



## Report of the Cabinet Member for Housing and Energy

### Renewable Energy Scrutiny Working Group 26 March 2018

#### OVERVIEW - RENEWABLE ENERGY

<b>Purpose</b>	To provide an overview of the Energy Strategy, in relation to Renewable Energy.
<b>Content</b>	This report includes an overview of the Council's aims and objectives, development projects/initiatives and progress in the promotion and use of renewable energy, and benefits.
<b>Councillors are being asked to</b>	<ul style="list-style-type: none"> <li>• Give their views</li> <li>• Make recommendations to Cabinet Member, as necessary</li> </ul>
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#### 1. General Description

- 1.1 Conventional sources of energy are generally non-renewable sources of energy. Conventional energy sources include oil, gas and coal. These conventional sources are usually fossil fuels and use of these lead to increased greenhouse gas emissions and other environmental damage. Renewable energy is generated from natural resources using technology which ensures that the energy stores are naturally replenished. This includes Solar, Hydro, Wind, Tidal, Biomass etc.
- 1.2 In order to achieve Swansea's vision 'to create a safer, greener, smarter, fairer, healthier and richer Swansea' the first requirement recognised in the Corporate Energy Strategy, as approved by Cabinet on the 21st July 2016 is the need to invest in renewable energy.

- 1.3 This investment will benefit the Authority and the wider Community by reducing the ever increasing energy costs, creating economic benefit, including employment and inward investment in Swansea and increasing local energy security which in turn will mean less reliance on imported fossil fuels and less exposure to higher energy prices. Community access to affordable low carbon/renewable energy is an essential element in achieving this vision and eradicating fuel poverty.

## **2. Why We Do This**

- 2.1 Reducing the carbon footprint and energy costs of the Authority and its Stakeholders contributes to the Corporate priorities which are Safeguarding vulnerable people, Improving pupil attainment, Creating a vibrant and viable city and economy, Tackling poverty and Building sustainable communities.

### **2.2 Carbon Reduction Commitment**

The Authority also has a legal duty to report on its carbon through the Carbon Reduction Commitment (CRC). The CRC is a UK mandatory carbon trading scheme which started in April 2010. It is a central part of the UK Government's strategy to deliver the ambitious carbon reduction targets which it has set itself, and to promote energy saving and to a lesser extent renewable energy generation.

Organisations that qualify for the full CRC scheme have to purchase annual allowances for each tonne of CO<sub>2</sub> they emit. The CRC applies to Public Sector and large commercial organisations and Local Authorities with half hourly energy metering (electricity) consumption of at least 6,000 MWh. Swansea have set itself a 3% annual reduction on 2010 levels and are on target to meet these targets.

### **2.3 Electricity Market Reform (EMR)**

In addition to this, legislation such as the Electricity Market Reform Act detailed the requirements needed by 2020 which included the legally binding EU target 15% of all energy being obtained from Renewable sources.

This Act puts in place measures to attract the £110 billion investment which is needed to replace current generating capacity and upgrade the grid by 2020, and to cope with a rising demand for electricity. This includes provisions for:

- Contracts for Difference (CFD): long-term contracts to provide stable and predictable incentives for companies to invest in low-carbon generation;
- Capacity Market: to ensure the security of electricity supply including provisions to allow Electricity Demand Reduction to be delivered;
- Conflicts of Interest and Contingency Arrangements: to ensure the institution which will deliver these schemes is fit for purpose;

- Investment Contracts: long-term contracts to enable early investment in advance of the CFD regime coming into force in 2014;
- Access to Markets: This includes Power Purchase Agreements (PPAs), to ensure the availability of long-term contracts for independent renewable generators, and liquidity measures to enable the Government to take action to improve the liquidity of the electricity market, should it prove necessary;
- Renewables Transitional: transition arrangements for investments under the Renewables Obligation scheme;
- Emissions Performance Standard (EPS): to limit carbon dioxide emissions from new fossil fuel power stations.

The act also looks further ahead in that it highlights the requirements needed and possible routes to meeting their 2030-2050 commitments, whereby they believe demand will have increased by 30-100%, with the majority of energy having to come from Renewable sources.

#### 2.4 Tidal Lagoon

One major form of new technology which would help achieve this is the Tidal Lagoon which would provide clean, cheap, renewable energy for the next 120 years and which could act as a pathfinder project, paving the way for much larger lagoons that, like offshore windfarms, would see reducing costs as the technology became more established.

### 3. Management and Support

- 3.1 The service/policy area is supported and managed via internal resources although external advice would be required. Local partnerships have already been established, who have carried out research and initial reviews, on behalf of the Authority, including looking into The Renewable Energy Assessment (2015) which provides a useful summary of the potential within Swansea for the deployment of various renewable technologies.
- 3.2 In addition to this, the Authority has also signed up to the ReFit Cymru programme. This is a Welsh Government programme which was put in place to help Public Bodies in Wales to be more energy efficient. The programme offers access to an expert team providing low cost, end to end support needed to develop and successfully implement projects and access to the Re:fit framework of energy service companies, saving time and resources when procuring retrofit services and work. This programme is being rolled out in phases with Phase 1 due to commence in summer 2018.
- 3.3 In relation to wind energy potential, Local Partnerships reviewed a high level plan of the whole authority area as opposed to a list of sites. Swansea Council land was cross referenced with the wind speed map to identify the areas with potential. These sites were then looked in terms of suitable land and the location of residential housing. Initial findings suggest that where wind speeds

were suitable those parcels of land were either in SSSI areas or too close to residential areas. The likely barriers to progressing any of these sites are more around planning restrictions and policies and whether the authority can gain day to day control over land it has freehold, but may be subject to long term tenancies.

More recently, the Authority utilised the expertise of APSE to review its existing Energy Strategy to align it with Manifesto commitments.

## **4.0 Stakeholders**

4.1 Key stakeholders who would benefit from the objectives and aims as laid out in the Energy Action Plan include all members of the community who utilise our services. Those who would benefit from reduced energy consumption, improved energy efficiency of City & County of Swansea's public building and housing stock portfolio and the investment in Renewable Technologies not only include the current users, the current wider community but also future generations to come.

## **5.0 Finance**

5.1 With regards to Solar PV, the Governments' financial incentives for this have largely gone and the technology is in the transition period, leading to post subsidy operation. Some projects will provide a robust business case now (such as solar PV on a Council building where the energy will be used on site) but in others more time will be required (such as a solar farm, where there is no potential off-taker nearby).

Financing of any feasibility studies into opportunities for Renewable Energy initiatives would be from two sources as follows:

- Capital Energy Budget - £70K
- Development Budget - £250K

## **6.0 Progress**

6.1 As detailed in the recent APSE Energy Report, there has been a great deal of progress to date particularly around energy savings and carbon reduction measures including but not limited to:

- On-going HRA investment in our housing stock (new boilers, insulation to walls and loft areas, cladding, replacement windows and doors etc.) making our tenants homes warm and energy efficient
- The refit of street lamps with lower energy use LED
- PV (solar) on schools
- A small number of biomass and CHP projects (schools and Leisure centre)
- Mechanical and electrical works across buildings delivering greater energy efficiency

- The establishment of a community group (Swansea Community Energy & Enterprise Scheme, SCEES) to own and run renewable installations in the City & County of Swansea.
- A feasibility study for a district heat network in the city centre
- A 45KW Solar PV array has also been installed on the recently refurbished Guildhall.
- ARBED schemes in Pontarddulais and Clydach providing Photovoltaic Systems to Council housing.

A number of the above micro-generation projects have already been progressed via the Councils 21st Century /QED programme which include:

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

6.2 In addition to this, considerable efforts have been made to minimise the single use and disposal of finite resources and maximise the use of sustainable raw materials and energy in more efficient ways. A 'Municipal Waste strategy 2011-16' has been developed to meet Welsh Government targets set out in the Towards Zero Waste Strategy and the 'Municipal Sector Plan'. Household Waste Recycling Centres (HWRC) are now operated in-house. The Baling Plant & HWRC in Llansamlet has achieved a range of quality standards and is recognised as a UK leader. This best practice is being rolled out to other sites.

6.3 Swansea works with four neighbouring Local Authorities as South West Wales Waste Partnership to find the most sustainable, cost effective and practical solutions to treat waste and to turn waste in to a renewable energy source. New Welsh Government criteria has amalgamating funding previously issued to specific departments for specific tasks into a single Environment and Sustainability Grant which requires a collaborative approach based on integrated objectives.

## **7.0 Future Challenges & Opportunities**

7.1 Future challenges which need to be faced include, but are not limited to:

- Increased population and as such, an increased number of households all of which will have a knock on effect to energy consumption and associated costs.
- Diverse society and the requirement to provide secure, low cost energy supplies to meet demand and address fuel poverty
- Aging council assets, availability of funding streams and access to Energy sector expertise

- Culture change around 'Smarter ways' of living for council tenants and staff
- Aging grid network and infrastructure
- Challenging local and central government targets around carbon reduction and renewable energy targets
- Cutbacks in council resources

7.2 Future opportunities include, but are not limited to:

- Energy security through self-supply and investment in renewable technologies.
- Increased distributed energy capacity through Micro-grids and Energy storage technology
- SMART Grid technology. This is the digital technology that allows for two-way communication between the utility provider and its customers, and consists of controls, computers, automation, and new technologies and equipment working together, to respond digitally to our quickly changing electric demand.
- SMART Cities/Combined authorities.
- Partnership/Collaborative working e.g. Swansea Bay City Region 'Homes as Power Houses' and links with the Swansea Tidal Lagoon Project.
- Development of Heat networks within the city.

7.3 As previously highlighted in section 2.4, one major opportunity for Swansea in the future is the Tidal Lagoon Project which would provide clean, cheap, renewable energy for the next 120 years.

Discussions with Education on the inclusion of schools into Phase 2 of the Refit Cymru programme will continue to take place.

## **8. Risks**

8.1 Sustainable Swansea – Fit for the Future Programme.

If the Council does not transform services, change models of delivery and implement preventative actions THEN we will fail to manage future demand, fail to make the required savings, will have to take emergency action and we will not be sustainable.

8.2 Reporting Risks

The Local Authority was the first in Wales to report on carbon emissions and energy consumption before extending the scope of reporting to include economic, environmental and social indicators.

The City and County of Swansea (CCS) is a participant in the Carbon Reduction Commitment Energy Efficiency Scheme (CRC) and has developed

a reporting system to ensure compliance. Energy and Carbon data are collated and reported in the Council's Carbon Footprint and Annual Report submitted to the Environment Agency annually in line with CRC legislation. The data is also used to drive behavioural change and efficiencies aimed at reducing carbon emissions and associated energy costs. Investment in 'low carbon' technologies such as LED building & street lighting, renewable energy and electric vehicles demonstrate Swansea's ambition is to be among the greenest cities in the UK. Swansea was the first authority in Wales to sign the Climate Local Commitment.

If energy consumption data for all Corporate Properties is not monitored in line with legislation then reductions across the Council will not be achieved. Furthermore, if accurate data was not made available there would be an impact on our commitment to the 'Outcome Agreements', which in turn could be detrimental to incoming funding streams.

### 8.3 Changes in Legislation

If the Council fails to adequately plan for new legislative and regulatory requirements THEN we will fail to meet our duties and risk external challenge and criticism. As such, in addition to the existing Future Generation Board, implementation of Policy Review Briefings were introduced in 2016.

## 9. Assessment

9.1 There has been a great deal of progress to date particularly around energy savings and carbon reduction measures as detailed in this report. We have a solid existing energy strategy, which primarily focuses on energy savings and carbon reduction that has achieved great strides forwards.

The biggest risk is in relation to the Tidal Lagoon project with significant investment and buy in from WG and Central Government required.

9.2 The Council is ambitious and keen to move ahead with this agenda, building on its progress to date.

Local Authorities across the country are starting to appreciate the strategic, tactical and financial value of energy. So the Council should position itself for generating renewable energy by undertaking work that is possible now, whilst preparing the ground for future development to be possible. This should be focussed primarily on solar PV in the early period, but wind energy and other technologies should also be considered at a later stage.

Any strategy is an evolving process and once the preliminary recommendations are completed, the Council will be in a much stronger position to determine the exact direction and pace of the wider programme.

To conclude, three key areas that the Authority should now focus upon going forward to enable them to take the delivery of their Energy Strategy to the next level will be the generation, supply and distribution of electricity.

**Background Papers:** Corporate Energy Strategy, Cabinet - 21st July 2016

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**Date:** 14th March 2018