



**REPORT TO: ECONOMIC DEVELOPMENT AND INFRASTRUCTURE SERVICES
COMMITTEE ON 19 OCTOBER 2021**

SUBJECT: ANNUAL REPORT ON ENERGY STRATEGY/ACTIONS

**BY: DEPUTE CHIEF EXECUTIVE (ECONOMY, ENVIRONMENT AND
FINANCE)**

1 REASON FOR REPORT

- 1.1 This report forms the Council's Annual Energy Report for 2020/21 providing details of the annual energy performance Council's non-domestic properties in 2020/21.
- 1.2 This report is submitted to Committee in terms of Section III (A) (4) of the Council's Scheme of Administration relating to monitoring the performance of the services within the Committee's remit in accordance with the Councils performance framework.

2 RECOMMENDATION

2.1 It is recommended that Committee:-

- (i) **considers and notes the Annual Energy Report for 2020/21;**
- (ii) **notes that in 2020/21 the Council's energy consumption in non-domestic operational properties fell by 7.3%, and the energy bill decreased by 13.5% (£430,421); and**
- (iii) **agrees that officers review the Council's Heating Policy with a view to reporting a revised Heating Policy to Committee in 2022.**

3 BACKGROUND

- 3.1 Annual reports have been presented to Committee since 2006; the last report was submitted for noting to the Economic Growth, Housing and Environmental Sustainability Committee on 6 October 2020. This report is submitted as the Council's Annual Energy Report for 2020/21.
- 3.2 Improving energy efficiency not only minimises costs, but also reduces on-going carbon emissions in the most cost-effective manner.

- 3.3 During the financial year 2020/21 Moray Council's expenditure on utilities (including street lighting) was approximately £3.16M, with associated carbon emissions of 8,407 tonnes CO₂.

4 **PERFORMANCE**

4.1 **Consumption and Costs**

Table 1 provides a summary of the Council's utilities consumption, costs and emissions during 2020/21.

Table 1

Annual Report Figures 20-21			
Commodity	Consumption (kWh/m3)	Net Cost (£)	Carbon (tonnes CO₂)
Heat/Biomass	2,258,199	£111,777	35
Oil	2,921,881	£114,841	798
Gas	23,469,901	£640,192	4,315
Electricity	8,910,550	£1,423,556	2,471
Street Lighting & Unmetered Elec	2,451,572	£399,552	680
Water (m3)	102,887	£476,863	108
Totals		£3,166,781	8,407

- 4.2 The operation of the Council's 238 non-domestic buildings cost £2,767,229, with further expenditure of £399,552 on street lighting and unmetered electricity.
- 4.3 Compared to 2019/20, 12 new sites were added and 12 sites removed from the council's property estate during 2020/21.

Combined Energy Consumption

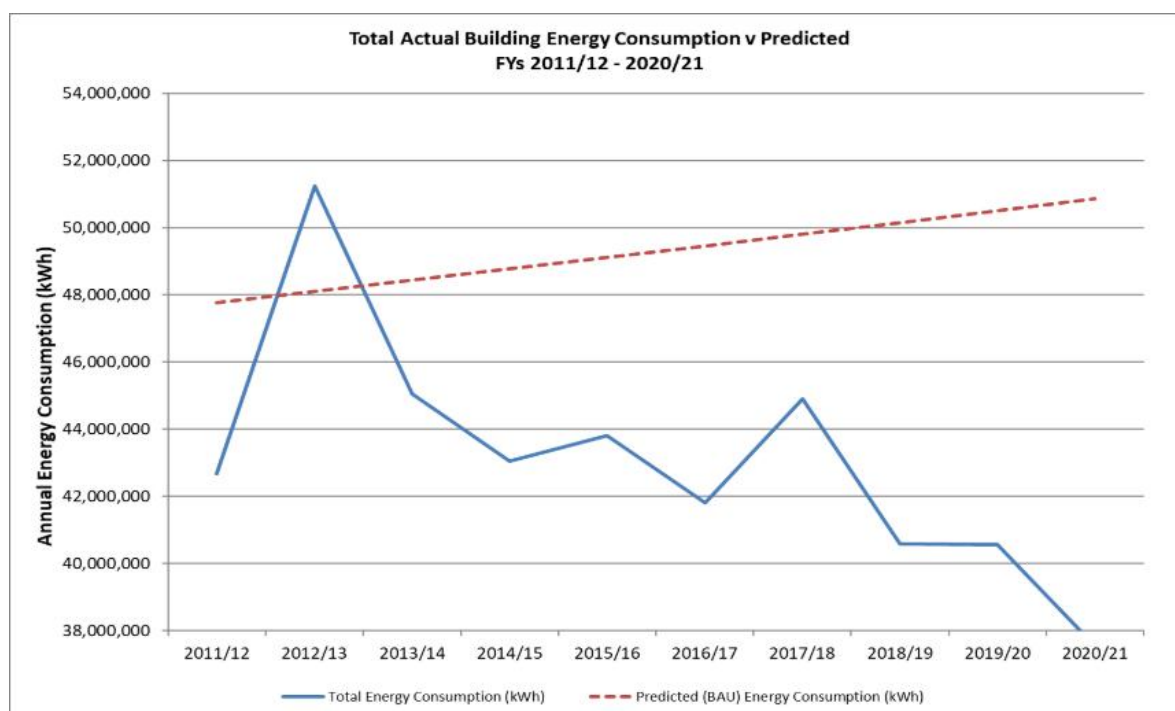
- 4.4 Table 2 below provides a comparison of energy consumption between 2019/20 and 2020/21 for individual utilities.

Table 2

Utility	18-19	19-20	Difference	%
Heat/Biomass	2,767,080	2,258,199	-508,881	-18%
Oil	2,904,368	2,921,881	17,513	1%
Gas	23,518,223	23,469,901	-48,322	0.2%
Electricity	11,327,716	8,910,550	-2,417,166	-21.3%
Overall Building Total (kWh)	40,517,387	37,560,531	-2,956,856	-7.3%
Street Lighting & Unmetered Elec	2,815,632	2,451,572	-364,060	-13%
Overall Total (kWh)	43,333,019	40,012,103	-3,320,916	-7.7%
Water (m3)	134,870	102,887	-31,983	-23.7%

- 4.5 The combined energy consumption from the Council's buildings, for 2020/21 was 37,560,531 kWh compared with consumption of 40,566,264 kWh for 2019/20, equivalent to a 7.3% decrease. However, during 2020/21 there were significant changes to buildings' operations and uses due to COVID, although it is difficult to say accurately what impact those had on the total energy consumption figures.

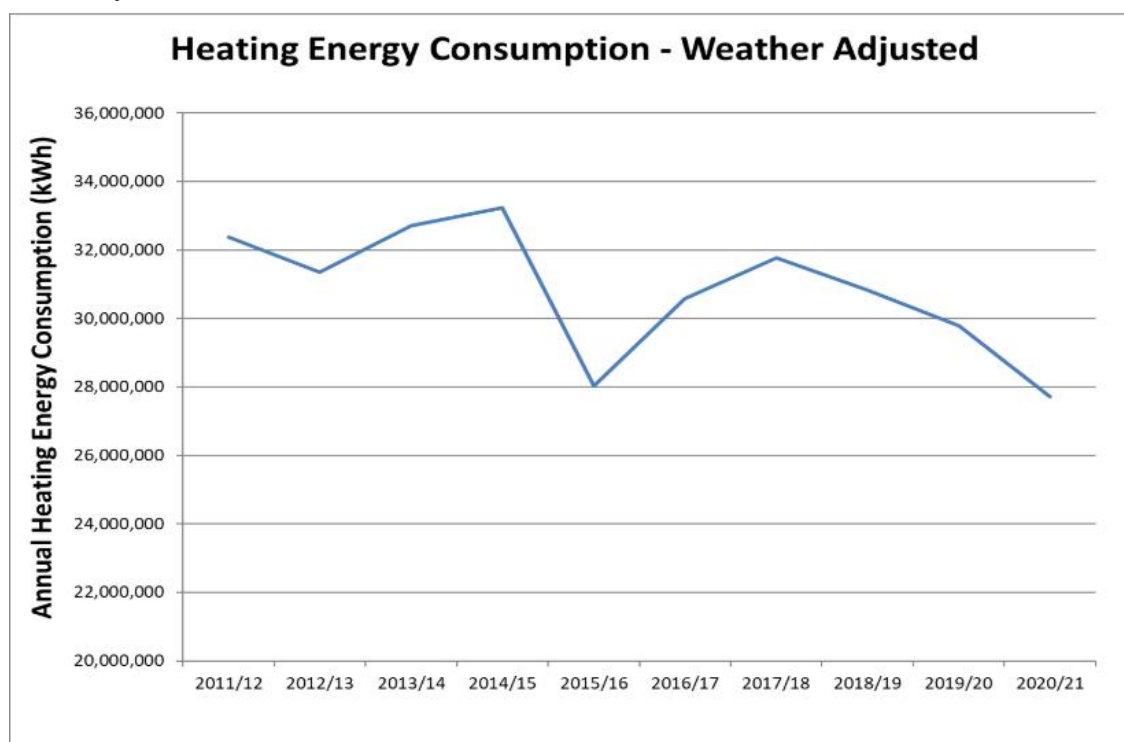
- 4.6 The graph below shows the Council's total energy consumption in its non-domestic buildings for the last 10 years, compared to the predicted increases, (based upon Government forecasts of a Business-as-Usual uplift of 0.7% per annum).



4.7 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.

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



- 4.9 Heating accounts for a significant proportion of the Council's energy consumption. The weather in 2020/21 was 6% colder than in 2019/20 and the graph above shows a weather adjusted decrease in heating consumption of 7% compared to 2019/20. This indicates that the overall efficiency of heating provision within Moray Council properties has improved, i.e. became more efficient. However, during 2020/21 the impact of COVID on building operations had a significant impact. Climate change is likely to exacerbate fluctuations in weather conditions in future.
- 4.10 The following table summarises the absolute and relative variations in gas consumption for the various property groupings within the Council's property estate.

Property Groupings	19/20 kWh	20/21 kWh	Difference	% Difference
Closed sites 2020 - 2025	27,345	5,609	-21,736	-79%
Community Centres	466,110	458,468	-7,641	-2%
Day Centres	1,051,363	1,034,925	-16,438	-2%
Depots	419,274	400,445	-18,829	-4%
Halls	179,081	119,607	-59,475	-33%
Hostels	6,225	2,904	-3,320	-53%
Industrial Premises	246,394	214,339	-32,055	-13%
Libraries	716,925	560,627	-156,298	-22%
Minor Sites	16,005	11,669	-4,337	-27%
Museums/Visitor Centres	69,038	83,512	14,474	21%
Nurseries	93,131	160,653	67,522	73%
Offices	1,308,886	1,342,969	34,083	3%
Premises	93,766	112,634	18,869	20%
Primary Schools	6,716,512	7,368,873	652,361	10%
Residential Homes	948,929	915,681	-33,248	-4%
Secondary Schools	7,929,450	9,096,310	1,166,860	15%
Sports Facilities	9,786	5,368	-4,418	-45%
Swimming Pools	3,145,072	1,519,347	-1,625,725	-52%
Vacant Properties	74,930	55,962	-18,969	-25%
Grand Total	23,518,223	23,469,901	-48,321	-0.2%

- 4.11 Main points to note in relation to the above table are as follows:-

- Majority of decreases are in relation to reduced operation resulting from COVID-19 working practises changes.
- For some properties, which remained operational, e.g. HQ Annex, enhanced ventilation resulted in increased gas consumption.
- The increase for Nurseries reflects the provision of new facilities.
- The addition of Linkwood PS, accounted for half of the recorded increase of all primary schools.
- The addition of Lossiemouth High School, accounted for a significant proportion of the overall increase for secondary schools, as there was a significant overlap period between the old school closing and the new school opening. Going forward it is predicted that gas consumption at the new school will be significantly less than the consumption at the old school.

- A project was undertaken in 2020-21 to combine the gas supplies of the swimming pools at Forres and Keith into the school supplies, with the aim of reducing standing charges for gas metering. This has increased the apparent consumption of the schools, however when assessed in conjunction with historical consumption trends of the pools, the overall consumptions have remained relatively steady with reductions of approximately 9% recorded for both combined supplies.

4.12 For 2020/21 in particular the impact of COVID-19 on the operation of Council properties has meant comparisons to typical historical performances are less meaningful. However, as staffing resources allow, the Energy Team will continue to investigate the properties with the largest increases in consumptions. The Council's Climate Change Action Plan includes the aim to convert all fossil-fuel based heating systems to low or zero carbon alternatives and consultants are shortly to be appointed to provide advice on how this could be achieved.

Water Consumption

4.13 The Council's water consumption for 2020/21 was 102,887 m³ compared with consumption of 134,870 m³ for 2019/20, a decrease of 31,983 m³, equivalent to a 24% decrease. Again, COVID-19 has had a significant impact.

Street Lighting

4.14 The management and maintenance of street lighting is undertaken by Direct Services. The associated energy consumption in 2020/21 was 2,451,572 kWh, 13% lower than the 2019/20 consumption of 2,815,632 kWh. It is expected that the LED replacement programme will be fully completed during 21/22. There are approx. 600 lanterns outstanding with 17,182 changed to date. Electricity consumption has dropped by 67% compared to that being used prior to the project's inception, saving the council £695,000 per annum as well as 954 tonnes of carbon per annum. This exceeds the original saving projections and when combined with the project coming in 17% under budget the payback period has been reduced from 9.3 years to 5.1 years.

Carbon

4.15 Carbon dioxide emissions 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 building related operations (figures are in tonnes of CO₂).

Table 3

Utility	19-20	20-21	Difference	%
Heat/Biomass	43	35	-8	-19%
Oil	793	798	5	1%
Gas	4,324	4,315	-8	0%
Electricity	3,141	2,471	-670	-21%
Street Lighting & Unmetered Elec	781	680	-101	-13%
Water	142	108	-34	-24%
Overall Total CO₂e	9,224	8,407	-817	-9%

4.16 Carbon emissions from the Council's non-domestic buildings and street lighting in 2020/21 were 9% lower than in 2019/20. Contributory factors, which would have affected the above performance, include:-

- Changes in building operations due to COVID-19 with an associated significant reduction in electricity consumption.
- More street lighting provided from LED technology.

5 UTILITY MANAGEMENT

Utility Contracts

- 5.1 Electricity – The second one-year extension for the supply of electricity has been granted to the incumbent provider EDF and the framework will now expire on 31 March 2023.
- 5.2 Gas – The first one-year extension for the supply of gas has been granted to the incumbent provider Total and the framework will now expire on 31 March 2023.
- 5.3 Water – 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.
- 5.4 Biomass – the Council in conjunction with Highland Council negotiated a contract with AMP Clean Energy (formerly Highland Wood Energy) for Biomass fuel supply and maintenance. The contract covered the 4-year period 1 September 2017 to 31 August 2021 and the option to extend has been exercised with a new termination date of 31 August 2022.

Utility Expenditure

- 5.5 In 2020/21 the Council's total utility bill amounted to £3,166,781, a decrease of £443,343 (12.3%) compared to 2019/20 - with buildings constituting the largest element at £2,767,229. Table 4 below gives a breakdown of costs.

Net Cost

Utility	19-20	20-21	Difference	%
Heat/Biomass	£134,954	£111,777	-£23,177	-17%
Oil	£139,397	£114,841	-£24,556	-18%
Gas	£717,021	£640,192	-£76,829	-11%
Electricity	£1,671,762	£1,423,556	-£248,206	-15%
Water	£534,516	£476,863	-£57,653	-11%
Overall Total - Buildings Only (£)	£3,197,650	£2,767,229	-£430,421	-13.5%
Street Lighting & Unmetered Elec	£412,474	£399,552	-£12,922	-3.1%
Overall Total (£)	£3,610,124	£3,166,781	-£443,343	-12.3%

- 5.6 The following commodity market factors should be noted with regard to the utility costs for 2020/21:

- Biomass unit rate for heat remained relatively steady.
- Oil and Gas average unit rates decreased by 18% and 11% respectively.
- Electricity and Water rates rose by 8% and 17% respectively.

- 5.7 In recent years, electricity non-energy costs (a mixture of fixed charges and others relating to transmission, metering etc.) have accounted for an increasing element of the overall charge and for 2020-21 amounts to 59%. These costs are predicted to continue to increase, as energy consumers rather than taxpayers, meet the costs of moving to a low carbon society, as well as infrastructure improvements.
- 5.8 Unit charges for gas consumption accounted for 79%, whilst the indirect charges accounted for approximately 21% of the Council's overall gas costs in 2020-21.

Future Budget Guidance

- 5.9 In 2021-22 the contract costs of electricity decreased by 3.5% whilst there has been no change in the contract costs of gas. As mentioned above, as the 2020-21 consumption figures were affected by COVID they should be viewed with caution as to whether they are likely to represent an ongoing trend. However, based on 2020-21 consumption the annual costs for electricity and gas in 2021/22 are estimated at £1,750,184 and £652,996 respectively.
- 5.10 Scottish Procurement issue periodic updates on price forecasts for the electricity and gas contracts. The following is based on guidance issued in September 2021 and reflects median forecast figures.

		2022-23	2023-24
Variance to 21-22	Electricity	+12.0%	+26.0%
	Gas	+30.1%	+23.7%

- 5.11 Based upon our 2020-21 consumption patterns, should the predicted increases detailed above happen, the following additional costs would be incurred.

		2022-23	2023-24
Variance to 21-22	Electricity	£218,773	£474,008
	Gas	£192,698	£151,726
	Combined	£411,471	£625,734

- 5.12 In September 2021 significant increases in the wholesale price of gas and electricity occurred which has been widely reported in the press. A number of factors contributed to the increase, including higher global demand for Liquefied Natural Gas (LNG), uncertainty over Russian gas supplies, American refineries recovering slower than expected from hurricane damage, low UK storage capacity, un-scheduled outages of UK power generators and lower than expected wind generation. Additionally fire damage has shut down a key electricity interconnector to France, which is not expected to become fully operational until March 2022. Such a spike in energy prices is unusual. However, it is complex to predict future trends in wholesale energy prices.
- 5.13 Scottish Procurement (a department of the Scottish Government) purchases and monitors energy on behalf of the public sector. As the vast majority of the energy for the current financial year was purchased in 2020/21 the above issues do not currently having a significant impact on the Council. For 2022/23, around 75% of the Council's energy has already been purchased by Procurement Scotland and around 50% for 2023/24. Scottish Procurement issues periodic updates on future

prices and the predictions contained in sections 5.10 and 5.11 above will be subject to change in response to wholesale market changes.

Renewable Energy Generation Revenue

- 5.14 The council currently operates 2 biomass heating systems, at Speyside and Milne's High Schools and a solar thermal system at Forres Swimming Pool.
- 5.15 For the 2020/21 period the Council received combined Renewable Heat Incentive (RHI) payments of £112,470.

Table 5

Total RHI Income	19-20	20-21	Difference	%
Milnes PS	£53,695	£52,999	-£696	-1%
Speyside HS	£67,686	£57,476	-£10,210	-15%
Forres Pool	£1,718	£1,995	£276	16%
Total RHI Income	£123,100	£112,470	-£10,630	-9%

- 5.16 The reduction in payments to Speyside HS relate to reductions in the use of the building during COVID-19, in particular the use of the pool facility.
- 5.17 The council operates a single site, which benefits from the Feed In Tariff (FIT) scheme.

Total FIT Income	19-20	20-21	Difference	%
Elgin HS	£1,678	£1,739	£61	4%

Invoice Processing

- 5.18 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.
- 5.19 During 2020-21 the active management, checking and validation of utility consumptions and invoices identified over £65,400 of erroneous charges, which were resolved by the Energy Team.

POLICY AND STRATEGY

Scottish Government

- 6.1 Energy policy and strategy has become integral within wider Scottish Government climate change activities. During 2020-21, the Scottish Government remained active with respect to policy relating to Climate Change, albeit impacted by COVID-19. The Council's Climate Change Strategy contains detail in relation to the major pieces of policy issued during this period.

Moray Council Energy Policy & Strategy

- 6.2. 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.

- 6.3 As part of the Council's Climate Change Action Plan, investigations are ongoing to identify how best to transition the non-domestic property portfolio to net zero carbon, and as it develops it is expected that this will in turn lead to a revision of the Council's Energy Policy and Strategy.

Corporate Plan

- 6.4 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".
- 6.5 As previously referenced, the Council approved and adopted the 10-year Climate Change Strategy in March 2021. Work is ongoing with respect to determining how the Council property estate could transfer to net zero operations.

Heating Policy

- 6.6 The Council's Heating Policy has been in place for a number of years, but it is considered that a review would now be appropriate. This would be with the intention to take account of changes in ventilation practices due to COVID, as well as other changes in buildings' occupation, use and management. Also, to align more closely with the Council's climate change aspirations, which as mentioned above includes seeking to make all Council buildings net zero carbon. It would be intended to report to committee next year to consider proposals for a revised Heating Policy.

Mandatory Carbon Reporting

- 6.7 The Energy Team led upon the submission of the Council's Public Sector Climate Change report in November 2020. For the upcoming submission in November 2021, the Climate Change Team will take overall responsibility.

7. BUILDING ENERGY MANAGEMENT SYSTEMS (BEMS)

- 7.1 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.
- 7.2 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.
- 7.3 Support by the manufacturer for the operating system of the BEMS (Trend 963) ceased in 2019. There have been ongoing instances whereby the system has been crashed or been inaccessible. To date these have been rectified with the assistance of ICT, however it is becoming increasingly likely that should a system failure occur, we would potentially be unable to repair and continue to operate the current system. Further, it also operates using Java software, which in itself presents a security risk and does not comply with ICT policy for Council IT networks.

- 7.4 Consideration is being given to replacing the aged system with its modern equivalent. Development and investigative works are ongoing but following initial discussions with the framework BEMS maintenance provider, the cost of replacing the system is indicatively estimated at £40,000. This is provided for information at this stage as more detailed proposals are expected to become available in 2022/23.
- 7.5 For clarity, the above project refers to the Council's Building Energy Management System (BEMS), which is used to control buildings services such as heating and ventilation across multiple buildings. There is another separate active project relating to Building Information Modelling (BIM), which is wholly separate and relates to a common shared database for buildings and assets.
- 7.6 In addition to the improved resilience and reliability, there would also be improvements to performance, accessibility, security and energy efficiency.

8. ENERGY INITIATIVES

Awareness

- 8.1 Website -The Council webpages detail how to help the environment by following simple energy saving tips for the 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.
- 8.2 Corporate training - Due to the impact of COVID-19, no energy awareness training was undertaken in 2020/21, however the situation is being kept under review for any opportunities to resurrect energy awareness training.
- 8.3 Surveys - Due to lockdown, no energy surveys or summer surveys were undertaken in 2020/21. However, summer surveys were undertaken in 2021/22 and a programme of further surveys for the winter period in 2021/22 is being put in place. Comparisons of the consumption at the Council's properties compared to benchmarks established recently by the Scottish Energy Officers Network for Local Authority properties in Scotland will be used to assist identify the properties to survey locally.

Energy Projects

- 8.4 **APPENDIX I** lists the energy saving projects carried out in 2020/21, including the anticipated savings in kWh and £'s for each. It also lists further energy saving projects being considered.
- 8.5 The COVID-19 lockdown resulted in delays and postponement of several projects.
- 8.6 A second phase of replacing older inefficient lighting with LED in large halls was scheduled for 2020/21. However, this was delayed to the current financial year due to technical resources being fully committed. As of September 2021, this programme is approximately 50% complete, with the remainder to be completed within the current financial year.

Future Energy Initiatives

- 8.7 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.

- 8.8 Consultants are to be appointed to advise the Council how it can achieve the target within the Climate Change Strategy of net zero carbon emissions by 2030. Whilst that advice is awaited, it will be essential to incorporate energy efficiency/carbon management as a prime consideration into all on-going work and it is anticipated that energy reduction will be included in future corporate Climate Change performance reporting.

Funding

- 8.9 The revenue and capital budgets and spend for 2020/21 were as follows:-

Revenue

	Budget	Spend
Awareness & Information	£ 6,700	£ 6,825
Small Projects	£16,000	£12,889
Climate Change	£ 4,800	£ 4,800
Capital Projects	£15,000	£ 5,640

- 8.10 The COVID-19 lockdown had a detrimental impact on the undertaking of certain projects. The underspend on the Capital budget has been carried forward into 2021/22
- 8.11 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.
- 8.12 It is fully expected that consultants' advice on how to achieve the target within the Climate Change Strategy of net zero carbon emissions by 2030 will include measures which cannot be considered solely on a spend to save basis.

9. SUMMARY OF IMPLICATIONS

(a) Corporate Plan and 10 Year Plan (Local Outcomes Improvement Plan) (LOIP)

The Energy Policy and Strategy and actions to minimise the Council's energy use support the aim of the Corporate Plan of a financially stable Council.

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

In March 2021, the Council approved and adopted the Climate Change Strategy, which provides the framework for actions aimed at reducing carbon

emissions and preparing for the unavoidable impacts of changing weather patterns through the period 2020-2030 and beyond.

(b) Policy and Legal

Climate Change (Scotland) Act 2009 places a duty on public bodies to act in a way they consider most sustainable and in the way best calculated to deliver emission reduction targets set in the Act.

The work of the Energy Team supports the Council's Climate Change Strategy and its primary target of achieving net zero carbon emissions for the council's property portfolio.

(c) Financial Implications

In 2020/21, the Council's energy bill for non-domestic properties was £3,166,781 – a decrease of £443,343 (12.3%) compared to 2019/20.

Unit electricity costs have decreased by 3.5% and gas costs have remained stationary in 2021/22, which if applied to 2020/21 energy consumption would give annual costs for gas and electricity in 2021/22 of £1,750,184 and £652,996 and respectively.

During 2020-21 the active management, checking and validation of utility consumptions and invoices identified over £65,400 of erroneous charges.

£15,000 has been allocated in the Council's 2021/22 capital plan and £19,200 in the Council's revenue plan for energy saving projects and awareness raising initiatives, although officers will also continue to take forward spend to save proposals.

(d) Risk Implications

Budget guidance issued in June 2021 by Scottish Procurement indicates that in 2022-23 electricity unit costs are forecast to increase by 12% and gas unit costs by 26%, whilst in 2023-24 electricity will increase by 30.1% and gas by 23.7% - compared to 2021-22.

Should the operational and commercial pressures on the wholesale utility markets continue into the medium term it is possible that additional costs pressures would be incurred, beyond those highlighted in Section 5.11 above.

(e) Staffing Implications

The Council is presently establishing a 3-person Climate Change Team and the Energy Team will assist in work to transform the Council's property portfolio to net zero carbon.

(f) Property

The property implications are as set out in this report.

(g) Equalities

There are no equalities implications.

(h) Consultations

The Head of Housing and Property, Paul Connor (Principal Accountant), the Head of Development Services, the Design Manager, the Legal Services

Manager, the Equal Opportunities Officer and Lissa Rowan, Committee Services Officer have been consulted and any comments incorporated in this report as appropriate.

10. CONCLUSION

- 10.1 The Council's utility consumptions fell by 7.7% and utility costs fell by 12.3% in 2020/21.**
- 10.2 There is still potential for reductions in energy consumption through a programme of energy projects, property rationalisation, use of Building Energy Management Systems and staff awareness/behaviour changes. These are necessary to minimise the Council's carbon emissions and energy costs.**

Author of Report:	Ronnie Macdonald, Energy Officer
Background Papers:	As referred to in this report.
Ref:	SPMAN-1285234812-917