Appendix B

CORPORATE
OVERVIEW AND SCRUTINY COMMITTEE

Report of: **Director of Community Services**

Date: **6 June 2019 – updates added subsequently in green**

NOTICE OF MOTION RELATING TO CLIMATE CHANGE

1. Background

1.1. The above Notice of Motion was reviewed at Council on 9 May 2019, and after some discussion, Council agreed to debate the Motion in part. Points 2, 3, 5 and 6 were referred to Corporate Overview & Scrutiny Committee. Point 1 – Declare a Climate Emergency went to the vote and was approved. Point 4 – Call on WG and UK Governments to provide the necessary support and resources to enable effective carbon reductions was also approved.

1.2. This report provides an initial feedback to the Corporate Overview & Scrutiny Committee, with specific emphasis on Points 2, 3, 5 and 6.

2. Making Pembrokeshire County Council a net zero carbon local authority by 2030 – progress to this aim

2.1. The Council have undertaken a significant amount and range of activity in terms of reducing carbon emissions and sustainability, and this range of activity is summarised in the following section.

2.2. Current targets and influences

- Welsh Government (WG) target for a carbon neutral public sector by 2030;
- WG Environment Act is Wales' only formal carbon reduction target – Act Part II specifies an 80% reduction in all nett Wales emissions by 2050 against a 1990 baseline *[PCC did not exist in 1990 so we do not have a 1990 baseline to compare to];*
- WG target for 70% of electricity used in Wales to be from renewable sources by 2030 *[the equivalent of 48% of Wales' electricity consumption was met from renewable sources in 2017 compared with 43% in 2016. Wales is therefore currently more than halfway towards meeting the 70% target];*
- WG target for 1 gigawatt (GW) of renewable electricity capacity in Wales to be locally owned by 2030 and for all new projects to have an element of local ownership by 2020. *[Wales is more than halfway towards having 1 GW of renewable energy capacity which is locally owned, with the total installed capacity of locally owned electricity projects up to the end of 2017 at almost 530 MW].*

2.3. Recent trends

March 2019 - Welsh Government launches 'Prosperity for All: A Low Carbon Wales' - A cross-government plan to cut emissions and contribute to the global fight against climate change;

April 2019 – Carmarthenshire CC declare a climate emergency;

May 2019 - The UK Committee on Climate Change (UKCCC) recommends that a **100% reduction** in greenhouse gas emissions should be legislated "as soon as possible" and urges Government to set a net zero CO2 emissions target by 2050;

May 2019 - Following Welsh and Scottish Governments the House of Commons declared a climate emergency;

May 2019 – Pembrokeshire CC declare a climate emergency.

2.4. Actions taken – General & Property Related

2.4.1. As of April 2018 CO2 emissions from fuels used in non-domestic council buildings have decreased by 39.09% based on a 2003/04 baseline. 2018/19 data will be available in late June.

2.4.2. Since 2003, the Council has implemented in excess of 300 energy efficiency and energy generation schemes at non-domestic council properties across the County. Together these are estimated to be saving over £700,000 and 4000 tonnes of CO2 (tCO2) each year.

2.4.3. Energy / water efficiency measures installed:

- Swimming Pool covers
- Ceiling & roof insulation
- Pipe & valve insulation
- Insulating building fabric upgrades – e.g. 'Kalwall' at Tenby Leisure Centre pool hall
- Water saving measures – spray inserts, flow restrictors, low volume cisterns, flush controls etc.
- Rainwater harvesting for toilet flushing
- Rainwater Harvesting for Vehicle Wash at Thornton Vehicle Workshop
- Water boreholes trialed for toilet flushing
- Passive Infrared (motion) lighting controls
- High efficiency T5 fluorescent lighting installed since 2001
- Ultra-efficient LED lighting installed since 2015 (now in over 50 buildings)
- Street lighting - removal of unnecessary lamps
- Street lighting - part night lighting (switch off saves 1.4 million kWh pa)
- Street lighting - dimmable LED lamps
- Parc Gwyn Cremator Upgrade – saving 22% in gas consumption
- Variable Speed Drive's (VSD's) to fan and pump motors
- Ultra-efficient condensing boiler upgrades
- Buildings services controls and Building Management Systems (BMS) controls upgrades
- Mechanical ventilation with heat recovery

- Solar hot water panels on 10 buildings – (40 kW thermal)
- Photovoltaic (PV) Solar panels already installed on 28 buildings (411 kW Total – saving £69k pa excluding Feed in Tariff payments)
- Small wind turbine (6 kW)
- Mini PV/wind turbine powered streetlights/signs
- Biomass wood pellet heating and hot water (total 500 kW thermal installed)
- Gas fired Combined Heating and Power (CHP) at 15 buildings (Total 255 kW elec/500 kW thermal)
- Wind-catchers / automated & manual window natural ventilation (instead of air conditioning)
- PCC are also meeting with WGES (Welsh Government Energy Service) to review the potential for converting all remaining streetlighting to low energy LED.

2.4.4. Further PV solar at concept consideration stage

- Pembrokeshire Archives (proposed Car Port solar PV canopy) – 49 kW
- County Hall (proposed Car Port solar PV canopy) – 100 kW
- PV Solar panels pre-registered for Feed in Tariff at 16 buildings for installation in 2019 with Egni Community Co-op (Total 200 kW)
- Solar farm(s) on Council land (2 to 8 MW) - Working with Welsh Government Energy Service ('free' consultancy support) to develop revenue streams for self-generation and sale of electricity from solar farms on PCC estate - commencing a study of former landfill sites, PCC owned farmland and proposed housing sites. Viable PV scheme and grid connection at Bridge Innovation Centre with potential at Haverfordwest Airport.

2.4.5. Re:fit Cymru energy efficiency project

- Phase 1 - A £1.3 million scheme (funded by WG Salix interest free loans) that will see the installation of 50+ energy efficiency measures across 25 sites during 2018 and 2019 saving £200,000 and 416 tonnes of CO2 pa. The scheme is in the delivery phase and will see the installation of LED lighting, controls upgrades, variable speed drives, valve insulation, CHP, and solar PV.
- Phase 2 - We are currently working with our provider to scope out a Phase 2 across 11 further sites for delivery in 2020.

2.4.6. Sustainable Schools/Operation Energy

- Aligned to the Wellbeing of Future Generations Act this delivers education in climate change, energy, water, waste & recycling, biodiversity, heathy eating, local & global citizenship in Pembrokeshire's schools.

2.4.7. Display Energy Certificates (DECs)/ Energy Performance Certificates (EPCs)

- PCC have qualified staff producing DECs in-house. DECs show the actual energy used by a building in one year of operation. An advisory report regarding how to reduce energy and water use accompanies the DEC. The average DEC rating of corporate buildings has improved year-on-year to the current C73 (D100 being the default UK average).
- PCC have trained officers to prepare EPCs in-house. EPCs provide an asset rating for a building and are required every 10 years. This is largely to provide EPCs for Council housing and assist the Property team with their landlord's obligations to meet the Minimum Energy Efficiency Standards for leased or sold buildings.

2.4.8. Rationalisation of building stock

- Building sales, returning buildings to the community, rationalising schools, closure & demolition of buildings etc. has saved PCC significant amounts of CO2 over the years *[although in terms of sales & returns to the community the emissions still exist if the buildings are still being used].*

2.4.9. New build properties (schools, leisure centres, libraries/galleries etc.)

The Council has coordinated a number of measures across the new build programme undertaken:

- Designing to BREEAM 'Excellent' Sustainability Standard
- Design for optimal orientation for passive heat gain/shading/ventilation
- Incorporating of PV solar panels as standard
- Design for low energy & water use
- Community benefits from projects (local use/employment)
- Recycled floor coverings
- WWF 'chain of custody' for all timber
- Recycled glass bottle and hemp loft insulation
- Recycled aggregates
- Site waste management plans
- Site emissions tracking
- 'Materials miles' considered for all materials
- Concrete blocks from ISO14001 EMS certified suppliers
- Vernacular local species of plants that require only rainwater are specified for all external planting
- Biodiversity surveys and landscaping measures to mitigate any impacts to wildlife
- Continuing monitoring of likely future revisions of BREEAM, Part L (Building Regulations for Energy Efficiency), and the likely future (2021) requirement for nearly Zero Energy Buildings (nZEB's).

2.4.10. Council housing retrofit energy efficiency

- Circa 5650 dwellings
- Average SAP EPC Score 75 (Mid C) – Welsh Housing Quality Standard (WHQS). There will be a new WHQS post 2020 which will be putting demands on PCC to further improve with stages towards zero carbon housing stock.
- Cavity wall and loft insulation.
- Gas boiler replacement programme – ultra-efficient gas combi boilers installed at all gas boiler properties.
- Oil boilers – PCC have changed 519 of 805 oil boilers for ultra-efficient condensing combi boilers.
- Windows programme - 5 years programme of installing 'A' rated Double Glazing nearing completion.
- Doors – replacing all doors with high performance composite doors.

2.4.11. Private housing retrofit energy efficiency

- PCC's Housing team administer 'ECO-Flex' applications and refer through to NEST (Wales) both of which support domestic energy efficiency improvement. The Energy Company Obligation (ECO) is a grant scheme allowing energy efficiency improvements (heating upgrades and insulation) for Pembrokeshire residents in fuel poverty or who are vulnerable.

- The Arbed 3 programme will be delivered in Pembrokeshire this year. The programme will be delivered by Arbed am Byth (a joint venture between Everwarm and Energy Saving Trust). Arbed am Byth are the Scheme Manager and with PCC have identified Milford Haven and Pembroke Dock as areas they will be focussing on to improve the energy efficiency of privately owned properties.

2.4.12. New build Council housing

- Johnston – 35 affordable Council owned new build homes. Design to go beyond the basic requirements of Part L of Building Regulations for energy efficiency e.g. PV solar/LED lighting/over insulation.
- Milford Haven, Charles Street – at design / planning stage. 15 affordable Council owned flats in a 3 –storey development. Design to go beyond the basic requirements of Part L of Building Regulations for energy efficiency e.g. PV solar/LED lighting/over insulation. Battery storage consideration depending on technology costs/efficiencies.

2.4.13. Further opportunities for low/zero carbon housing

- Tenby, land at Brynhir – circa 150 homes. 100 will be affordable Council owned new build homes. Some self-build plots with planning will be offered supported by the Development Bank of Wales.
- 2nd Home Council Tax – a target for 10 affordable Council owned new build homes per year.
- Former school sites – development of affordable Council owned homes.

2.5. Actions taken – Transport & Vehicle Related

2.5.1. Electric Vehicle (EV) Charging

- The Council has been successful in obtaining WG transport grants for the installation of a network of electric vehicle charging points throughout the County.
- The first phase of the project, which is complete provides 4 charging sockets in 8 local authority car parks (32 sockets in total). Additional charge points at other locations will be rolled out as part of Phase 2 in 2019-20.
- The scheme is designed to give coverage across the county of Pembrokeshire to address the EV charging needs of residents, visitors and primarily to support and encourage the transition to electric vehicles. Given Pembrokeshire's established and vital tourism industry the project also enables the county to promote the concept of 'eco-tourism' to visitors.

2.5.2. Active Travel

- Over recent years we have constructed over 11km of footway and 76km of shared use paths (walking & cycling) as part of active travel development in the 10 main settlements around the county.
- As part of our statutory duties under the Active Travel Act 2014 we have developed an 'Integrated Network Map' (INM) for Pembrokeshire which sets out our long-term aspirations for active travel route development for the next 15 years. Around 170 routes are identified on the INM for improvement.
- In this financial year we have been successful in obtaining over £1million in WG transport grant funding to enhance active travel provision in Pembroke Dock and Narberth.

- Web information promoting 20 cycle routes across the county has been developed with additional routes and promotional information to be added this year.

2.5.3. Safe Routes in Communities

- Pembrokeshire has a good track record of obtaining WG Safe Routes in Communities funding and has secured over £300,000 in this financial year for developing safe walking and cycling routes in the vicinity of Lamphey and over £7 million in grants since the inception of the scheme.

2.5.4. School Transport

- Over 1,809,000 passenger journeys to schools and college are provided every academic year by PCC.
- Over 1,800 pupils receive Safe School Transport training every academic year to encourage and promote the use of school buses.

2.5.5. Public Transport

- The Council supports 22 local bus services which provide over 970,000 passenger journeys annually.

2.5.6. Community Transport

- There are 13 'Dial-a-Ride' services operating in Pembrokeshire which provide over 26,000 passengers journeys a year.

2.5.7. Train Travel

- 'My Train Wales' is a project developed by PCC, funded by Great Western Railway and promotes rail travel and track safety to Primary and Secondary School pupils. Each year over 7.500 pupils across the region benefit from the promotional initiative.

2.5.8. Vehicle & Highways Maintenance fleet

PCC has already undertaken a Green Fleet Review. Our fleet management strategy has an objective *"To maintain an efficient and effective vehicle fleet*" and *"To protect and enhance the environment, where possible".* Current CO2 emissions from fleet vehicles are 3,714 tonnes CO2 pa. Emissions reduction measures included in fleet vehicles:

- Biofuels
- Electric vehicles - Electric vehicles have been trialled and where possible introduced into the fleet. Range anxiety remains an issue with some officers, however with vans able to operate 150 miles on a charge, this is becoming less of an issue. Where appropriate vehicles will be replaced with electric vehicles.

- Low and ultra-low emission vehicles - New vehicles are purchased in compliance with minimum Euro 6 and Euro vi for LGVs which have significantly lower emissions than vehicles that they replace.
- Fleet Management - Vehicle replacements are scrutinised and where historically 3.5 tonne vehicles were used these have been reduced to 2 tonne or lower therefore reducing fuel consumption, and lowering emissions.
- Telematics - allows on-board messaging and gathers a range of data using GPS technology, cameras, sensors and vehicle engine data to manage the fleet e.g. allowing managers to utilise the closest vehicle to respond for repairs etc.

- Buses - Buses are now parked at optimum locations, historically these vehicles were taken home and commenced from home. Vehicles, where and when appropriate and if more efficient, are parked at Thornton.
- Tenders are currently out for public transport, the quality model will consider lower emission vehicles along with several other qualities.
- We are introducing battery powered plant to the fleet e.g. chainsaws, pole pruners, grass blowers etc. We are also currently out to tender for two electric pedestrian sweepers and an electric forklift. These will replace diesel powered equipment.

2.6. Actions taken – Coastal protection, flooding and drainage

- All coast protection and flood alleviation schemes undertaken by the council are designed to include climate change allowances in accordance with Welsh Government guidelines.
- Surface water drainage systems are also designed to cater for the 1 in 100 year rainfall event plus 30% allowance for climate change.
- Schedule 3 under The Flood & Water Management Act 2010 came into effect in Wales on 7th January 2019 and requires new developments to include Sustainable Drainage Systems (SuDS) features.
- 4.9 acres of underwater seagrass meadows are to be restored at Dale Bay in Pembrokeshire to tackle climate change. Conservationists say it will be the UK's biggest seagrass restoration - after 92% of it has been lost over the last 100 years. The disappearance of seagrass is caused by pollution, run-off from the land, coast development and damage from boat propellers and chain moorings. Experts say seagrass acts as a "nursery for a wide variety of marine life". WWF, Sky Ocean Rescue and Swansea University are starting the replanting this winter as they say the plant is key to reducing carbon dioxide - a gas which contributes to global warming.
  Seagrass:
  - Takes carbon from the atmosphere up to 35 times faster than tropical rainforests
  - Accounts for 10% of annual ocean carbon storage globally, despite only taking up 0.2% of the seafloor
  - Protects coasts from coastal erosion
  - Is a habitat for many types of fish like cod, plaice and pollock
  - Produces oxygen
  - Cleans the ocean by absorbing polluting nutrients

  If the pilot project works, environmentalists want it to be replicated around the UK coastline and are urgently calling on governments to use the model the project is creating to bring back these lush underwater meadows.

  https://www.bbc.co.uk/news/uk-wales-49567427

  https://www.edie.net/news/8/Sky-partners-with-WWF-on-UK-s-biggest-seagrass-restoration-scheme/?utm_source=dailynewsletter,%20edie%20daily%20newsletter&utm_medium=email,%20email&utm_content=news&utm_campaign=dailynewsletter,%20d0c15c659b-dailynewsletter_COPY_629

2.7. Actions taken – Procurement

- PCC carry out a Sustainable Risk Assessment (SRA) on all tenders over the value of £25k which incorporate environmental, social & economic issues.
- PCC sit on the Welsh Government National Procurement Service (NPS) Energy Sub Group shaping the NPS energy procurement strategy.
- PCC procure circa £3 million of electricity, gas, LPG, oil and biomass fuels pa – a figure which has held steady in the face of rapidly rising markets due to energy efficiency work.
- PCC and the majority of Welsh LA's already source 100% of our electricity needs from certified renewable generation sources (52% of that renewable power was sourced from within Wales in 2017/18).
- The NPS authorities are part of the 7th largest purchase (after the 'Big 6') of electricity and gas in UK markets taking advantage of the Crown Commercial Service professional energy trading desks.
- NPS are actively seeking low carbon gas sources - e.g. bio methane from Anaerobic Digestion (AD) and monitoring the hydrogen gas agenda.
- PCC sit on a local government advisory group working with Dwr Cymru Welsh Water to improve DCWW's service to the public sector.
- The Energy/Procurement and Finance teams all provide advice to Council energy bill payers and provide a dispute resolution service.

2.8. Actions taken – Environment & Waste

2.8.1. In March 2018, the Cabinet agreed that the Authority would move to a much-improved recycling service. The changes are expected to come into effect in autumn this year. Householders will be able to recycle a greater range of plastic as well as paper, cardboard, glass, cans, and food. Recycling collections will take place every week and households will be provided with free boxes and bags to collect the items.

2.8.2. Cabinet also approved a move to three-weekly bin bags collections, on the basis that householders will need to place fewer items in black bags thanks to the increased recycling opportunities.

2.8.3. Cabinet also approved a fortnightly collection service for bulky absorbent hygiene products, including discreet collections where requested.

See video: Introducing 'The Wonder of You' and the boys of the Waste and Recycling Team, alongside the wonderful creativity of Mr Mark Bond and the Eco Champions project with The Waste and Recycling Campaign Team
https://youtu.be/ryVGjh7dIkU

2.8.4. A feasibility study is currently being carried out to locate a central Bulking Transfer Facility in Pembrokeshire, which is where the lorries will unload the recycled items before they are dispatched for recycling. This could present an opportunity for social enterprise development along with local employment.

2.8.5. The Council's waste plans are driven by relevant legislation which sets targets for Wales and other Member states. The Welsh Government has published Towards Zero Waste, the new Waste Strategy for Wales, which forms part of a suite of documents which sets out how Wales will comply with European law. Towards Zero Waste is the overarching waste strategy for Wales and identifies high level principles, policies and targets.

2.8.6 The Pembrokeshire Eco Champion Project is funded by the Welsh Government Leader Programme via Arwain Sir Benfro and match funded by Pembrokeshire County Council. It aims to celebrate and support the work of active and aspiring Eco Champions in all parts of Pembrokeshire and to seek out the people who are considered or willing to be Champions in their local area to share good practice, disseminate useful, inspiring information and encourage others to ‘do their bit’ by living more responsibly, reducing waste and ensuring Pembrokeshire remains a clean and ‘green’ place to live. A primary initial focus for the project is to encourage residents to embrace the roll out of the Council’s enhanced recycling and waste separation in 2019.

2.9. Actions taken – Development

2.9.1. The Local Development Plan (LDP) is used to determine all planning applications in the PCC planning area and guide development. The current LDP is underpinned by the overriding principle of achieving Sustainable Development. It also has a key objective linked to reducing/tackling the causes and impacts of climate change. This is delivered in the Strategy by directing development to sustainable locations – a settlement hierarchy is used to ensure that development is directed to locations which have good levels of services. This aims to reduce the need for travel and therefore reduce carbon production. The principle of sustainable development is carried through all policies within the Plan, including promoting energy efficient design and ensuring new proposals such as community facilities are well related to existing settlements. The Review of the Local Development Plan is underway but climate change and the need to promote sustainable development will remain key elements within LDP 2.

2.9.2. PCC have prepared a Biodiversity and Ecosystems Resilience Plan (awaiting formal sign off) to detail how PCC intend to fulfil our duties under Section 6 of the Environment Act to enhance biodiversity and the resilience of ecosystems. The plan sets out a number of corporate actions which when undertaken will also help with reducing our impacts on climate change – including how we manage Council land.

2.9.3. PCC have produced a Green Infrastructure Study for Pembrokeshire (which includes PCNPA and PCC Plan areas). This identifies opportunities to enhance Green Infrastructure across the main settlements in Pembrokeshire through a range of actions including tree planting. The document is available here: https:// www.pembrokeshire.gov.uk/conservation/green-infrastructure. Some projects are already progressing elements of this study e.g. the Haverfordwest Green and Blue Infrastructure project. LDP 2 will include a specific policy on Green Infrastructure and we will be considering whether we can allocate specific land for this over the next few months (Welsh Government require us to consider this under national policy as a result of the Well Being of Future Generations Act).

2.9.4. PCC hosts the Pembrokeshire Nature Partnership and supports this both financially and through officer time. The partnership considers a whole range of projects which support biodiversity/tackling habitat fragmentation and addressing climate change.

2.9.5. PCC work with 2 marine groups who are working on the marine environment and support these historically through the SRG grant and directly through officer time and limited financial contributions. These are the Milford Haven Waterway Surveillance Group (this group primarily gathers evidence of the conditions of the waterway and is critical in providing information on changes to the waterway over time) and the Pembrokeshire Marine Special Area of Conservation Regulatory Authorities Group which is focused on a range of projects and actions around the Marine SAC including work with schools about reducing plastic/marine litter and a recent study using citizen science to monitor nitrate levels in the marine SAC.

2.9.6. PCC/PCNPA have been looking at light pollution in Pembrokeshire and potential actions to reduce this. The team have recently finalised mapping of light pollution in Pembrokeshire overlaid against recorded bat roosts/flight paths which will be included in a forthcoming Biodiversity Supplementary Planning Guidance document and will provide additional information when planning applications are considered. This should ensure we can design out unnecessary lighting on schemes where this is a planning matter. Separately PCC has been working on a lighting standard for HRA schemes in conjunction with the local Secured by Design advisor. This standard is based around the criteria HRA schemes have to meet to minimise lighting within those parameters and also to use lamps which are at a wattage designed to minimise carbon and impact on bats.

2.9.7. Evidence base – PCC have a range of evidence which we use to inform decision making with the intention to reduce the causes and impacts of climate change. This includes the Land Use Mapping tool which shows habitats and species. PCC have also through the LDP developed further evidence on flood risk through a currently commissioned Strategic Flood Consequence Assessment which is taking a precautionary approach and building in a climate change allowance and an allowance for sea level rise to the current WG flood maps. This precautionary approach will inform LDP allocations. The recent Renewable Energy Capacity Study which will also inform the LDP review.

Coleg Sir Gar and WG appear to have done some interesting work regards a sustainable way to manage slurry on farms to create a sustainable fertilizer and recycled water supply. I thought this may have some value for county dairy farm (how many do we have?) and from the surface run off/river pollution aspect. If taken forward there would also be some decarbonisation benefits surrounding savings from transport fuel use. Link to the video :- https://www.youtube.com/watch?v=Kq_I7Gcq-2w

2.10. Actions taken – Finance

The Local Authority Pension Fund Forum has long been concerned about climate and carbon-related risks to the underlying investment portfolios of member funds

LAPFF members are interested in investment opportunities afforded by a low-carbon future which increase asset diversification and provide long-term returns. LAPFF considers that companies should report on their approach to carbon management in the context of how they are factoring climate change into their business strategy.

When engaging, LAPFF encourages companies to align their business models with a 2°C scenario to push for an orderly transition to a low-carbon economy.

For some oil and gas companies, a focus has been on value at risk, particularly from high-cost projects and support has been given to returning capital to investors where appropriate.

LAPFF is a member of the Ceres Investor Network on Climate Risk and Sustainability, is a participant in the Climate Action 100+ initiative and is in partnership with the Climate Majority Project.

3.10 Actions taken – Regeneration

3.10.1 Bush Farm Biomass Boiler, Pembroke **-** Greenlinks CIC were supported to develop successful funding applications to refurbish farm buildings which included the installation of a biomass boiler.

2. Cleddau Walk, Haverfordwest Green and Blue infrastructure - Key regeneration project that delivered a new route around Haverfordwest improving access, leisure and recreation opportunities. The path highlights biodiversity and includes a European protected species habitat.

3. Hayscastle community woodland - Community was supported and received funding through PCC to purchase a 1 acre site upon which they established a community woodland.

4. Johnston Millennium Park Community Woodland - The community was supported and in part funded through PCC to manage an established community woodland and ponds.

5. Jubilee Park East Williamston - Working with the community, they were supported and in part funded by PCC to purchase and enhance 22 acres of land delivering 8 key habitats and planting in excess of 8000 trees. Additionally a team of over 40 local volunteers has been established to ‘grow’ Jubilee Park.

6. Orchard Mawr, Haverfordwest - PCC supported and in part funded a volunteer group in Haverfordwest to plant approximately 550 fruit and nut trees on PCC accessible land. This included planting upon urban street scape and resulted in the establishment of three orchards.

7. PCC Woodlands, County wide - Enhanced thirty three PCC native broad leaved woodlands through the Better Woodland Wales grant for biodiversity. Thus creating public access to fifteen and, through linkages with Norman Industries, managing PCC timber stocks through thinning, resulting in a supported income generation scheme through biomass sales.

8. Saltings, Haverfordwest - In collaboration with Haverfordwest Town Council the enhancement of an old landfill site transforming it into a public country park. It is now planted with Pembrokeshire wild flower seed and 300 broad leaf trees with much enhanced public access opportunities.

9. Village Green/Common Land, County Wide - Working with a wide range of community groups to access funding, used to adopt and manage PCC’s Section 9 Common Land. Incorporating the enhancement of many Village Green’s through tree planting.

10. Scolton Country Park - Enhanced the wooded site through the Better Woodland Wales grant for biodiversity, creating public access, and introducing 5 one-acre coppice compartments.

11. Mount Woodland, Milford Haven - Supported the community association manage the 18 acre woodland site and gain funding to provide community access and deliver learning outcomes for NEETs.

12. Tidy Towns, County Wide - Delivered many community enhancements through this PCC scheme, including establishment of community gardens and community tree planting.

13. Withybush Woods, Haverfordwest - Delivering a historical enhancement, which creates better public access and leisure/recreational opportunities together with biodiversity gain including de-silting the main pond with further management of European protected species, with community tree and wild flower bulb planting.

14. Milton Marsh, Milton - Actively managing and working with the community to enhance this special community nature reserve including tree planting.

15. Railway Terrace, Neyland - Supported the community to access funding on this site to establish wild flower meadow whilst eradicating invasive plants.

16. Allotments - Worked with a number of community groups to establish community allotments on both PCC land and land donated by local owners.

2. Potential opportunities suggested for further consideration by PCC:

1. Anaerobic digestion (county farms/slurry).

2. Commercial tree planting (harvesting and replacing).

3. Hydropower – e.g. County Hall weir/micro hydro at county farms.

4. Planting new trees/ woodlands on Council land/farms (to potentially enhance the Green Infrastructure Study expand upon the actions already taken by Regeneration in 3.10).

5. Restoring degraded peatlands (carbon/methane sinks).

6. Fleet vehicles - greater use of electric vehicles.

7. Fleet vehicles / buses - greater use of hydrogen or bio-methane fuels.

8. Solar/battery storage to council housing.

9. District heating schemes.

3.11.10 Large scale solar farm(s).

3.11.11 Wind turbine(s) on Council land.

3.11.12 Maximising the use of indigenous (UK and Welsh) timber in construction (particularly housing) for new build and retrofit to benefit from its carbon storage properties.

3.11.13 Developing a ‘timber first’ policy, such as that used by Powys CC and extensively in the southern hemisphere (Australia and New Zealand) and supported through extended commercial tree planting.

2. Communities

3.12.1 **Pembrokeshire Action for Climate Emergency (PACE) Network**

Connecting Communities in Challenging Times

PACE are a newly formed network who have come together to harness Pembrokeshire's community response to the climate emergency

PACE aim to:

1. raise awareness and encourage wider community involvement
2. build practical and resilient working groups and partnerships
3. provide opportunities for people to take action and be part of the solution

PACE have identified 12 broad (but not exclusive) themes for the network:

- Community Transport
- Food security and production
- Community renewable energy
- Soil and regenerative farming/permaculture
- Biodiversity and wildlife protection
- Sustainable affordable housing and One Planet Development
- Trees and reforestation
- Circular economy- towards zero waste
- Community arts and culture
- Health and wellbeing
- Community currencies and skills exchanges
- Personal/familial carbon reduction behaviour change

4. Developing a clear plan for a route towards being net zero carbon

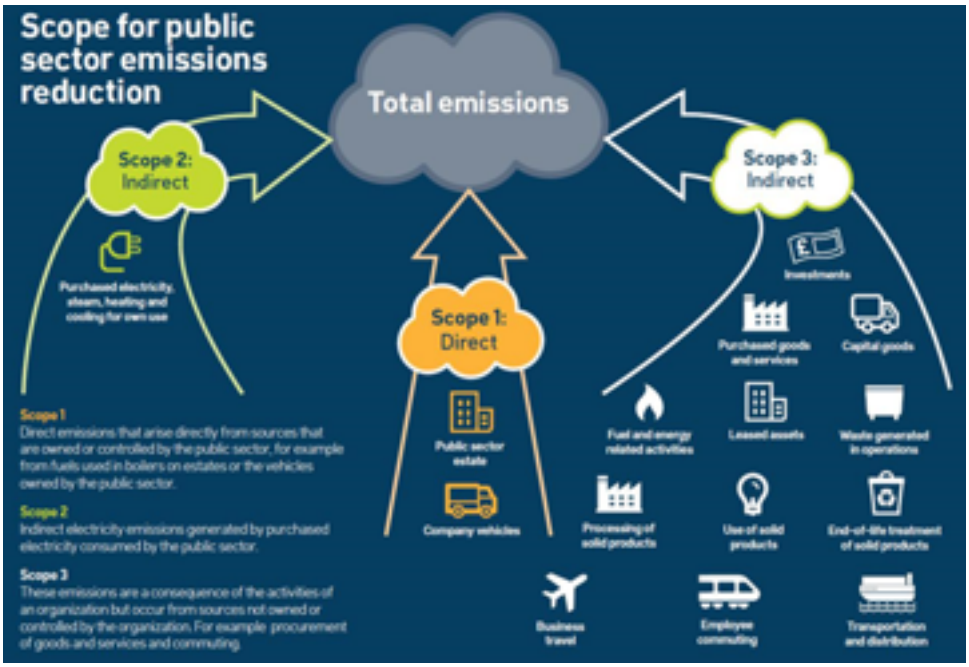
1. The Council's Infrastructure Division has an 'Energy Statement' which has been a departmental 'guiding principle'. The statement could be developed and adopted as a formal council strategy. The situation is fluid at Government level and the authority awaits local authority specific formalised Green-House Gas (GHG) targets/reporting methodologies which will assist in formalising a strategy and developing a clear plan for a route towards being net zero carbon by 2030.

2. The authority currently reports on 'Scope 1' emissions which are commonly referred to as 'direct' emissions and are emissions owned or controlled by the organisation. This means emissions as a result of the use of grid supplied electricity in corporate buildings, combustion of fossil fuels for heating/hot water, and the combustion of petrol/diesel in fleet/business vehicles.

3. As an example of current targets the Council works towards a 3% CO2 emissions reduction per annum from fuels used in the supply of electricity, heat and hot water in corporate buildings. As of April 2018 CO2 emissions have decreased by 39.09% based on a 2003/04 baseline. 2018/19 data will be available in late June.

4. Current targets and influences have been highlighted in section 3 above. Welsh Government have also launched 'Prosperity for All: A Low Carbon Wales'- A cross-government plan to cut emissions and contribute to the global fight against climate change https://gweddill.gov.wales/docs/desh/publications/190321-prosperity-for-all-a-low-carbon-wales-en.pdf sets out 100 priorities and policies across all areas of government, including:
   - Increasing tree planting to initially at least 2,000 hectares per year and then to double that to 4,000 hectares as rapidly as possible;
   - Commissioning an independent feasibility study on carbon capture use and storage;
   - Reducing emissions from power generation in Wales, including using consenting, planning and permitting powers and developing a policy position on the fuels used to generate power;
   - Encouraging take-up of electric vehicles by developing a rapid charging network;
   - An ambition for buses, taxis and private hire vehicles to be zero emission by 2028;
   - Reviewing building regulations to explore how higher energy efficiency standards can be set for new builds;
   - Working with partners to include more about sustainability and decarbonisation in the new curriculum;
   - Providing fruit and fuel trees for the entire Mount Elgon region in Uganda by 2030 [carbon offsetting].

5. Any plan towards being nett zero carbon will also have to consider Scope 2 and potentially Scope 3 emissions as well as the Scope 1 'direct' emissions outlined above. This is because future reporting to Welsh Government is also likely to capture Scope 2 and 3 emissions because public sector organisations can have an influence on a wide range of emissions, both directly and indirectly. Scope 2 emissions – are commonly referred to as 'energy indirect' emissions and are emissions from the consumption of sources of energy generated upstream from the organisation, such as electricity or steam. Scope 3 emissions – are commonly referred to as 'other indirect' emissions and are emissions as a consequence of the operations of the organisation but not directly controlled by the organisation. These emissions result from for example employees commuting, business travel or the procurement of goods and services.



6. Any pathway towards zero carbon needs to consider the finalised reporting requirements & decarbonisation priorities that Welsh Government are set to impose in 2019/20.

5. Feedback on the Collaborative Work being done to deliver carbon saving

5.1. Re:fit Cymru

5.1.1. The Re:fit Cymru project is a collaboration between Welsh Government and the Council using a WG pre-procured contractor framework and Salix invest-to-save funds.

5.2. Electric Vehicle (EV) Charging

5.2.1. PCC have been classed as ‘pioneers’ in the roll out of EV charging and have written the specification that has been shared with the other Swansea Bay Authorities, Port of Milford Haven and Pembrokeshire Coast National Park Authority in an attempt to create a consistent interconnected charging network. In Pembrokeshire an 8 year concession contract to operate the EV charge points has been awarded to a Narberth based company thus supporting a local business.

5.3. Swansea Bay City Region City Deal: Pembroke Dock Marine (PDM)

5.3.1. Pembrokeshire County Council are the Lead Authority for this project.

5.3.2. Port of Milford Haven (PoMH) state that if taken forward the £28m of City Deal funds are expected to leverage a further £32m of additional funding to build capacity and capability within Pembrokeshire. The aim is to support the existing marine engineering cluster to benefit from inward investment opportunities attracted to the area because of its unrivalled location, knowledge & expertise, supply chain and connectivity.

5.3.3. PDM is intended to be delivered in collaboration with a consortium of four independent partners who bring interrelated project elements that form a strong offering greater than the sum of its parts.

5.3.4. PoMH leads on the Pembroke Port Infrastructure (PPI) element seeking to redevelop the former Royal Dockyard, creating capacity through more space and ease of access to the Waterway.

5.3.5. Marine Energy Wales (MEW) leads on the Marine Energy Test Area (META) element. A fully consented suite of nursery testing areas to enable cost effective access to the water in increasing environmental exposures. MEW is the flagship project of the Pembrokeshire Coastal Forum, and is the trade body for marine energy sector in Wales.

5.3.6. Wave Hub Ltd. leads on the Pembrokeshire Demonstration Zone (PDZ) project, the 180MW wave and floating wind commercial array scale grid connected site off the south Pembrokeshire Coast. (NB: City Deal funding will only support the consent management process for this element).

5.3.7. Offshore Renewable Energy Catapult (ORE Catapult) bring capability into the project. They lead on the Marine Energy Engineering Centre of Excellence (MEECE) and will build on the Catapult’s already successful track record supporting offshore wind by employing industry experts to work in close collaboration with industry and academic institutes to solve industry wide problems for the benefit of all.

5.3.8. PDM offers the opportunity for Pembrokeshire to create the right combination of terrestrial and maritime assets to become a UK leader in developing global market in marine renewables including floating offshore wind.

5.3.9. PoMH state that this type of industry has already attracted £44m of investment, currently employing 65 FTEs in the region (34 in Pembrokeshire), which is also supporting the commercial activity of the existing supply chain, for example Mainstay Marine Solutions, who currently employ 70 staff were primarily boat builders have successfully built two marine energy prototypes and have successfully won contracts to build two further devices over the next 12 months. They also maintain the turbine transfer vessels for the offshore wind sector enhancing their commercial resilience.

5.3.10. PoMH project that PDM has the capacity to increase to over 1800 jobs and £73.5m GVA per annum to the regional economy.

5.3.11. PDM can also unlock the future potential to support decarbonisation activity both by having:

- A UK Catapult cemented in the county actively promoting the county through the UK Government's Industrial Strategy Challenge Fund; and,
- Pembrokeshire and the Swansea Bay City Region's largest renewable energy generating station in the PDZ.

5.3.12. The Carbon Trust believes that, if fully developed, the wave and tidal sectors could produce 20% of the UK's electricity. Pembrokeshire has the natural resource to contribute significantly towards these targets and capitalise upon the associated economic benefits.

5.4. Swansea Bay City Region City Deal: Homes as Power Stations (HAPS)

5.4.1. The aim of the regional HAPS programme is to coordinate the delivery of smart, low carbon, energy efficient homes by encouraging the use of HAPS technologies in homes. The HAPS programme intends to coordinate the adoption of HAPS technologies for both new build and retrofit developments across the public and private sectors, proving the concept in the public sector before rolling out to the private sector.

5.5. Welsh Government Smart Living - Milford Waterfront Zero Carbon Area

5.5.1. PCC collaborate on a WG funded project looking at the creation of a zero carbon area at Milford Waterfront. WG's 'Smart Living' team have funded studies at a cost of £105k and PCC are the 'governance' link to what has mainly been a Port of Milford Haven (PoMH) led project. WG are currently funding a Cardiff University & Nu Vision team as consultants. The project team are currently drafting a bid to the UK Industrial Strategy Challenge Fund (ISCF) for 'Prospering from the Energy Revolution' funding. The project came very close to getting funding in the last ISCF round where Oxford City Council/West Sussex Council were successful but ISCF advised the project needs to expand outwards and capture things such as transport outside of the zone, wider economic development and tourism activity e.g. the use of renewable energy generators to charge EV's, for battery storage, for grid balancing, for hydrogen production in the heat and transport sectors, biogas production from AD plant(s), the use of heat pumps etc.

5.5.2. There is currently a proposal to submit an up to £3 million bid for ISCF 'Prospering from the Energy Revolution (PFER)' funding. The funding is for proving a business case by 2022 and not actually for implementation. If implementation is found viable then it's obvious that further funding will flow. The ISCF PFER requirements:

- Prove by 2022 that local, investable, consumer-centric energy approaches can create prosperous clean energy communities across the UK;
- Up to £30M to fund detailed designs for future local energy systems;
- Competition will open on the 26th April 2019 and close on 31st July 2019;
- Project duration of up to 24 months, starting early 2020;
- Up to 10 projects will be funded (hence £3M estimated bid);
- By backing such a zero carbon project the Council can indirectly encourage industry to come to Pembrokeshire and support the ability for the region to be successful in this type of activity.

5.6. Hydrogen economy:

5.6.1. PCC have been part of the WG hydrogen economy reference group. Rhondda Cynon Taf County Borough Council (RCTCBC) was the first Welsh borough to install a hydrogen fuel cell (FCH) in a public building in 2014. It has more widely adopted the technology and installed 15 micro fuel cell combined heat and power (CHP) units in care homes, schools and offices in the county. RCT/WG continue to research developing hydrogen based power, heat and possible fleet transport opportunities.

5.7. BUCANIER

5.7.1. Being led by Bridge innovation Centre the Building Clusters and Networks in Innovation Enterprise and Research (BUCANIER) operation is a part funded ERDF operation in the Ireland Wales Programme. BUCANIER is part of the Priority 1 Axis: Cross Border Innovation. The BUCANIER operation could increase innovation capacity within SMEs and social enterprises by collaborating with Higher Education (HE) institutions and other public bodies to increase productivity across the Ireland Wales Programme area. BUCANIER intends to work with the Life Sciences, Food and Drink and Renewable Energy Sectors - these sectors are chosen because there is complementarity between the expertise in both Wales and Ireland.

5.8. Swansea Bay Tidal Lagoon:

5.8.1. PCC are part of the regional discussion being led by Swansea City Council surrounding the possibility for a Swansea Bay Tidal Lagoon with the potential for a Power Purchase Agreement (PPA) for the supply of renewable electricity to the public sector.

5.9. Public Services in Pembrokeshire Climate Change Resilience and Adaptation (CCRA) Group

5.9.1. This Group is a subgroup of the Pembrokeshire Public Service Board (PSB). The role of the subgroup is to consider best practice in Climate Change Resilience and Adaptation.

Work to date:

Ireland Wales Interreg 'Selkie' project and 'Combating Climate Change Together' project led by University College Dublin. Pembrokeshire County Council is NOT a partner in these projects but is aware and approves of the projects.

The Selkie Project

A cross-border project aiming to boost the marine energy industry in Wales and Ireland has received €4.2m (£3.8m) EU funding.

Funded by the EU's Ireland-Wales co-operation programme, the Selkie project will bring together researchers and businesses from both nations to create technologies to help improve the performance of ocean energy devices being developed by Irish and Welsh businesses.

University College Cork will lead the project in partnership with Swansea University, Pembrokeshire Coastal Forum, Anglesey social enterprise Menter Môn, DP Energy Ireland and Dublin-based Gavin and Doherty Geosolutions.

As part of the project, the tools created will be trialled on wave and tidal devices to determine levels of reliability and commercial potential.

Over the next three years, 150 Irish and Welsh businesses will benefit from the project.

Dr Gordon Dalton, senior researcher at the Centre for Marine and Renewable Energy Ireland (MaREI), said: "University College Cork hosts the world class MaREI research centre, which has over 30 years' experience in the field of marine and renewable energy. We're delighted to be coordinating the Selkie project, using our facilities and skills to lead the physical testing of prototype devices.

"There are no test tanks of this type in Wales, so this development in the Irish Sea will be a valuable resource. We're looking forward to collaborating with Welsh device developers to pool expertise and address the challenges facing the marine energy industry."

Jeremy Miles, who is responsible for the delivery of EU funding within Wales, said: "Bringing together expertise from Wales and Ireland is vital if we're going to meet the shared challenges and opportunities from our Irish Sea border including the potential to generate clean energy.

"Our relationship with Ireland is very important, so I'm delighted to see our two nations working together on such an important global priority."

Minister for finance and public expenditure and reform, Paschal Donohoe TD, said: "I am very pleased to welcome a further project under the Ireland-Wales cross-border programme.

"It is a perfect example of the type of synergies that can be leveraged by third level institutions and businesses working in close co-operation and developing innovative and sustainable solutions to meet the energy challenges of the future. I would like to acknowledge and commend the efforts of all involved from University College Cork, Swansea University, and a consortium of businesses and leaders in the renewable energy sector."

Coastal Communities Adapting Together (CCAT) project

EU funds for new climate change collaboration between Wales and Ireland

A pilot project designed to help coastal communities in Wales and Ireland adapt to the impact of climate change has been backed by €1.3 million EU funds.

The 2 year Coastal Communities Adapting Together (CCAT) project will look at the regional implications of climate change, focussing on the coastal communities of Milford Haven and Pembroke Dock in Wales, and Rush and Portrane in North County Dublin, Ireland.

It will also look for commercial opportunities for marine energy from the Irish Sea, seeking creative solutions to globally important climate change issues.

As part of the project, local people will be encouraged to observe, interpret and record data about their community and coastal environment, and to take an active role in adapting their communities and businesses.
This hyperlocal data will be used to populate a shared 'participatory map', linking local factors to the bigger, global picture to reveal patterns and trends relating to issues including population change and economic challenges.
The project has been funded through the EU's Ireland-Wales co-operation programme and will be led by University College Dublin in partnership with Cardiff University, University College Cork, Pembrokeshire Coastal Forum, Fingal County Council and the Port of Milford Haven.
The Ireland-Wales programme is supporting businesses and organisations across both nations to work together in areas including climate change, innovation, cultural heritage and tourism.

6. Role of the private sector and 3rd sectors to develop innovative solutions to becoming net zero carbon

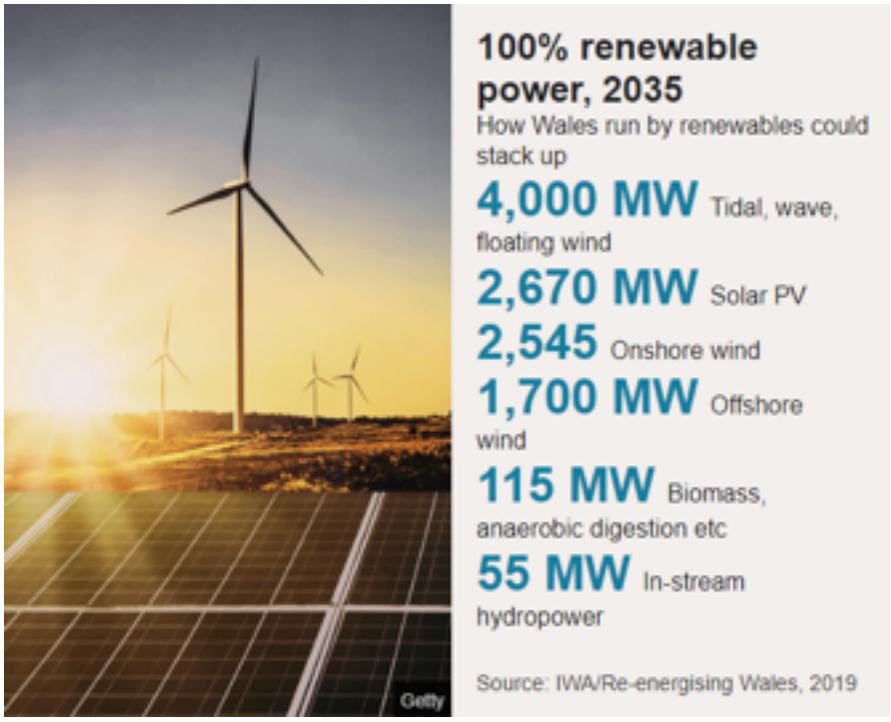
6.1. All of the partners in the initiatives highlighted in Section 5 should be considered as excellent partners for continued cross sectoral collaboration.

6.2. In consideration of partnering with private and 3rd sector organisations it is worth highlighting two reports that are currently receiving focus from Welsh Governments decarbonisation team which make similar recommendations to the aforementioned UKCCC for a zero emissions target:

1) Regen report: "Swansea Bay City Region: A Renewable Energy Future" https://www.regen.co.uk/publications/swansea-bay-city-region-a-renewable-energy-future/
Key recommendations:
- Step change in energy efficiency represented by at least a 20% reduction in heat and electricity demand, with a 30% energy efficiency 'stretch' target.
- Maximise use of regional energy resources to achieve a target of renewable electricity generation equivalent to 100% of electricity consumption on an annual basis.
- 40% of heat supply from decarbonised heat supply sources – through electrification, gas decarbonisation and use of renewable energy sources.
- Become a leading region for the reduction of vehicle emissions through:
- The electrification of transport with 80% of new cars, and over 30% of all cars electric by 2035.
- Growth and decarbonisation of public transport with 100% Ultra Low Emission Vehicles by 2035.
- Maximise use of local energy resources to minimise the need for imported electricity with a target of less than 15% electricity imports over the year.
- Use flexibility through energy storage, time of use tariffs, smart charging and appliances, and demand side response, to minimise energy system imbalance, grid impacts and imports.

2) The Institute of Welsh Affairs (IWA) Report: "A plan for Wales'
Renewable energy future: Essential actions to re-energise Wales by 2035".

https://www.iwa.wales/news/2019/03/re-energising-wales-a-plan-for-wales-renewable-energy-future-essential-actions-to-re-energise-wales-by-2035/. The report urges Welsh Government to allocate more of its budget to green energy. Key findings:



- Fund the future: through an immediate 12-18 month low carbon economic stimulus for Wales which accelerates action on renewable energy and energy efficiency.
- Renew Wales' homes: through improved building standards and a long-term greener homes programme.
- Retain the benefits in Wales: by requiring all new renewable projects above 5MW to have between 5 and 33% community and local ownership by 2020.
- Use local land for local benefit: by ensuring that planning regulations and public land are used in support of new renewable energy schemes and create maximum local benefit.
- Focus on delivery: by ensuring there is sufficient capacity and expertise in key public bodies to deliver the vision in practice.
- Future-proof the grid: by getting the electricity grid ready to meet Wales' energy aspirations.
- Get SMARTer: by ensuring Welsh businesses, local and community organisations are supported to capitalise on and lead the shift to smarter energy technology and business transformation.
- Get ahead in marine: by taking a coordinated approach between government, industry, academia and others to establish a global advantage over marine energy and floating offshore wind as niche Welsh services.
- Harness the potential of bioenergy: enabling Wales to create a world class circular economy.
- Decarbonise transport through a comprehensive 'Transport Decarbonisation Plan' co-produced by key public bodies and the transport sector, backed up by a national travel survey.

6.3. The IWA report makes specific reference to actions that local authorities can take to assist this process:

- Local authorities to offer 50% business rate relief on the community percentage of shared community/developer ownership renewable energy projects;
- Local authorities to make planning decisions that enable more community and local energy in Wales. Welsh Government should also require each local authority to develop a future energy strategy that identifies sites and supports renewable energy and low carbon development by 2020. This should align with existing requirements for local authorities in Wales to set targets for renewable energy in their local plans;
- Public sector bodies such as NRW and local authorities – who make land available to community and local energy projects – should be able to count the carbon savings from those projects towards their targets to be carbon neutral by 2030.

6.4. Partnering with private and 3rd sector organisations that can make an impact in the decarbonisation areas highlighted by these reports is suggested as a positive direction of travel.

6.5. In a recent 'Smart Living' brainstorming session supported by Welsh Government the following potential public, private and 3rd sector partners were highlighted in the Pembrokeshire/Swansea Bay region: Pembrokeshire County Council, Carmarthenshire County Council, Ceredigion County Council, Swansea City Council, Neath Port Talbot County Council, Port of Milford Haven, Pembrokeshire Coast National Park Authority, Welsh Government, Natural Resources Wales, Cardiff University, Swansea University, Nu Vision, Western Power Distribution, Wales & West Utilities, Dwr Cymru, Welsh Government Energy Service, Transport Catapult, Energy Systems Catapult, PassivSystems, Thermal Earth/Kenza (Heat pumps), Capestone Organic, Aardvark, Dragon LNG, South Hook LNG, Valero, Doosan, ITM Power, Calor, Flogas, On Tap, Tesco, Boots, Costa, Home Bargains, nPower, EDF, Co-op Energy, Ovo, Good Energy, Bristol Energy, Energy Local, PIECES, Marine Energy Wales, Marine Energy companies, West Coast/Ateb/Sero Homes/Ty Solar/ Solcer House (housing), GD Harries, Mansel Davies, Nolan (Transport), ImServ, Grid Edge, Upside Energy, CFMS, Smart Power Systems, Electric Pocket apps, Siemens, Hoare Lea, PLANED, Community Energy Pembrokeshire (CEP), Sir Gar Community Group, Cwm Arian/Egni, Silverstone Green Energy, Mitsubishi, Toyota, Nissan, Renault, Ulemco, Arup, Jacobs, AECOM, KBR, Regen, NEF. This list is in no way exclusive nor exhaustive.

PCC are engaged private and 3rd sector partners in developing the 'Milford Haven Energy Kingdom Detailed Design Project' which is a potential bid for funding from the UK Research and Innovation Prospering from the Energy Revolution competition. The bid aims to focus on developing diverse, local seed markets for the transition to hydrogen and renewables within, and in the vicinity of, the cluster of energy infrastructure along the Milford Haven Waterway.

Pembrokeshire County Council (PCC) have agreed to provide administrative support and governance to a Transition Bro Gwaun EU funded energy project the 'Bro Gwaun Renewable Energy Grid Initiative'.

PCC has established working relationships with locally-based community groups, and with regional and national groups operating locally, in the area of clean energy and sustainability.

- Welsh Government Energy Service https://gov.wales/written-statement-launch-welsh-government-energy-service (WGES pulls together 'Green Growth Wales' delivered by Local Partnerships and 'Local Energy Service' delivered by Energy Saving Trust and Carbon Trust Wales)
- Community Energy Pembrokeshire http://www.communityenergypembrokeshire.org/
- Transition Bro Gwaun https://transitionbrogwaun.org.uk/
- The Environmental Network for Pembrokeshire (TENP) http://tenp.org.uk/
- Planed https://www.planed.org.uk/
- Pembrokeshire Association of Voluntary Services (PAVS) https://www.pavs.org.uk/
- Ynni Sir Gar http://www.carmarthenshireenergy.org/YSG/index
- Cwm Arian Renewable Energy (CARE) https://carenewable.jimdo.com/
- Egni Co-op https://egni.coop/
- Awel Aman Tawe https://www.awelamantawe.org.uk/
- Marine Energy Wales (formerly Marine Energy Pembrokeshire) https://www.marineenergywales.co.uk/
- Ateb (formerly Pembrokeshire Housing Association) https://www.atebgroup.co.uk/
- Western Solar - Ty Solar https://westernsolar.org.uk/)
- SERO Homes https://www.serohomes.com/
- Lawrenny Estate https://www.bbc.co.uk/news/uk-wales-48804635
- Multiple Pembrokeshire community and town councils
- The Consortium of Local Authorities in Wales (CLAW) energy & sustainability group made up of all 22 local authorities in Wales
- Sustainable Development Co-ordinators Cymru (SDCC+) http://sdccplus.org.uk/
- Swansea Bay Region Local Authorities (Pembrokeshire, Carmarthenshire, Swansea and Neath Port Talbot Council's) and Swansea Bay City Deal (Pembroke Dock Marine and Homes as Power Stations regional projects).
- Natural Resources Wales
- Pembrokeshire Coast National Park Authority
- Pembrokeshire College
- Hywel Dda University Health Board (NHS)
- Mid and West Wales Fire Authority
- Dyfed Powys Police
- Port of Milford Haven
- Silverstone Green Energy (PV Solar)
- My Contribution and Dragon Charging (EV charging)
- Bourne Leisure Ltd (member of Pembrokeshire Energy Forum)
- Bluestone Resorts Ltd (member of Pembrokeshire Energy Forum)
- Folly Farm Ltd (member of Pembrokeshire Energy Forum)

7. Conclusions

7.1. There is significant policy support to back local authorities in becoming zero carbon by 2030. Pembrokeshire have already undertaken a significant amount of work, and achieved progress in terms of carbon reduction and sustainability.

7.2. Completely decarbonising any economic area is going to be challenging but the governments are committing to support low carbon economic development.

7.3. Pembrokeshire has significant renewable resource and combined with storage technologies, has the opportunity to become a net supplier of renewable energy to the rest of the UK.

7.4. Combining this with our existing infrastructure and supply chain offering enhances the counties attractiveness, which has secured inward investment and job creation.

7.5. Through the potential Swansea Bay City Deal, the UK and Welsh Government are providing investment into Pembrokeshire that could enhance the county's ability to capitalise on the significant economic development potential such a development could attract.

7.6. Other government supported initiatives are demonstrating that investing in infrastructure to become zero carbon by operation is likely to be more cost effective by 2030 than through more traditional methods with stronger resilience against more uncertain factors like long term energy costs.

7.7. The impact of not embracing a strategy underpinned by these motions could be less inward investment from new businesses in the green economy and related leakage of skilled workforce set against a background of an ageing population in the county (which could be exacerbated by any workforce leakage).

7.8. Whilst there are a number of targets, influences and approaches, there is not a single clear strategy yet developed to set out how Pembrokeshire might be net zero carbon local authority by 2030.

7.9. The benefits of acting now to mitigate the effects of climate change are obvious and many including creating a green economy in the region, retaining skilled jobs and creating prosperity, safeguarding the environment and enhancing biodiversity, enriching our wellbeing and that of future generations. It is also clear that the scale of the issue is such that collaboration and joint working with the appropriate bodies and sectors is vital.

7.10. The UK Committee on Climate Change state there are significant benefits of the UK acting now to reduce its emissions including:

- The world has committed to global action on climate change. By reducing its own emissions, the UK is supporting wider international efforts.
- In a future world where greenhouse gases are restricted, the cost of emitting those gases (i.e. carbon price) will be high. Early action to reduce emissions – here and elsewhere – can help reduce future costs.
- Investment in and development of low-carbon technologies will put the UK at the forefront of new and expanding global markets.

7.11 Evidence that CO2 emissions are the cause of global warming is very robust. Scientists have known since the early 1800s that greenhouse gases in the atmosphere trap heat. Global CO2 emissions from human activity have increased by over 400% since 1950. As a result, the concentration of CO2 in the air has reached more than 400 parts per million by volume (ppm), compared to about 280ppm in 1750 (around the start of the Industrial Revolution).

7.12 Science has linked the rises in temperature over the last 200 years to rises in atmospheric CO2 levels. Greenhouse gas levels are now well above the natural cycle of the last 800,000 years.

7.13 Satellite observations since the late 1970s have shown a slight decrease in the sun's total energy output. However, instead of cooling, the Earth has warmed over this period.

7.14 It is recognised that it will take more than just legislation to have an impact in addressing climate change. Change will involve a combination of new technologies, processes and human behaviour. Given current 'general' lifestyle choices (e.g. exponential growth of electronic goods, fast food consumption) and infrastructure developments (e.g. the potential South Wales M4 relief road and Heathrow third runway) there will be forces that will continue to 'pull' against the clear improvements being made. The Council can however act decisively in spheres that it controls and influences. These areas are many and varied as captured in this report.

7.15 There will also be a need to adapt to climate change that cannot at this stage be avoided. The UK will need to prepare for more flooding, greater pressure on water resources, damage to natural habitats, and risks to human health from heat waves. At the same time, there could be opportunities, including reduced energy demand and fewer cold-related deaths due to milder winters.

8. Recommendations

It should be noted that Point 1 – ***Declare a Climate Emergency*** and Point 4 – ***Call on WG and UK Governments to provide the necessary support and resources to enable effective carbon reductions*** – were both approved at Council on 9 May 2019. Recommendations for the remaining points are as follows;

8.1. Point 2 - ***Commit to making Pembrokeshire County Council a net zero carbon local authority by 2030***

That the Committee notes the progress and actions already taken in delivering carbon reduction and sustainability, which contribute toward Pembrokeshire County Council to be net zero carbon local authority by 2030. Also that the Committee supports the continuation and development of such approaches, and new techniques, to meet the commitment, subject to the development of an Action plan.

8.2. Point 3 - ***Develop a clear plan for a route towards being net zero carbon within 12 months which is then reported back to council***

That the Committee notes the progress on developing approaches for a route towards being net zero carbon, and receives a further report on a more detailed Action Plan within 12 months.

8.3. Point 5 - ***Work with the Public Services Board and Swansea Bay City Deal partners to develop exciting opportunities to deliver carbon saving*** and
Point 6 - ***Collaborate with experts from the private sector and 3rd sectors to develop innovative solutions to becoming net zero carbon***

That the Committee notes the work being done with the Public Services Board and Swansea Bay City Deal partners, and the collaboration with experts from the private sector and 3rd sectors. Also to receive a further progress update on these approaches within 12 months.