

Education, Children and Families Committee

10.00am, Tuesday, 1 March 2022

Energy in Schools – Annual Report

Executive/routine	Routine
Wards	All
Council Commitments	18

1. Recommendations

- 1.1 It is recommended that Education, Children and Families Committee:
 - 1.1.1 Notes the content of the report and the detail on current and historic energy use across the Council's learning estate; and
 - 1.1.2 Notes the progress on initiatives focussed on supporting net-zero carbon in the learning estate.

Paul Lawrence

Executive Director of Place

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Energy in Schools – Annual Report

2. Executive Summary

- 2.1 This report follows on from the [Energy in Schools – Annual Report](#) in December 2020. The report provides detail on energy consumption during 2020/2021, outlining the impact of the COVID pandemic on current energy use across the learning estate, as well as providing detail on key initiatives aimed at reducing energy use.
- 2.2 The report also updates on the strategic programmes focussed on decarbonising the Council’s learning estate including the adoption of Passivhaus as a standard for new builds, and the progress on establishing a deep energy retrofit approach for Council buildings, including schools.

3. Background

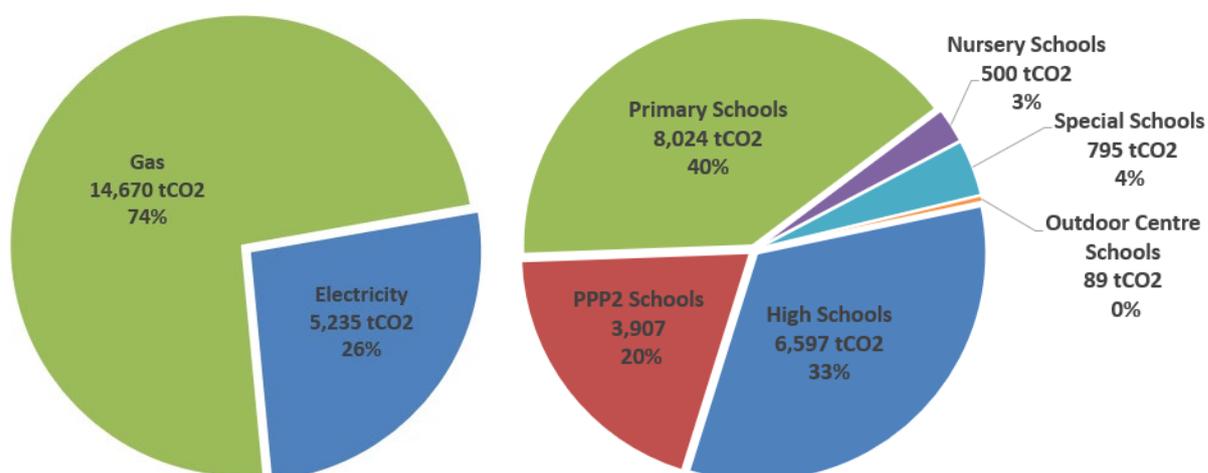
- 3.1 The Council spent £8.3m on energy across operational buildings in 2020/2021 a reduction of around 16% on 2019/2020 costs. This cost reduction was predominantly the result of large-scale closure of Council buildings during 2020/2021.
- 3.2 Between 2019/2020 and 2020/2021, electricity prices increased by around 4% and gas prices decreased by 11%. Moving into 2021/2022 electricity and gas prices have stayed relatively static with only modest variation, largely due to market disruption caused by the pandemic.
- 3.3 Forecasts for 2022/23 indicate significant cost increases on the horizon. Electricity costs are projected to increase by around 21% and gas unit rates are set to more than double. Extraordinary market conditions caused by a fear of European gas shortages coupled with heightened tensions in Eastern Europe has seen wholesale costs for gas and electricity hit record highs. Current forecasts indicate that the utility price increase will lead to a spend of over £9m in electricity and gas across the learning estate in 2022/23. This compares with a projected end of year forecast in the region of £5.7m for 2021/22.
- 3.4 In February 2021, the Council published its new Business Plan, [Our Future Council, Our Future City](#). This plan sets “Becoming a sustainable and net zero city” as one of the three strategic priorities for Edinburgh. The [Council Emissions Reduction](#)

[Plan](#) was finalised in November 2021 and contributes toward Outcome 8 of the Business Plan: “On track to deliver our 2030 net zero target”. The emissions reduction plan provides detail on the strategic approach to building emission reduction and outlines the key interventions being progressed.

4. Main report

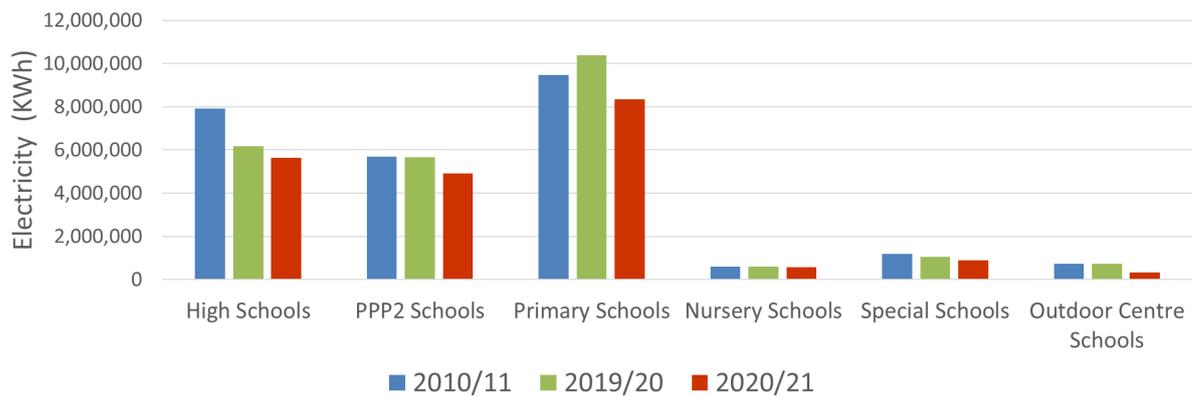
- 4.1 This section of the report gives an overview of energy consumption, and associated carbon emissions across the learning estate in 2020/2021. The data includes details on the Council’s PPP2 estate, where the Council pays directly for energy consumed, but excludes detail from Edinburgh Partnership schools (PPP1), as energy costs are factored into the unitary charge.

Graph 1: 2020/21 Carbon Emissions by Fuel and Property Type



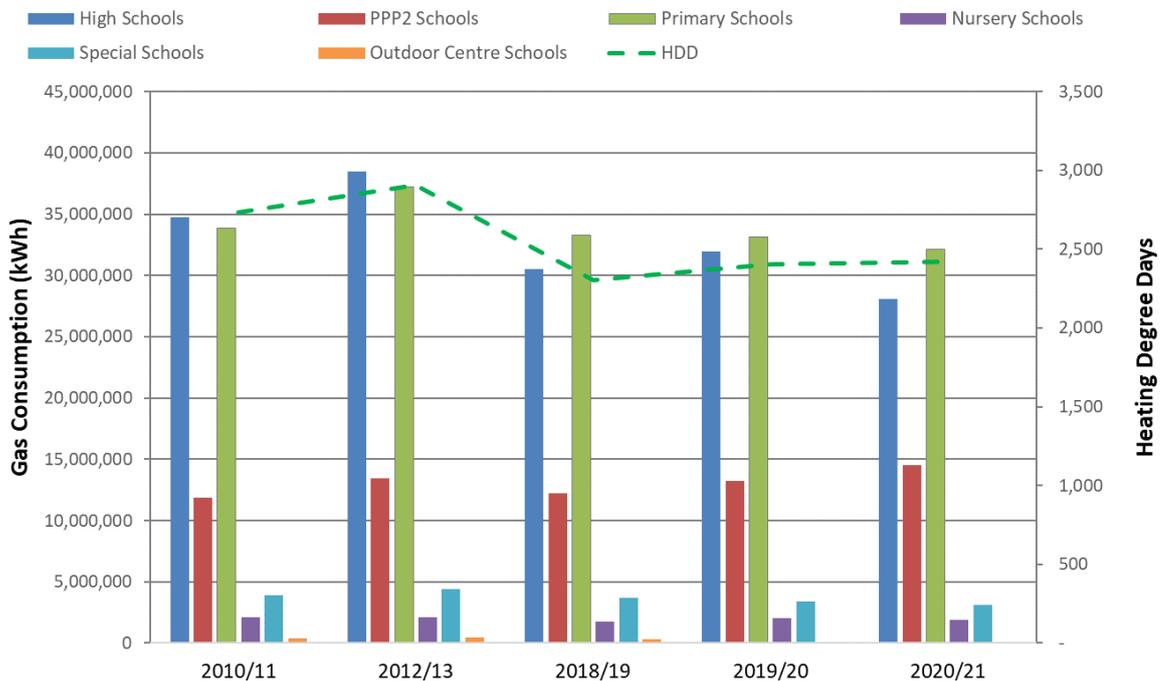
- 4.2 The charts above provide a breakdown of energy related carbon emissions across the Council’s learning estate. In total, energy consumption in the learning estate accounts for 19,912 tonnes of CO2 equivalent (CO2e). This is a decrease of 2,284 tonnes or just under 8% on 2019/20 emissions. The learning estate accounted for around 63% of total Council emissions from operational buildings.
- 4.3 The carbon emissions associated with grid electricity have continued to drop, with electricity now representing 26% of total emissions from the learning estate. In a pattern that is set to continue (as electricity generation continues to decarbonise) the 2020/21 grid emission factor is 9% lower than in 2019/2020.
- 4.4 Energy costs across the learning estate totalled £5m in 2020/2021. This is a drop of nearly £1m on 2019/2020 expenditure. This cost saving can be attributed to lower consumption due to unscheduled property closure during school term time between March to July 2020 and from January to Easter 2021.

Graph2: 2020/2021 Grid Electricity Consumption against 2018/2019 and 2010/2011 Baseline



4.5 The graph above compares 2020/2021 grid electricity consumption against both the 2010/2011 baseline and 2019/2020 consumption. All establishment types experienced a drop in electricity use. A reasonable proportion of electricity use, such as lighting, is directly linked to occupancy. Given the nature of property closures and consequent restrictions on movement, opportunities to further reduce consumption during these periods were limited.

Graph 3: 2010/2011 to 2020/2021 (select years) Gas Consumption correlated against Heating Degree Days



4.6 As with electricity, there were reductions in gas use across the learning estate in 2020/21. However, as many schools remained open during lockdowns, albeit with reduced occupancy, many heating systems remained fully operational. The requirement for increased ventilation levels during occupation, to mitigate against airborne transmission of Coronavirus SARS-CoV-2, has also led to increased gas use as mechanical systems work to meet higher demand for heating. This

requirement for increased ventilation has continued throughout 2021/2022 and is leading to higher gas use across the learning estate.

Operational Update

- 4.7 ISO50001 continues to form the baseline for Facilities Management's energy management system and provides the framework through which objectives are set and performance reviewed. The corresponding energy policy (Appendix 1) sets the aims to minimise, monitor and promote effective use of energy.
- 4.8 Remote working created some specific challenges, particularly with data handling. Migrating the Council's energy database to a remotely hosted server has resolved long term issues and allowed a step change in functionality which is driving continued improvements to energy data management.
- 4.9 In October the new Hard Facilities Management contract went live with services now split between Mitie (North Edinburgh) and Skanska (South Edinburgh). The contracts will encourage a proactive approach to energy efficiency, and, with a contract term of up to 10 years, there is an opportunity to develop long-term energy focussed initiatives with the contractors. In addition, the contract promotes a low carbon approach to delivery including a focus on circular economy, low/zero carbon transport methods and recycling.

Strategic Update

- 4.10 As reported previously, the Council has set a default requirement to deliver new build properties to Certified Passivhaus Standard. This will ensure that schools are designed to a high level of energy efficiency. The Passivhaus approach also accommodates the addition of low carbon heating plant which will ensure the Passivhaus schools support net zero targets. There are currently 8 projects in design targeting certified Passivhaus with Low Zero Carbon primary plant. The most advanced are the new Maybury Primary School (due for completion in 2023) and the new Currie High School (due for completion in 2024).
- 4.11 To address net zero challenges in the existing learning estate, the Council has been running a pilot project to review options for an EnerPHit informed energy retrofit approach. EnerPHit is the Passivhaus comfort, quality and energy standard for building retrofits. As with the new build standard, EnerPHit focusses on improving comfort and the thermal and energy performance of buildings via fabric improvements.
- 4.12 In support of net zero aims, the pilot project is also considering the best value balance between reducing energy demand and the installation of low carbon heating plant. The project provides information to feasibility study level of the Enerphit approach. A range of levels of retrofit (fabric improvement) based on the Enerphit analysis are also assessed. Whilst these are to lower technical standards, this Enerphit Informed Retrofit will provide information on cost, energy and carbon reduction to allow an informed investment decision on the best approach to take forward for full design and delivery.

- 4.13 The school buildings included in the EnerPHit Informed Retrofit pilot works include: Liberton Nursery; Brunstane Primary School; Hermitage Park Primary School; Greengables Nursery; Greengables Family Centre; Moffat Nursery; Ferryhill Primary School; Hillwood Primary School; Lorne Primary School; Trinity Academy (Block A- Victorian block) and Liberton Nursery.
- 4.14 To support this workstream, the Council has been awarded [Green Growth Accelerator \(GGA\)](#) pathfinder project status and funding to promote green growth and investment in green infrastructure. Through this project the Scottish Government will provide £120,000 to the Council to develop a full business case with the potential of a further £10 million upon successful implementation of the project and the achievement of agreed project outcomes.

5. Next Steps

- 5.1 Later in 2022, Facilities Management will seek ISO50001 reaccreditation for its Energy Management System. The system has been subject to annual compliance audits, but the reaccreditation audit will provide an opportunity to take steps to update the system with the strategic priorities set out in the Council's Business Plan.
- 5.2 As detailed in 4.9, the new Hard FM contracts present an opportunity to establish collaborative and productive working relationships with maintenance contractors that support the identification and delivery of energy management improvements. Further developing this relationship will be a key focus for 2022.

6. Financial impact

- 6.1 Financial efficiencies remain a clear driver for energy management and investment in energy efficiency projects. The significant utility price increases forecast for 2022/2023 bring in to focus the importance of prudent management of energy as well as long-term strategies to reduce demand in the learning estate which include the adoption of Passivhaus (detailed in 4.10) and the EnerPHit informed retrofit (detailed in 4.11 – 4.14) .
- 6.2 Despite the increases, natural gas remains a cheap source of heat when compared to electricity. Current strategies for decarbonising heat in the learning estate focus on both demand reduction and electrification of heating plant. The use of heat pumps can deliver an efficiency gain, returning more heat than the electricity used to drive the system, however, in many cases the cost per unit heat is still higher than that from gas fired plant.

7. Stakeholder/Community Impact

- 7.1 The Energy and Sustainability Team works closely with colleagues in both Facilities Management and across the wider Council on carbon reduction projects. In addition, the team works with a wide range of stakeholders, suppliers and organisations to ensure that the Council's practices are focussed towards delivering best practice.

8. Background reading/external references

- 8.1 [Energy in Schools – Annual Report](#) - Education, Children and Families Committee, 15 December 2020,
- 8.2 [Council Emissions Reduction Plan](#) – final version - Policy and Sustainability Committee, 30 November 2021
- 8.3 [Energy Management Policy for Operational Buildings](#) - Policy and Sustainability Committee, Tuesday 6 August 2019

9. Appendices

- 9.1 Appendix 1 - Energy Management Policy.

Appendix 1

ENERGY MANAGEMENT POLICY STATEMENT



Within the scope of its Energy Management System the City of Edinburgh Council will pursue efficiency in the management of energy usage, monitoring consumption, and ensuring on-going improvements of energy management across the Council's operational estate. The City of Edinburgh will seek to be an exemplar to other public bodies.

The Policy Aims are:-

- Minimise: We will minimise energy consumption¹
- Manage: We will achieve ongoing improvements through recording, benchmarking, monitoring and reporting on energy usage across the Council
- Promote: We will promote the conservation of energy amongst Council employees, contractors, partners and the wider communities we serve

The Policy's key objectives are: -

- minimise energy consumption through building design and specification
- minimise energy consumption through appropriate operation and control
- to monitor the implementation of the policy and to set targets for future reductions in energy use
- meet or wherever practicable, exceed the requirements of all relevant legislation and regulation, and set our own demanding standards where none exist
- monitor the use of gas and electricity through meter readings and to co-ordinate and centralise energy consumption information and costs
- to ensure that the energy suppliers are informed by Asset Management of any changes to building ownership and lease arrangements
- to promote the benefits of energy efficiency to our customer, communities we serve, partners, contractors and all our stakeholders

IMPLEMENTATION

The policy will be promoted, monitored and adequately resourced by the CEC and progress reported annually. The aims, objectives and targets will be reviewed annually. CEC will undertake publicity and provide staff with information and training on saving energy. The team have no direct control and limited influence over procurement but is obliged to comply with procurement policy and therefore no targets are set for this.

¹ Within the restrictions of providing acceptable levels of service, as defined by Council specifications, to building users.