Annex B- Annual Climate Change Delivery Plan Cost Review

Contents

1. Introduction

In 2019 Surrey County Council (SCC) declared a climate change emergency and committed to becoming a net zero carbon county by 2050 or sooner. Surrey County Council committed to reducing its organisational emissions to net zero by 2030. Surrey's Climate Change Strategy was published in May 2020.

An Initial Finance Strategy was produced in 2021 and was set out alongside the Surrey's Greener Futures Climate Change Delivery Plan 2021-25. It aimed to provide an evidence-based estimated cost, based on current knowledge, data and modelling for the net zero pathways set out in in Surre y's 2050 Climate Change Delivery Plan 2021-25 and SCC's 2030 target.

The initial financial approach has been further developed into the Greener Futures Finance Strategy, which sets out a process for defining how the Delivery Plan for 2021-25 and subsequent plans will be financed. The process includes an annual financial review of the programme to ensure that the financial implications of the programme are well understood as changes in market conditions impact on costs and delivery constraints. This is the first full financial review which sets out:

- A detailed explanation of the financial model
- What has changed, why and how the model has been reviewed
- The outcome of the financial model review
- Next steps

SCC commissioned Atkins in July 2021 to produce a finance model that could be used by the Council to estimate the cost of the carbon reduction initiatives included in the Climate Change Delivery Plan in order to understand the capital costs of achieve the county's carbon reduction target by 2025 as well as the 2030 carbon reduction pathway for the Council's own organisational emissions. The model is not static, it has been developed in a way which allows for future changes which could affect costs and potential return on investment, such as policy changes, market data and other external costs such as energy price increases, inflation, and connection costs to be easily incorporated. Consequently, the more experience we gather from the 2030 Programme implementation, the more refined the model will be and more accurate the assumptions behind it.

2. 2030 Financial Model

2.1 Original Scope

The original model was published in 2021 as part of the "Initial Finance Strategy 2021-25".
The analysis was intended to help SCC to answer the following questions:

- How much will it cost to achieve our net zero target by 2030? This includes capital costs and the cost implications to develop and administer schemes.
- What percentage of the necessary investment will result in a positive financial business case and achieve carbon neutrality?
- What percentage of the necessary investment does not result in a positive financial business case?
- What is the proposed sequencing approach to maximise carbon savings whilst achieving the greatest 'bang for buck' (ie recuperating in cost savings, maximising decarbonisation opportunities which are already baked into budgets or choosing to offset)?
- In which year is the breakeven point projected to be achieved?

The Financial model provides a detailed analysis of initial capital expenditure alongside the whole life costs and return on investments of the Council's 2030 programme. The modelling work has also included the production of a carbon scenarios tool which enables carbon from several measures to be quantified with different levels of uptake. The benefit of this model is that is creates a mechanism where carbon and cost can be considered together, and for the financial impact of different carbon reduction scenarios to be tested. This allows the Council to make decisions regarding which decarbonisation pathways offer the highest carbon reduction for the best financial value. The Council will not use the model to make decisions on specific decarbonisation schemes and the draw down of capital budget, for these decisions full business cases will be produced.

2.2 Original Assumptions

The focus for the model created by Atkins was to create a consistent format that allows for comparison between the whole portfolio of carbon reduction projects. In-depth financial evaluation using this model is not possible. The model focuses on the 2030 SCC Decarbonisation programme (**Table 1**). Each project has been populated with actual data supplied by Surrey County Council, or assumptions where these were missing (**Annex 1**).

Table 1- Finance model original scope

Category	Included	Details
Existing corporate buildings	Yes	136 corporate buildings
Existing schools	No	128 schools outside the scope
Buildings being rationalised	No	85 buildings outside the scope
Newbuilds	No	Outside the scope
Fire & Rescue fleet	No	Outside the scope
Corporate Fleet	Yes	563 vehicles
Streetlighting	Yes	Programme already ongoing/funded when the model was created

The 2030 Net zero programme was based on specific levels of implementation that show how many buildings, heat pumps, capacity of solar PV and fleet transition that we need to do each year to achieve net zero by 2030 and how these implementation levels affect the costs and payback in the model. Those can be found in **Annex 2.**
The capital costs of the Council's 2030 net zero carbon programme were originally estimated to be between £68–71m (**Table 4**). The programme was based on a cost and carbon neutral model where capital costs are offset over the lifetime of the measures through operational energy savings and energy generated by renewable energy installations.

Table 2- Original capital costs of decarbonisation measures (from GF model 2021)

2030 Net Zero Programme Projects	**Capital Costs (£)**	**Revenue (£)**	**Operational Savings (£)**
Estate Rationalisation	-	-	-
LED (buildings)	£4.75-£5.25m	-	£15m
Estate Retrofit Measures	£27.5-£30.5m	-	£14m
Heat Pumps	£7.6-£8.4m	-	£8m
Rooftop PV	£5.7-6.3m	-	£24m
Ground-mounted Solar	£14.3-4.7m	£97m	-
Carbon Offsetting	£4.8m	-	-
Green Fleet	£4.3-4.7m	-	£10m
Streetlighting	-	-	-
Total	£68-71m	£97m	£73m

3. Review of the 2030 Financial Model

The model is adaptive and created to respond to changing conditions allowing us to adjust our approach accordingly, the assumptions in the model have been revised (see Annex 3 for details) so the 2030 Net Zero Programme is as close to cost and carbon neutrality as possible as well as incorporating actual market costs.
Progress to date has revealed that market forces and delivery conditions have changed significantly since the initial cost estimates in 2021 to deliver the Council's Net Zero Carbon target were made. Following the delivery of the first phase of Government funded decarbonisation retrofit projects on the SCC estate which at the time was used as a pilot to inform our approach, costs and key delivery constraints have been reviewed.

Some of the key changes to the model are:

- Increase in energy prices.
- Addition of greener futures staff costs, design fees and electricity grid network connection costs.
- Updated range of offsetting costs.
- Exclusion of fleet transition costs. These costs relate to service needs met by fleet and will be considered as part of service delivery costs and long-term will be met by the Council through service delivery team budgets.
- Revised delivery constraints for ground mounted solar.
- An updated view of buildings that are suitable candidates for decarbonisation measures and are not at risk of disposal. Land and Property are currently working with Services across the

Council to understand which buildings in the corporate estate need to be retained and which are surplus to requirement from a service perspective. This work is ongoing and will take some time to complete however for now they have categorized buildings as **core** (to be retained), **flex** (future is questionable) and **non-core** (building is unlikely to be retained). Currently, the scope includes 136 core buildings and 52 flex buildings. For the finance strategy review we will be focusing on core and core and flex buildings, as shown in the table above.

A detailed analysis of the updated assumptions can be found in **Annex 3.**
To update the assumptions, technical input and accurate costings were provided by the 2030 Strategic Energy Team based on the works that have been carried out in the estate as part of the UK government Public Sector Decarbonisation Scheme funding. Sensitivity analysis on energy prices, borrowing rate and inflation was also carried out by Finance Business Partners and the SCC Energy Team and the results can be found in **Annex 4.**

4. Outcomes of the model review

The review of the model shows that the programme has an updated capital spend of £83-92m (under the Core buildings scenario) and revenue generation of at least £67.5m. This assumes solar electricity generated from solar farms at £15.9pence/khw (lowest necessary price to achieve cost neutrality) and has a payback of 21-22 years.

Table 3 - Change in costs due to model review.

	Original Model	Latest Model (core – buildings to be retained)	Reason for Change	Latest Model (core+flex – flex is buildings with uncertain future)
Capex	£68.3	£87.7m	£30m increase in heat pumps offset by £5.5m fall in retrofit costs and £0.2m fall in rooftop solar and £2.6m fall in ground mounted solar.	£109.4m
Operational Spend	£71.8m	£29.2	Reduction due to removing green fleet vehicles from the model, and the associated cost of charging EVs, which will be funded by services rather than a central GF budget	£36.5m
Borrowing Costs	£12.6m	£24.6m	Increase due to higher borrowing rate and increase in capex.	£31.6m
Revenue	£97.5m	£67.5m	Lower solar farm revenue due to lower electricity price.	£67.9m

Operational Savings	£73.5	£76.6m	Higher savings on LEDs due to higher electricity prices offset by reduced savings on rooftop solar due to smaller solar panel sizes.	£102.6m
NPV after counterfactuals (what would have been spent anyway) excluding green fleet	£21.4 (This was -£3.1m in original model)	£11m	NPV has been updated, resulting in an improvement from -£3.1m to +£11m. This was due to removing borrowing costs from the NPV calculation, as it was determined that their inclusion in the previous version was not necessary according to the Treasury Green Book.	£5.2m
Payback		26 years		28 years

The total capex of the programme has increased by £19.4m (core buildings only). The main changes that have affected the programme capex are;

- A £30m increase in the cost of heat pumps. The cost for heat pumps increased from £1,655 to £3,650 per KW because Atkins included only the actual heat pump cost and omitted the installation costs. Capacity requirements in certain buildings such as fire stations, which require a back-up heating system in case of system failure, effectively doubling the capacity required in those buildings were not considered in the original iteration of the model.
- A minimum of £2m increase in offset costs. This was a result of the technical review of the decarbonisation measures expected performance, increasing the amount of carbon left to offset after 2030. Offsetting costs represent a revenue pressure from 2030.
- An £8m decrease in retrofit costs due to the review of technical assumptions that led to a decrease in unit cost prices.
- A £3.5m decrease in rooftop solar costs due to a technical review of the size of solar panels that could be installed per building. The size of the array that could be installed on each building was overestimated and the review led to a reduction in capex. The potential fall in revenue from having smaller arrays has been completely offset by the higher electricity price.
- Grid Connection costs that were added to the model increased CAPEX by about £700K per year.
- Borrowing costs increased by £10m within the last 2 years. Rates increase or decrease is still uncertain and will affect the programme's ability to payback.

Although under the new scenarios (core, core&flex buildings) there is an increase in the capital expenditure required across the two scenarios compared to the original model, the Net Present Value of the programme (to 2050) is positive and the project pays back in 26 – 28 years from the operational savings and revenue generated. In the original model the NPV was negative however this is because the borrowing costs were included in unnecessarily (HM Treasury Green Book supports the exclusion of borrowing costs in Net Present Value calculations).

4.1 Impacts of the model update

The updated financial model was used to test the cost and carbon impacts of a range of potential delivery options and price sensitivities that may have a significant impact on the programme. That has infirmed our suggested pathway to reaching the 2030 net zero targets as well as the necessary delivery rate of decarbonisation measures for 2030.

1. Impact of implementation rates for key low carbon measures

The change in assumptions as explained in section 3 and detailed in Annexe 3, has affected both expected carbon reductions and cost implications to achieve the Council's decarbonisation programme. Several scenarios have been run to identify the best cost-effective path to deliver our decarbonisation targets. The best scenario selected is the scenario that balances value for money and potential to generate revenue with carbon reduction potential. Certain measures, such as heat pumps, have a higher cost per tonne of carbon saved than other measures however there is currently no other, more cost-effective way, of reducing carbon emissions from heating our buildings. It is therefore necessary to balance the heat pumps (and the associated costs from DNO connections etc) against measures such as solar, which reduce electricity-based carbon emissions and generate an income.

Following different scenario analysis, the best option to reach NetZero cost effectively includes the measures highlighted below. The feasibility of this pathway has been assessed and reflects what is physically possible by 2030. It will be possible beyond 2030, once the grid constraints which cover a large proportion of the county have been dealt with, to generate more electricity from ground mounted solar. This will have the benefit of reducing the amount that the Council is required to pay in offsetting per annum.

Table 4- Suggested decarbonisation pathway

Project name	**Measures**
Building lighting	LED implementation in 100% of buildings in scope
Building retrofit	75% of buildings in scope receive retrofit measures
Heat pump installation	75% of buildings in scope receive heat pumps
Rooftop PV	75% of buildings in scope receive rooftop solar PV
Ground mounted solar	18.9MW of ground mounted solar PV to supply the Council's electricity needs

The cost of heat pumps has increased significantly after the review of the model. Nonetheless, it is important to consider the impact of heat pumps on the 2030 net zero targets. Heat pump installation is the most expensive decarbonisation measure, but it is also the most carbon efficient.
A potential decrease on implementation levels of heat pumps by 25% to a 50% level would save £13m but would also decrease carbon savings dramatically leading the Council to have to offset more than 20% of the organisational emissions, increasing the total costs of offsetting up to a potential £18m (depending on the price of carbon per tC02 at the time of offsetting) by 2050.

Based on the pathway explored in **table 4** the delivery plan for the 2030 programme to achieve net zero targets by 2030 is outlined below;

Table 4- 2030 Decarbonisation measures delivery plan

Measure	**Rate of implementation**	**Status**

Retrofit	13 buildings per year	On track
Heat Pumps	13 buildings per year	On track
Solar (rooftop)	13 buildings per year	On track

2. Impact of changes to energy prices

Electricity prices also have a big effect the payback of the model as high electricity prices have the potential to increase revenue from renewable energy generation but could also increase running costs of heat pumps.

3. Impact of changes to the cost or level of offsetting

The model originally assumed a price per tC02 at £95 but developments in the carbon markets during the last two years have shown that this price might increase significantly. The current lowest price for traded carbon is £60 and is expected they follow a steady increase. For carbon offsets within the London boroughs the carbon offset price reaches £252 p/tC02 in some cases. Carbon markets are unregulated and highly volatile so it should be noted that the price for high quality, local offsets might significantly increase in the next few years as more organisations seek to offset their emissions.

4.2 Key Risks to payback

Based on the analysis above, the key risks identified that have an impact on payback are:

- Electricity price impacting the running cost for heat pumps, as well as the savings/revenue generated from solar PV.
- There is still uncertainty over borrowing rates.
- The revenue from solar farms underpins the payback of the 2030 net zero programme. Without solar revenue the programme will not pay back.
- Another key risk impacting the programme is whether the capital necessary to decarbonise Surrey's estate due to changes in the model will be available. The programme will need additional investment that will inject funds to the programme and help it payback. Eg. Solar PPA on schools.
- Of the 18.9MW Ground Mounted Solar, 16.7MW relates to one site, placing a huge dependency on that site.
- Uncertainty over the scale of ground mounted solar we will be able to roll out by 2029 due to national grid restrictions.
- Uncertainty over the amount and costs offsetting due to market volatility, price variations explained above.
- The Greener Futures programme is not properly embedded across the organisation and are not prioritised in Service budgets.

4.3 Key Opportunities

It is important to note that the costs in the model are pessimistic and there are several factors which could improve the financial position of the model and make the business case more favourable, these include;

1. Increase in gas prices which will increase operational savings from heat pumps (Government has committed to removing carbon taxes which are currently linked to electricity rates to gas over the next ten years as the country moves away from fossil fuels)
2. Reduction in cost of decarbonisation measures such as heat pumps as these become more standardised
3. Potential reductions in costs to connect to the electricity grid due to Government reforms
4. Grant funding from Government which has not been included in the model, to date £6M has been awarded with a bid for a further £5M in development.
5. Improvements in national grid capacity will enable the Council to invest in additional solar farms beyond those which are built into the model. All of the land parcels owned by the Council have been assessed to determine suitability for solar farms (avoiding restrictions related to biodiversity, habitat, agriculture, heritage and development) and the shortlisted sites are currently being assessed to determine suitability and cost. Currently no sites have planning consent. In addition officers are exploring developing solar capacity potential using private wire, avoiding connection to the grid.

4.4 Solar PPA opportunity

Officers are also exploring a number of finance mechanisms which could be used to strengthen a return on investment which could be used to offset any future increases in costs. This includes a solar Power Purchase Agreement (PPA) that is currently being piloted with five schools. Modelling on the income generation potential of delivering solar PPA to Surrey schools, with a good potential for large solar arrays, has been estimated. Two scenarios show that it is possible to generate sufficient income to offset the increased costs in the 2030 model and generate income which could be used for other Greener Futures/Council priorities.

Following successful models developed by private sector companies and other Local Authorities, SCC is piloting developing a solar power purchase agreement (PPA) for schools (and potentially other commercial buildings). A PPA is a contractual arrangement that allows the Council to sell electricity to an offtaker, in this instance, a school. The PPA process is explained in more detail in **Annex 5** below. The benefit of the PPA model is that carbon savings can be achieved, and the school can make a substantial saving on their energy bills, securing a rate over a 25-year period (CPI is applied). In addition, the Council can cover the costs (capital, operational and borrowing) of the installation and maintenance of the solar and generate an additional return on investment (ROI). The Council has commissioned Burges Salmon (a leading Legal firm specialising in energy) to draft the PPA and this is currently being piloted with 5 primary schools.

The Solar for Schools site has indicated the huge potential to install solar on schools in Surrey. Many schools have potential for large solar arrays, which are more cost effective, allowing the Council to sell the electricity to the school at a lower price while generating a higher ROI.

More work needs to be done to develop a wider solar PPA programme for schools and plans are currently being developed, prior to taking a business case to Cabinet later in the year. Initial focus groups with schools have indicated a high level of interest.

For the purpose of the finance model, officers have undertaken modelling of the potential ROI which could be generated by delivering a solar PPA on the schools with the potential for the largest solar arrays (those over 90 kwp). Two scenarios are set out below;

- the potential ROI which could be generated from installing solar with a PPA on all 96 schools that could have 90 kw solar system
- the potential ROI which could be generated from installing solar with a PPA on 50% of the 96 schools that could have 90 kw solar system

Table 5- Solar PPA outline

	All schools with potential for 90kw (or more) solar	**Assumption that 50% of schools will proceed**
Number of schools	96	50
Total solar capacity	15,476kWp	7,738kWp
Total PPA income (over 30 years)	£70,006,494	£35,003,247
Capital cost	£20,158,800	£10,099,400
All operational/maintenance	£5,126,000	£2,628,000
Borrowing costs	£7,311,747	£3,663,128
Total income after costs	**£37,409,947**	**£18,612,719**

5. Next Steps

- Commission consultants to undertake an audit review of the assumptions and data in the Finance model
- Agree the payback mechanism with colleagues in Land & Property
- Continue to develop the Finance model, feeding in commercial data (including costs) to improve accuracy
- Continue to develop the 2030 Delivery Plan alongside colleagues in Land and Property
- Produce quarterly reports for CPP, Asset Strategy Board and the Greener Futures Member Reference Group
- Following the trial the solar decarbonisation offer, scale up the scheme to support the implementation of the 2030 programme
- Undertake a financial review in the next financial year to report to Cabinet.

6. Annexes

Annex 1

Data included in the finance model produced by Atkins

	Council's 2030 Net Zero Target
Data Included	- Energy data (cost per KWh gas and electricity) - Energy data for buildings in corporate estate - Data held on type and size of buildings - Data on existing decarbonisation measures installed - Number and type of vehicles in fleet and fuel data

	- Any decarbonisation feasibility assessment completed - Analysis on potential for solar PV on Council's land and buildings - SCC finance data (ie borrowing rate, discount rates)
Assumptions and estimations	-Energy retail prices - Building electricity and gas demand data -Inflation estimation -For all projects, a staggered implementation over 9 years have been assumed, starting in 2022 and reaching to its full implementation in 2030. -Where gross internal area (GIA) information is not available for a building: its GIA have been assumed by comparing its energy consumption with the energy consumption of a similar type of building.

Annex 2

Implementation levels of 2030 programme

Project	**Implementation level input**
Corporate Fleet	75% of fleet switched over to EVs
Estate rationalisation	100% of buildings selected as to be discarded
Building LED	100% of buildings switching to efficiency lighting
Building retrofit	75% of buildings receiving retrofit measures
Heat pump	75% of buildings switching to heat pumps
Rooftop PV	50% of buildings receiving PV
Ground-mounted PV	26.6 Megawatts (MW)

Annex 3
Assumptions Update

Economic Assumptions

Assumption	**Initial assumption**	**New assumption**	**Impact on Costs**
Inflation rate	1.5%	2.5%	40% increase in inflation leading increased costs for materials and works for projects.
Electricity prices	£0.169/kwh	£0.257/kwh	34% increase in electricity prices, leads to reduced payback periods and increase return on investment for energy efficiency projects and renewable energy projects. Heat pumps also cost more to run as they consume more electricity compared to

			gas boilers. The change in electricity price means solar revenue went up £10m, but the cost of running heat pumps increased by £2m.
Gas prices	£0.041/kwh	£0.06682/kwh	39% increase in gas prices, this reduces our projected payback periods, increases return on investment for energy efficiency projects and renewable energy projects.

Capex

Assumption	Initial assumption	New assumption	Impact on Costs
Grid connection costs for heat pumps and EV chargers	Not modelled in the initial finance model	25% of buildings will incur a DNO cost of £200k, 75% of buildings will incur electrical upgrade costs of £20k. This is pro-rated by 75%, as the 2030 implementation level for heat pumps is 75%.	These costs were not included in the original estimates.
Surrey County Council Future Corporate Estate	40% estate rationalization by 2030 was	Ongoing Implementation of the Council's Agile working organisation strategy might lead to an increased estate rationalization rate than initially projected.	Currently, 135 buildings have been identified as core and 52 as flex.
Greener Futures Staff capital costs	Not modelled in the initial finance model	At 11% of capex for retrofit, heat pumps, rooftop solar, ground mounted solar and EV chargers.	These costs are part of costs that will be paid back from income generated from renewable energy projects.
Other professional fees (Design costs)	Not modelled in the initial finance model		The costs will be added as an estimated % uplift of total capital costs of all projects except LED lighting.
DNO Costs	Not modelled in the initial finance model	£200,000 for 25% of buildings	The costs will be added in the annual spend of

			the heat pump and solar PV projects.
Electrical Upgrade costs	Not modelled in the initial finance model	£20,000 for 75% of buildings	The costs will be added in the annual spend of heat pump and solar PV the projects.

LED Lighting

Assumption	**Initial assumption**	**New assumption**	**Impact on Costs**
Electricity Saving (kWh/m2)	£15.9m	£27.8m	Uplift of £11.9m due to uplift in energy prices

Retrofit

Assumption	**Initial assumption**	**New assumption**	**Impact on Costs**
Energy Saving through avoided gas/oil consumption. The energy savings assumption for the retrofit projects include works related to wall, roof and floor insulation as well as single and double glazing.	£14.3m	£17.5m	The Greener Futures team reviewed the technical assumptions in January 2023, but these should be closely monitored as more data becomes available, to ensure the model is accurate.

Heat Pumps

Assumption	**Initial assumption**	**New assumption**	**Impact on Costs**
Cost of heat pumps	£1,655 per KW	£3,650 per KW	The original model only the actual heat pump cost and omitted the installation cost and enabling works. It also underestimated the size of the heat pumps needed in some buildings. E.g regulations require fire stations to have a backup heating system in case the system fails, effectively doubling the size of the heat pump required .

Solar (PV and Ground Mounted)

Assumption	Initial assumption	New assumption	Impact on Costs
Ground mounted solar electricity export price	£25.6p/KWh	£15.9p/KWh	£15.9p/KWh is to lowest necessary price to achieve cost neutrality
Reduction in rooftop solar PV capacity	133 kWp per building	45 kWp per building	The increased energy price largely offsets the reduction in the size of the array, resulting in a £1.5m fall in expected revenue
Grid Connection and site-specific constraints for large scale renewable energy projects due to current grid network capacity for the suitable sites	29MW ground mounted solar PV delivered by 2030	Grid connection constraints for some of the sites planned to host the PV means only 18MW will be delivered by 2030	

Fleet

Assumption	Initial assumption	New assumption	Impact on Costs
Fleet transition costs	£2 million was allocated to support green fleet transition	£16m	These costs relate to Service needs met by fleet, the costs to transition the fleet will be considered as part of service delivery costs and long-term will be met by the Council through service delivery team budgets. The Costs for fleet transition hence will not be borrowed

			capital but revenue funding.

Carbon Offsetting

Assumption	Initial assumption	New assumption	Impact on Costs
Carbon offsetting costs by 2030	Projected emissions to be offset as per carbon reduction pathway came out at **10% of the baseline emissions 1,984** tonnes per year by 2030. Cost of offsetting £194,432 per year	Post update of model the carbon offset requirement is **20% of the baseline emissions 3,448 tonnes per year by 2030.**	The cost of offsetting after 2030 is currently estimated at price per carbon tonne of £95. We will continue to monitor the changes in the carbon market and update the price accordingly.

Annex 4

Sensitivity Analysis

1. **Solar farm electricity export price**

Electricity Selling Price	Revenue from Ground Mounted Solar 18.9MW	2030 Programme Pays Back (excluding Green Fleet)	Payback after Counterfactual Spend (excluding Green Fleet)
25.675p/kWh ("sleeving"/ringfencing the electricity for SCC use)	£107.7m	Yes	£23.7m
18p/kWh ("Power Purchase Agreement"/ selling the electricity to another company etc)	£75.5m	Yes	£6.5m
15.9p/kWh (lowest price to achieve pay back)	£66.7m	Yes	£0.02m
5.5p/kWh (current price to export to the Grid)	£23.1m	No	-£25.1m
3p/kWh (forecast price to export to the Grid by 2030)	£12.6m	No	-£31.2m

2. **Borrowing rate**

Borrowing Rate	Borrowing Costs (excluding Green Fleet)	2030 Programme Pays Back (excluding Green Fleet)	Payback after Counterfactual Spend (excluding Green Fleet)

2.5%	£19.4m	Yes	£23.7m
3.0%	£23.6m	Yes	£19.9m
3.5%	£27.9m	Yes	£16.1m
4.5%	£36.8m	Yes	£8.1m
5.5%	£45.9m	No	-£0.1m

3. **Inflation rate**

Inflation Rate	**Operating Costs (excluding Green Fleet)**	**2030 Programme Pays Back (excluding Green Fleet)**	**Payback after Counterfactual Spend (excluding Green Fleet)**
2.5%	£27.3m	Yes	£23.7m
3.0%	£28.4m	Yes	£23.2m
3.5%	£29.6m	Yes	£22.7m
4.5%	£32.4m	Yes	£21.6m
5.5%	£35.9m	Yes	£20.2m

Annex 5

Solar Power Purchase Agreement mechanism

The PPA process is depicted in the image below and would be based on the following arrangement (once the PPA is agreed by both parties and the structural survey of the roof has been completed);

- The solar will be installed on the 5 schools by the Council's provider, CO2PEC, who have been procured to install the heat pump and energy efficiency measures under PSDS3a
- SCC will fund the initial capital and installation costs
- SCC will maintain the panels and will provide (reasonable) repairs
- The school will purchase the electricity generated through the PPA mechanism
- The PPA will be paid at an agreed rate on the generation of the solar output, at a less than market electricity rate but which enables the Council to cover all capital and operation/maintenance costs and generate a small profit
- The operation/maintenance costs include replacement parts and 'lift and shift' costs if roofing repair/replacement costs need to be carried out
- The school will be invoiced annually. CPI will be applied every five years.
- The contract will be for 25 years (which is the minimum lifetime of the solar PV)
- At the end of the 25 year life the panels and all associated equipment will pass to the school at no cost
- Termination clauses are built into the PPA, these will reflect the total costs incurred by the project. These will be attached to the PPA agreements, so they are transparent to

12

all. They will depreciate over time until Year 25 where they will no longer apply. It will be at SCC's discretion as to how these are implemented.

The draft PPA is included as an annex.