



Report of the Cabinet Member for Climate Change and Service Transformation

Scrutiny Programme Committee – 14 September 2021

Energy Strategy

Purpose:	This report is in response to a call from Scrutiny Programme Committee to explore responsibilities and issues in relation to the Energy Strategy, included within the Climate Change and Service Transformation Portfolio.
Policy Framework:	Carbon Management Plan, Asset Management Plan.
Content:	Cllr Andrea Lewis (Deputy Leader) and Cabinet Member for Climate Change and Service Transformation will provide a detailed overview of the Energy Strategy.
Councillors are being asked to:	<ul style="list-style-type: none"> • Question the Cabinet Member on the specific portfolio responsibilities. • Make comments and recommendations as necessary.
Lead Councillor:	Councillor Andrea Lewis.
Lead Officer:	Geoff Bacon, Head of Property Services.
Report Author:	Antony Moss, Energy Manager.
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1. Introduction

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

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

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

2. Background

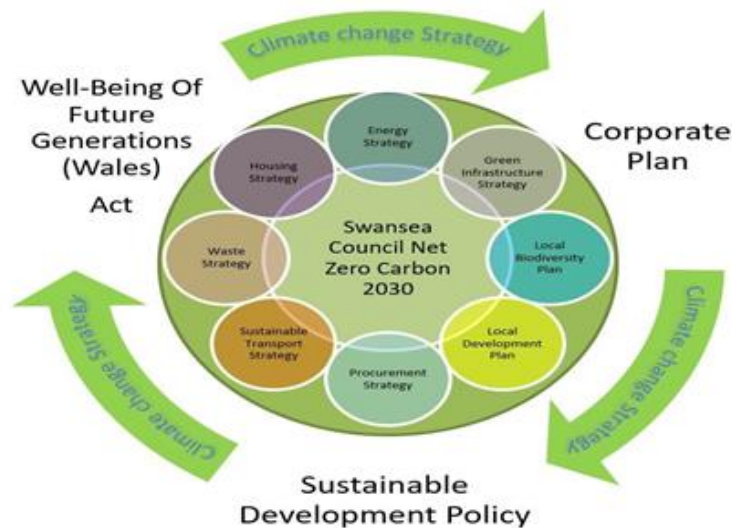
- 2.1 This Energy and Carbon Management Plan will build on those existing energy saving initiatives and strategies developed from the last Energy Strategy Paper which from a 2009/10 baseline (42,532 t/CO₂); reported during 2019/20 carbon emissions of 18,757 t/CO₂ – which yielded a 54% reduction in carbon emissions of 23,154 t/CO₂ over its 10 year lifetime.
- 2.2 In May 2019, the UK became the first major economy in the world to pass a net zero carbon emissions target into law. This target will require the UK to bring all greenhouse gas emissions to net zero by 2050, compared with the previous target of at least 80% reduction from 1990 levels. The UK’s 2050 net zero target is one of the most ambitious in the world and was recommended by the Committee on Climate Change (CCC).
- 2.3 Globally, the UN has put in place a 2030 framework to drive forward sustainable development and climate change through the UN Sustainable Development Goals and the Paris Agreement, which commits to keeping global temperature rise this century well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5°C.
- 2.4 Prosperity for All: A Low Carbon Wales’ sets out the Welsh Government’s approach to cut carbon emissions and increase efficiency in a way that maximises wider benefits for Wales, ensuring a fairer and healthier society. It sets out 100 policies and proposals that directly reduce emissions and support the growth of the low carbon economy.
- 2.5 In June 2019, Swansea Council members declared a ‘Notice of Motion’ Climate Change Emergency and calling on Westminster to provide the powers and resources necessary to achieve the target for Swansea Council to strive towards becoming net carbon neutral by 2030; and the City and County of Swansea as a whole by 2050.

3. Governance Structure and Strategy - Climate Change Group

- 3.1 Actions from the Policy Development Committee (PDC) meeting held on 25th February 2021 have been implemented with the compilation of a ‘Climate Change Strategy’ into eight key policies resulting in the formation of the ‘Climate Change Group’, governance structure as illustrated below –

Energy Strategy; Green Infrastructure Strategy; Local Biodiversity Plan; Local Development Plan; Procurement Strategy; Sustainable Transport Strategy; Waste Strategy and Housing Strategy.

- 3.2 The 'Energy Strategy' provides a strategic approach encompassing Swansea Council property portfolio and Street lighting as detailed in the Energy and Carbon Management Plan.



- 3.3 This work will be underpinned by the Well-being of Future Generations Act goals and ways of working, the Corporate Plan Priorities, and the Sustainable Development Policy actions.

- The Well-being of Future Generations Act (Wales) 2015 This legislation places a duty on the Council to carry out sustainable development improving social, economic, environmental, and cultural well-being. It sets out the sustainable development principle's five ways of working and seven national well-being goals.
- Sustainable Development Policy- This sets out how the Council can ensure it meets present needs while ensuring future generations can meet their needs too. It guides services and decision makers in applying the five ways of working and maximising their contribution to Swansea's well-being.
- Corporate Plan- This details how the Council will improve well-being in practice. It lays out priorities for action in six well-being objectives and the steps to achieve them in line with the sustainable development principle.

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

4. Energy and Carbon Management Plan

4.1 On 19th November 2020, the Energy and Carbon Management Plan was approved by Cabinet (encompassing Swansea Council property portfolio and street lighting); a copy of this Plan with the supporting Action Plan are attached under Appendix A and Appendix B. It provides a co-ordinated approach which will identify and analyse energy and carbon emissions from the delivery of the Authority's operational service deliveries and will

- Provide an overarching programme that will align and integrate all legislations and policies that relate to energy, carbon management and climate change
- Clearly define Swansea Council strategic ambition and intent for addressing energy and carbon management
- Quantify the Authority's baseline carbon emissions from its service property activities.
- Identify and evaluate energy saving projects towards reducing energy costs
- Adapt to the new Welsh Government Public Sector Net Zero Carbon Reporting requirements,
- Adapt a low carbon / renewable technology way of working, reducing the dependency on conventional energy supplies.

4.2 The Energy and Carbon Management Plan and Action Plan are dynamic and live documents, they will be modified as and when necessary and reviewed annually through the Council Annual Review of Performance Report section on corporate objective – "Maintaining and enhancing Swansea's natural resources and biodiversity".

5. Key Headline Projects / Carbon Emission Achievements

5.1 Swansea Council have achieved a great deal over several years to mitigate the impacts of Climate Change such as:

- Swansea Council procures its energy using Crown Commercial Services Framework Agreements, via the National Procurement Service (NPS), for its energy supplies. All electricity procured via the NPS framework is from 100% renewable energy sources; 41% sourced from Wales (Apr 20 – Mar 21); Gas – Total Gas and Power (TGP) procured as new gas supplier (from Apr 21), registered interest in purchasing 'Green Gas'- dependant on viability and cost impact.
- Refit Low Carbon Programme - Swansea Council is participating in the Welsh Government supported Re:fit Low Carbon Programme to implement energy efficiency saving opportunities in non-domestic buildings. A £1.3 million interest free loan has been secured from Welsh Government Wales Funding Programme (Salix) to deliver a Re:fit Cymru (Energy Efficiency) Phase 1 project comprising over 18 buildings which is projected to save an estimated 400 tCO₂e every year. Quantifying the energy savings delivered by the Energy

Conservation Measures (ECMs) will be validated using the Measurement and Verification (M&V) process.

- Carbon Reduction Retrofit (phase 2): Working towards developing a business case to implement Energy Conservation Measures for Education Services - Schools.
- Swansea Council with the support of Welsh Government Energy Services are progressing towards the development of a 3MW Ground Mounted Solar PV farm located on a capped waste land filled area. It is predicted over the asset lifespan (35 years) that 101,302,731 kWh of renewable energy will be generated equating 28,454 t/CO₂. Part of this capital expenditure cost could be recovered as it would create revenue for the Authority, in the form of either Power Purchase Agreements (PPA) or private wire connection. There is the potential opportunity of extending the Solar PV site in future years as current additional waste land is capped.
- Public Sector Hub: Cabinet are considering moving from the Civic Centre to a new public sector hub in the heart of the city centre as part of Swansea Bay Central Phase 2, the £1bn project to revitalise the St David's area of the city centre. This is an opportunity for the Authority to show its commitment towards meeting its net zero carbon aspirations by 2030 incorporating renewable technologies into the design specifications.
- Progressing work towards a world-leading Swansea Bay Tidal Lagoon, estimated electricity generation of 504,854 MWh, equating to carbon emission savings of 94,913 mT CO₂e.

6. Community Energy

6.1 Community energy covers aspects of collective action to reduce, purchase, manage and generate energy. Community energy projects have an emphasis on local engagement, local leadership and control and the local community benefiting collectively from the outcomes.

6.2 Homes as Power Stations

6.2.1 Since the first development at Colliers Way, the More Homes development team in partnership with Corporate Building Services (CBS) have developed the Swansea Standard which has incorporated Homes as Power Stations (HAPS) owing to Welsh Government (WG) Innovative Housing Programme (IHP) funding enabling Swansea Council to build exemplar homes combining the latest innovative renewable technologies such as Solar PV, Tesla Batteries, Mechanical Ventilation Heat Recovery (MVHR) and Ground Source Heat Pump (GSHP).

6.2.2 With a building fabric first approach integrating the Swansea Standard; Swansea Council has been able to build homes that are super energy efficient; achieving the EPC rating of A and which are almost self-efficient in producing their own energy to decrease energy demand and tackle fuel poverty - typically generating around 60% - 80% of the energy consumed.

6.2.3 The HAPS properties are being monitored in collaboration with Welsh School of Architecture (WSA) at Cardiff University. The research team will work in collaboration with industry, government, academia and the public on built environment projects and evaluate renewable energy supply, energy storage and energy demand reduction technologies to create a low carbon-built environment that is both replicable and affordable.

6.2.4 The HAPS developments have now been completed at The Parc Yr Helyg development in Birchgrove (September 2020) and Phase 2 of the Colliers Way, Penplas development (April 2021). The Hill View Crescent/Beacons View Road HAPS development is scheduled to be completed by early 2022. The latest HAPS standard development is due to start in West Cross.

6.2.5 In addition, Swansea Council have retrofitted to HAPS standard several bungalows at Ffordd Ellen, Craig Cefn Parc which are also being monitored by WSA.

6.3 District Heating System

6.3.1 The latest consultant study from 2018 showed that there is an opportunity for Swansea Council to deliver a viable city centre District Heating System network, but this would not be without cost or risk. The options for delivery include a wholly Swansea Council owned and operated model through a Special Purpose Vehicle (SPV), or a joint venture partnership with the private sector to reduce the risk (and return). Assumptions were made that certain city centre buildings would connect to the network and the construction cost of £11.5m (excluding inflation and fees but including contingency at 30%) could attract a return of 8.2% over a 20-year period. The risks revolve around lower than forecasted energy demand, lower heat payments/tariffs, lower additional revenues and higher capital and operating costs, all of which would affect the Internal Rate Return (IRR) negatively. Since the biggest of these risks is demand, it should be noted that 55% of the energy demand came from three of our development sites (Copr Bay Phase 1, Sailbridge, Civic Centre), to date only Copr Bay has been developed, the other two are yet to come online.

6.3.2 The timescales of the District Heating System network proposal and the Copr Bay development weren't aligned with one another sufficiently enough for the heat network to be included within the Copr Bay scheme. Consideration was given to installing ductwork across Oystermouth Road during the Copr Bay construction which could be used in the future for district network pipework. Unfortunately, the nature of the road construction, location of existing underground services, and the additional complexities due to trench sizes and logistic issues with highway closures and noise considerations, there was no benefit in installing the ductwork during the Copr bay construction. That does not preclude the development from connecting to a heat network in the future, however. The heating solutions installed in Copr Bay could connect to such a heat network if one was established.

6.4 Solar PV Schemes - Swansea Community Energy & Enterprise Scheme (SCEES) and Egni/AWEL Co-Operative

6.4.1 These are schemes exploring how local people in some of Swansea's most economically deprived areas can benefit from community renewable energy projects. They have installed Solar PV systems on a number of Swansea schools with a total estimated renewable generation of electricity amounting to 946,211 kWh/year, (assuming 85% Solar PV generation used by schools, this equates to 804,279kWh/yr at electricity corporate rates (£0.13/kWh), estimated financial savings of £104K).

6.4.2 As part of the Egni Co-operative's Solar PV proposal offer to Swansea Council, they have partnered with charity 'Energy Sparks' to provide educational and energy data visualisation programmes to several Swansea schools. Working in collaboration with Education Services and School ECO Clubs, Energy Sparks will provide access to their online energy analysis software to monitor the schools smart meter data to identify energy and financial savings, along with carbon emission reductions. The software will also show the Solar PV data generation from the Egni Co-op PV System. The programme is supported with an extensive list of built-in energy related activities and lesson plans categorised by education level (key stage); subject (Science) and topic (Climate Change).

7. Swansea City Deal

7.1 The Swansea Bay City Deal is a £1.3bn investment in 9 major projects across the Swansea Bay City Region – which is made up of Carmarthenshire, Neath Port Talbot, Pembrokeshire and Swansea together with the Abertawe Bro Morgannwg and Hywel Dda University Health Boards, Swansea University, the University of Wales Trinity Saint David, and private sector partners. The City Deal is being funded, subject to the approval of project business cases, by the UK Government, the Welsh Government, the public sector, and the private sector. Over the next 15 years, the City Deal will boost the regional economy by £1.8bn and generate almost 10,000 new, high-quality jobs. The new Swansea arena is part of the council's £135m Swansea Central Phase One transformation scheme which includes almost 1,000 parking spaces. The arena's external skin will be covered in tens of thousands of LED lights. It is due to open in 2021/22.

7.2 In addition, Swansea Council have been in collaboration with Welsh Government and Swansea Bay City Region partners to 'draft' a Regional Energy Strategy plan for South West Wales which will be completed towards by the end of 2021.

8. Emissions Reporting Measures

8.1 Welsh Government have recently released their Public Sector Net Zero Carbon Reporting Guide (Jul 21) which is based on the common principles used to support the GHG (greenhouse gas) Protocol series of standards

for GHG reporting, which has been implemented in the Energy and Carbon Management Plan.

- 8.2 The publication is currently under review / consultation with the other Local Authorities in Wales prior to its proposed implementation of Oct 21. The 'Climate Change Group' are collating data for their respective emissions categories (energy, travel, waste, supply chain (procurement) and land use) for Financial Year 2019/20 (new base year) and Financial Year 2020/21 for submission to the Welsh Government Energy team; thereafter, annual reporting cycle in June.

9. Key Future Challenges

- 9.1 The Energy and Carbon Management Action Plan provides a breakdown of future projects set in terms of Short-term (0 -3 years); Medium-term (4 - 7 years) and long-term (7 – 10 years). However, there are some key short-term challenges which need to be prioritised:

Strategic Plan towards Decarbonisation of Buildings: Work has already started in collaboration with Welsh Government Energy Services - Regional Energy Planning (REP) and the South-West Wales regions developing a 'draft' Regional Energy Strategy that is "owned" by the South West Wales Region. This would build on past work undertaken for the regions in the report "Swansea Bay City Region: A Renewable Energy Future, Energy system vision for 2035 (IWA, 2018)". In addition to this work, Welsh Government are funding a 'Local Area Energy Plan (LAEP)' pilot scheme across two Local Authorities (Newport and Conwy), with technical consultancy from ARUP with the aim to develop local area energy plans. A decision to rollout this programme across Wales over the next few years is currently under consultation.

Whilst these proactive approaches are identifying the best opportunities for low carbon projects, along with providing strategic direction at regional/local levels, Swansea Council need to implement a costed decarbonisation strategic plan of its buildings (moving towards renewable sources for electricity and heating), identifying the funding gap and implementing long term investment planning and /or be prepared to submit low carbon projects when finding opportunities become available. This should include ensuring all new buildings are designed and funded to net zero carbon standards.

The Strategic Plan should be developed into an agreed framework with Cabinet support, Building Maintenance Service and Financial Services towards setting the direction and ambition for Swansea Council decarbonisation of its buildings by 2030.

Energy Budget Allocation: Investments in energy efficiency can significantly reduce costs and provide operational benefits. There is a cost-effective maintenance budget investing in energy efficient equipment using less energy and reducing our carbon emissions which will in turn assist in maintaining a sustainable asset portfolio in line with the overarching asset management plan. However, there is a requirement to

allocate an energy budget to invest in feasibility studies of new energy saving initiatives, undertaking technical audit appraisals; currently there is a challenging reliance on trying to secure funding from other budgets. All funding requests will be supported with a business case and financial appraisal.

Renewable Energy Opportunities: Identify and implement opportunities to promote the development of renewable and alternative energy generated on council owned properties (new and refurbishments) and land (car parks, waste land) and the wider community of Swansea. Potential income generation opportunities through selling surplus renewable energy to the Grid (Power Purchase Agreements) or private wire agreements.

10. Risks

- 10.1 Climate Change is seen as one of the world's greatest threats. The Intergovernmental Panel on Climate Change (IPCC) report released on 9th August 2021 provides a detailed assessment of Climate Change on our society and ecosystems.
- 10.2 Investment: Funding to invest in decarbonisation of our buildings is a major risk to meeting the aspirational commitment of becoming a net zero carbon emissions Authority. This will require significant financing; choosing to prioritise this investment would inevitably mean delaying or removing other capital schemes under consideration if funding is sought internally or seeking external loans /grants as they become available. For example, currently Energy Conservation Measures in non-domestic buildings have been financed using interest-free funding secured from Salix / Wales Funding Programme, however, where the payback period cannot be achieved there will be a need to supplement this funding to enable further decarbonisation measures with higher payback periods to be delivered.
- 10.3 Resource: Given the aspirations of the council to achieve its net zero target by 2030, there is an ongoing requirement to effectively resource all aspect of the climate change plan, including energy management. To this end, the council will shortly be appointing a temporary project manager for Strategic Climate Change and a new regionally funded temporary post from Earth (Economic Acceleration & Regeneration Through Innovation Project), specifically related to energy management. However there will be a need to review the ongoing requirements to enable the council to deliver its climate and nature ambitions for Swansea through to 2050.

11. Summary / Assessment

- 11.1 Swansea Council has been committed to reducing its carbon emissions over several years through various energy saving initiatives and investment in energy saving technologies and embracing renewable technologies, along with supporting Community Energy schemes; Against a Welsh Government 2009/10 baseline of 42,532 t/CO₂, it has reduced its carbon emissions by 2019/20 to 18,757 t/CO₂, a reduction of 23,775 t/CO₂,

- 11.2 The Authority are already planning positively towards facilitating renewable and low carbon energy development opportunities (such as Tir John Solar PV Farm) which will also support Welsh Government Legislations and aspirations for 70% of energy consumed in Wales to be from renewable energy generated in Wales by 2030.
- 11.3 The 'Homes as Power Stations' pioneering project integrating energy efficiency design and renewable technologies into the development of new build homes and retrofit programmes is positively reflecting the aim to tackle fuel poverty while helping residents save money on their energy bills.
- 11.4 However, the risks identified in Section 10 need to be addressed if Swansea Council is to fully achieve becoming a net zero carbon emissions organisation by 2030, and the City and County of Swansea as a whole by 2050.

12. Integrated Assessment Implications

- 12.1 This is a status report and therefore an assessment is not required.

13. Financial Implications

- 13.1 There are no financial implications associated with this report other than the financial risk identified in Section 10. Any future decisions involving financial implications would be subject to separate reports at that time

14. Legal Implications

- 14.1 There are no legal implications associated with this report other than those set out in the body of the report.

Background Papers

- Appendix A Energy and Carbon Management Plan
Appendix B Energy and Carbon Management Action Plan