



APPENDIX I

ANNUAL ENERGY REPORT 2019/20

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1 Introduction

Improving energy efficiency not only provides financial benefits but also reduces on-going carbon emissions in the most cost-effective manner.

Energy efficiency has been a long-term priority for the Scottish Government and Scottish Ministers designated energy efficiency as a national infrastructure priority in 2015, recognising the many benefits delivered by improving the energy performance of our buildings.

During the financial year 2019/20 Moray Council's expenditure on utilities (including street lighting) was approximately £3.62M, with associated carbon emissions of 9,237 tonnes CO₂.

1.1 Council Aims and Objectives

The Council's Corporate Plan 2019 – 2024 identifies the environment as a key principle in the delivery of our priorities.

"Environment – look after the world we live in to protect it for the future"

and for Moray Council to be

"A resource efficient, carbon neutral council that works with partners to mitigate the worst effects of Climate Change, to create a resilient, fair and more sustainable future for everyone within Moray".

On the 2nd of September 2020, the Council approved the Draft Climate Change Strategy, which is currently out to public consultation. Subject to the feedback received the finalised Strategy is scheduled to be brought back to the Council in March 2021 for final approval and adoption.

2 Performance

2.1 Consumption and Costs

Table 1 provides a summary of the Council's utilities' consumption, costs and emissions during 2019/20.

Table 1

Annual Report Figures 19-20			
Commodity	Consumption (kWh/m3)	Net Cost (£)	Carbon (tonnes CO₂)
Heat/Biomass	2,757,260	£133,638	43
Oil	2,867,503	£139,092	783
Gas	23,562,259	£718,169	4,332
Electricity	11,379,242	£1,680,244	3,155
Street Lighting & Unmetered Elec	2,815,632	£412,468	781
Water (m3)	135,563	£536,850	143
Totals		£3,620,461	9,237

The operation of the Council's 238 non-domestic buildings cost £3,207,993, with further expenditure of £412,468 on street lighting and unmetered electricity.

Compared to 2018/19 the utility invoices in relation to the council's property estate added 12 new sites and lost 29 sites during 2019/20.

2.1.1 Combined Energy Consumption

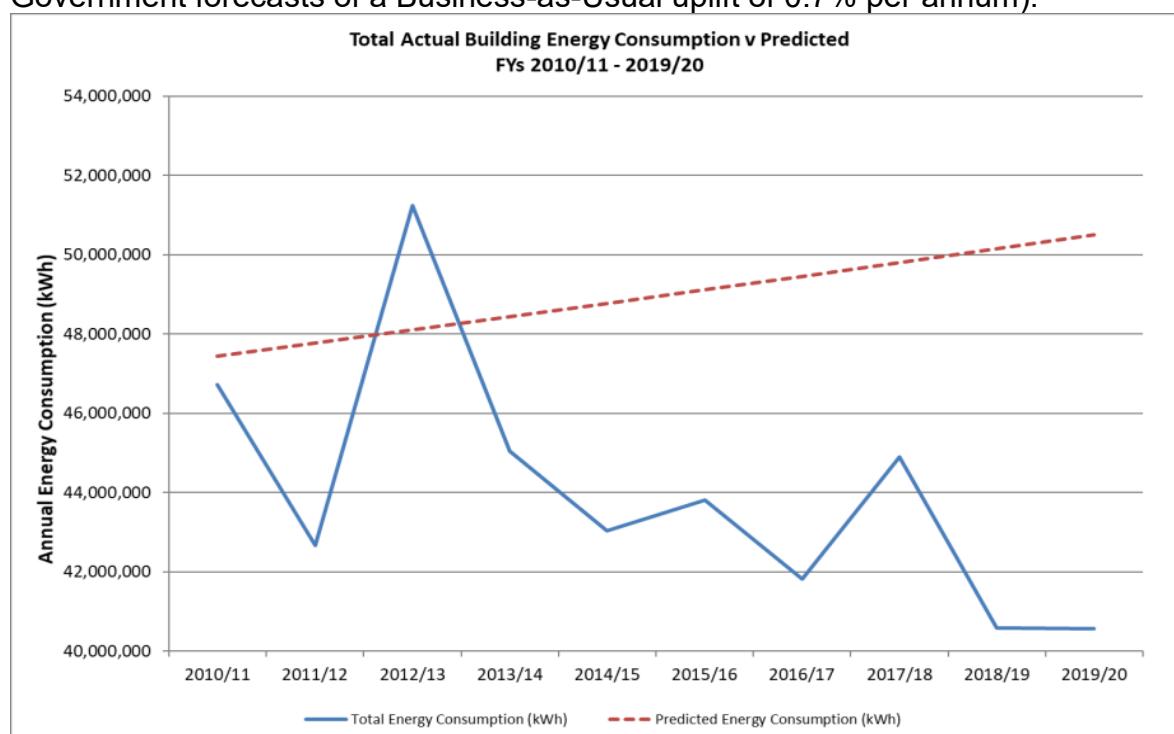
Table 2 below provides a comparison between 2018/19 and 2019/20 for individual utilities.

Table 2
Consumption

Utility	18-19	19-20	Difference	%
Heat/Biomass	2,525,531	2,757,260	231,729	9%
Oil	3,062,739	2,867,503	-195,236	-6%
Gas	22,815,767	23,562,259	746,492	3%
Electricity	12,180,860	11,379,242	-801,618	-6.6%
Overall Building Total (kWh)	40,584,897	40,566,264	-18,633	-0.05%
Street Lighting & Unmetered Elec	3,782,875	2,815,632	-967,243	-26%
Overall Total (kWh)	44,367,772	43,381,896	-985,876	-2.2%
Water (m3)	141,838	135,563	-6,275	-4.4%

The combined energy consumption from the Council's buildings, for 2019/20 was 40,566,264 kWh compared with consumption of 40,584,897 kWh for 2018/19, equivalent to a 0.05% decrease.

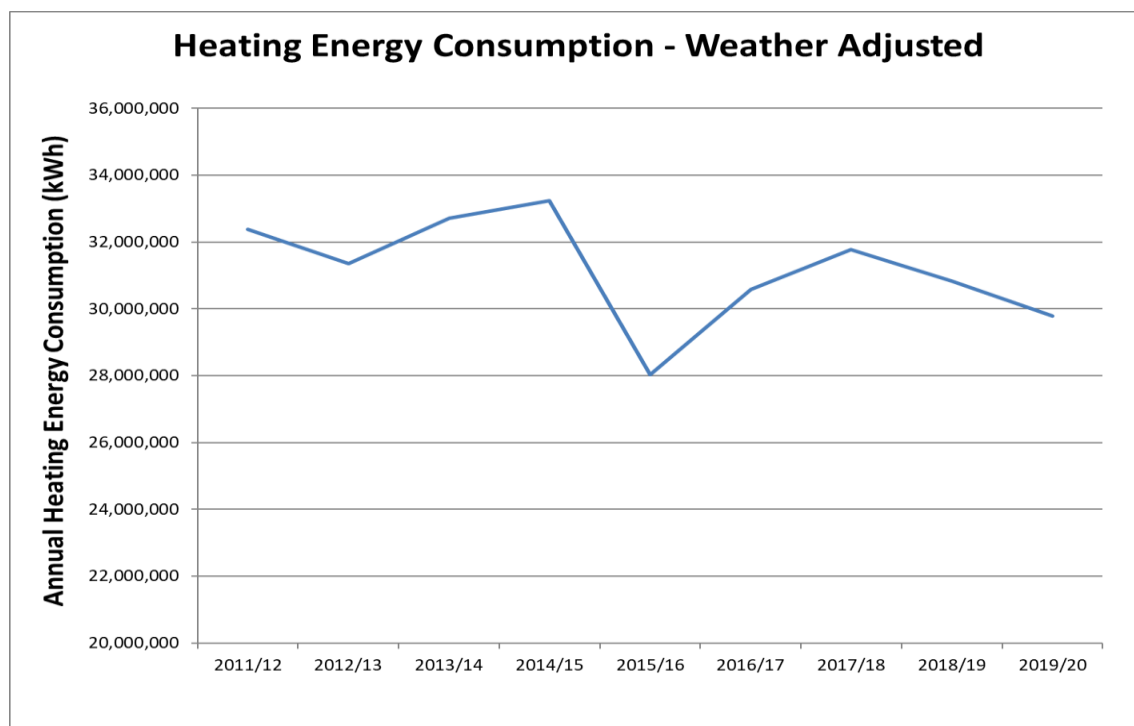
The graph below shows the Council's total energy consumption in its non-domestic buildings for the last 10 years, compared to the predicted increases, (based upon Government forecasts of a Business-as-Usual uplift of 0.7% per annum).



2.1.2 Heating-related Energy Consumption

To take account of weather conditions a measure termed “Degree Days” is utilised to incorporate the effect of warmer or colder conditions – permitting a comparison of heating related efficiency.

The graph below shows the Council’s weather adjusted heating consumption for the last 9 years.



Heating accounts for a significant proportion of the Council’s energy consumption. The weather in 2019/20 was 6% colder than in 2018/19 and the graph above shows a weather adjusted decrease in heating consumption of 3.4% compared to 2018/19. This indicates that the overall efficiency of heating provision within Moray Council properties has improved, i.e. became more efficient. Climate change is likely to exacerbate fluctuations in weather conditions in future.

- Significant percentage increases (greater than 8%) were recorded for
 - Community Centres – (14%)
 - Depots – (25%)
 - Residential Homes – (17%)
- Significant percentage decreases were recorded for
 - Industrial Premises – (-11%)
 - Museums /Visitor Centres – (-19%)

Given the number of potential factors which affect heating related performance, beyond the warmer winter conditions, it is very difficult, without detailed and time-consuming analysis, to identify exactly why consumption varies individually and collectively. However as staffing resources allow, officers intend to investigate the properties with the largest increases in consumption.

2.1.3 Water Consumption

The Council's water consumption for 2019/20 was 135,563 m³ compared with consumption of 141,838 m³ for 2018/19, a decrease of 6,275 m³, equivalent to a 4.4% decrease.

2.2 Energy Performance Certificates (EPCs)

The Council remains statutorily obliged to provide EPCs for its public buildings with a floor area above 250m² as well as all properties for lease or sale (including Housing Revenue Account dwellings). EPC's are valid for 10 years following which they require renewal. An ongoing programme is in place to update/commission new EPC's when required.

2.3 Street Lighting

The management and maintenance of street lighting is undertaken by Direct Services. The associated energy consumption in 2019/20 was 2,815,632 kWh, 26% lower than the 2018/19 consumption of 3,782,785 kWh. It is envisaged that the LED replacement programme will be fully completed during 20/21. There are approx. 800 lanterns outstanding with 18,241 changed to date. Electricity and carbon saving targets were achieved for 2019/20 and are expected to exceed the original saving projections.

2.4 Carbon

Carbon dioxide emissions are increasingly the measure by which energy management and sustainability activities are monitored and evaluated. It provides a single common denominator between disparate activities such as electricity, transport and waste recycling. The following table details the carbon emissions associated with energy and water consumptions attributable to Moray Council.

Table 3

Carbon

Utility	18-19	19-20	Difference	%
Heat/Biomass	38	43	5	13%
Oil	847	783	-64	-8%
Gas	4,197	4,332	135	3%
Electricity	3,742	3,155	-586	-16%
Street Lighting & Unmetered Elec	1,162	781	-381	-33%
Water	149	143	-7	-4%
Overall Total CO2e	10,135	9,237	-898	-9%

The carbon emissions from the Council's non-domestic buildings in 2019/20 were 9% lower than in in 2018/19. Contributory factors which would have impacted on the above performance include:-

- Reduced carbon intensity of grid electricity
- Lower consumptions for oil and electricity and greater use of biomass
- More street lighting provided from LED technology

3 Utility Management

3.1 Utility Contracts

Electricity – Supply of electricity under the new Scottish Procurement framework commenced on 1 April 2019 with EDF and will run until 31 March 2021, with options for three yearly extensions until 31 March 2024.

Gas – When the Scottish Procurement contract expired in March 2020 it was awarded to the incumbent supplier, Total Gas & Power. The new contract commenced on 1 April 2020 and will run until 31 March 2022, with options for 3 x 12-month extensions until 31 March 2025.

Water – The existing Scottish Procurement contract with Anglian Water expired on 1 March 2020 and was extended by Scottish Procurement for 1 month to bring contractual arrangements back in line with the financial year. For this period out of contract higher rates were applied by Anglian to all public sector bodies.

Scottish Water Business Stream Limited was awarded the contract commencing on 1 April 2020 and will run until 31 March 2023, with the option of a one-year extension until 31 March 2024.

In line with recent changes made by the Water Industry Commission, the ability to pay annually in advance (for a small discount on price) has been curtailed. Therefore, billing is now in arrears in a similar way to electricity and gas, water charges.

The transition to the new water supplier produced a number of issues in relation to accurate closing reads and charges. The Energy Team was successful in identifying errors and challenging the supplier where appropriate, reducing charges by £6,768.

Biomass – the Council in conjunction with Highland Council negotiated a contract with Highland Wood Energy for Biomass fuel supply and maintenance. The contract covers the 4-year period 1st September 2017 to 31st August 2021 with an option to extend for a further 12 months.

Utility Cost Management

3.1.1 Budget Monitoring

Budget Managers currently receive monthly budget reports including details of utility spend from the Finance Section. The Energy Team supplies utility consumption data in various formats to budget holders and carries out energy audits, walk-rounds and briefings as requested.

3.1.2 Utility Expenditure

In 2019/20 the Council's total utility bill amounted to £3,620,461, a decrease of £1,840 (0.1%) compared to 2018/19 - with buildings constituting the largest element at £3,207,993. Table 4 below gives a breakdown of costs.

Table 4

Net Cost

Utility	18-19	19-20	Difference	%
Heat/Biomass	£121,871	£133,638	£11,767	10%
Oil	£162,586	£139,092	-£23,494	-14%
Gas	£647,018	£718,169	£71,151	11%
Electricity	£1,669,079	£1,680,244	£11,165	1%
Water	£532,645	£536,850	£4,205	1%
Overall Total - Buildings Only (£)	£3,133,199	£3,207,993	£74,794	2.4%
Street Lighting & Unmetered Elec	£489,102	£412,468	-£76,634	-15.7%
Overall Total (£)	£3,622,301	£3,620,461	-£1,840	-0.1%

3.1.3 Commodity Market Factors

The following factors should be noted with regard to the utility costs for 2019/20:

- Biomass unit rate for heat remained relatively steady
- Oil average unit rates decreased by 8.6%
- Electricity, gas and water rates rose by 7.8%, 7.5% and 5.5% respectively.

3.1.4 Future Budget Guidance

Compared to 2019-20, unit costs are forecast to increase by 3.7% for electricity and to decrease by 2% for gas in 2020-21.

Scottish Procurement issue periodic updates on price forecasts for the electricity and gas contracts. The following is based on guidance issued in June 2019 and reflects median forecast figures.

		2020-21	2021-22
Variance to 19-20	Gas	+2%	+4%
	Electricity	-3.7%	-1%

Based upon our 2019-20 consumption patterns, should the predicted increases detailed above come to pass, the following additional costs would be incurred.

		2020-21	2021-22
Variance to 19-20	Gas	£14,363	£28,727
	Electricity	-£83,708	-£20,927
	Combined	-£69,345	£7,800

3.1.5 Renewable Heat Incentive (RHI)

The council currently operates 2 biomass heating systems, at Speyside and Milne's High Schools and a solar thermal system at Forres Swimming Pool.

For the 2019/20 period the Council received combined RHI payments of £123,100.

Table 5

Total RHI Income	18-19	19-20	Difference	%
Milnes PS	£47,315	£53,695	£6,380	13%
Speyside HS	£57,875	£67,686	£9,811	17%
Forres Pool	£1,913	£1,718	-£194	-10%
Total RHI Income	£107,103	£123,100	£15,997	15%

3.2 Invoice Processing

All utility invoices go directly to the Energy Team for verification and validation prior to centralised authorisation and payment. The vast majority of utility invoices are received electronically and uploaded directly onto the Council's monitoring and targeting system – TEAM Sigma. The software automatically performs validation checks on the data received, highlighting any abnormalities for the Energy Team to investigate. During 2019/20 over 13,000 utility invoices were processed by the Energy Team.

The monitoring and targeting system produces consolidated information for the Energy Team to pass to the Finance Section to facilitate payment. Currently 2 officers in Finance have access to the system to allow financial investigations and specific reports to be accessed. The Council receives a discount of 0.3% for paying its electricity and gas invoices by direct debit – this also removes the potential for late payment charges.

During 2019-20 the active management, checking and validation of utility consumptions and invoices identified over £60,500 erroneous charges, including

- Duplicate charging
- Over-estimates
- Incorrect rates applied
- Cancellation of charges for redundant infrastructure

A further one-off retrospective charge of approximately £80,000 was avoided through reclassification of supply status.

3.2.1 TEAM Sigma Monitoring & Targeting Software

The Team Sigma software continues to operate satisfactorily.

In line with recommendations made as part of an internal audit review, additional invoice accuracy validators within the Sigma software have been applied and are now part of the ongoing validation process for electricity, gas and water invoicing. (Validators are in essence checks made against the accuracy of utility invoices. They can range from simple arithmetic to ensuring the correct voltage is applied to an invoice).

These include

- Gas fixed charges
- Valid supply point

- Zero CCL if less than 33 kWh
- Zero CCL if less than 145 kWh
- Capacity against supply point

3.2.2 Internal Audit

During 2018/19 Internal Audit undertook a review of the Energy Section with respect to CRC and energy management procedures. Implementation of the recommendations was covered in detail in last year's Annual Energy Report and the remaining action with regards considering adopting more accuracy validators within the Sigma software was completed in 2019/20 as detailed in para. 3.2.1 above.

4 **Policy & Strategy**

4.1 Scottish Government

4.1.1 Climate Emergency Declaration

On 28 April 2019, Scotland and Wales were among the world's first national governments to declare a Climate Emergency.

Following the declaration, the Scottish Government initiated an acceleration in activity with respect to climate change and associated policy and legislation, which is on-going. This has been detrimentally impacted by the Covid 19 pandemic with slower activity than planned.

4.1.2 Heat Networks (Scotland) Bill

In March 2020, the Heat Networks (Scotland) Bill was introduced to the Scottish Parliament. The Bill is intended to introduce regulation and a licensing system for district and communal heating to accelerate use of the networks across Scotland.

4.1.3 Energy Efficient Scotland

Scottish Ministers announced in June 2015 that they would take long-term action to reduce building energy demand and decarbonise heat supply; designating energy efficiency as a national infrastructure priority.

In May 2018 the Scottish Government launched the Energy Efficient Scotland Route Map, a 20-year programme containing a set of actions aimed at making Scotland's existing buildings near zero carbon wherever feasible by 2050, and in a way that is socially and economically sustainable.

Energy Efficient Scotland has two main objectives:

- Removing poor energy efficiency as a driver for fuel poverty. (The Programme will be the primary mechanism by which this is achieved).
- Reducing greenhouse gas emissions through more energy efficient buildings and decarbonising our heat supply.

The Scottish Government is reviewing the energy standards which are included in building regulations. These will improve the energy efficiency of new buildings and include measures in support of the move to low carbon and renewable heat.

4.1.4 Scotland's Climate Change Plan

The Climate Change Plan published in early 2018, was due to be updated in April 2020, but was postponed as a result of the COVID-19 pandemic. It will now be published before the end of 2020 incorporating green recovery proposals and accompanied by a new public engagement strategy.

The principal target of the 2018 CCP is the “almost complete decarbonisation of Scotland by 2050”, with what are considered to be transformational outcomes in transport, heat, electricity generation, and energy efficiency, along with increased natural carbon sinks and more efficient and profitable agricultural practices.

4.1.5 Scottish Energy Strategy

Published in December 2017, the Strategy is intended to guide the decisions of the Scottish Government, and also in working with partner organisations, which need to be made over the coming decades for a whole-system approach that considers both the use and the supply of energy for heat, power and transport.

On the 1st September 2020, the Scottish Government's Programme for Government 2020 - 2021 was published and included a commitment to publish a refreshed Energy Strategy.

4.2 Moray Council Policies and Strategies

4.2.1 Energy Policy & Strategy

The [Council's Energy Policy and Strategy](#) was first produced in 2005 and subsequent revisions have been agreed by this Committee and made available publicly via the Council's Energy Internet website.

The Council and its Community Planning partners have agreed to work collaboratively on Climate Change initiatives.

The Council's Corporate Plan was updated in February 2020, which identified Moray Council as “A resource efficient, carbon neutral council that works with partners to mitigate the worst effects of Climate Change, to create a resilient, fair and more sustainable future for everyone within Moray”

With the Council's declaration of a Climate and Ecological Emergency in June 2019, combined with the approval of the Draft Climate Change Strategy in September 2020, it is expected that the Energy Policy and Strategy will be reviewed/superseded in 2021/22.

4.2.2 Corporate Heating Strategy

A Corporate Heating Strategy, containing guidelines on the use and responsibilities for heating at Council buildings, was agreed by this Committee at its meeting on 9 September 2014 (paragraph 4 of the Minute refers). This document gives clarity and advice to building occupiers, whilst allowing sufficient flexibility to facilitate local and/or changing circumstances.

The Energy Team monitor heating use and consumption and investigate any inconsistencies and discrepancies with the Heating Policy.

4.2.3 Mandatory Carbon Reporting

The Energy Team contributed to the submission of the Council's Public Sector Climate Change report in November 2019.

5 **Building Energy Management Systems (BEMS)**

There are BEMS systems in 33 Council buildings and the Energy Team use them to regularly monitor temperatures in buildings, identify anomalies early and adjust heating settings accordingly.

BEMS are now being used to assist water safety management in producing concise information reports on hot water storage temperatures. This is planned to be expanded to monitor cold water storage and flow temperatures as and when it can be incorporated into other works.

6 **Energy Initiatives**

6.1 Energy Awareness

6.1.1 Energy Website

The webpages detail how to help the environment by following simple energy saving tips for your home, workplace or school. As part of the rollout of the Climate Change Strategy it is planned to significantly upgrade the provision of information available on the council website and intranet.

The Council traditionally supports the WWF's Earth Hour initiative as well as promoting a "no power for an hour" initiative in the Council's schools. The planned initiatives for March 2020 were cancelled at the last minute in line with the guidelines issued by the WWF at the time.

6.1.2 Corporate Training

A total of 390 primary school pupils attended energy awareness events in 2019/20, including 10 face to face sessions and 12 school visits (STEM, workshops and assemblies).

Energy Awareness briefings are incorporated as part of the Corporate Staff Induction Training programme. In 2019/20 a total of 78 new members of staff accessed the online induction module.

6.1.3 Energy Team Training

The Energy Team have participated in training to improve the benefits provided by the TEAM Sigma energy monitoring & targeting system.

Energy Team staff regularly attend Scottish Energy Officers Network meetings. This forum is beneficial for attendees, particularly with regard to sharing best practice/approach between public authorities and providing representation of an expert group voice to COSLA and the Scottish Government.

6.2 Energy Surveys

In 2019/20 the Energy Team carried out surveys of the following sites:-

- Aberlour Primary School
- DLO Unit 6
- St Sylvesters Primary School
- Botriphnie Primary School
- Beechbrae Education Centre

These audits resulted in the identification of energy saving projects/measures - a number have been implemented and others are being actively pursued. Presentations were not able to be undertaken for all properties due to the advent of the Covid-19 pandemic.

Guidance is issued to all schools on procedures for minimising energy usage prior to each main holiday

The planned programme of summer shutdown inspections during the summer 2020 holidays were not undertaken due to the lockdown restrictions in place. In its place a desktop study was undertaken of half hourly data for gas for selected schools.

APPENDIX II shows that gas consumption rose significantly. This additional consumption is primarily attributable to legionella protection and the Domestic Hot Water systems being fully operational throughout the holiday period. Given the unique circumstances we were faced with in 2020 this is justifiable, however moving forward alternative solutions should be pursued to avoid the additional cost and carbon emissions.

No audits are currently planned in 2020/21 as a result of the coronavirus, although officers are monitoring the situation for opportunities if circumstances allow.

6.3 Energy Projects

APPENDIX III lists the energy saving projects carried out in 2019/20, including the anticipated savings in kWh and £'s for each. It also lists further energy saving projects being considered.

A number of projects were scheduled to be undertaken at the end of 2019/20 in conjunction with the Easter school holidays. However, the Covid-19 lockdown resulted in delays and postponements into 2020/21.

A second phase of replacing older inefficient lighting with LED in large halls was scheduled for 2019/20, however this was delayed due to technical resources being fully committed to the Make do and mend programme.

6.4 Future Energy Initiatives

Although significant progress has been made in recent years in reducing the Council's energy consumption it is considered that there is scope to achieve further significant reductions.

To achieve the target within the draft Climate Change Strategy of net zero carbon emissions by 2030 would be essential to incorporate energy efficiency/carbon management as a prime consideration into all on-going work. It is anticipated that energy reduction will be included in future corporate Climate Change performance reporting.

6.5 Funding

The revenue budgets and spend for 2019/20 were as follows:-

	Budget	Spend
Awareness & Information	£ 6,700	£ 5,680
Small Projects	£16,000	£ 723

As discussed in section 6.3 some projects were unable to be progressed within 2019/20. Of those 2 projects were completed at the beginning of 2020/21 with a combined spend of £5,486. The remainder are being progressed as and when access, contractor and site operations permit.

The £15,000 in the Council's 2019/20 capital plan for energy saving projects has been carried forward into 2020/21 and the Energy Officer will also continue to take forward spend to save proposals.

With respect to Spend-to-Save proposals, the Council's policy is that projects must have projected payback periods of 5 years or less. This has reduced the number of projects potentially viable.

The limitations of current permissible payback periods would require to be reviewed if the Council is to achieve the target in the draft Climate Change Strategy of net zero carbon emissions by 2030.