

Schools Low Carbon Heating Programme – First Year's Experience

To: Environment & Green Investment

Meeting Date: 13th October 2022

From: Steve Cox, Executive Director, Place & Sustainability

Electoral division(s): All

Key decision: No

Forward Plan ref: N/A

Outcome: The Committee is asked to note the experience with the programme to date, steps that are being taken to address challenges encountered and the projected pipeline of future projects.

Recommendation: the Committee is asked to:

- i. Note the experience with the schools low carbon heating programme to date; and
- ii. agree going straight to Investment Grade Proposal development as soon as grant funding has been confirmed.

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1. Background

- 1.1 On 1st July 2021 the Environment & Green Investment Committee approved a new funding model for decarbonisation of heating at maintained schools. This involved:
- i) applying for Public Sector Decarbonisation Scheme (PSDS) grant funding; and
 - ii) a capital contribution from the Decarbonisation Fund of up to the monetised carbon savings delivered by the project; and
 - iii) a contribution from Education Capital's (School Condition Allowance) funding, equivalent to the cost of like for like boiler replacement; and
 - iv) loan funding with no markup on the Council's own borrowing rates; and
 - v) assessing investment criteria and Decarbonisation Fund contributions across a portfolio of school projects rather than on a school by school basis; and
 - vi) (if necessary) take a longer term view for investment criteria where this helps e.g. seek a positive NPV over 40 years.
- 1.2 It was also agreed that experience over the next 12 months would be reported back to the Committee along with any recommendations for change. This report provides feedback on the first 15 months experience.
- 1.3 The Committee is asked to note experience to date, consider some changes to the project development process and note the projected pipeline of remaining maintained schools. There are no new financial, service or public impacts.

2. Main Issues

2.1 Grant Applications

- 2.1.1 In July 2021, when the Committee considered the schools low carbon heating programme report, PSDS Phase 2 grant funding had been secured for 3 schools. PSDS Phase 3a launched in October 2021. The Council submitted two grant applications for a further nine schools and was notified in January 2022 that both applications were successful, securing an additional £1,149,861 of grant funding in total (70% of total project capital cost at the time of applying).
- 2.1.2 A further round (Phase 3b) of PSDS grant funding is launching in October 2022. Grant applications are being prepared for 6 maintained, 6 Voluntary Aided (Diocese of Ely) and 2 academy schools.
- 2.1.4 Phase 3b guidance was published early in August 2022. This places a greater emphasis on building fabric (insulation and glazing) upgrades, with the intention of enabling low temperature heat pumps. This requires more outline design work ahead of grant application, including heat loss calculations for the building. Our contractors and their supply chain also have less experience in fabric upgrades than in mechanical & electrical work. We have agreed with Education Capital colleagues to use their framework contractors to deliver any fabric upgrade measures. Our energy project contractors will conduct an initial assessment of fabric upgrade potential, costs and energy savings for the grant application. Their assessment will then be used as an outline scope of work for

tendering and contracting by Education Capital. This will improve deliverability of fabric upgrades, but the requirement for their consideration and inclusion in grant applications may reduce our Phase 3b grant application success rate. Fabric upgrades tend to be very costly relative to the energy savings they deliver. It is difficult to develop a business case including fabric upgrades that delivers a payback on loan funding.

2.2 Project Funding Breakdowns & Overall Carbon Savings

2.2.1 Across the first 12 projects, total capital cost is £2.7 million, £1.4 million of this is from grant funding, £487,000 is from the Decarbonisation Fund, £402,000 is from School Condition Allowance and £459,000 is loan funding. However, it should be noted that final Investment Grade Proposals (IGPs) for 5 of these projects are still awaited so these figures will change.

2.2.2 Total carbon savings delivered by the first 12 projects is projected to be 4,082 tCO₂e over the 20 year operating life of the ASHPs, accounting for projected electricity grid decarbonisation. Average costs per tonne of carbon saved are summarised below.

	Cost per tonne CO ₂ saved	Notes
Total Capital Cost	£666/tCO ₂ e	Total upfront capital cost, irrespective of funding source, per tonne carbon saved
Cost to Decarbonisation Fund	£125/tCO ₂ e	Cost to CCC's Decarbonisation Fund per tonne of carbon saved
Lifetime cost (NPV)	£588/tCO ₂ e	Net lifetime cost (including energy bill savings) before grant
	£327/tCO ₂ e	Net lifetime cost (including energy bill savings) after grant
	-£24/tCO ₂ e*	Net lifetime cost (including energy bill savings) after grant & capital contributions

* This represents a £24/tCO₂e benefit to the school because there is lifetime bill savings.

2.3 IGP Development Experience & Lessons Learned

2.3.1 July 2021 E&GI Committee agreed a £30k development budget for projects. It was anticipated that this may be needed for initial development work to inform grant applications, which requires site surveys, outline proposals including proposed plant and projected energy savings. A budget was anticipated to be required as our contractors would be conducting this work at risk, with an expected drop out rate for unsuccessful grant applications. In the event all initial development work for the first 12 projects has been delivered at the contractors' risk and at no cost to the Council. However, we may need to access this development budget for Phase 3b grant applications or post grant award development of Investment Grade Proposals (see para 2.3.7).

2.3.2 The July 2021 E&GI Committee agreed that longer than 20 year payback projects could be considered provided these showed a positive NPV over a 40 year period. It was anticipated that this may be required in some cases to enable deeper retrofits including heat emitter and insulation upgrades. In the event neither contractor has proposed any such measures and both have put forward proposals that achieve a payback of 20 years or less. A longer payback could help incorporate fabric upgrade measures improving chances of success at

Phase 3b, although some schools have been reluctant to enter into loans for 20+ years.

- 2.3.3 Seven schools are Voluntary Aided. The Department for Education¹ class these schools as local authority maintained and they are included in the Council's carbon footprint. These schools are treated as maintained schools, in respect of Decarbonisation Fund capital contributions. However, responsibility and funding for maintenance of these schools is with their sponsor body, usually the Diocese of Ely, rather than with the Council. Consequently, the like for like boiler capital cost contribution for these schools comes from the sponsor body rather than Education Capital.
- 2.3.4 Some projects have loan paybacks under 15 years if the full monetised carbon saving was allocated as a Decarbonisation Fund capital contribution. A steer was sought from the Green Investment and Utilities Advisory Group on the level of contribution which should be made. The preferred approach is to target a 15 year payback in order to provide a net financial benefit to the school whilst also retaining sufficient Decarbonisation Funding to support the more challenging school retrofit business cases.
- 2.3.5 Investment Grade Proposals (IGPs) for two schools have required additional Decarbonisation Funding to achieve workable business cases at 15 year payback. Five investment grade proposals are still to come and there may highlight further schools where additional Decarbonisation Funding is needed to achieve workable business cases. IGPs are taking longer than usual to develop due to scope revisions; limited supply chain capacity resulting in lengthy tendering for heat pump installers; and the need to review thermal and electrical supply capacity.
- 2.3.6 Phase 2 & 3a grant funding was confirmed in December/January for spend in the following financial year. Grant funded work could not start until 1st April, giving 12 months to develop the Investment Grade Proposal and deliver the project. In practice:
- i) once Outline Business Cases (OBC) have been finalised and agreed by schools, IGP development starts May/June. This means the IGP is not complete before the summer holiday and no installation work conducted in the summer break;
 - ii) equipment lead times, and the need to avoid interruption of heat or electricity supply in term time, meant that Phase 2 projects did not complete by the end of the financial year.
- 2.3.7 To accelerate this process we propose skipping OBC finalisation and acceptance by the school and starting IGP development at the Council's risk as soon as grant funding is confirmed. In the event that a school decides not to proceed into works, the Council would have to pay the IGP fees (£1,000-1,200 per school). Only one school has decided not to proceed to works. In our view the development time saving, increased chance of summer works and completion by the end of the financial year outweighs this small financial risk.
- 2.3.8 On all projects, capital costs have risen after the grant application due to: i) material and subcontractor labour costs rising sharply over the past year; ii) increases in project scope e.g. addition of lighting to some projects; iii) cost omissions at the grant application stage e.g. electrical connection upgrade costs. These changes have reduced the proportion of costs funded by the grant awarded from 70% to 51% of total capital cost. We will agree with

¹ <https://www.gov.uk/guidance/voluntary-aided-schools-capital-funding>

contractors a holistic scope and conservative material & labour inflation assumptions to be used in grant applications (see Appendix 2 for more detail). However, grant applications have been at or close to the maximum grant per tonne of carbon saved, so grant contribution is likely to remain at around 50% of capital costs.

- 2.3.9 The first four Phase 3a IGPs could only be made viable by excluding energy saving guarantees and measurement & verification services. These services add to capital costs. The volatility in energy prices and the wider market has meant that suppliers are applying large risk factors to the projected energy savings, making the guarantee poor value for money. In the absence of an energy savings guarantee and measurement & verification, the school takes on the performance risk of the equipment and Council staff will have to monitor and report on operational performance of the projects for 3 years for the purposes of the grant.
- 2.3.10 Completely decarbonising heating in some cases has been constrained by grid connection upgrade costs. Most projects do feature a grid connection upgrade, but on some sites a whole new substation would be required at >£100k cost to enable peak demand for the school to be met electrically. In these circumstances, existing gas boilers on site are being used for resilience and peak demand on two sites. The carbon impact is small as the boilers will only operate to top short term peaks in demand.
- 2.3.11 Loans form a minority of funding on all projects. Payback periods on the loan element range from 15 to 17 years. However, this is extremely sensitive to energy price assumptions (see Appendix 3 for central assumptions). Even 25% shifts away from our central energy price projections can shift a 15 year payback to a 4 year payback or never paying back. Energy price volatility represents a greater risk of projects having a negative financial impact on schools than does equipment under-performance. We are providing schools with sensitivity analysis on energy pricing and keeping central price assumptions under review.

2.4 Installation Experience & Lessons Learned

- 2.4.1 As noted in 2.3.6(ii), Phase 2 projects did not complete within 12 months or the close of the 2021-22 financial year. Fortunately, the grant administrator accepted grant claims for costs incurred by the end of the financial year, despite projects not having completed, enabling the full grant to be claimed for all three schools.
- 2.4.2 In addition to late finalisation of IGPs and equipment lead time, long delays have occurred after equipment is on site. This is due to limited installer capacity and electrical connection upgrade requirements. Lessons have been learned and contractors now submit UKPN upgrade applications for all sites at an early stage. We have proposed a standard process for assessing electrical connection upgrade requirements (see Appendix 2 for more detail) to reduce risk of delays for UKPN upgrades.
- 2.4.4 A more detailed commentary on experience is included at Appendix 1.

2.5 Future Pipeline

- 2.5.1 We have reviewed condition reports for the remaining 91 maintained schools that do not yet have low carbon heating in place or in process and estimated the potential pipeline of projects. This is tabulated below with estimated capital cost and the potential 'match

funding' e.g. Decarbonisation Fund or other funding. Capital value estimates are based on current prices and do not include inflation and funding drawdown estimates are based on forecast carbon savings. The balance of capital costs are assumed to come from PSDS grant, School Condition Allowance and loan funding. NB PSDS is, however, only committed for the term of the current Parliament.

Year	Number of schools	Capital value	Match Funding requirement e.g. Decarbonisation Fund Drawdown
2024-25	29	£19m	£5.9m
2027-28	4	£3m	£1.1m
2028-29	2	£2m	£0.5m
2029-30	32	£21m	£6.7m
2030-31	2	£0.7m	£0.2m
2031-32	4	£3m	£1.1m
2033-34	11	£6m	£2.1m
2036-37	1	£0.2m	£0.1m
2037-38	1	£0.5m	£0.2m
2038-39	5	£3m	£1.1m
Total	91	£58m	£19m

2.5.2 NB the table shows the maximum number of Council maintained schools that have 15 year old boilers (assumed to be near end of life) in each year. Not all of these schools will choose to go forward with low carbon heating projects. Where the number of schools in a particular year is high (e.g. 2024-25 and 2029-30), some can be deferred to later years. Schools with the worst condition boilers should be prioritised for early replacement. The current Decarbonisation Fund match funds both Council buildings and maintained schools for low carbon heating. It is not yet clear how many of the 2024/25 schools would be able to draw down on this funding as it depends on the PSDS grant funding award and how many Council buildings are upgraded.

2.5.3 Where an existing boiler fails urgent replacement is necessary to keep a school open. In principle temporary boiler plant could be hired until a heat pump could be installed (likely to be 6-12 months for installation design and equipment leadtime). Temporary boiler hire for such a period is likely to cost in the region of £30-120k per school. Installing a new boiler (excluding any other upgrades to controls, pipework etc) pending heat pump installation would actually be cheaper. However, installing a new boiler would render a site ineligible for grant funding.

2.6 Air Source Heat Pump (ASHP) Noise

2.6.1 Neighbour noise complaints have been experienced on two ASHP installations on Council buildings. Noise levels from ASHP fans vary considerably across different models. The ASHPs specified so far under the schools low carbon heating programme have had noise levels of 55, 65, 66, 71, 78 dB(A) sound power levels. This compares with 74 and 77 dB(A) sound power level for the units that caused complaints on Council buildings. We have asked the contractors to ensure that low noise units are specified in future and that acoustic assessments are undertaken where the ASHP installations are within 10 metres of

residential properties.

3. Alignment with corporate priorities

3.1 Environment and Sustainability

The following bullet points set out details of implications identified by officers:

- Achieving the Council's target of net zero carbon emissions for Cambridgeshire by 2045 will require fully decarbonising heating in buildings. Maintained schools, including Voluntary Aided schools, sit within the Council's Scope 3 emissions. Low carbon replacement heating projects will make a significant reduction to the Council's target of reducing Scope 3 emissions by 50% by 2030.
- Fossil fuel heating systems have 20+ year lifetimes, so capturing the opportunity to replace these with low carbon systems as they reach the end of their lives is important to ensure none are still operating in 2045.

3.2 Health and Care

There are no significant implications for this priority.

3.3 Places and Communities

The following bullet points set out details of implications identified by officers:

- Installation of low carbon heating in maintained schools will raise awareness amongst parents and school neighbours of practical steps to address the challenge of climate change.

3.4 Children and Young People

The following bullet points set out details of implications identified by officers:

- Installation of low carbon heating in maintained schools will demonstrate the Council's commitment and the achievability of decarbonisation to school children and provide opportunities for them to learn about practical steps to address the climate challenge.

3.5 Transport

There are no significant implications for this priority.

4. Significant Implications

4.1 Resource Implications

The following bullet points set out details of significant implications identified by officers:

- The Decarbonisation Fund capital contribution (paragraphs 2.2.1 and 2.5.1) is from borrowing. Projected spend in the near term remains within the existing Decarbonisation Fund budget, so this report does not create a new or increased resource pressure.

4.2 Procurement/Contractual/Council Contract Procedure Rules Implications

The following bullet points set out details of significant implications identified by officers:

- Project development and installation will be delivered under the Energy Performance Services Framework Agreement with Bouygues Energies & Services and SSE Enterprise Energy Solutions signed in March 2021.

4.3 Statutory, Legal and Risk Implications

The following bullet points set out details of significant implications identified by officers:

- Schedule 2 Part 12 Class A(a) of the Town and Country Planning (General Permitted Development) Order 2015 grants Local Authorities permitted development rights to install equipment required for functions it exercises. This covers installation of low carbon heating in maintained schools, subject to the limitations in Part 12 A (a), namely that the volume of the installation is less than 200 m³ and that their height above ground level does not exceed 4 m.
- For Voluntary Aided schools the Council cannot use the above permitted development rights and will rely on Schedule 2 Part 7 Class M permitting alteration of a school building provided that the ASHP is not within 5 metres of the boundary of the curtilage, there is no loss of playing field space and the ASHP installation is less than 5 metres above ground level. There is some risk of challenge that ASHP installation does not constitute alteration to a building. If these permitted development rights could not be used this would necessitate applying for PSDS grants with 24 month delivery windows and submission of a full planning application.

4.4 Equality and Diversity Implications

There are no significant implications within this category.

4.5 Engagement and Communications Implications

There are no significant implications within this category.

4.6 Localism and Local Member Involvement

There are no significant implications within this category.

4.7 Public Health Implications

The following bullet point sets out details of implications identified by officers:

- There will be a small positive impact in reducing air pollutant emissions as a result of moving away from combustion-based heating to heat pumps.

4.8 Environment and Climate Change Implications on Priority Areas (See further guidance in Appendix 2):

4.8.1 Implication 1: Energy efficient, low carbon buildings.

Positive

Explanation: Low carbon lifecycle heating projects will reduce carbon emissions from maintained schools and improve their energy efficiency.

4.8.2 Implication 2: Low carbon transport.

Neutral

Explanation: No impact on transport

4.8.3 Implication 3: Green spaces, peatland, afforestation, habitats and land management.

Neutral

Explanation: No impact on land use. Heat pump installations delivered or planned so far have not required any tree removals. With one exception (involving loss of a flower bed) most have been installed on existing hard surfaced areas.

4.8.4 Implication 4: Waste Management and Tackling Plastic Pollution.

Neutral

Explanation: Packaging waste associated with delivery of materials will be managed by supply chain procurement conditions which Bouygues and SSE are required to apply via our contract with them.

4.8.5 Implication 5: Water use, availability and management:

Neutral

Explanation: No impact on water use or drainage.

4.8.6 Implication 6: Air Pollution.

Positive

Explanation: In principle the reduction in gas and oil consumption reduces production of air pollutants in particular NOx, although the impact on air pollutant concentrations in areas of air quality exceedance will be immeasurably small.

4.8.7 Implication 7: Resilience of our services and infrastructure, and supporting vulnerable people to cope with climate change.

Positive

Explanation: Schools with low carbon heating installed will no longer rely on global supply chains for oil and gas providing greater cost certainty and supply resilience.

Have the resource implications been cleared by Finance? Yes

Name of Financial Officer: Sarah Heywood

Have the procurement/contractual/ Council Contract Procedure Rules implications been cleared by the Head of Procurement? Yes

Name of Officer: Clare Ellis

Has the impact on statutory, legal and risk implications been cleared by the Council's Monitoring Officer or LGSS Law? Yes

Name of Legal Officer: Fiona McMillan

Have the equality and diversity implications been cleared by your Service Contact?

Yes

Name of Officer: Elsa Evans

Have any engagement and communication implications been cleared by Communications?

Yes

Name of Officer: Joel Lamy

Have any localism and Local Member involvement issues been cleared by your Service Contact? Yes

Name of Officer: Emma Fitch

Have any Public Health implications been cleared by Public Health?

Yes

Name of Officer: Iain Green

If a Key decision, have any Environment and Climate Change implications been cleared by the Climate Change Officer?

Yes

Name of Officer: Emily Bolton

5. Source documents guidance

5.1 Source documents

None.

Appendix 1 – Full Commentary on Experience to Date

Public Sector Decarbonisation Scheme (PSDS) Grant

1. Grant eligibility criteria remained unchanged between PSDS Phases 2 and 3a e.g. sites had to have >15 year old boilers and the maximum grant per tonne of carbon savings remained £325.
2. Phase 3b has a greater emphasis on fabric upgrades, requiring applicants to demonstrate that feasible fabric upgrades have been assessed and included in project scope. The intent is to enable more efficient, low temperature heat pump operation. However, fabric upgrades are generally very costly with only small energy savings. The definition of end of life boiler has been relaxed at Phase 3b, any boiler over 10 years old can be considered end of life. Another eligibility criterion change at Phase 3b is that new gas boilers, even for peaking or backup, are prohibited.
3. Grant reporting requirements have increased over time. It is now a requirement to submit monthly reports and to have a monthly progress meeting with the grant funding body Salix for each grant application. Once the projects have moved into construction monthly statements of expenditure against each application must be submitted, in addition to grant claims at key milestones. The administration burden is increasing for the grants. Updated application documents must be submitted, with updated supporting evidence (energy savings calculations, equipment datasheets etc) whenever there is a change in project design. Grant conditions require submission of detailed designs and subcontractor quotations prior to grant payments. Once grant payments have been received, transfer to the schools has to be arranged with Schools Finance. Total resource requirements for administering the grants is around 4 hours a month per grant.
4. Grant reporting continues beyond the grant payment deadline until project completion. Currently this requires ongoing reporting on two Phase 2 grants until such time as the projects complete (likely to be in February 2023 based on current projections).

Project Development & Delivery Experience & Lessons Learned

5. At PSDS Phase 2 we initially started with 9 candidate schools. We were successful in securing a grant offer for 4 of these schools (and for one large academy school project), despite the phase 2 grants being over-subscribed within 29 hours of launch. One of these schools subsequently declined to proceed in late July 2021. Although Governors views were split, the final decision not to proceed was made on the grounds of: perceived risk of an unfamiliar heating technology; lack of financial benefit to the school (it was projected to be broadly cost neutral); and disinclination to enter into a 20 year loan.
6. At PSDS Phase 3a we have so far retained all 9 candidate schools. Three of these schools so far have accepted Investment Grade Proposals and agreed to proceed to installation. IGPs and/or decisions are awaited for the remaining six.
7. In between PSDS Phase 2 and Phase 3 Government amended its valuation of carbon savings from £77.39/tonne in the non-emissions traded sector (which includes emissions from heating buildings) and £29.45/tonne for the emissions traded sector (which includes

emissions from electricity generation) to £248.28/tonne for both sectors (all figures are 2022 values in 2022 prices). The revised figure is based on the marginal cost of abating a tonne of carbon emissions. This large increase in carbon valuation significantly increased the size of Decarbonisation Fund contribution that could be made for each project. In some cases a contribution equal to the full monetised carbon saving is not required to make a project viable. This enables a surplus to be built up which can be used to cross subsidise weaker business cases (as envisaged by paragraph 2.6.3 of the 1st July 2021 E&GI paper).

8. Grant funding is allocated for spend in the following financial year (2021-22 for PSDS Phase 2, 2022-23 for PSDS Phase 3a). This means that project spend cannot start until 1st April each year, giving 12 months to develop the IGP and deliver the project. In an ideal world this gives the following project timetable:
 - IGP development: April – June
 - School decision to proceed to works & signature of contracts: July
 - Start of works: August
 - Completion: October
9. In practice the PSDS Phase 2 and Phase 3a projects have proceeded to the following timetables:
 - OBC revision & finalisation: January – April
 - OBC acceptance: May
 - IGP development: June – September/October
 - School decision to proceed to works & signature of contracts: September/November
 - Start of works: January the following year (Phase 2, Phase 3a TBC)
 - Completion: November the following year (Phase 2, Phase 3a TBC)
10. Skipping the OBC revision, finalisation and acceptance stage has been proposed to increase the chances of starting work in the summer holiday, also reducing risk of failure to complete grant spend by the end of the financial year.
11. The large gap between signature of contracts and start of works is due to equipment leadtime and subcontractor availability. Both have proved extremely challenging. At Phase 2, ASHP leadtimes have been 3-6 months and the contractor had to switch ASHP manufacturer twice after contract signature, due to leadtimes increasing excessively on the selected make and model of unit. This emphasises the importance of flexibility over the ASHP installation design. Similar issues were experienced with Building Energy Management System components.
12. Schools have found project delays very frustrating, especially where these have resulted in them having to nurse an unreliable boiler through another heating season. They are used to condition improvement works being scheduled for summer holidays and find accommodating works in term time disruptive. Skipping the OBC acceptance stage will help improve their experience.
13. One of the Phase 2 school sites was found to be leased by the Council from a private landlord. The landlord's consent was required for the ASHP installation. We have now added checks on site ownership, at project commencement, to our standard operating procedure for school energy efficiency projects. This will enable any such consents to be

sought at an early stage and any risks around short remaining lease terms to be identified.

14. Our two contractors have taken different approaches to heat pump sizing, solar PV sizing and retention of existing fossil fuel boilers for peaking and backup. One approach has been to remove all boilers and size heat pumps to meet peak demand and to provide backup capacity. This is a high capital cost approach (due to larger heat pumps and higher capacity electrical connection upgrade requirements), but maximises carbon savings. Another approach has been to retain serviceable boilers for backup and peaking. This provides a much lower capital cost, with lower carbon savings.
15. We are encouraging the contractors to share experience in order to ensure both deliver maximum carbon saving in line with the Council's decarbonisation objective, whilst achieving good value for money for the Council and the schools.
16. Contractor methodologies for modelling ASHP energy consumption differ significantly between the two contractors. The more sophisticated method used has resulted in much lower Seasonal Coefficients of Performance (around 2.3) than the more high level assessment (SCoPs of around 2.9). We will monitor assumptions and press for cautious assumptions unless there is strong evidence to support more optimistic assumptions.
17. We submitted three applications for Low Carbon Skills Fund (LCSF) grant (totalling £223k) to develop Heat Decarbonisation Plans at the remaining 91 maintained schools that do not have low carbon heating already installed or in progress. If they had been successful, these Heat Decarbonisation Plans would have informed future PSDS grant applications e.g. PSDS Phase 4 application in 2023. Unfortunately LCSF funding was over-subscribed several times and none of the Council's LCSF bids (for schools or Council buildings) were successful.

Appendix 2 – Project Development Procedural Improvements

Scope at Grant Application Stage

Grant applications should assume, cost and assess carbon savings for the following scope of works as a minimum:

- LED lighting upgrades for all high utilisation areas not already fitted with efficient LED lighting
- Solar PV where suitable rooves are available and no solar PV is yet installed, sized to at least meet summer baseload demand
- Electrical connection upgrades to cabling, meter head and distribution boards, unless analysis has been completed and agreed to confirm that this is not required
- Replacement of all end of life fossil fuel boilers with heat pumps as primary heat source and heat pumps or electrode boilers for back-up or peaking
- Building Energy Management System upgrades where not already installed
- Pipework lagging where not already installed
- Energy saving guarantee risk premiums
- fabric upgrades where cost effective

A [20%] allowance for inflation of equipment and material costs between grant application and finalisation of contracts should be included in grant application costings.

Electrical Capacity Assessment & Scope of Works

2. The contractor will:

- record existing supply capacity including cabling and meter head during the survey
- log existing electrical load in the winter period
- identify peak load on each supply phase
- calculate headroom v supply capacity before and after any phase rebalancing
- calculate peak ASHP electrical demand
- share data with CCC for review

3. Climate Change & Energy Services (CCES) team will:

- Review the above data and conclusions

- Share the above assessment with Education Capital in case of any planned works with an impact on electrical loads
- Confirm with, or feedback comments to, contractor

4. The contractor will:

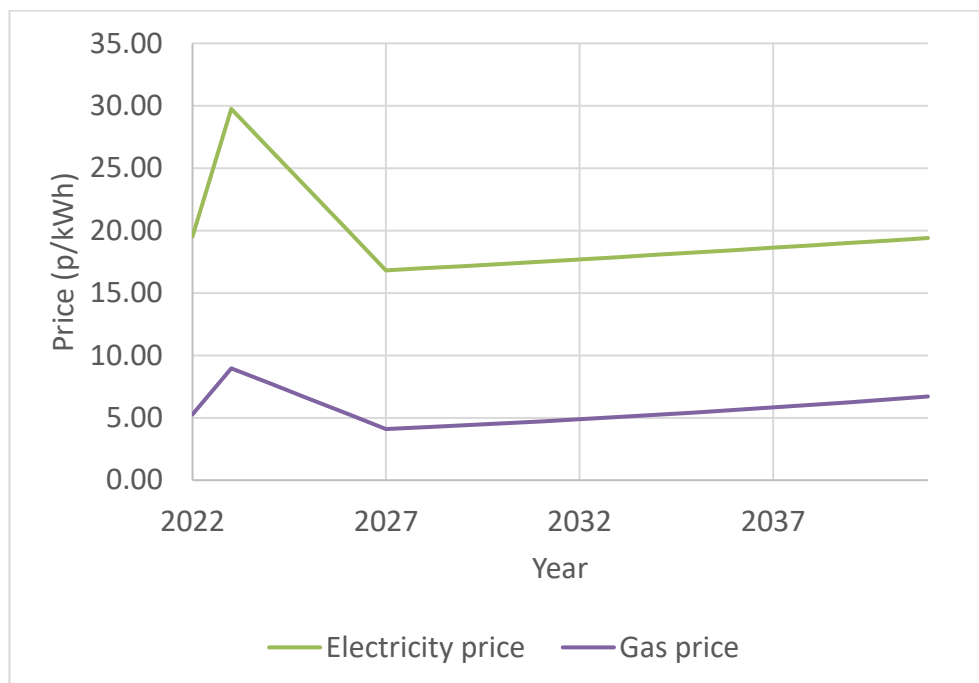
- Apply for UKPN connection upgrade
- On receipt of UKPN upgrade proposed plans, create a specification/scope of works for upgrade works downstream of UKPN's works including:
 - Any trenched cabling routes, identifying hard v soft dig
 - Any distribution board upgrades
- Share specification with CCES and the school for review and comment

5. Climate Change & Energy Services (CCES) team will:

- Review specification/scope of works v UKPN proposal and conclusions from stage 1
- Share specification/scope of works with Education Capital for comment
- Confirm with, or feedback comments to, contractor

Appendix 3 – Energy Price Assumptions

1. Historically, energy price projections used in all our school energy efficiency have been based on BEIS projections. Unfortunately these have not been updated since October 2020 and hence do not reflect the current energy price spike.
2. To address this we have, instead, based near-term price projections on the latest bulletin from the Eastern Shires Purchasing Organisation (ESPO) on the wholesale electricity and gas prices they have secured for the next year to 18 months. These have been assumed to return to “normal” pricing, as represented by BEIS projections, by 2027. This reflects energy market commentaries suggesting that the impact of the Russia-Ukraine war on energy prices, in particular gas, will persist for several years. The resulting price assumption estimates are as follows.



3. The magnitude of peak prices is believed to have been mitigated to a degree by ESPO forward purchasing of gas and electricity. However, there is uncertainty in converting from wholesale to retail prices, which will cause error in even near term price projections. We will review these assumptions every quarter using the latest ESPO billing and quarterly bulletin information.
4. The Government's Energy Bill Relief Scheme does not, at first review, look likely to reduce energy prices relative to those that ESPO have secured via their forward purchasing.