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Report of the Director of Corporate Services to the meeting of Environment and Waste Overview and Scrutiny Committee to be held on 02 May 2017.

AL

Subject:

Renewable Future for Bradford Council

Summary statement:

This report provides an update on progress towards installing renewable energy generation capacity across the Councils estate.

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Portfolio:

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Overview & Scrutiny Area:

Environment and Waste

1. SUMMARY

Bradford Council has agreed a target of 20% for energy for delivery of its own functions to come from renewable sources and for a 40% reduction in council CO_2 emissions by 2020 (Council March 2010). This report sets out progress to date on a number of renewable energy generation projects delivered during 2014-2017, explains the current constraints to future ambition and explores potential options to achieve the future target.

2. BACKGROUND

The broad national, regional and local context for renewable energy generation has been presented to this Committee previously. The UK Government announced during 2013/14 a number of measures that had negative impacts on the UK land based renewables sector. Energy market reforms and a shift from Renewable Obligation Certificates to Contracts for Difference has altered the business case modelling for on-shore wind, large scale solar Photovoltaic (PV) and hydro power projects. In addition the Government continues to apply digression rates to current Feed in Tariffs (FiTs) impacting on the business models for renewable projects.

A further blow has been the increase in rateable value for PV systems, this will impact on all systems including those owned by public bodies. The change will see a six to eight fold increase in the rateable value of the system. There is little CBMDC can do about currently installed systems but there will be an impact on the future business cases of any planned PV system.

Changes to planning regulations have made it harder to achieve planning consent for some renewable energy projects particularly wind and large scale PV.

Government has made encouraging noises about the role of, and opportunities for, Local Authorities as a player in the “energy business” particularly around the community energy and community/social energy tariffs. Department for Environment & Climate Change (DECC), now Department of Business, Energy and Industrial Strategy (BEIS), published the Governments Community Energy Strategy in January 2014.

Association of Public Sector Excellence (APSE) supports energy as a policy work stream and is continuing to inform and shape the role which Local Authorities (LA) might play.

There continues to be uncertainty and disruption in the renewables sector, particularly in the carbon emissions that result from the use of Biomass and the likely cost of electricity distribution charges. This uncertainty makes even medium term projects difficult to assess properly.

3. OTHER CONSIDERATIONS

The 2015/16 financial year, corporate estate, CO_2 emissions for the Authority were 18,541.5 Tonnes. The billing cycle means that officers do not have a figure for the 16/17 financial year yet, this information will be available at the end of May.

3.1 Renewable installations currently within council estate

Biomass

Biomass Boilers have been installed at Ilkley Town Hall, Eccleshill Industrial Museum, Wedgewood Respite Centre and Margaret Macmillan Tower. These boilers are anticipated to produce around 1,913,000 kWh of renewable heat on an annual basis. This figure will of course depend on the length and severity of any winter amongst other factors. The amount of heat has been calculated on a typical peak load run time of 1,315 hours which is the figure BEIS use for the primary stage of Renewable Heat Incentive payments.

CO_2 emissions factor Biomass 0.0158 kg/kWh
CO_2 emissions factor Natural gas 0.185 kg/kWh

Expected annual energy transferred to Biomass boilers Circa 1,913,000 kWh

0.185 - 0.0158 = 0.1692

0.1692 x 1,913,000 = 323,679 Kg CO_2 or 323.7 Tonnes

Solar Thermal

Solar thermal hot water heating systems have been installed at Shipley Swimming Pool (small and large swimming pool both have systems), Britannia House, Jacobs Well (currently being moved to Eccleshill Pool) and Valley View.

Total estimated heat generation = 147,058kWh

CO_2 per kWh gas = 0.182Kg

147058 * 0.182 = 26,764 kg or 26.7 Tonnes

Solar Photovoltaic

Solar PV systems have been installed at Mitre Court, Britannia House, Jacobs Well, Harris St, Oastler Market, Keighley Market, St James Wholesale Market, Keighley Leisure Centre, Shipley Pool, The ISG building, The Industrial Museum and Birkslands.

Total estimated electricity generation = 259,629kWh

CO_2 per kWh Electricity = 0.5331Kg

259,629 * 0.5331 = 138,408Kg or 138.4 Tonnes

3.2 Development of a District Energy System

Using funding from BEIS, initial energy mapping and identification of potential outline networks has been carried out as a collaboration with Leeds City Region LEP. Bradford was identified as having a potential city centre scheme.

A report on the feasibility of a scheme that would connect its city centre buildings (Civic Quarter District Heat Network) has been completed

Final system design work is underway and is highlighting that the city centre estate could be connected in a DH scheme that would pay back in around 15 years and provide an income beyond this as well as creating a commercial opportunity to connect city centre businesses and provide the first stage of a city wide heat network. Increasing the scope of the network will improve its overall viability and profitability. This project was identified as the best opportunity for CBMDC to reduce its CO_2 emissions from its corporate estate. The impact of the network will be slightly reduced by the change in plans around the pool project however there is still a very large opportunity for carbon reduction.

A capital bid has been made for 50% of the funds required to deliver this scheme. European Strategic and Investment Funds made a call for applications in December 2016 and a bid of £6.8M was submitted. This is the last opportunity for funding from European sources. This Committee has been briefed on the scheme separately.

3.3 Energy Storage

There have recently been new opportunities opening up in the field of energy storage. This would involve taking energy from a solar farm or CHP engine and using batteries to store on a short term basis. This allows access to a complex market of available tariffs meaning that the income from the generating facility can be greatly increased.

Officers are investigating the synergies between storage and the district energy network to maximise returns to the council whilst maximising usage of low carbon and renewable energy.

3.4 Carbon reduction through energy efficiency

Officers in the Energy and Resources team continue to deliver a rolling programme of investment projects to improve energy efficiency. These include upgrading building energy management systems, lighting, draft proofing, insulation and a variety of other small and medium size projects. In addition officers continue to add value to larger scale refurbishment projects upgrading heating and ventilation systems and other plant where practical.

These projects continue to show real benefits and savings across the council estate.

Between the end of the 2010/2011 financial year and the end of the 2015/2016 financial year there has been a 27 % reduction in gross reportable CO_2 emissions from the corporate estate.

This metric does not allow for shrinkage (and growth) in the estate so we have not been using it as a measure of success. Instead officers have created a representative sample of 100 sites that has not changed over the measuring period. This allows tracking and understanding of the correct trends within the overall picture and to more accurately understand the impact of the changes implemented by the team.

Between the end of 2010/2011 and the end of 2015/2016 officers have achieved an 18% reduction in CO_2 emissions on this core segment of sites.

3.5 Grid Carbon Intensity

Over the last few years the amount of CO_2 that is attributed to each unit of electricity from the grid has been reasonable steady. This "grid intensity" is forecast to drop over the coming years. There are opportunities to reduce the councils CO_2 Emissions through this process however there are potential issues around the carbon accounting and any future assessment process must allow for these.

Conclusions

The target to reduce CBMDC CO_2 emissions by 40% by 2020 is on track to be exceeded and is a real demonstration of success.

The target of having half of this reduction come from the installation of renewables is more difficult. Due to the changes in both support and regulatory framework it may not be possible to achieve whilst adhering to the fiscal standards that are necessary for a financially responsible authority.

Officers continue to monitor the sector and are ready to take advantage of changes that may make renewable energy generation more appealing as an investment opportunity. It seems likely that in the future this will involve exploiting energy storage to bolster the returns from a generating facility.

4. FINANCIAL & RESOURCE APPRAISAL

This report is an update only and has no financial issues arising.

5. RISK MANAGEMENT AND GOVERNANCE ISSUES

This report is an update only and there are no significant risks arising out of the implementation of the proposed recommendations.

6. LEGAL APPRAISAL

This report is an update only and there are no legal issues arising.

7. OTHER IMPLICATIONS

7.1 EQUALITY & DIVERSITY

This report is an update on an existing strategy and there are no equality and diversity implications.

7.2 SUSTAINABILITY IMPLICATIONS

This report is an update on an existing strategy and there are no sustainability implications.

7.3 GREENHOUSE GAS EMISSIONS IMPACTS

This report is an update on an existing strategy and there are no Greenhouse Gas Emission implications.

7.4 COMMUNITY SAFETY IMPLICATIONS

This report is an update on an existing strategy and there are no Community Safety implications.

7.5 HUMAN RIGHTS ACT

This report is an update on an existing strategy and there are no Human Rights implications.

7.6 TRADE UNION

This report is an update on an existing strategy and there are no Trade Union implications.

7.7 WARD IMPLICATIONS

This report is an update on an existing strategy and there are no Ward Implications.

7.8 AREA COMMITTEE ACTION PLAN IMPLICATIONS (for reports to Area Committees only)

This report is an update on an existing strategy and there are no Area Committee Plan Implications.

8. NOT FOR PUBLICATION DOCUMENTS

None.

9. OPTIONS

N/A

10. RECOMMENDATIONS

Recommended -

That the contents of Document "AL" be noted and that a further update be requested at the end of the 2017/18 financial year.

11. APPENDICES

None

12. BACKGROUND DOCUMENTS

None