act who are promoting both carbon capture and the maximum use of renewable energy. This project also responds to the UK Department of Transport Future Fuels Flight and Freight Competition (F4C).

4.2.2.20   The delivery of the project is reliant upon the input of a variety of different partners within government agencies, industry and transport providers. The company is currently in the process of developing a plan to deliver a pilot manufacturing project within

Port Talbot which will utilise waste gases from the TATA plant which will in turn be converted to a sustainable form of energy. It is anticipated that once fully operational, the plant will generate 30 million gallons of biofuels for the aviation industry each year.

4.2.2.21   The company is currently securing both private and public investment in addition to satisfying various regulatory bodies including the regulations administered by the Council's planning service. To this end the Council is providing support in the form of pre-application advice to ensure that the most appropriate site is developed and the sustainable outcomes are maximised as efficiently and as effectively as possible.

4.2.3 Buildings and Spaces

Operational Building Portfolio - Energy/Carbon Management

4.2.3.1   The Council continues to drive forward effective resource management to reduce the consumption of energy, water and carbon emissions in all of its operational building portfolio. This has been achieved through the following core approaches:

- Implementation of energy improvement programmes;
- Building rationalisation programme, consolidation and reduction of operational buildings and overall floor space by improving space utilisation and building efficiency;
- Making the existing building stock as energy efficient as possible, installing renewable and low carbon technologies where practicable and viable; and
- Ensuring that 'energy efficient, environmental and sustainable design' is a key consideration in all new build and refurbishment projects.

4.2.3.2   The Council's Energy Team has adopted the core structure and elements of the approved ISO 50,001 Energy Management System (recognised industry standard system) to assess and achieve effective levels of energy management. The four main energy / carbon management delivery areas include the following:

- Management systems / practices;
- Energy, carbon and renewable improvement programmes;
- Operational assessment and reviews and good housekeeping; and
- Organisational change and innovation practices.

4.2.3.3   Moving forward, the Energy Team will be engaging with the 'Welsh Energy Service' to establish and conduct feasibility studies to determine how the Council can take further steps to achieve a decarbonised operational building portfolio.

Securing 'BREEAM Excellent' on Funded Projects

4.2.3.4   When the Council is in receipt of larger grant funding packages for new buildings from Welsh Government there are grant requirements attached which require the new building to achieve a BREEAM excellent rating. BREEAM is an environmental accreditation which covers elements such as green travel, energy performance, insulation, carbon reduction and green energy.

4.2.3.5   When a BREEAM rating is required, the Council will investigate a variety of energy efficient installation for each building and select and install the most appropriate solution from options such as Combined Heat and Power installations, Lower NO_x emitting boilers, Photo Voltaics, Air Source Heat Pumps, Transpired Solar Collectors, increased insulation to walls, floors and roof areas, installation of cycle shelters and showers to encourage active travel to work, rainwater harvesting, and more efficient lighting and heating controls.

21st Century Strategic Schools Improvement Programme

4.2.3.6   The 21st Century Schools Programme is a long term strategic investment in the educational estate across Wales. It is a unique collaboration between Welsh Government, the Welsh Local Government association (WLGA), local authorities, colleges and dioceses.

4.2.3.7   Given that the School projects are part funded by Welsh Government, all of the buildings have to achieve BREEAM Excellent rating. As part of this delivery requirement, the Council has installed Photo Voltaics on every school and will continue with this strategy moving forward.

4.2.3.8   The current phase of the Council's improvement programme includes:

- *Ysgol Gyfun Ystalyfera* - £3.5m is being invested in a two-storey teaching block to accommodate up to 200 pupils aged 3-11.
- *Ysgol Gymraeg Bro Dur* - £19.3m investment will provide Welsh medium secondary education in the south of the County Borough.
- *Ysgol Cwm Brombil* - a new £30m all-through school for pupils aged 3 to 16 which will replace Dyffryn School and Groes Primary School.
- *Ysgol Carreg Hir* - a new £7m Primary School is being built in Briton Ferry.

Picture 4.3 Ysgol Bae Baglan, Sandfields

Promotion and Delivery of Energy Positive Buildings

4.2.3.9   The Council has embraced and adopted the innovative design concept of 'buildings as power stations' to achieve an energy positive design solution for both housing and non-domestic buildings. A building that is 'energy positive' is classified as one that generates more energy from onsite generation low carbon and renewable technologies than it consumes on an annual basis.

4.2.3.10   The Homes as Power Stations programme (refer below) and the energy positive Technology Centre will act as the pathfinder projects to prove the concept of energy positive buildings for homes and non-domestic buildings respectively.

Promotion and Delivery of 'Homes as Power Stations'

4.2.3.11   The Council has taken the lead on promoting and delivering Homes as Power Stations (Haps) as part of the wider City Region Deal. The Haps project aims to deliver smart, low carbon, energy-efficient homes through a coordinated approach across the City Region. The project will deliver a programme of new build developments, the retro-fitting of existing buildings and local supply chain development support.

4.2.3.12   The aim of the project is to help tackle fuel poverty, cut carbon emissions and meet the need for more housing. It will monitor the health and well-being aspects of warmer homes and the reduction in fuel poverty.

4.2.3.13   A pathfinder scheme to inform the Homes as Power Stations concept is already being developed in Neath.

Picture 4.4 Homes as Power Stations Development, Neath

Swansea Bay Technology Centre

4.2.3.14   As part of the Swansea Bay City Deal investment programme under the Internet of Economic Acceleration theme, the Council has programmed the construction of a 2,500m^2 building over three floors which will provide high quality and flexible office space to support start-up companies and indigenous business growth with a focus on the innovation and research and development (R&D) sectors.

4.2.3.15   The key aim of the project is to adopt the innovative design concept of 'buildings as power stations' and achieve an energy positive design solution. Additional consideration consists of integrating and connecting electrically to the Hydrogen Centre to export surplus electrical generation to produce hydrogen for utilisation within the public sector transport fleet. This will act as a pathfinder low emission transport demonstrator for the Council.

4.2.3.16   The core aim of the project is to design and construct a 'building as a power station' (i.e. an energy positive building), through a combination of energy efficiency, building integrated renewable energy generation and energy storage, resulting in excess of energy being produced which in addition offsets all energy use in the building and providing exported electricity to the Hydrogen Centre at a later stage.

Flexible Integrated Energy Systems Project (FLEXIS)

4.2.3.17   The Council is playing a central role in a multi-million pound project to create next generation low carbon energy systems to build a cleaner, greener future.

4.2.3.18   Neath Port Talbot is the base for the only demonstration area in Wales for FLEXIS, the £24.5m research operation aimed at developing an energy research capability in Wales complementing the world class facilities in Welsh universities.

4 . Strategy Development

4.2.3.19 The NPT/FLEXIS Demonstration Area Programme will identify steps for progressing the Council towards achieving a smart/intelligent low carbon status. Core drivers of the programme consist of the following:

- Energy and CO_2 reduction;
- Alleviate Fuel Poverty within the County Borough – Citizen Approach;
- Localised smart low carbon solutions – security of supply;
- Creation of a smart energy centre of excellence;
- Smart energy inward investment and job creation; and
- Assist the Council comply and become exemplar demonstrators for the Well-being of Future Generations Act and Environment Act.

Figure 4.2 FLEXIS Demonstration Area

4.2.3.20 As well as contributing to the 2050 decarbonisation plan targets, other potential benefits are wide ranging and include promoting new industries; tackling fuel poverty as well as helping key industries, including steel; and reduce energy costs. It is also entirely consistent with other projects the Council is pursuing under the proposed City Deal.

4.2.3.21 The NPT/FLEXIS vision is the *'Creation of a national centre of excellence delivering low carbon technology, smart programmes and applications that will be embraced in innovative ways to provide multiple benefits which meet the needs of businesses and residents of Neath Port Talbot'*. The objectives include:

- The delivery of the smart energy system demonstration zone;
- To define scope of NPT/FLEXIS programme;
- The creation and development of smart/low carbon traction/pathfinder projects;
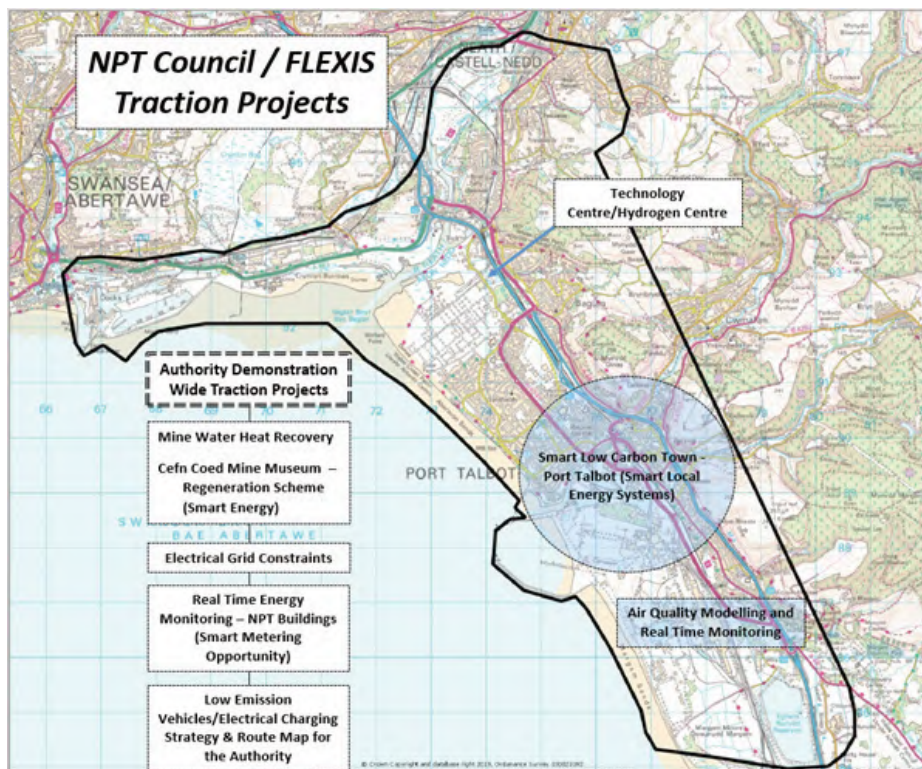- The creation of a smart energy business hub which will stimulate the creation of high technology jobs;

- The development of a commercialisation strategy for smart low carbon energy systems; and
- The potential creation of a national centre of excellence.

4.2.3.22   The following NPT/FLEXIS traction projects will be undertaken over a 1 to 2 year period. These projects will create the required momentum to progress the programme. Fundamentally the traction projects will be the testing and development test bed for longer term projects and programmes:

- Smart Low Carbon Town - Port Talbot (Smart Local Energy Systems);
- Technology Centre/Hydrogen Centre – Vehicle & Technology;
- Air Quality Modelling and Real Time Monitoring;
- Electrical Grid Constraints;
- Real Time Energy Monitoring – NPT Buildings (Smart Metering Opportunity);
- Mine Water Heat Recovery;
- Cefn Coed Mine Museum – Regeneration Scheme (Smart Energy); and
- Low Emission Vehicles/Electrical Charging Strategy for the Authority.

4.2.3.23   The NPT/FLEXIS programme will develop a collaborative smart low carbon educational programme, with the key aim to create a network of energy/low carbon activity and engagement between schools, NPT College and the Universities within the FLEXIS Partnership.

Figure 4.3 NPT/FLEXIS Traction Projects

Smart Low Carbon Town - Port Talbot (Smart Local Energy Systems)

4.2.3.24   The main keystone FLEXIS project centres around the delivery of a Smart Low Carbon Town (Port Talbot). The project will define a plan and route map, identifying the steps and programmes needed to be taken by the Council to implement a number of smart local energy systems enabling Port Talbot to become a Smart Low Carbon Town.

4.2.3.25   The delivery areas of the Smart Low Carbon Town will be centred on the following key themes adopting a platform & key node/programme approach:

- *Data/Digitalisation* - real time sensors and monitoring; data analytics; smart/intelligent technology applications.
- *Decarbonisation* - energy efficiency; renewable and low carbon technologies; smart local energy systems; security of supply; street lighting.
- *Health and Well-Being* - fuel poverty; air quality; health assessment and analysis.
- *Commercialisation / Awareness* - business/inward investment; citizens/dwellings engagement; programme of learning, training and awareness; smart energy business hub to stimulate the creation of high technology jobs; commercialisation strategy for smart low carbon energy systems; potential creation of a national centre of excellence.

Feasibility of Energy from Mine Water (Cefn Coed Museum Site)

4.2.3.26   The visitor attraction will have the potential to become a demonstrator for energy self-sufficiency using alternative renewable and low carbon energy sources inclusive of heat recovery from the historic mine workings. The key consideration of the scheme is that it will seek to maximise the application of energy and renewable technologies throughout the operation of the site.

4.2.3.27   The core aims of the visitor attraction for energy positive and sustainable practices include:

- Energy self-sufficiency and best practice demonstrator;
- Low carbon (CO_2) and cost operation;
- Localised smart low carbon solutions – security of supply;
- Creation of a smart energy centre of excellence;
- Smart energy inward investment and job creation; and
- Assist the Council comply and become an exemplar demonstrator for delivery of the Well-Being of Future Generations Act and Environment Act.

4.2.3.28   The above aims will be delivered through the following activities:

Energy Positive Visitor Centre and Residential Buildings

4.2.3.29   The visitor centre and residential buildings present an opportunity to embrace the innovative design concept of 'buildings as power stations' and achieve an energy positive design solution.

Renewable, Low Carbon and Smart Technologies

4.2.3.30   Site wide feasibility assessment will be carried out to determine the most practicable and viable renewable, low carbon and smart technologies inclusive of Solar PV (building and ground mounted), wind and biomass technologies.

Mine Water Heat Recovery Feasibility

4.2.3.31   In conjunction with the renewable technology assessment there is a significant opportunity for the utilisation of heat resource from disused mine water at Cefn Coed. The diagram below illustrates the concept of capturing low grade heat from the mine working which is pumped to the surface with heat transfer taking place at ground level via heat exchangers with heat pumps delivering heat to the buildings contained within the visitor attraction campus.

4.2.3.32   Preliminary discussions have taken place with Cardiff School of Engineering to undertake a feasibility study on the practicality and viability of the mine water heat recovery at Cefn Coed based on their level of expertise and experience in this area.

4.2.3.33   Mine water heat recovery at Cefn Coed will build upon the existing pilot scheme located in close vicinity at neighbouring Crynant.

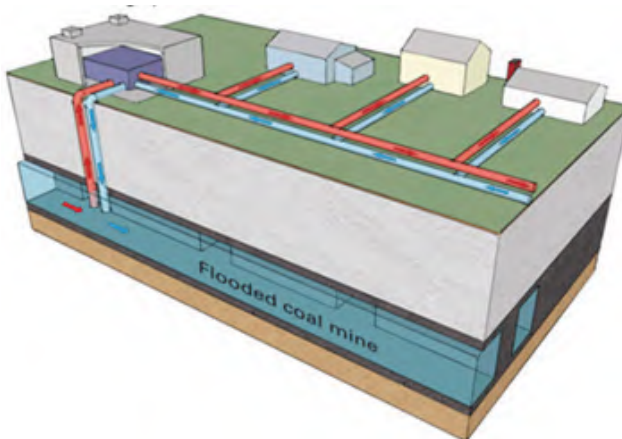**Figure 4.4 Mine Water Heat Recovery Feasibility**   **Figure 4.5 Crynant: Site Location**

Industrial Heritage and Future Energy Systems

4.2.3.34   The visitor attraction will build on the industrial heritage of the Cefn Coed Colliery Museum increasing awareness and demand for smart/low carbon technology, increasing interest in the City Region through direct engagement with citizens, communities, businesses and visitors in Neath Port Talbot.
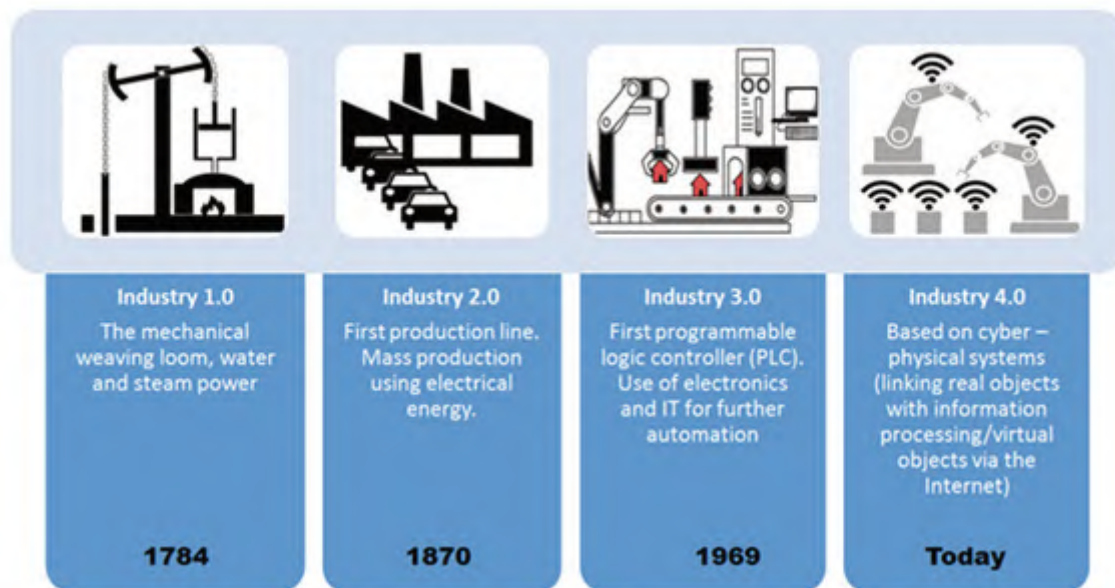
4.2.3.35   The scheme will help to link the industrial past to current day and future technologies from the first period of the industrial revolution through to the current period which consists of the progression of the internet of things, renewable and low carbon energy systems. The Cefn Coed Colliery Museum visitor attraction will add value and

improve understanding of smart/low carbon technology and will support the transformation of Neath Port Talbot into an area widely known and appreciated for smart/low carbon innovation and experience.

4.2.3.36   The Museum will have the potential to create a zero carbon visitor/activity centre and become a gateway venue to the upper Neath Port Talbot valleys and the southern Brecon Beacons.

Figure 4.6 Industrial Heritage & Future Energy Systems

Industry 1.0	Industry 2.0	Industry 3.0	Industry 4.0
The mechanical weaving loom, water and steam power	First production line. Mass production using electrical energy.	First programmable logic controller (PLC). Use of electronics and IT for further automation	Based on cyber – physical systems (linking real objects with information processing/virtual objects via the Internet)
1784	1870	1969	Today

Data / Digitalisation

4.2.3.37   The Council is currently undertaking a number of initiatives to identify the opportunities through the effective use of data and the integration of digital applications within its delivery of services. Core development work areas will consist of data analytics, smart/intelligent technology applications, and real time sensors and monitoring.

Street Lighting

4.2.3.38   The Council has the ambition to deliver a further phase of street lighting upgrade works across the estate. Historically, the Council has invested significantly in street lighting column and luminaire upgrades across their estate, with £22m invested across a 7 year programme which upgrades 70% of our estate. This application seeks to further tackle the remaining high power demand SOX and SON lighting.

4.2.3.39   The Welsh Government currently has a funding scheme (Salix) which includes provision for Councils to borrow money to convert existing lighting to a more energy efficient LED lighting. Criteria must be met with regards to a reduction in carbon dioxide emissions and energy savings. The proposed contract to be funded by the Salix monies will concentrate on the replacement of nearly 2000 higher energy street lamps with lower energy LED lighting.

Waste Management

4.2.3.40   As part of the Council's drive to minimise and manage waste in a sustainable way, the Council collects approximately 5,000 tonnes of food waste per annum as part of the kerbside collection recycling service from residents and trade waste customers. The waste collected is 'bulked' at the facility located in Crymlyn Burrows before being sent to Anaerobic Digestion (AD) facilities.

4.2.3.41   AD is a biological process in which food waste is broken down by micro-organisms in the absence of light and oxygen. The process produces methane (CH_4) which is used to generate electricity. The food waste is turned into two valuable resources:

- Green electricity that can be used to power homes and businesses; and
- Nutrient rich bio-fertilisers that help enrich agricultural soils and reducing the use of petro-chemical fertilisers.

Renewable and Low Carbon Energy Development

4.2.3.42   The Council has endeavoured to embrace renewable and low carbon technologies where practicable and viable and has carried out a number of holistic County Borough wide and site specific feasibility studies which have progressed to actual project delivery. In particular, the Council has carried out feasibility studies on the following:

- Authority wide solar PV farm study (currently looking at potential solar farm schemes at Giants Grave and former Crown Foods site);
- Authority wide building mounted solar PV;
- Site specific study at Giants Grave landfill site;
- Tidal Scheme – Brunel Dock; and
- High level County Borough wide hydroelectric assessment.

4.2.3.43   In terms of specific projects, the Council has installed in excess of 0.5MW of roof mounted Solar PV at a number of operational sites including Hillside Secure Unit, Awelymor Primary, Ysgol Bae Baglan, Gnoll Visitor Centre, Ysgol Ystalyfera, Ysgol Bro Dur and Ysgol Cwm Brombil.
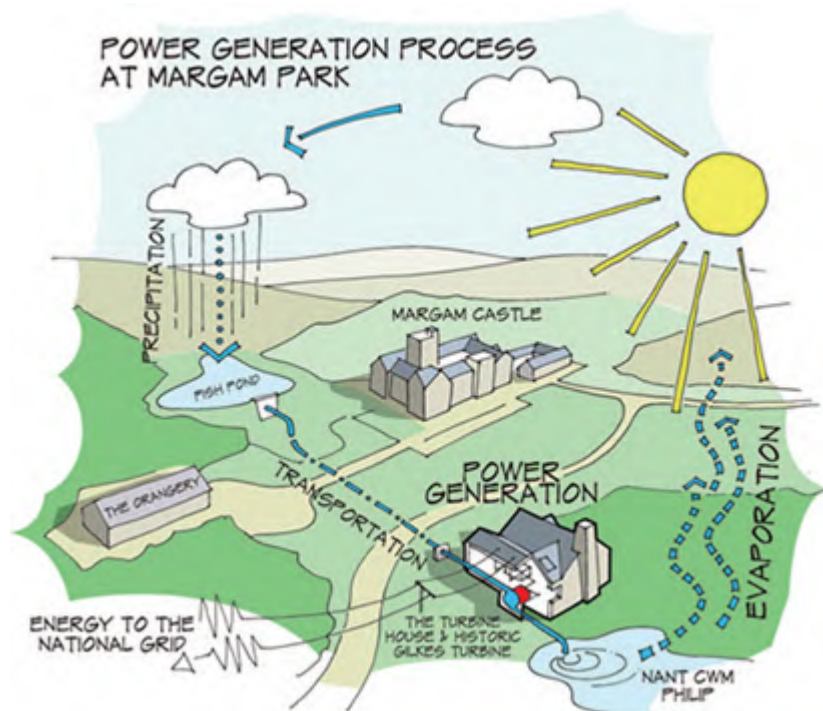
Picture 4.5 Photo Voltaic Canopy - Gnoll Visitor Centre, Neath

4.2.3.44 The Council is also currently refurbishing a 30kW hydroelectric installation at Margam Country Park.

Picture 4.6 Power Generation Process, Margam Park

Planning Policy / Development Management

4.2.3.45 The strategy and policies set out within the Council's adopted Local Development Plan (LDP), seeks to encourage high quality design standards in all development proposals and to deliver a proportionate contribution to meeting Wales' national renewable energy targets and energy efficiency targets.

4.2.3.46 In respect of design, all development proposals will be expected to contribute to the creation of attractive, sustainable places including the use of resources (i.e. land and energy) as efficiently as possible where building exposure is minimised and solar gain is maximised.

4.2.3.47 Refined Strategic Search Areas (SSAs) for large scale windfarm development (>25MW) are identified on the LDP Proposals Map, and within these areas, the Council will seek to maximise the acceptable installed capacity and would seek to restrict schemes that could constrain it.

4.2.3.48 Furthermore, in order to reduce the overall need to generate electricity, energy conservation and efficiency measures will be encouraged on all new development. Development proposals which incorporate schemes that generate renewable and low carbon energy will also be encouraged.

Picture 4.7 Photo Voltaic Installation - Swansea University Bay Campus

4.2.3.49 The Council's Development Management team continue to work with developers / applicants to incorporate such measures in their proposals. Where appropriate, development applications will need to be accompanied by an 'Energy Assessment' which should investigate the potential to incorporate on-site zero and low carbon equipment and

establish connections to existing sources of renewable energy. Opportunities for linking with district heating networks and where appropriate sharing renewable energy with the wider community will also need to be explored.

4.2.3.50   Planning Obligations (or S106 Agreements) are legal agreements made between the Local Planning Authority and developer and can be used to support the implementation of renewable and low carbon energy schemes.

Active Travel and Rights of Way Networks

4.2.3.51   The Council is continuing to prioritise improvements to the Active Travel network across the County Borough and Public Rights of Way (PRoW) network within the semi-urban environment, in order to maximise opportunities to make purposeful journeys and access the countryside without requiring the use of cars.

4.2.3.52   Active Travel is defined as walking and cycling for everyday short-distance journeys, such as journeys to school, work or for access to shops and services. The Council is required to prepare, publish and keep under review the following two maps:

- **Existing Route Map (ERM)** - primarily intended to inform the public of the existing routes in the County Borough that the Council considers suitable for active travel and which meet standards set out by Welsh Government; and
- **Integrated Network Map (INM)** - setting out the Council's longer term aspirations, identifying either improvements that could be made to existing routes or where new routes could be developed and added to the active travel network.

4.2.3.53   Following confirmation of Ministerial approval of the maps in February 2018, implementation of the INM is now underway. Pre-work activities including land ownership and/or adopted highways checks, biodiversity surveys and design work are currently being undertaken on a total of 18 routes across the County Borough and moving forward the Council will look to work with partner organisations and developers in order to deliver upon the aspirations set out in the INM and improve the active travel network wherever possible.

4.2.3.54   The PROW network includes routes that enter the urban environment, and those that provide a direct opportunity for communities to access the countryside on foot. Improvement works that provide a benefit to a greater number of users, and service local communities, are, and will continue to be prioritised wherever practical to do so. More remote routes have the potential to be accessed through public transport, and initiatives such as BayTrans, promote walking and cycling routes that can be assessed in this way.

Green Infrastructure, Ecosystem Resilience and Biodiversity

4.2.3.55   The Council's Countryside and Wildlife Team are leading on a number of initiatives and projects to protect and enhance the natural environment and ecosystem resilience, support biodiversity recovery and improve green infrastructure.

4.2.3.56   The Council is currently pursuing the creation and sustainable management of Green Infrastructure (GI) and wider ecosystems to sequester carbon, address pollution and flood alleviation and provide wider benefits such as health and well-being.

4.2.3.57   Through the Welsh Government Green Infrastructure Capital Grant, a GIS based mapping system has been developed to identify areas with high demand for GI, and those areas which provide opportunity for creation or improvement of GI. The maps can be used to take a strategic approach to GI enhancement ensuring that measures are taken in the appropriate locations.

4.2.3.58   As part of a pilot to demonstrate use of the maps, improvement works were carried out at Groeswen Playing Fields, including access improvements and planting of trees known to improve air quality. Further funding has been secured through the Welsh Government 'Enabling Natural Resources and Well-being Grant', enabling further refinement of the maps, strengthening of the partnerships needed to deliver GI, management of our local natural resources and delivery of further GI schemes. As part of this fund, a programme of tree planting in schools project is underway with fourteen schools set to benefit from increased tree coverage and hedgerow planting.

4.2.3.59   The Council has received funding to restore a historic peatland landscape in the uplands area between Neath Port Talbot and Rhondda Cynon Taf. 'The Lost Peatlands Project' seeks to restore more than 540 hectares of historic landscape and habitat, including peat bogs and pools, heathland, grassland and native woodland; and as blanket bog is rare across the world, the project will have a major international impact.

4.2.3.60   In addition to the benefits for carbon sequestration and biodiversity recovery, projects such as these are an excellent example of how biodiversity related projects can deliver multiple benefits for our communities. The re-wetting of the peat will reduce fire risk, whilst better management of our upland habitats will increase water retention capabilities, reducing run off and flooding. Furthermore, the community engagement element of the project will encourage greater use of the countryside, leading to health and well-being benefits.

4.2.3.61   A Coed Cymru Officer is in place to support landowners in the creation and sustainable management of woodland, supporting the submission of external grant bids where necessary and providing advice on existing woodlands. The Officer is part of the national Coed Cymru network, who are taking an active role in exploring more sustainable funding mechanisms for woodland creation, including exploring opportunities such as the Woodland Carbon Code.

Picture 4.8 Carbon Store Ecosystem - Aberpergwm Bog, Neath Valley

4.2.4 Influencing Behaviour

Local Authority Agile Working Scheme

4.2.4.1   The Council has supported 'agile working' within the workplace for over a decade. Moving forward, the continued improvements in mobile technology and the digital upskilling of the workforce will enable these policies to be implemented across the Council to allow for the more efficient use of buildings, and hence, a reduction in the total floorspace required.

4.2.4.2   The use of homeworking and 'Skype' for meetings will also result in a drop in the total mileage covered by Council staff in respect of both commuting and travelling between buildings. This will have a positive impact on the Council's overall carbon footprint.

Sustainable Procurement

4.2.4.3   In conducting business and delivering services, the Council often acquires or procures a range of goods, services or works from external sources. 'Sustainable Procurement' is where public bodies or organisations, meet their needs for goods, services and works in a way that not only achieves value for money, but also promotes positive outcomes not only for them but also for the economy, environment and society.

4.2.4.4   In this regard, the Council is committed to keeping its procedures and criteria under review to ensure that they remain fit for purpose and that alongside the conventional criteria of price and quality, there are appropriate mechanisms to assess the longer term impacts of each purchase and/or contract.

4.2.4.5 This will ensure that the Council's purchasing procedures reflect broader goals linked to resource efficiency, climate change, social responsibility and economic resilience. Furthermore, this approach has the potential to enable the Council to influence the behaviour of others and raise awareness of their need to consider their sustainable credentials and carbon footprints.

Partnership Working

4.2.4.6 The Council is committed to continue to work and cooperate with a range of partner organisations, including cross-boundary collaboration where appropriate, in taking forward and developing further the strategy / action plan. Partner organisations will include those from the public, private and community/voluntary sectors.

4.2.4.7 Existing partnership networks will be utilised wherever possible and the Council will also seek to establish a 'Climate Change Working Group' where approaches can be promoted, issues raised, information disseminated and best practice shared.

Awareness Raising Campaign

4.2.4.8 The Council will continue to actively engage with employees and the wider public in order to:

- Raise awareness of the role that individuals can take in the decarbonisation agenda, through the introduction of green infrastructure into gardens, taking action in the management of local sites and energy saving measures in the home;
- Promote lifestyle changes that reduce an individual's carbon footprint, such as waste reduction, sustainable purchasing, reduced consumption of food products with a high carbon footprint and reducing private vehicular use.
- Encourage a more physically active lifestyle of our residents, increasing walking and cycling wherever possible thereby reducing dependency on the private car;
- Encourage greater use of existing urban green infrastructure and promote links to countryside walks through use of public transport; and
- Raise awareness of the benefits of car sharing particularly for commuting journeys.

Community Involvement

4.2.4.9 There is considerable public interest in the current climate and action will be more effective by ensuring that the wider public is involved in any action to address climate change. This will also be an opportunity to take a collaborative approach to awareness raising campaigns.

4.2.4.10 In January 2020 the Council launched its Citizen's Panel. One of the purposes of this demographically representative group of residents, will be to actively involve the public in decision making, so residents can help shape proposals at a very early stage. It is anticipated therefore that the Panel will have a key role to play in the implementation and review of the DARE Strategy moving forward.

5 Implementation and Monitoring

5.1 Action Plan

5.1.1 The Council's Action Plan is presented in Appendix A. The Action Plan has been developed around the three strategic themes (Transportation; Buildings and Spaces; and Influencing Behaviour) and is structured to include the following:

- **Actions** – specified actions that are currently being, and will be implemented (i.e. what the Council is already doing and what the Council is proposing to implement going forward);
- **Lead** – identification of who will lead the action (e.g. individual / team / external partner);
- **Outcomes** – identification of the anticipated outcomes of each action; and
- **Timescale** – the timeline for implementing the identified action.

5.2 Partnership and Delivery Structure

5.2.1 Whilst the Council's Environment Directorate will have more direct involvement in seeking a reduction of carbon emissions, all directorates across the Council will be expected to drive the carbon reduction strategy forward. Furthermore, the Council will seek to deliver this action plan in partnership with local businesses, stakeholder organisations and the wider community.

5.3 Securing External Funding

5.3.1 Funding will be required to deliver the Action Plan. There are a number of potential sources (national and regional) that can be accessed to deliver the various actions.

5.3.2 Securing external funding will therefore be a key activity and the Council must consider all alternatives for funding sources to obtain solutions to the more difficult and expensive initiatives and to embrace renewable energy and low carbon technologies.

5.4 Monitoring and Evaluation

5.4.1 Implementation of the individual actions set out in the Action Plan will be continually monitored with particular regard given to an evaluation of whether the intended outcomes are being achieved.

5.4.2 Furthermore, priorities and projects may change during implementation of the Action Plan as new opportunities arise. Accordingly, this Strategy/Action Plan will continue to be reviewed periodically to ensure it remains fit for purpose and responsive to changes in circumstances.

5 . Implementation and Monitoring

Appendix A: Decarbonisation and Renewable Energy Action Plan

Table A.0.1 Decarbonisation and Renewable Energy Action Plan

1. TRANSPORTATION				
Ref:	**Action**	**Lead**	**Outcomes**	**Timescale**
1.1	*Council Fleet* - conduct an assessment of the viability of replacing existing vehicles with alternative fuelled vehicles in line with the Annual Renewals Programme	MR / DWG	Increase the Increase the number of alternative fuelled vehicles within the Council's fleet. Increase the EV infrastructure at The Quays and other Council locations to allow for expansion of the ULEV fleet.	Annual
1.2	*Council Fleet / Plant* - conduct an assessment of the suitability of new technologies that come onto the market to determine their viability for use as part of the Council's fleet of vehicles and plant	MR / DWG	Review of Emerging Technologies and identify any potential low emission alternatives that could replace conventional large and small plant	Annual
1.3	*Electric Vehicle (EV) Charging Infrastructure* - identify and seek external funding opportunities to enable the installation of infrastructure initially at strategic locations and then across the wider County Borough	DWG / CM / SB	EV Infrastructure installed at strategic locations and across the wider County Borough	2019-2025
1.4	*EV/Hydrogen Hub* - conduct a feasibility study into the potential locations of a publicly accessible EV/Hydrogen Hub	SB / MR / DWG	EV/Hydrogen Feasibility Study	2019-2021
1.5	*Integrated Transport Hub* - conduct an assessment into the potential of creating further hubs at key locations (e.g. Neath Railway Station) to bring together modes of transport and facilitate multi-modal journeys	DWG / SB	Number of Integrated Transport Hubs developed and to identify potential locations for future development	2019-2021
1.6	*Taxi Licensing Policy* - in parallel with the emerging EV Infrastructure, monitor/review the current policy to explore proposals to promote and encourage the take up of low emission taxis	CG	Measure the number of licensed low emission taxis and explore any incentives that could encourage the uptake of ULEVs.	Annual
1.7	*Sustainable BioFuels (Lanzatech Project)* - assist in the delivery of a manufacturing plant in Port Talbot which will generate sustainable biofuels for the	CM	Letter of support in principle is provided to the company to facilitate funding applications. Funding is secured by the company.	2021

	aviation industry through letters of support to assist in securing feasibility funding; conducting pre-application discussions to identify the most appropriate site and scope out the issues; facilitating links with other regulators; and determine any planning application in accordance with an agreed programme of works.		All necessary permissions are granted. The facility is constructed on schedule using local supply chains and becomes operational.	

2. BUILDINGS AND SPACES

Ref:	Action	Lead	Outcomes	Timescale
2.1	*21st Century Strategic Schools Improvement Programme* - continue the effective delivery of the programme working towards creating smart low carbon schools	SB	The number of schools completed and level of energy performance certificate rating achieved	Annual
2.2	*Homes as Power Stations* - continue the project to ensure delivery of smart, low carbon energy efficient homes	SB	Number of new build and refurbishment projects completed Implementation of supply strategy for Haps Development of skills and training programme for Haps	Annual
2.3	*Swansea Bay Technology Centre* - design and construct a 'building as a power station' through a combination of energy efficiency, building integrated renewable energy generation and energy storage	SB	Construction of the Technology Centre building	2019-2022
2.4	*Flexible Integrated Energy Systems Project (FLEXIS)* - pursue programme to identify steps for progressing the Council towards achieving a smart / intelligent low carbon status	SB	Development and delivery of key FLEXIS/Council traction projects	Annual
2.5	*Renewable and Low Carbon Energy Development* - progression of the uptake of renewable and low carbon technologies within assets under the management / ownership of the Council and carry out feasibility assessments at Giants Grave and former Crown Foods site, evaluating the technical considerations and viability of potential solar farm schemes	SB	Provision of further renewable and low carbon energy feasibility studies and project delivery	Annual

2.6	*Street Lighting* - continue to deliver further phases of upgrades to street lighting across the County Borough	MR	Number of street lighting upgrades delivered	Annual
2.7	*Planning / Development* - continue to work with developers/applicants to provide for an appropriate contribution to meeting national renewable energy targets	CM	The number of renewable energy scheme increases whilst also ensuring that the environmental impacts are mitigated. For developments generating less than 10MW, these are dealt with swiftly but comprehensively through the Local Planning Authority. For developments of 10MW or more, the Local Planning Authority provides a Local Impact Report for the Planning Inspectorate as part of the Developments of National Significance (DNS) process.	Annual
2.8	*Planning / Development* - continue to work with developers/applicants to incorporate wherever possible measures to generate renewable and low carbon energy	CM	Number of applications permitted that are accompanied by a Renewable Energy Assessment. Number of developments that incorporate energy conservation and efficiency measures. Renewable energy becomes embedded in new developments.	Annual
2.9	*Planning / Development* – continue to work with developers / applicants to incorporate, wherever possible, green infrastructure measures	CM	Number of applications that deliver green infrastructure, utilising strategies and/or processes such as Biodiversity SPG or SABs approval.	Annual
2.10	*Active Travel Network* - seek external funding opportunities to enable the delivery of improvements to the cycling/walking network to encourage a modal shift	DWG / CM	*Pontardawe Active Travel Route (Phase 1)* – comprising resurfacing works, provision of signage / road markings, removal of barriers / vegetation and community engagement for Phase 2. *Angel Street to Dwr Y Felin Comprehensive School*– defining and improving the footway between the existing footbridge and Neath town centre, including resurfacing and the installation of dropped crossings/tactile pavings. *Pre-Work Feasibility Activities (Various Routes)* – comprising design, land negotiation and consultation / engagement.	2019-2020

			Active Travel Route Sign Audit and Design – conducting an audit to establish the number, type and suitability of signs in place across the Active Travel network and the design of new signage in accordance with national guidance. *Audit of Access Control Measures*– conducting an audit to establish the number, type and suitability of barriers in place across the network. *Removal / Replacement of Access Control Measures (Phase 1)* – informed by the audit, prioritised control measures will be removed or replaced where appropriate. *Scheme / Route Promotion and Engagement* – comprising public / stakeholder events and publicity, social media advertising and survey work.	
2.11	***Public Rights of Way Network (PROW)*** - where practical, continue to prioritise improvement works to the network	CM	The number of improvements to the PROW network increases. This includes the use of allocated capital funding to secure repairs/replacements of bridges which are identified as being most at risk on our internal risk register of un-adopted structures. These include: • Byway 49 (Glyncorrwg) - Nant Tewlaeth Footbridge • Footpath 12 MST (Pelenna) • Byway 111.PT (Cwmafan) Bridge on Byway 111 Footpath 93 lgk (Ystalyfera) Betting Colliery Footbridge. • Footpath 18.0Hi (Nant y Cafn) – Nant y Cafn footbridge. • Byway 9.0 Hi (Nant Melyn) • Footpath 39 & 5 (Primrose Lane) Footbridge of Footpath 39. • Footpath 106 lgk (Penrhiw Fawr) Replacement bridge. • 50% contribution to be offered towards the cost of replacing the Bryndda Bridge on the boundary between NPT and Bridgend. The above improvements together with continued maintenance on the remainder of the network will facilitate improved sustainable transport links for both recreational and commuting purposes which will in turn improve the health and well-being of existing and future users.	Annual

| 2.12 | *Urban Green Infrastructure (GI) / Ecosystems* - identify and seek external funding opportunities, or adapt current work practices, to enable the delivery of GI schemes across the County Borough | CM | Comprehensive schemes to address insufficient provision of Green Infrastructure within urban areas will be designed and delivered.

These will improve the health and well-being of the associated communities by improving the urban landscape and access to green space, enhancing biodiversity; mitigating against, and supporting adaptation to climate change; and providing solutions for air quality and flooding. | 2019-2022 |
| 2.13 | *Ecosystem Resilience* – through partnership working, utilisation of external funding and/or changes to work practices, to deliver initiatives that support ecosystem resilience and biodiversity recovery | CM | Schemes for the sustainable management of our natural resources will be undertaken, including peatland restoration and woodland management / creation. | 2019-2022 |

3. INFLUENCING BEHAVIOUR

Ref:	Action	Lead	Outcomes	Timescale
3.1	*NPT Agile Working Scheme* - identify all opportunities to extend the scheme across the Council	SB	Number of Council employees working on an agile basis	Annual
3.2	*NPT Car Share Scheme* - conduct a feasibility study into the potential for introducing and implementing a scheme/system	SR / DWG	Car Share Scheme Feasibility Study	2019-2021
3.3	*NPT Bike To Work Scheme* - assess and review options to expand the scheme to facilitate the purchase of electric bikes	DWG	Promotion and take-up of the purchase of electric bikes through the existing scheme.

Each year the NPT Bike to Work Scheme is promoted to all employees by utilising the communications team to advertise on the Intranet. The Road Safety team disseminate promotional literature to every School and Council department in addition to emailing individual Schools.

The last scheme that opened in the Spring of 2019 generated a lot more interest in the purchase of electric bikes and requests for the limit to exceed the 1k limit to enable individuals to purchase better quality electric bikes. A move toward allowing a higher limit would subsequently expand the scheme to enable these bikes to be purchased. | 2019-2021 |

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| 3.4 | **School Training Programme** - seek external funding opportunities to continue the school / pupil training programme to raise awareness and encourage active travel | DWG | Number of training sessions conducted - NPT Road Safety deliver an extensive training programme to Schools, as well as promotional events, which raise awareness and promote active travel. These include:

● Kerbcraft – 808 pupils *externally funded.*
● Cycle/ Scooter Awareness & Promotion- Off Road 1269 pupils.
● National Standards Cycle Training On Road - 359 pupils *externally funded.*
● Learner Travel Route Assessment - Workshops to Year 6 in transition on safe routes to secondary school - 1574 pupils.
● Crucial Crew Cycle Safety – 1574 pupils.
● Secondary School education including promotion of active travel 4295 pupils.

Number of pupils walking/cycling to school - The most recent modes of transport, carried out in both Primary & Secondary Schools, during Autumn 2018 indicated that:

● Primary Modes of Transport – 32% Walk* 5% Cycle.
● Secondary Modes of Transport – 73% Walk 2% Cycle.

* We have seen a significant decline in Primary pupils walking to School due in part to the introduction of breakfast and after School clubs. | Annual |
| 3.5 | **Adult Cycle Training Programme** - seek external funding opportunities to undertake adult cycle training | DWG | Number of training sessions conducted - External Funding sought for Adult Cycle Training from Welsh Government for 2019/2020.

Funding will provide National Standards Cycle Training for all abilities.

Number of adults participating - Grant provided will allow for circa 340 adults to access National Standards Cycle Training. | Annual |

3.6	**GWR Train Training Programme** - continue to work regionally to deliver the training programme in schools, promoting travel by public transport	Pembrokeshire County Council / Education	Number of training sessions conducted. Number of pupils participating	Annual
3.7	**CARNET** - promotion of tickets for commuting to work	DWG	Number of CARNET tickets issued.	Annual
3.8	**Sustainable Procurement** - continue to review procedures/criteria to ensure there are mechanisms in place to assess the longer term impacts of each purchase and/or contract	CG	Number of purchases and/or contacts awarded.	Annual
3.9	**Climate Change Working Group** - establish a partnership working group to share approaches, information and best practice	MR / DWG / SB / CM	The working group is established with 'Terms of Reference' which also links to the Public Service Board (PSB). A list of key issues are identified.	2019-2020