# APPENDIX I

# ANNUAL ENERGY REPORT 2017/18

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## 1 Introduction

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.

The Scottish Government announced in May 2018 a new £54.5million strategy to improve the energy efficiency of Scotland's buildings by 2040. It is intended the Energy Efficient Scotland Route map will tackle the problems of fuel poverty and greenhouse gas emissions. The programme builds on existing legislation and programmes supporting the efficiency of homes, businesses and public buildings.

During the financial year 2017/18 Moray Council's expenditure on utilities (including street lighting) was approximately £3.74M, with associated carbon emissions of 12,832 tonnes $CO_2$.

### 1.1 Council Aims and Objectives

The aims of the Council's Energy Policy are:-

- to reduce the Council's energy consumption by 2% per annum on a year to year basis; and
- to ensure that the Council's position in respect of the Carbon Reduction Commitment Energy Efficiency Scheme is optimised.

## 2 Performance

### 2.1 Consumption and Costs

Table 1 provides a summary of the Council's utilities' consumption, costs and carbon emissions during 2017/18.

Table 1

| Annual Report Figures 17-18 | | | |
|---|---|---|---|
| **Commodity** | **Consumption (kWh/m3)** | **Net Cost (£)** | **Carbon (tonnes $CO_{2e}$)** |
| Biomass | 2,683,474 | £127,088 | 34 |
| Oil | 4,063,176 | £192,542 | 1,121 |
| Gas | 25,044,411 | £601,898 | 4,612 |
| Electricity | 13,110,091 | £1,732,691 | 5,040 |
| Street Lighting & Unmetered Elec | 4,900,855 | £576,624 | 1,884 |
| Water (m3) | 134,306 | £506,794 | 141 |
| **Totals** | | **£3,737,637** | **12,832** |

The operation of the Council's 247 non domestic buildings cost £3,161,013, with a further expenditure of £576,624 on street lighting and unmetered electricity.

2.1.1 Combined Energy Consumption

Table 2 below provides a comparison between 2016/17 and 2017/18 for individual utilities.

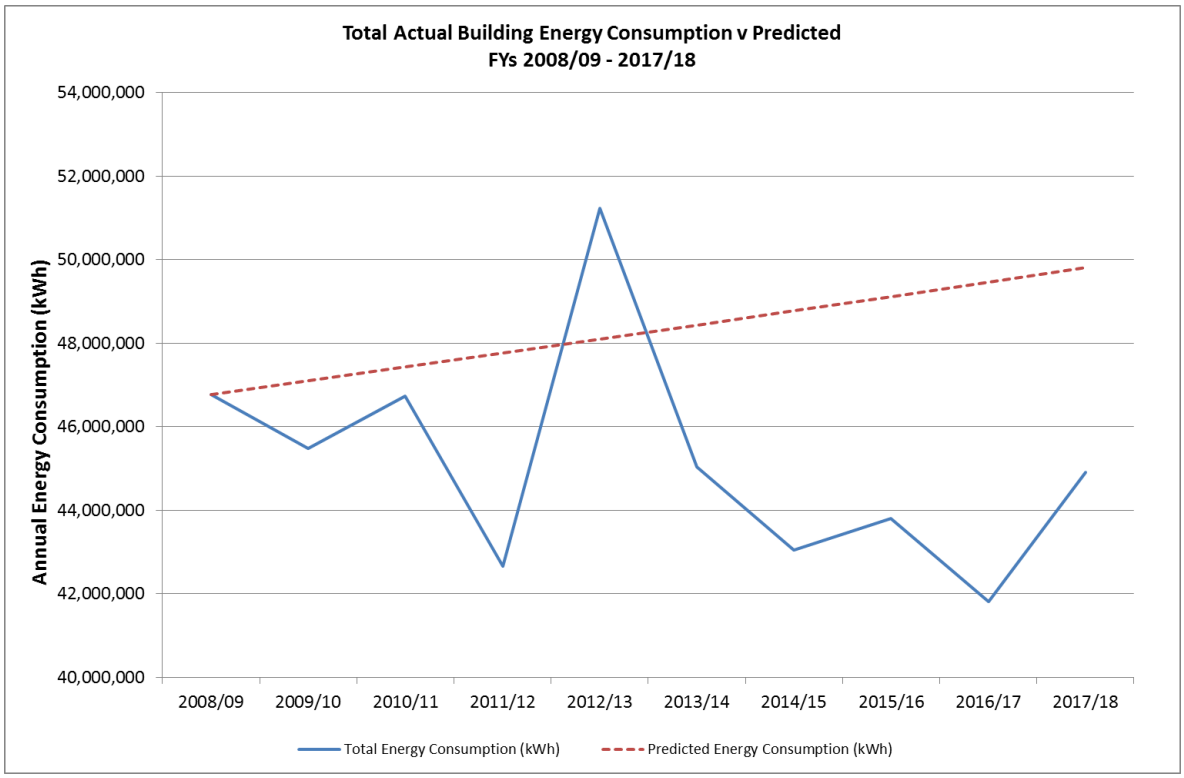
Table 2

**Consumption**

| **Utility** | **16-17** | **17-18** | **Difference** | **%** |
|---|---|---|---|---|
| Biomass (kWh) | 2,730,300 | 2,683,474 | -46,826 | -2% |
| Oil (kWh) | 3,742,658 | 4,063,176 | 320,518 | 9% |
| Gas (kWh) | 22,162,873 | 25,044,411 | 2,881,538 | 13% |
| Electricity (kWh) | 13,175,455 | 13,110,091 | -65,364 | -0.5% |
| **Overall Building Total (kWh)** | **41,811,286** | **44,901,152** | **3,089,866** | **7.4%** |
| Street Lighting & Unmetered Elec (kWh) | 5,972,737 | 4,900,855 | -1,071,882 | -18% |
| **Overall Total (kWh)** | **47,784,023** | **49,802,007** | **2,017,984** | **4.2%** |
| Water (m3) | 136,116 | 134,306 | -1,810 | -1.3% |

The combined energy consumption from the Council's buildings, (the measure to which the annual reduction target is assessed), for 2017/18 was 44,901,152 kWh compared with consumption of 41,811,286 kWh for 2016/17, equivalent to a 7.4% increase.

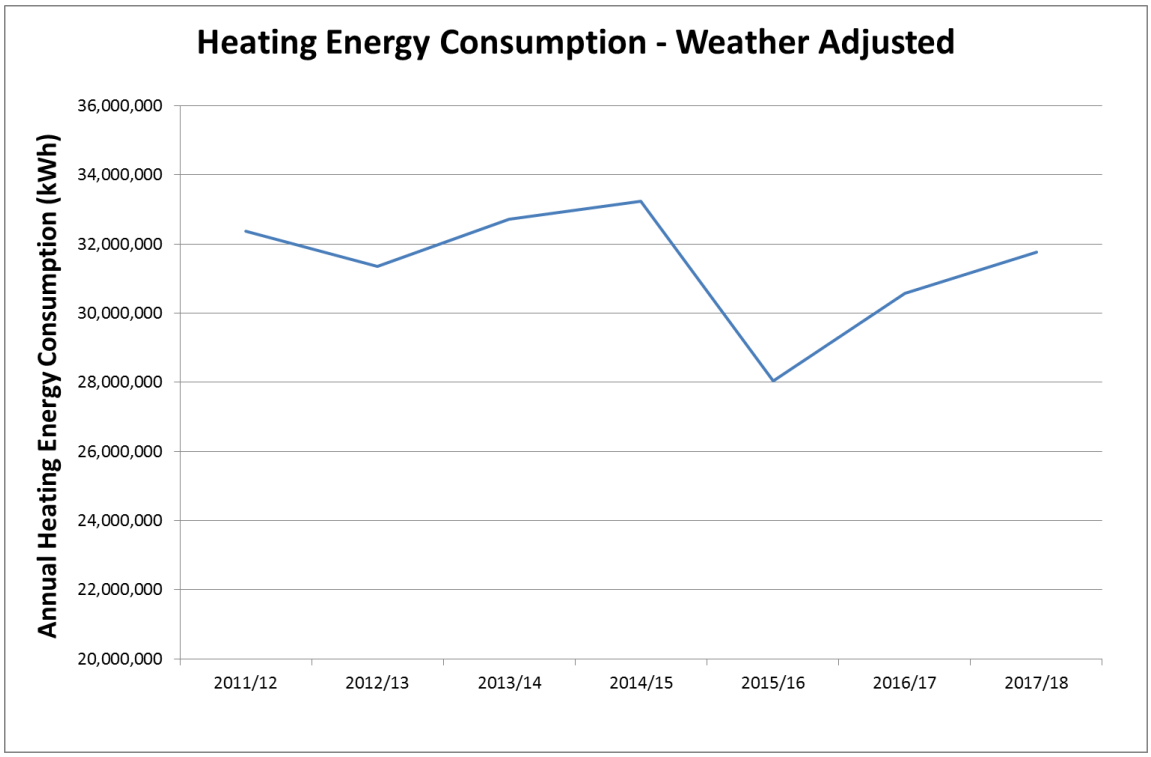
The graph below shows the Council's total energy consumption in its non-domestic buildings for the last 9 years, compared to the predicted increases, (based upon Government forecasts of a Business-as-Usual uplift of 0.7% per annum).



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 5 years.




Heating accounts for a significant proportion of the Council’s energy consumption. The weather in 2017/18 was 7% colder than in 2016/17 and the graph above shows a weather adjusted increase in heating consumption of 3.9% compared to 2016/17. This indicates that the overall efficiency of heating provision within Moray Council properties has reduced, i.e. became less efficient.

The majority of the assessed increase is attributable to educational properties (80%), and in particular Secondary Schools. A significant contributing factor was the construction of the new Elgin High School. By itself, this site accounted for over a third of the Council’s total annual increase in gas consumption. The new school operates low carbon technologies including 2 Combined Heat & Power (CHP) units. (CHP units consume gas to produce heat and electricity). Investigations and liaison with the site are on-going to determine the reasons for the increased consumption, including to what extent the CHP units are attributable.

Across property type groupings

- Large percentage increases (greater than 20%) were recorded for
    - Primary Schools with oil-based heating systems
    - Secondary Schools

- Large percentage decreases (greater than 20%) were recorded for
    - Depots (positive reversal of increase seen in the previous year)
    - Libraries (Elgin Library - 6% reduction)

Given the number of potential factors which affect heating related performance, it is very difficult, without detailed and time consuming analysis, to identify exactly why consumption has increased. The following are contributory factors to the increase in energy consumption:-

- Windier, wetter and colder weather requires heating systems to be on for longer and to work harder.
- Energy efficiency of buildings and heating systems reducing as a consequence of the Make do and Mend policy, including
    - Increased manual adjustment by building users
    - Greater heat loss through from draughts, e.g. gaps in doors and windows not being sealed
    - Lack of automatic adjustment to warmer conditions, i.e. heating control systems not fully functioning

The Energy Team will be making relevant service managers aware of these issues prior to the start of the new heating season.

Climate change is likely to exacerbate fluctuations in weather conditions in future.

2.1.3 Water Consumption
The Council's water consumption for 2017/18 was 134,306 $m^3$ compared with consumption of 136,116 $m^3$ for 2016/17, equivalent to a 1.3% decrease.

2.1.4 Relative Energy Efficiency Performance - Benchmarks
United Kingdom wide benchmarks are available for different property types. However these are now dated and make no allowance for location and are considered of limited merit in assessing the Council's properties.

The public sector's Scottish Energy Officers Network (SEON) have commissioned University College London (UCL) to undertake a review of benchmarks for all public sector building types in Scotland. The benchmarks are expected to be available soon and will be used to re-assess the energy performance of Council properties.

A review of energy performance of primary schools was undertaken as part of the Council property asset management process and the results are summarised below with the full breakdown included within **APPENDIX II.**

| Rating | No of Primary Schools |
|---|---|
| A | 15 |
| B | 3 |
| C | 15 |
| D | 12 |

*"A" rating indicates good efficiency; "D" rating indicates poor efficiency*

2.2 Energy Performance Certificates (EPCs)

The Council remains statutorily obliged to provide EPCs for its public buildings with a floor area above 250m$^2$ 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. Eight of our public buildings are to be renewed during 2018/19, with 37 due in 2019/20 as part of an ongoing programme.

2.3 Street Lighting

The management and maintenance of street lighting is undertaken by Direct Services. The associated energy consumption in 2017/18 was 4,900,855 kWh, 18% lower than the 2016/17 consumption of 5,972,737 kWh. A five year programme to upgrade existing street lighting to LED technology began in 2015 and is scheduled to complete in 2020.

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** | **16-17** | **17-18** | **Difference** | **%** |
|---|---|---|---|---|
| Biomass | 36 | 34 | -2 | -5% |
| Oil | 1,034 | 1,121 | 87 | 8% |
| Gas | 4,078 | 4,612 | 534 | 13% |
| Electricity - Buildings | 5,920 | 5,040 | -880 | -15% |
| Electricity - Street Lighting & Unmetered | 2,684 | 1,884 | -800 | -30% |
| Water | 143 | 141 | -2 | -1% |
| **Overall Total $C0_2e$ (tonnes)** | 13,895 | 12,832 | -1,063 | -8% |

Overall carbon emissions from the Council's non-domestic buildings in 2017/18 were 8% lower than in in 2016/17. Reductions were recorded against biomass, electricity and water with increases for oil and gas. Contributory factors which would have impacted on the above performance include:-

- More grid electricity produced from renewables and less from carbon intensive sources such as coal, gas and oil.
- Increased heat requirement due to colder weather.
- More street lighting provided from LED technology.

## 3 Utility Management

3.1 Utility Contracts

Electricity – Following a competitive tendering process by Scottish procurement the current contract supplier, EDF Energy, was successful in winning the new contract which is due to begin on 1st April 2019.

Gas - The current contract with Total Gas & Power expires in March 2020.

Water - Anglian Water replaced Business Stream for water services on 1 March 2016 and the Council has experienced on-going significant difficulties with inaccurate invoicing and issue resolution. It should be noted that these issues are not restricted to Moray Council and are common across the Scottish public sector. Payment for water services is made annually in advance to realise a 2% discount on all charges. In June 2018 Scottish Procurement awarded a 12 month contract extension to Anglian Water bringing the contract termination date to 28th Feb 2020.

Biomass - The Energy Team participated with the Council's Maintenance Section and Highland Council in negotiating a new Biomass fuel supply and maintenance contract. The contract was won by the incumbent supplier HW Energy and covers the period 1/9/17 to 31/8/21.

3.2 Utility Cost Management

3.2.1 Budget Guidance

The following figures are based on guidance issued by Scottish Procurement.

3.2.2 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.

3.2.3 Utility Expenditure

In 2017/18 the Council's total utility bill amounted to £3,737,637, an increase of £67,674 (1.8%) compared to 2016/17 - energy within buildings constituted the largest element at £2,951,108. Table 4 below gives a breakdown of costs.

Table 4

| **Utility** | **16-17** | **17-18** | **Difference** | **%** |
|---|---|---|---|---|
| Biomass | £129,460 | £127,088 | -£2,372 | -2% |
| Oil | £166,303 | £192,542 | £26,239 | 16% |
| Gas | £516,388 | £601,898 | £85,510 | 17% |
| Electricity | £1,653,936 | £1,732,691 | £78,755 | 5% |
| Water | £485,021 | £506,794 | £21,773 | 4% |
| **Overall Total - Buildings Only (£)** | **£2,951,108** | **£3,161,013** | **£209,905** | **7.1%** |
| Street Lighting & Unmetered Elec | £718,855 | £576,624 | -£142,231 | -19.8% |
| **Overall Total (£)** | **£3,669,963** | **£3,737,637** | **£67,674** | **1.8%** |

3.2.4 Commodity Market Factors

The following factors should be noted with regard to the utility costs for 2017/18:

- The decreased Biomass cost recorded during 2017/18 reflects a decrease in usage of biomass heat, which matches a decrease in Renewable Heat Incentive payments to the Council. There has also been a significant reduction in oil consumption at Speyside High School.
- In 2017/18 oil prices generally rose throughout the year, overall there was a 6.6% increase, however they are still significantly lower than the historic average.
- The average electricity and gas prices in 2017/18 were 5.3% and 3.1% higher than 2016/17.

The following should be noted with regard to the utility costs for 2018/19 and beyond:

The table below is based upon budget guidance issued by Scottish Procurement in March 2018.

| | | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|
| **Variance to 17-18** | **Gas** | **11%** | **13%** | **17%** |
| | **Electricity** | **4%** | **22%** | **20%** |

| | | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|
| **Variance to 17-18** | **Gas** | **£68,418** | **£76,045** | **£104,747** |
| | **Electricity** | **£75,190** | **£378,001** | **£347,939** |
| | **Combined** | **£143,608** | **£454,046** | **£452,686** |

So far in 2018-19 electricity and gas prices have risen approximately in line with predictions.

However Scottish Procurement advised in August 2018, that significant price increases in electricity and gas wholesale costs have occurred recently for both the short and medium term markets. As part of the contract purchasing strategy for the public sector, thresholds are in place to force the purchase of energy and limit exposure to market swings. So far this year thresholds have been breached twice, whilst previously it had been breached only once in the preceding 10 years.

The Council has been protected to a degree to date as the majority of energy requirements are purchased in advance, however as indicated above it is expected that utility costs will increase markedly in the next two years.

3.2.5 Carbon Reduction Commitment (CRC)

The CRC is a scheme designed to incentivise large commercial and public sector organisations to implement cost effective energy efficiency opportunities at non-domestic properties and street lighting. The Energy Team undertake the preparation and submission of the CRC Annual Report and associated evidence pack. The charge per tonne (allowance) of $CO_2$ emitted increases year-on-year and can vary dependant on when the allowance is purchased.

Moray Council purchased 13,100 allowances at £16.60 each in April 2017 for the reporting period 2017/18, at a cost of £217,460. The actual amount of allowances required for the year was 11,286, at a cost of £192,956, and the Council is therefore able to carry forward 1,814 allowances.

The CRC scheme is due to finish in March 2019. This will be replaced by increases in the Climate Change Levy (CCL) from 1 April 2019. The CCL is a tax on energy delivered to non-domestic users in the United Kingdom. Its aim is to provide an incentive to increase energy efficiency and to reduce carbon emissions.

The change from CRC to CCL is not expected to increase costs to customers.

3.2.6 Renewable Heat Incentive (RHI)

The council currently operates 2 biomass heating systems, at Speyside and Milne's High Schools. As part of the refurbishment works at Forres Swimming Pool a roof-mounted solar thermal system was installed to supplement the heating of pool water. An RHI application was submitted to OFGEM and the scheme was registered with effect from 19 May 2017.

For the 2017/18 period the Council received total RHI payments of £104,374, apportioned as per the table below.

Table 5

| **Total RHI Income** | **16/17** | **17/18** | **Difference** | **%** |
|---|---|---|---|---|
| Forres Pool | £0 | £1,079 | £1,079 | |
| Milnes PS | £44,806 | £45,746 | £940 | 2% |
| Speyside HS | £64,694 | £57,549 | -£7,145 | -11% |
| **Total RHI Income** | **£109,500** | **£104,374** | **-£5,126** | **-5%** |

3.3 Utility 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 2017/18 over 13,500 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 handled. 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 2017-18 the active management, checking and validation of utility consumptions and invoices, identified over £64,000 of erroneous charges, including:

- Water leaks

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

Full details can be found in **APPENDIX III.**

3.3.1 TEAM Sigma Monitoring & Targeting Software

The provider of the Council's monitoring and targeting software, TEAM Sigma, is now running down support for self-hosted systems (such as the Council operates) to permit greater support of supplier-hosted systems. The additional cost for the hosted version is approximately £1,500 per annum.

During 2017/18 the Energy Team undertook an appraisal of alternative providers of software of this type. It was determined that alternative systems were more expensive than the TEAM Sigma hosted solution, but did not provide meaningful additional benefit.

Following a cost free trial of the hosted solution from November 2017 to May 2018 it was concluded that it would be beneficial and appropriate to move to the supplier-hosted system. The key benefits identified are as summarised below:-

- Future proofs on-going service provision
- Lowest cost option
- Retains existing operational functionality
- Enhanced reporting capabilities
- Removes internal requirement for IT server equipment to be operated and maintained

The additional funding requirement of approximately £1,500 is being met from existing energy management budgets.

## 4 Policy & Strategy

### 4.1 Scottish Government

#### 4.1.1 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 has committed to invest more than half a billion pounds to Energy Efficient Scotland over the four years to 2020/21.

Amongst its objectives the Route Map aims for all public sector buildings to reach a relevant benchmark by 2040 and all non-domestic buildings to be improved for energy efficiency to the extent this is technically feasible and cost effective by 2040. At present new regulations are expected to come into force from 2021 on a phased basis.

Once fully implemented and operational, Energy Efficient Scotland is envisaged to be a whole system approach to delivering energy efficiency improvements and the provision of low carbon heat. A framework of energy efficiency standards, advice and funding would be applied to help create long-term consistency and confidence for consumers and industry, backed up by legislation where needed.

#### 4.1.2 Scotland's Climate Change Plan and Proposals and Policies

The Scottish Government published the draft Climate Change Plan (CCP) 2017-2032 on 19 January 2017, which presents policies and proposals to meet Scotland's annual targets until 2032. Based on the most recent Scottish greenhouse gas inventory (2014), it contains annual targets which represent an emissions reduction of 66% compared to baseline levels by 2032. This level of transformational change presents Scotland with significant challenges and opportunities, which are explored within the draft plan.

The principal target of the draft 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.

4.1.3 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.

The Strategy is designed to highlight the connections between the energy system and all parts of the economy, and its importance to sustainable, inclusive growth. It also makes a strong commitment to improving the Scottish Government's approach to public awareness-raising and engagement on energy issues.

4.2 Moray Council

4.2.1 Energy Policy & Strategy

The Council's current Energy Policy and Strategy, **APPENDIX IV,** 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. In accordance with the Carbon Trust Management guide CTC733 "An energy management best practice model for Scottish local authorities", the Policy and Strategy document is reviewed annually.

No specific changes are suggested at present; however it is viewed that the current energy based reduction target is no longer appropriate, particularly given that national targets are based on carbon emissions reduction and that most other Scottish Local Authorities report performance on a carbon basis. It is intended to report carbon emissions as an additional performance indicator in the next Annual Energy report. Contributing factors such as electricity, gas and water shall still be included, with detail relating to cost and consumption, in a similar manner to current practice.

It is considered that a corporate review should be undertaken to determine a Council wide carbon emissions reduction target, including waste, water and sewerage, business travel and fleet transport, in the context of the national legislative initiatives in this area, as detailed above. The review should consider consolidating individual targets and aspirations currently in place, including the Council's Corporate Asset Management Plan target of reducing $CO_2$ from building usage by 20% by 2023.

There is no explicit reference in the Moray Local Outcome Improvement Plan (LOIP) or Council's Corporate Plan to energy efficiency and nominal reference to other related aspects of sustainability such as climate change adaptation, carbon emission reduction etc.

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 Strategic Energy Action Plan (SEAP)
As reported to the Policy and Resources Committee on 8 May 2018 Moray Council has been working with Aberdeen City, Aberdeenshire and Angus in preparing a Sustainable Energy Action Plan (SEAP) for the whole North East of Scotland entitled "Empowering the North East". The report advised that progress has been made in relation to the majority of actions identified within the SEAP. The projects that have the most significant impact in terms of emission reductions relate to large scale energy centres proposed by the private sector. The report also noted that the Council has limited staffing and financial resources to contribute significantly to reducing emissions.

The report advised that in addition to the North East SEAP there is a Moray specific SEAP which covers the time period 2015 to 2030. The target within this plan is for Moray to aim to achieve greenhouse gas (GHG) emission reductions of 35% by 2030 compared with the baseline year (2005).

4.2.4 Mandatory Carbon Reporting
The Energy Team contributed to the submission of the Council's first Public Sector Climate Change report in November 2017.

## 5 Building Energy Management Systems (BEMS)

There are BEMS systems in 25 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.

The recently introduced BEMS technical specification is improving consistency across the Council's properties, including new-build projects and refurbishments, such as the 4-schools project and Keith Grammar.

Examples of the measures applied include performance dashboards, visibility of all setpoint & control parameters, interactive graphics of facilities and consistent representations of boiler system components and arrangements. This continues to be rolled out as and when the opportunity arises. Current financial constraints are restricting work in this area, but potential spend to save prospects will be kept under review.

## 6 Energy Initiatives

### 6.1 Energy Awareness

6.1.1 Energy Website
The Energy website on the internet and intranet continues to be reviewed and updated. The pages detail how to help the environment by following simple energy

saving tips for your home, workplace or school. In March 2018 the Council supported the WWF's Earth Hour through switching off the electrical lighting to the Landshut Bridge and statues within Elgin.

Copies of the Council's latest energy saving posters and the corporate heating strategy are also available on the website.

Regular articles were included in the Connect magazine during 2017/18, covering a variety of energy issues, which are continuing in 2018/19.

6.1.2 Corporate Training

A total of 52 staff and 935 primary school pupils attended energy awareness events in 2016/17, this include 7 staff induction sessions and 4 school eco groups.

Energy Awareness briefings are incorporated as part of the Corporate Staff Induction Training programme.

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.

The Energy Technician within the Energy Team volunteered and was accepted as a STEM Ambassador in February 2018.

6.2 Energy Surveys

In 2017/18 the Energy Team carried out surveys of the following sites:-

- Cullen Community Centre
- Elgin Community Centre
- Forres Community Centre
- Forres Academy
- Elgin Library
- Bishopmill PS
- Findochty PS

These audits resulted in the identification of several energy saving projects and the implementation of energy saving measures. A series of follow up visits to gauge the progress of the measures recommended were carried out and showed that the majority of the recommendations were in the process of being implemented.

Both the initial findings and follow up reports are provided to the particular school and copied to the Educational Resources Manager and the Head of Schools and Curriculum Development.

In addition a number of further audits and inspections were carried out, including the following:

- Depots – 4 sites as part of asset management considerations
- Summer Shutdowns – 6 schools were inspected during summer holidays to check that equipment had been fully shut down
- Water Management – 5 schools were inspected during holiday periods to investigate higher than expected water consumption
- Hall Lighting – 10 properties were inspected to assess the scope of a project to install LED lighting

In all instances feedback was provided to relevant parties on opportunities to reduce energy and water consumption. Additionally a business case to install LED lighting in high bay halls was prepared, submitted and subsequently approved, with the project scheduled to be undertaken during 2018-19.

The programme of audits and surveys being progressed in 2018/19 is as follows

- Keith Grammar School
- Milne's High School
- Buckie High School
- Millbank PS
- Milne's PS
- Lhanbryde Primary

6.3 Energy Projects

**APPENDIX V** lists the energy saving projects carried out in 2017/18, including the anticipated savings in kWh and £'s for each. It also lists further energy saving projects being considered.

The 4-Schools project to refurbish, upgrade and extend 4 of the Council's Primary Schools included a number of measures which will substantially improve the energy efficiency of those properties. Analysis and comparison of on-going consumptions to historical trends have demonstrated a marked reduction across all utilities, as shown below;

| | |
|---|---|
| Combined Electricity Reduction | 42% |
| Combined Oil/Gas Reduction | 7% |
| Combined Water Reduction | 34% |

Note: the combined oil/gas reduction value is negatively affected by the conversion of Millbank's heating system from electricity to gas.

**APPENDIX VI** contains graphical profiles of electricity, gas and water consumptions, by school and by utility.

The installation of a new heat recovery system and building fabric upgrade of Forres Swimming Pool initially produced a substantial improvement in energy efficiency of that property. Initial analysis of gas consumption indicated a reduction of over 50%. However there have been on-going snagging issues associated with the pool plant, particularly the Air Handling System, and on-going monitoring has shown only limited subsequent savings. Work continues to address these issues and maximise energy efficiency.

It should be noted that the on-going policy of “make do and mend” for on-going and future maintenance of Council properties has restricted opportunities to reduce energy consumption.

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 with future investment there is scope to achieve further significant reductions, principally as a result of:-

(a) Further energy saving projects.
(b) Rationalisation of the Council’s property assets.
(c) Raising corporate awareness and corporate training.
(d) Targeting worst performing schools.
(e) Better utilisation of BEMS and other systems to analyse accurate energy data and identify energy saving opportunities.

6.5 Funding

The revenue budgets for 2018/19 are as follows:-

| | |
|---|---|
| Awareness & Information | £ 3,200 |
| Small Projects | £16,000 |

In addition a sum of £15,000 is allocated in the Council’s 2018/19 capital plan for energy saving projects 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.