



HOUSING AND REGENERATION SCRUTINY COMMITTEE – 11TH JUNE 2019

SUBJECT: ENERGY AND CARBON REPORT

REPORT BY: INTERIM CORPORATE DIRECTOR COMMUNITIES

1. PURPOSE OF REPORT

- 1.1 The report outlines the progress made in respect of energy conservation and carbon reduction predominantly through its Carbon Reduction Strategy. The report outlines the need for a new overarching plan which will assist the Council in meeting its “Green energy” ambitions whilst aligning the authority with Welsh Government’s and the Cardiff Capital Region (CCR) aspirations for decarbonisation. It also demonstrates how the Council can make radical improvements via some key opportunity areas and projects.

2. SUMMARY

- 2.1 The report firstly summarises the positive track record that the authority has through introducing and implementing measures to reduce energy consumption and reduce its carbon footprint. It sets out the benefits attained from that work and outlines how this will be further enhanced by exploring and maximising the Council’s assets. The existing Carbon Reduction Strategy period ends in 2019, so there is a need to develop a new overarching strategy for the Council. Part of this process will be the development of an Energy Plan which sets out our overarching objective of being a carbon neutral council and identifies a number of projects that the Council can take forward over the short, medium and long term that will move us towards this overarching aim.

3. RECOMMENDATIONS

- 3.1 To acknowledge the volume and diversity of work on carbon conservation that has already been undertaken, as outlined in Appendix 1: *Summary report on initiatives to date*.
- 3.2 To seek the views of the Committee regarding the proposed overarching aims of the new Energy Plan to make us a carbon neutral council, and the associated proposed projects that will assist in delivering that aim.
- 3.3 The committee consider the next steps in the development of the Energy Plan and to

offer scrutiny consideration once a draft is developed.

4. REASONS FOR THE RECOMMENDATIONS

- 4.1 The Council needs to build on the progress made over the last decade through the implementation of the Carbon Reduction Strategy. In order to continue that work the Council needs to take a coordinated approach to carbon/energy management. This report advocates a wider approach to reducing energy consumption and investing in energy efficiency using the Council's own assets to drive forward this agenda through the development of a new Caerphilly County Borough Council Energy Plan.
- 4.2 Taking this wider approach will certainly assist the Council in fulfilling its Green energy potential as well as demonstrating the current obligations we have already, set out by Welsh Government and Westminster Government. Importantly it will also help future-proof the local authority going forward. In order to shape the Energy Plan it is imperative that the Council first understands what problems it is trying to solve in order to align potential projects to deliver maximum impact.

5. THE REPORT

- 5.1 The requirement for the Authority to continue to be proactive stems from a suite of internal and external drivers and influences. Continuing energy cost increases are a prime external driver; whilst the need to develop a replacement Carbon Reduction Strategy and the opportunity to take a commercial approach to some of our assets are internal ones. Importantly, we brand ourselves as the "Green" council and we know there is still much to do to maximise our full potential in terms of Green energy credentials.
- 5.2 There is also a changing legislative landscape and a change in focus particularly by Welsh Government. The launch of Welsh Government's Prosperity for All: Low Carbon Wales in March 2019 outlines the following vision:
- "In 2050, Wales will be among the best places in the world to live, learn, work and do business. Our businesses, public services, third sector and government will have worked together to achieve the goals that we set in the ground-breaking Well-being of Future Generations Act and the target to reduce emissions by at least 80% against the 1990 baseline".*
- 5.3 Welsh Government advocates a low carbon pathway that requires decarbonisation across a number of sectors, such as power, buildings and transport. This means that the Council needs to ensure that long lived infrastructure for these sectors support low carbon options and avoid locking in high carbon infrastructure and behaviour. It will mean investing in infrastructure in the low carbon economy as soon as possible,
- 5.4 Regionally there is also pressure to accelerate decarbonisation. Cardiff Capital Region City Deal is working towards creating an overarching regional energy strategy. It is likely that the objectives set by this regional energy strategy will mirror and support those set out by Welsh Government. We have already identified through our Regeneration Strategy that the Green energy sector provides an important opportunity for us to develop an economic and environmental eco-system.

WORK TO DATE

- 5.5 Caerphilly County Borough Council has been active in energy conservation methods and techniques since 2005, and is able to demonstrate many good examples of success as outlined below:

Carbon Reduction Strategy

- 5.6 The authority has a Carbon Reduction Strategy which is due to expire in 2019. This 10 year strategy focusses in on reducing carbon emissions on non domestic buildings and street lighting. The strategy has been founded on the principles of: Good Housekeeping; Invest to Save; Asset Management and renewable energy all of which have played a major role in significant energy efficient projects being delivered by the authority. The Carbon Reduction Strategy identified a 45% reduction target and the Council have been working towards this over the last decade. Initial out-turn figures indicate that the Council is close to achieving this target.

Invest to Save

- 5.7 The authority has a proven track record in delivering energy and carbon improvements using the Invest to Save model. The authority was a founding member (2004) of the national Salix scheme, which provides interest free loans from a revolving investment pot for technologies such as lighting (as in Ty Penallta), boiler controls or insulation to name a few. There have been 120 projects delivered in schools across the county borough. The authority has £800k to reinvest and is the top performer in Wales on the volume of annual carbon saved. The County Borough is also placed highly in UK national league tables. It is the eighth placed authority within the Salix scheme and is the highest placed Welsh Authority. Overall against all public sector organisations we are placed 16th out of 110 organisations.
- 5.8 As at 1st April 2018, the Salix scheme is reported to save £475,882 annually off the authority's gas and electricity bill. The Council's annual utility bill would have been significantly higher had the projects not been implemented. Our annual carbon savings through the Salix scheme is 2,930 tonnes and in 17/18 this equated to £51,861 saved on carbon tax. As the cost of carbon tax and utility costs increase and as we continue to add to the projects implemented, the annual savings continue to increase.

Renewables

- 5.9 The Council has invested in 19 medium sized Photo Voltaic (PV) arrays and 45 smaller demonstration PV schemes that have offset grid electricity consumption by 621 MWh (CCBC have also exported power to the grid). These PV's schemes have resulted in a total of 583 tonnes of carbon saved at today's conversion rate; and a total Feed In Tariff revenue to the authority of circa £390k.

Street Lighting

- 5.10 Caerphilly CBC has a current street lighting stock of approximately 27,500 units, which since 2009 have been subject to a number of energy saving measures (inter-urban road part-night lighting, replacement of conventional lamps with low-energy alternatives, dimming etc.). In 2015-16 a capital investment was made for the replacement of approximately 8,200 lights with LED gear trays (replacing the lighting elements only) and approximately 1250 LED lanterns replacing life expired sodium lanterns within residential areas. To date these changes have brought a reduction in energy of 4,239,776 kWh and 1747 tonnes of CO².
- 5.11 At the beginning of April 2019 the Council has begun a program to convert all the county borough's remaining street lanterns to LED and at the same time implement

part night lighting, between the hours of midnight and 5.30am, to all lighting, except at junctions and in major town centres. Once the additional savings of 6,884,477KWh and 2,836 are realised, the Council will have contributed to energy reductions of 11,124,253 kWh and 4583 tonnes of Co². This equates to a 63% reduction in CO² from Highway energy alone and 17.6% towards the Authority's 45% target. The new programme will see millions of pounds invested in replacing the remaining luminaires. The energy savings to date have been approx. £500,000. The energy savings for the current LED/part night initiative will realise an additional £940,000 in avoided costs/savings.

Housing

- 5.12 Reducing energy consumption has been the key objective of the Council when considering its own housing stock. Over a third of the Council's stock has now benefitted from external wall insulation. A large proportion has also benefitted from the introduction of more efficient condensing boilers and loft insulation. This work has been supplemented by the introduction of double glazing on all of the Council's housing stock. Some innovative projects have been trialled, including the installation of Solar PV on stock at Ty Coch, Rhymney and air source heat pumps at properties in Rudry. The Council were also partners in the off grid housing exemplar at Maes Yr Onn to design and deliver a modern farmhouse and family home.

CCBC Office Stock

- 5.13 The Council, wherever possible is looking to reduce energy costs associated with running its own office buildings. Much progress has been made in reducing the electricity consumption in Ty Penallta for example. 108 roof top PV panels have been installed, changes have been made to the heating and cooling controls strategy and the original tungsten and fluorescent lighting is progressively being replaced with the latest low energy LED fittings.

Housing Association Developments

- 5.14 All of the zoned Housing associations active in the county borough are absolutely committed to addressing the Welsh Government's low carbon agenda and housing delivery challenges in Wales. Those HA's zoned in the locality have been working towards a decarbonisation agenda for some time and have been working to higher standards than volume house builders.

Utility Billing

- 5.15 Between 2005-2013 the authority's energy team checked all non domestic Gas and Electricity bills. Post 2013 the team has been paying those bills. This has improved accuracy and speed of payment and prevents overpayment. Importantly this has led to accurate energy consumption/cost reporting on all Council owed buildings. This covers circa 7,880 invoices (including credits and rebills) with a value of £3.65m.

Sustainable transport

- 5.16 Transport accounts for 14% of Welsh carbon emissions, and although vehicles are becoming increasingly efficient, this figure has barely moved since the 1990 baseline. Significant work has already been undertaken to reduce the emissions from Council vehicles, with a drive to phase out older vehicles and replace them with more efficient and cleaner new (Euro 6 compliant) vehicles. Work has also been undertaken to support staff to travel more sustainably, including: establishing a car share scheme; providing pool bikes; promoting low emission vehicles through a salary sacrifice car scheme; and installing shower and changing facilities to encourage people to cycle to work. The Authority also operates a "Cycle to Work Scheme, and has recently taken ownership of an electric bike which is available for staff to use

Electric Vehicles

- 5.17 The Authority recently approved an *Electric Vehicle Strategy and Action Plan* setting out its vision to “*Introduce an electric vehicle infrastructure across Caerphilly county borough, to maximise the economic, social and environmental benefits and opportunities that the electric vehicle agenda will provide, and for electric vehicles to be a fundamental part of our fleet*”. The key aims are to:
- Provide electric vehicle infrastructure across the Caerphilly County Borough.
 - Lead by example incorporating electric vehicles into our fleet and trial new technologies as they evolve.
 - Work with private developers to incorporate electric vehicle infrastructure into new builds and developments.
 - Work with our partners and local businesses to encourage them to adopt a similar approach to electric vehicles and their infrastructure.
- 5.18 Continuing and expanding on this good work will bring about a number of benefits for the Council, its residents and indigenous businesses

REDUCING OUR CARBON FOOTPRINT CAN HAVE MULTIPLE BENEFITS:

- 5.19 Although the Council has worked hard to reduce its current carbon footprint, we do still impact negatively on our environment. The Carbon Reduction Strategy concentrated on non domestic buildings and street lighting and looked to reduce energy consumption and associated carbon emissions. The Council has accurate data in relation to consumption and carbon for both that as allowed us to measure the impact of this strategy. . The starting carbon emission in 2007/08 was circa 27,718 tonnes dropping to circa 23,227 tonnes in 2017/18. Unfortunately outside of the Carbon Reduction Strategy there isn't a carbon map to currently outline the authority's overall carbon footprint which would include additional areas such as waste, transport and social rented housing.
- 5.20 The positive impact of the interventions that we have already made and measured can be further increased through the implementation of this new Energy Plan and it is of paramount importance that the Council seeks to measure the impact that these interventions will have. The Council advocates that carbon reduction should be the primary benefit and this should be our focus moving forward even if options that maximise carbon reduction are financially more expensive.
- 5.21 Our overall ambition is to ***become a net carbon neutral local authority by 2030.*** This motion has been signed by the Cabinet plus the leaders from the two other political groups and has the support of the Environment and Sustainability Scrutiny Committee. The Energy Plan will set out opportunities for delivery against the objective to become carbon neutral and reduce and/or offset our non-domestic building and street lighting annual carbon emissions from its current level of circa 23,000 tonnes to zero by 2030. The plan will also enable us to quantify and agree a carbon reduction strategy for other areas such as transport, waste and social rented housing. Key benefits are as follows:

Carbon Reduction

- 5.22 Carbon is one of the main greenhouse gas emissions that are directly responsible for the change in climatic conditions around the world. More and more extreme weather events are resulting in people losing their health, wealth and general wellbeing. Reducing carbon emissions must remain our key focus in driving forward the Energy Plan.

Social benefits

- 5.23 Making homes more energy efficient will reduce fuel bills and is a key tool in reducing fuel poverty. Improving access to efficient, integrated transport will enable residents to access employment and will tackle inequalities.

Direct Financial Benefits

- 5.24 As well as the environmental and social benefit to Carbon reduction there is also a financial benefit to the authority. Each tonne of carbon generated from building usage in 18/19 will cost £18.30. The annual cost for 17/18 was £337,415. From 1st April 2019 the Climate Change Levy tariff has increased for Electricity by 45% and Gas by 67% on last year's figures. Through the authority's invest to save scheme, we have shaved 3,078 tonnes off the annual carbon bill, 922 tonnes of this from schools. These are continual annual saving and as new projects are added, the value grows.
- 5.25 Energy improvement projects, including good housekeeping and invest to save opportunities, reduce the electricity bill value and carbon emissions by reducing consumption at source. It reduces the overall bill and reduces carbon taxes outright and also protects budgets. Some Invest to save opportunities can result in a steady revenue stream. The authority sells its electricity, generated from a PV scheme on the roof of Islwyn Indoor Bowls, to the club, bringing in a regular income stream to the authority. It also helps safeguard the bowls club as they are purchasing from the Council at a cheaper rate than they could obtain from grid suppliers.

Legislative compliance

- 5.26 The authority is included in the Carbon Reduction Commitment scheme which has come at a financial cost, however non-compliance in the scheme could have resulted in fines (max £1M) and / or prosecution. The authority also has to provide Display Energy Certificates and Energy Performance Certificates in line with the Energy Performance Building Directive. It is to be assumed over time greater legal responsibility will be imposed on the authority to adhere to decarbonisation targets and it makes perfect sense to move towards wide scale reductions ahead of this

Future proofing

- 5.27 Energy prices for gas and electricity are influenced by many factors such as: weather, location, green tariffs, political agenda and generation constraints. Local generation for local consumption can mitigate against grid price rises and future proof against cost increase, however this must go hand in hand with reducing consumption at source. Local generation can provide some opportunities to raise revenues.

Wider economic benefits

- 5.28 Delivering on this agenda will have wider economic benefits. Proposals within the Energy Plan will bring opportunities to local businesses, including but not restricted to:
- Offering direct employment for a local workforce to manage projects once they are established.
 - Local businesses will have the opportunity to benefit from construction/build contracts.
 - Local firms will be encouraged to supply goods and services during construction and once the projects are operational.
 - Some local businesses will benefit from clean renewable energy.
 - Attracting inward investment into the county borough offering clean energy for business use at certain locations.
- 5.29 Individual projects may contribute to one or all of these benefits. The Council has

land, building and assets that provide the authority with the opportunity to implement projects that will bring forward some or all of the benefits outlined above. Some will focus on improving carbon reduction, others on economic prosperity, some will serve to alleviate social and energy poverty and some will bring more opportunities for job creation than others. All future projects will need to be considered in terms of the benefits they bring to the authority and its residents.

KEY OPPORTUNITIES/PROJECTS

5.30 There are a number of projects that the Council can incorporate into their evolving Energy Plan. These can be identified against short, medium and long term timescales for implementation. For this report it has been assumed that short timelines are up to 24 months, medium are between two and 5 years and long term are 5 years plus.

5.31 Each of these projects will help the Council move towards reducing our carbon footprint and move us towards our goal of becoming a net carbon neutral authority by 2030. The Energy Plan will seek to measure how each project impacts positively on reducing carbon production and where appropriate energy savings to the council. A standard set of measurements are currently used to measure our carbon production in certain arenas of operation such as non domestic building management. The level of kilowatt hours of energy (gas and electricity) used by the Council is carefully measured and is then converted into “quantity of carbon generated” data. This will be a primary source of measurement going forward but will be refined for each project.

5.32 The following section gives a pen portrait of projects that the Council could readily take forward.

Solar Power generation - Medium (24-60 months)

5.33 In recent weeks the authority has undertaken an initial survey to establish if available land would be suitable for large scale renewable energy projects. From an initial 14 sites the Council has now established that large scale PV could be explored at five sites within the county borough. Additional consideration will be given to other available public sector land across the county borough, although The Council is aware that Western Power Distribution report infrastructure constraints for exported power between Rhymney and Abergavenny until 2026. Perhaps the most exciting prospect is the prospect of introducing solar farms on publicly owned open air car parks. With improvements in associated technologies, it is now possible to set up arrays of solar panels so they permit vehicles to park underneath them.

5.34 Smaller PV installations remain an option on buildings such as Tredomen House (circa £55k), Tredomen Innovation Centre and schools. Funding would be required to proceed and structural roof surveys will be needed, so no sites can be guaranteed at this stage. Approval will be required from Western Power Distribution before any power is exported onto the grid. Maximum benefit is derived from aligning PV schemes to buildings that have extended operating hours to absorb the power being generated at all times.

Anaerobic Digester - Short (0-24 Months)

5.35 Anaerobic Digesters (AD) break down feeder fuels such as food waste and maize to generate a biogas. The gas is burnt to generate electricity. Bryn Quarry which is 2.1km away from the Ty Penallta estate has an Anaerobic digester. Initial discussions with the company that owns it, indicates a willingness to discuss the option of the authority buying their electricity, which would be beneficial to both parties as it would increase their revenue stream whilst possibly reducing authority

energy costs. This opportunity could feed the Tredomen estate/campus and possibly a wider catchment of properties. Additional added benefits could include the use of authority land to grow feeder crops for the Anaerobic Digester.

Wind Turbines - Medium/Long (24-60+ Months)

- 5.36 The Council already has a partnership project between CCBC and the Partnership for Renewables, where two wind turbines have been installed on council owned land on Oakdale Business Park. Each turbine has a generating capacity of 2 Megawatts, capable of powering 2,000 homes. As part of the project a Community Benefit scheme was established which provides £10,000 to local projects each year of the 25 year lifetime of the scheme.
- 5.37 The authority's recent land review did not identify any obvious sites for Wind Turbine generation. However, the Heads of the Valleys may provide suitable opportunity for an energy belt to feed the grid and local industry. Large wind turbines have the potential for good power generation and therefore revenue generation, they require a smaller footprint than solar farms and are easier to safeguard against vandalism. As reported previously, Western Power Distribution is aware of grid infrastructure constraints in the area and a dialogue continues on this matter.

Electric Vehicle Strategy and Action Plan - Short (0-24 Months)

- 5.38 As part of the work on the Electric Vehicle Action Plan, CCBC is leading on a feasibility study to determine the most suitable sites for electric vehicle charge points in the 5 Gwent local authorities, for all types of vehicles including cars, vans and bikes. It will also identify the grid connection availability and approximate costs, along with the most appropriate type of charging unit and options for income generation. The study will form the basis of a bid for the Office for Low Emission Vehicles (OLEV) funding. The aim is to identify a cost-effective regional approach for electric vehicle charge point infrastructure across Gwent.
- 5.39 Linked to this, work is being undertaken to install charge points at the Tredomen Campus for fleet vehicles and visitors. The Council will look to roll out additional EV charging points across the authority. Caution must be taken to ensure the correct type of chargers are installed. They vary from very slow to super-fast and the latter are expensive to install but the authority need to future proof against improving battery systems.
- 5.40 CCBC is also leading on a strategic fleet review for each Gwent Local Authority and PSB Partner to break down current vehicle usage and quantify the benefits and any potential issues of introducing ultra-low emission vehicles (ULEV's) into their fleet (i.e. identifying opportunities for replacing existing fleet with more efficient ultra-low emission vehicles (ULEVs).

Stage Coach Metro Link Medium (12-24 months)

- 5.41 The Council has warmly welcomed the news that Stagecoach will deliver one of Europe's largest single investments in electric buses for Caerphilly, after securing £2.9m in grant funding from the UK Government. Stagecoach will invest £3.6 million in the ground-breaking project, which is supported by CCBC, the Cardiff Capital Region Transport Authority and the Welsh Government. The combined investment of £6.5 million will deliver a new 16 vehicle fleet of zero emission buses and associated infrastructure over the next two years.
- 5.42 Opportunities exist to use this as a catalyst for change towards greener and cleaner vehicles, particularly in the Caerphilly basin area where the Stagecoach services will be most concentrated. The Council has targeted the current rail/bus terminal in

Caerphilly town centre for redevelopment and investigatory work is currently underway to establish how the new station can become an electric vehicle hub, accommodating the electric bus fleet and electric cars, taxis and bikes.

- 5.43 The Stagecoach project can also provide the stimulus to work more intently towards a council owned electric fleet as outlined above.

Valleys Metro - Short/Medium/Long (0-64months+)

- 5.44 The £700m+ investment in the Valleys Metro will create many opportunities to stimulate a sea-change in peoples attitude to travel. Although not directly affecting the authority's own targets, it is the spin offs for active travel and more sustainable means of travel that the Council can help to promote. Establishing new park and rides and/or expanding existing ones to encourage people to use the improved train service is fundamental to reducing congestion, emissions and fuel use. The use of active travel routes to better link communities with these public transport hubs is also a key factor in getting people to think differently about their mode of travel

Agile Working Short (0-24 months)

- 5.45 Still on the Transport theme, the introduction of agile working within the local authority will reduce the need for staff to travel unnecessarily and could reduce the need for office space. This would result in reduced energy consumption and bills. The Council is already developing an Agile working plan as part of the emerging Workforce Plan.

- 5.46 There are a number of opportunities that can be taken forward when the Council considers its existing housing stock and proposed new housing provision in the county borough. The Council can concentrate on making its own stock more energy efficient, look to introduce innovative measures to also make new builds more energy efficient and be proactive in promoting opportunities for making both existing and new stock energy generators.

Housing Association New Build - Short/Medium/Long (0-64months+)

- 5.47 The Council will continue to work with and support our active Registered Social Landlords to deliver ground-breaking innovative housing schemes within the county borough using their Social Housing Grant (SHG) allocations and Innovative Housing Programme (IHP) monies. Several of the schemes have planning permission or are close to getting on site. Examples include: the LINC Housing Association scheme at the Magistrates Court in Caerphilly, which will be developed to Passive House standards; and the United Welsh Scheme at Cwm Ifor Primary School, which will deliver highly energy efficient timber frame housing using the Beattie Passive system. Both schemes will use high performance insulation, making the buildings completely draught free, effectively eliminating heat loss to create buildings with very low environmental impact. The Council can support RSL's to continue to focus on energy saving construction by offering support in securing the necessary finances, be it SHG or IHP monies. This Passive House philosophy is based on a well-insulated and almost air tight envelope with tightly controlled ventilation. As we live in a cool climate heat recovery of expelled air is essential so the building services are a key component. Few Passive House standard homes have been delivered in the UK.

Reducing Fuel Poverty - Short/Medium/Long (0-64months+)

- 5.48 The Council has been concentrating its efforts with its own council stock on reducing fuel poverty and improving insulation, through a number of energy supplier grants and the Welsh Government Arbed scheme. In the short term these initiatives to reduce tenants' heating bills will continue to be a primary focus of the Council's housing staff.

- Maximising Assets - Short/Medium/Long (0-64months+)**
- 5.49 Caerphilly CBC can become much more proactive in using its own assets (primarily land in this instance) to drive its carbon agenda forward by working closer with partnering organisations such as Housing Associations and housing developers. For instance, the capital value of its own assets (i.e. capital receipts for land) can be offset by carbon reduction initiatives such as building to Passive house standards. By accepting reduced value on land in exchange for innovative building techniques the council could resolve to stimulate good quality energy efficient developments.
- Partnerships with Housing Associations - Short/Medium/Long (12-64months+)**
- 5.50 The Council working in partnership with zoned Housing Associations has targeted a number of large housing developments to use innovative housing techniques to help take forward the decarbonisation agenda in the medium term. The Council are working closely with Pobl Housing Association to deliver the Chartist Village at the former Ty Pontllanfraith site and United Welsh are working towards developing land at Ty Du Nelson for the development of over 200 blended tenure homes.
- Modular Build - Short/Medium/Long (12 -64months+)**
- 5.51 Modular off site construction techniques are considered by many housing associations within South Wales to be a real alternative to traditional construction techniques. Seven regional housing associations have commissioned consultants to explore the opportunities to work together to create enough forward demand for modular build to make it viable for modular construction companies to set up within the region. CCBC is heavily involved in this dialogue and hope to be able to benefit from any inward investment opportunities that stem from the region by offering suitable sites for locating these companies
- Caerphilly Homes New Build Programme - Short/Medium/Long (12-64months+)**
- 5.52 The Council is committed to delivering new council housing. The same innovative housing techniques being employed by the housing associations will be considered by the authority on its new build stock, helping to reduce fuel consumption by its tenants and in doing so help contribute positively towards addressing fuel poverty.
- WHQS Successor Programme - Short/Medium/Long (12-64months+)**
- 5.53 Post WHQS completion in 2020 there is currently an understanding that resources will thereafter be focused on the energy agenda. Officers have recently opened a dialogue with the Welsh Government Energy Services to explore how the authority could act as a pilot authority to lead any new initiatives.
- Existing Housing Stock – Energy Production Short/Medium/Long (6-64months+)**
- 5.54 There are opportunities to create energy from PV's on our own housing stock. The Council is currently exploring the best model for taking this forward. One option available is to work in partnership with private companies who offer a fully rounded package (including covering costs of installation, paying fee for using our assets and offering benefits of green energy to tenants). Officers are tasked with establishing the most beneficial model for the Council to progress.
- Plot Shop – Self Build Short/Medium/Long (12-64months+)**
- 5.55 Welsh Government has announced an initiative to encourage potential home owners to develop their own homes. Through the Development Bank of Wales Welsh Government will invest £40m into the Plot Shop – Self Build Fund scheme, which will help to deliver additional housing throughout Wales. CCBC are in the process of identifying suitable sites eligible for the scheme and will be able to set design standards for the new housing. One of Welsh Government's key aims of the scheme is to develop housing that has highest levels of energy efficiency. As part of the

process of bringing sites forward the council will need to prepare a 'Passport' for each plot which sets out the all the relevant parameters for the development, which could include decarbonisation and energy efficiency aspirations. On sites with a larger number of plots, consideration could be given to the use of communal heating and power systems where they are appropriate

Changing Planning/Building Control Legislation (24 months+)

- 5.56 The Council, along with the Public Service Board would like to lobby Government to use planning legislation and building regulations to ensure properties use less carbon. Examples of this would include provision within planning legislation to require electric vehicle charging points within new residential developments.. Building regulations could further advocate the use of more environmentally friendly materials.

Woodland development - Short/Medium (6-36 Months)

- 5.57 The Welsh Government Low Carbon Delivery Plan 2019 proposes the development of a new national park. The Council could look to establish a new Caerphilly Forest in line with the national plan which could offset and lock out carbon emissions from the county borough. .

Community Partnership work/tree planting Short/ Medium (6 -36 months)

- 5.57 The Caerphilly Climate Change Strategy was formally launched in November 2009. Since then partners have worked together to reduce Carbon emissions and to combat climate change. In total 12 climate change woodlands have been planted across the county borough. Further opportunities exist to plant additional woodlands on Council owned land, particularly in our country parks, which could make a significant contribution to off-setting Carbon emissions and could help develop the Caerphilly Forest concept mentioned above.

Water consumption -Short (0-24 Months).

- 5.58 The authority needs to consider water conservation as part of its carbon and energy strategy. Water takes energy to distribute, and process before and after use. Welsh Water are now starting to issue electronic billing which will allow the authority to monitor and report on consumption. It is also an area where we can reduce costs as well as carbon emissions.

Waste Management - Short/Medium/Long (0-64months+)

- 5.59 Prosiect Gwyrdd is a high profile waste management facility that generates electricity for sale to the grid with the Council playing a major role in its development. In addition to this we have local arrangements in place, such as food waste being converted into green energy via the Anaerobic Digester at Bryn Quarry. There may be further opportunities for the authority to link digestible waste into this scheme or gain additional benefit from it.
- 5.60 In addition, the Council has been generating electricity from landfill gas at the former Trehir Landfill Site (small scale generation). This scheme has been operating for some 5-6 years and has been reported to Scrutiny previously.

Opportunities for heat clusters in the County Borough - Short/Medium/Long (12-64months+)

- 5.61 Opportunities for the provision of community heating systems are being investigated on new build schemes, be they residential, commercial or industrial where there is an opportunity for a heat cluster. The Council are currently actively looking to introduce a scheme in the county borough and are working with the Welsh Government Energy Service to develop viable options.

Hydroelectric Viability Overview– medium (24-36 months)

- 5.62 In 2014, a study was undertaken with the aim of identifying potential sites for hydro schemes within the county borough, a partnership project was established with Carbon Trust Wales. Consultants were appointed to complete a hydro viability study and overview of the opportunities for hydroelectric generation from high head and low head systems within the county borough.
- 5.63 Phase one of the study involved a high level screening study of the area which identified 11 medium high head sites and 13 low head sites. Of these sites five were shortlisted for preliminary feasibility studies. Despite three schemes progressing to preliminary system design and specification for appropriate type and scale of technology, none of the schemes were considered to be viable.
- 5.64 The study did identify the potential for generation from the stream adjacent to the visitor centre at Cwmcarn Forest Drive. An initial feasibility study has been undertaken and although there are some issues it does appear that this site offers the greatest potential for hydro electricity generation across the Authority's land holdings. The site offers the potential for any scheme to provide educational and tourism opportunities as well. Further investigation is needed to clarify whether or not a viable scheme could be developed.

Beyond Caerphilly Boundaries

- 5.65 The authority does not have any viable Hydroelectric opportunities, but it is possible for the authority to consider partnerships outside of the authority on all major forms of renewable energy projects including hydro, solar, wind, and possibly tidal.
- 5.66 Partnerships could also be developed with other local authorities to identify arable farm land to grow the crops necessary to feed into the anaerobic digester described in section 5.35 above.

6. CONCLUSION

- 6.1 Over the last decade, the Council has worked hard to reduce carbon emissions. The Salix Invest to Save scheme alone has delivered 2,930 tonnes of annual carbon savings across 266 non domestic building projects. These values will grow, with new LED lighting being installed at key buildings including Ty Penallta as outlined above. many examples to prove this.
- 6.2 However, we need to increase our pace and focus upon reducing our carbon footprint and moving us towards being a carbon neutral council. This will also enable us to respond to Welsh Government's recent statement of intent referring to decarbonisation (Prosperity for All: Low Carbon Wales) and also influence the work being undertaken by the Cardiff Capital Region. The best way to achieve this is to develop an overarching carbon/energy strategy that reflects this ambition and sets out a route-map on how we intend to deliver this objective.
- 6.3 Opportunities exist to adopt a commercial perspective on the projects outlined above and there is a growing realisation that the benefits stemming from these projects can spread more widely into the local communities within the county borough. The Council must decide which benefits are most important so it can focus its activity accordingly to where most impact can be made.

- 6.5 In order to develop the strategy and set out a proposed route-map of deliverable projects, it is proposed to set up an officer group to firstly develop the strategy but thereafter deliver the projects identified within it.
- 6.6 Further scrutiny consideration would be welcomed once the draft strategy and Energy Plan is developed prior to formal adoption as Council policy.

7. ASSUMPTIONS

- 7.1 A number of assumptions have been made in writing this report. The first is that Welsh Government will tighten its approach towards decarbonisation and the use of clean energy. The production of WG's Prosperity for All: Low Carbon Wales in March 2019 is a clear indication of their direction of travel. It is also safe to assume that that legislation on carbon reduction will increase over the next 10 years as central government look to address the current levels of carbon production.
- 7.2 Energy prices continue to increase and it is predicted that this rise will continue. Hence it makes economic sense to invest now in reducing energy consumption and look at opportunities for green energy production. Related to this, it is assumed that there will be no central government grants in the immediate future to help the Council take these opportunities forward.
- 7.3 Fuel poverty exists within the county borough and is particularly focused on areas of deprivation often centred around traditional council housing estates. Investment in the Council's housing stock to reduce energy consumption is helping, but clean energy production that tenants can benefit from will help further.
- 7.4 It is assumed that there will be an Increase in population. This will put more strain and demand on resources and infrastructure.
- 7.5 An assumption has been made when it comes to specific projects that the necessary volume of assets, be they buildings or land, will be available to take projects through to fruition and accumulate the benefits mentioned earlier.

8. LINKS TO RELEVANT COUNCIL POLICIES

- 8.1 The following Council policies are relevant to the development of an Energy Strategy:
- CCBC Carbon Reduction Strategy 2009-2019
 - CCBC Sustainable Development Strategy
 - A Foundation for Success 2018-2023
 - Caerphilly County Borough Local Development Plan up to 2021

Corporate Plan 2018-2023.

- 8.2 Carbon reduction and renewable energy generation work supports the following Corporate Well-being Objectives, identified within the CCBC Corporate Plan 2018-2023:

Objective 2 - Enabling employment. The green economy is likely to be one of the fastest growing sectors in the coming years. Development of a Carbon Strategy will incorporate projects which will have the potential to generate significant new jobs. There is also the potential to offer energy at a reduced rate for business to encourage inward investment and jobs.

Objective 3 - Address the availability, condition and sustainability of homes throughout the county borough and provide advice, assistance or support to help improve people's well-being. Making existing houses more energy efficient or retrofitting renewable energy technology has the potential to reduce fuel bills and could move some residents out of fuel poverty. The Strategy will consider the opportunities to increase the sustainability of new building through the Planning process.

Objective 4 - Promote a modern, integrated and sustainable transport system that increases opportunity, promotes prosperity and minimises the adverse impacts on the environment. The inclusion of sustainable transport and in particular electric vehicles, in the proposed Strategy will have the potential to contribute significantly to this objective.

9. WELL-BEING OF FUTURE GENERATIONS

- 9.1 The development of Carbon reduction and renewable energy projects contribute to several of the Well-being goals within the Well-being of Future Generations Act (Wales) 2015, including:
- A prosperous Wales
 - A resilient Wales
 - A healthier Wales
 - A more equal Wales
 - A Wales of cohesive communities
 - A globally responsible Wales
- 9.2 Carbon reduction and renewable energy projects are consistent with the five ways of working as defined within the sustainable development principle in the Act.
- 9.3 The five ways of working of the sustainable development principle, listed in the Act are:
- Long Term – taking action to improve our energy efficiency and to generate clean energy will enable progress towards a low carbon society that uses resources efficiently it will reduce our dependency on fossil fuels and will reduce the contribution that we make to climate change.
 - Prevention – Providing opportunities for the use of ultra-low emission vehicles to help mitigate climate change and reduce air pollution and the resulting health issues.
 - Integration – The proposal contributes to the Corporate Well-being Objectives identified within the CCBC Corporate Plan 2018-2023 as set out in section 8.2.
 - Collaboration – The proposal will require a collaborative approach with PSB Partners, and others.
 - Involvement – Local residents, staff and visitors all have an important role to play in developing and delivering the Strategy and will be involved at all stages of the work.

10. EQUALITIES IMPLICATIONS

- 10.1 Making homes more energy efficient will reduce fuel bills and is a key tool in reducing fuel poverty. Improving access to efficient, integrated transport will enable residents to access employment and will help to tackle inequalities.

- 10.2 An EIA screening has been completed in accordance with the Council's Strategic Equality Plan and supplementary guidance. No potential for unlawful discrimination and/or low level or minor negative impact has been identified, therefore a full EIA has not been carried out.

11. FINANCIAL IMPLICATIONS

- 11.1 The Council has been using Salix funding for the Invest to Save scheme since 2004. We have recently taken on an additional £4.1m from Salix for the street lighting project and we would be able to attract additional funding from this route for new projects. This is an interest free loan basis.
- 11.2 The Council may resolve to use internal financial reserves in order to take forward new energy schemes in the future.
- 11.3 In developing a suite of short, medium and long term projects there will be a need to establish which are feasible and viable options for the Council to pursue. Technical support will be required to undertake this task and this will come at a cost. The Council is looking at a number of ways of financing this initial work including using its own reserves and working with the Welsh Government Energy Service to secure external grant
- 11.4 Once projects have been prioritised they will require business plans to be developed. This will include more detailed design and the analysis of financial plans. Again the Council will look at a number of financing options including using its own monies and grant aid
- 11.5 While the Council will look at funding the construction/implementation of these projects, it is aiming to deliver projects that will pay for themselves over time. It must however be acknowledged that the end of the feed in tariff rate means that some renewable energy payback periods will be considerable. On buildings this could be between 7.5 to 15 years and this excludes ongoing maintenance costs.

12. PERSONNEL IMPLICATIONS

- 12.1 There are no personnel implications relevant to this report.

13. CONSULTATIONS

- 13.1 The views of consultees have been included within the report

14. STATUTORY POWER

- 14.1 Local Government Measure 2009.
Local Government Acts.

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Consultees:

- Cllr Sean Morgan, Deputy Leader and Cabinet Member for Economy, Infrastructure, Sustainability & Wellbeing of Future Generations
- Cllr Lisa Phipps, Cabinet Member for Homes and Places
- Cllr John Ridgewell – Chair of Regeneration and Housing Scrutiny Committee
- Cllr Mrs Christine Forehead – Vice Chair of Regeneration and Housing Scrutiny Committee
- Christina Harray - Interim Chief Executive
- Mark S Williams - Interim Corporate Director Communities
- Rhian Kyte – Head of Regeneration and Planning
- Marcus Lloyd – Head of Infrastructure
- Stephen Harris – Interim Head of Business Improvement Services & Sec 151 Officer
- Mark Williams – Interim Head of Property
- Richard (Ed) Edmunds - Corporate Director for Education & Corporate Services
- Dave Street - Corporate Director - Social Services
- Lisa Lane – Monitoring Officer
- Rob Tranter - Head of Legal Services/Monitoring Officer
- Shaun Watkins – Human Resources Manager
- Sean Couzens, Chief Housing Officer

Appendices:
Appendix 1 Summary Report On Initiatives To Date