

# Full Business Case

## Document reference information

Project	Clean Growth Fund
Programme	Green City Charter
Project Sponsor	Kate Martin
Project Manager	Jason Taylor - Energy Manager
Version number	V3
Version date	27-11-20

## 1. Executive summary

This report provides background information and details the business case for the proposed Southampton City Council (SCC) Salix Clean Growth Fund (CGF). It seeks authorisation to proceed with the proposed programme of works and provides evidence for the approval to spend cabinet paper, based on Phase 1 works.

The CGF proposal came out of a meeting between Salix Finance Ltd<sup>1</sup> and the Council to discuss energy related investment opportunities within council corporate (non domestic) buildings and assets. Salix proposed a £20 million fund to help deliver energy and carbon savings to meet the council's Green City commitments to be net zero carbon by 2030. Up to 50% of the fund would be matched by Salix Finance Ltd using the Salix Decarbonisation Fund (SDF). The council had agreed to meet the remaining 50% subject to approval of each phase to spend, based on a satisfactory business case and Salix compliance criteria being met. The £20 million gross and £10 million net SCC funded Clean Growth Fund was included in the capital programme as part of the Medium Term Finance Strategy approved in February 2020. Each phase will be required to obtain approval to spend based on a satisfactory business case and Salix compliance criteria being met.

In principle, the CGF will replace the existing Southampton City Council (SCC) Salix Energy Efficiency capital programme (recycling fund), which is outlined in [Appendix 1](#). Its proposed that the CGF remains an invest to save fund but will increase low carbon investment in the council's non-domestic buildings and assets. The CGF will deliver energy efficiency, onsite renewable energy generation and battery storage to control future energy costs and reduce carbon dioxide (CO<sub>2</sub>) emissions for SCC's commercial assets. It will include a management fee per phase to cover revenue costs of the project enabling the project to be resourced effectively and to incorporate energy awareness, training, monitoring and evaluation. In addition, at least 75% of the annual Salix compliance energy cost savings will be recycled back into the CGF to enable further reinvestment in low carbon technology.

The existing SCC Salix Energy Efficiency capital programme has been running since 2006 and has focused on delivering energy efficiency projects. It has successfully enabled the council to invest in carbon saving projects and improve the efficiency of council assets but has suffered from a lack resource to deliver new projects over the past three years. Under CGF there is greater scope to fund larger projects (including renewables and battery) which will enable SCC to deliver its carbon targets, revenue savings and demonstrate community leadership.

## 2. Strategic Fit

The CGF is an investment model that will help to deliver the council's Corporate Plan, and the Green City Charter's ambition to ensure council corporate assets are net zero carbon by 2030. The corporate assets cover all non-domestic buildings including SCC schools and streetlighting.

---

<sup>1</sup> Further information on Salix Finance Ltd, along with the existing Salix Energy Efficiency programme SCC can be found in [Appendix 1](#). Its recommended [Appendix 1](#) is read prior to reading on as this provides useful information to help understand the proposed CGF.

Revenue cost savings associated with the consumption of energy<sup>2</sup>, along with carbon dioxide (CO<sub>2</sub>) savings, will be delivered by CGF. The financial model aims to ensure that additional financial savings, over and above those required to be recycled back into the fund, are achieved. These additional savings should be achieved by including measures that generate savings higher than minimum repayment back into the fund and by not including energy price inflation over the term of the payback period. This not only reduces risk but should enable SCC to make revenue savings by the end of the year from when the first measures are installed. All savings, including any additional financial savings, will be confirmed within an annual CGF report to senior managers and Members. The current plan is to report savings each August, once full data is available, for the preceding financial year.

	Yes	No	Council outcome(s) impacted	Focus area(s)
Will this impact across the council/partners/multiple departments?	x		Carbon and revenue cost savings. Green City Charter zero carbon commitment and the Corporate plan	Corporate buildings and fixed assets
Will this impact on service users and/or protected groups (equalities)?		x		
Is there potential for significant political/financial/reputational impact?	x			
Will this mean we collect, store or use our data differently?	x		Carbon reporting, monitoring and evaluation methodology will change. Transparency of the data is key for internal and external reporting.	Electricity, gas, district heat and district cooling data. Use of national agreed carbon dioxide emission factors.

### 3. Background

Why is it important to address this?

- Southampton City Council (SCC) electricity prices have risen by almost 100% in 8 years due to continued increases in both the wholesale energy price and increases in the fixed costs associated with energy and particularly electricity. Forecasts suggest a similar rise in the coming years as the fixed price elements of energy bills increase.

<sup>2</sup> electricity, gas and district heat and district cooling

- Total general fund annual spend on electricity and gas in SCC commercial buildings in 2019-20 was circa £5 million (£3.5 million on electricity, £0.7 million on gas, £0.6 million on district heat and £0.2 million for district cooling).
- SCC emitted 11,400 tonnes of CO<sub>2</sub> from its non-domestic buildings' gas, electricity and district heat and cooling use in 2019-20. The council's [Green City Charter](#), adopted in June 2019, states that SCC non-domestic buildings will be net zero carbon by 2030. This is more ambitious than the national target; where the government have pledged to achieve net zero carbon by 2050. The proposed fund is key to helping the council minimise its impact on the Climate Emergency, declared by council September 2019 and will implement an effective action plan to reduce the council's carbon emissions.
- SCC currently has a Salix Energy Efficiency Recycling Fund<sup>3</sup> to deliver energy efficiency works, which has been operational since 2006. Annual savings from the existing Salix Energy Efficiency Recycling Fund, without energy price inflation, are circa £300k, which equates to a 4 year payback on £1.2 million investment. Whilst annual carbon savings, without any deflation on carbon grid factor, are 1,600 tonnes of CO<sub>2</sub>. This fund has historically proved a successful way to deliver energy and CO<sub>2</sub> savings. However, since the loss of the Carbon Reduction Officer post as a result of cost cutting redundancy, there is no resource to deliver wide scale energy efficiency or renewables projects across the council's buildings. This has meant the existing Salix fund has underperformed against targets set annually by Salix Finance Ltd in recent years.
- CGF will enable SCC to upscale energy and carbon reduction projects in its non-housing assets. The fund will focus on properties that rely on grid based energy consumption<sup>4</sup> and associated greenhouse gas emissions (measured in CO<sub>2</sub>). It will also help SCC to minimise its impact on future energy price rises and to mitigate its ongoing impact on climate change. By acting now, early cost savings can be maximised, and it will have a positive impact on other essential council services.
- The CGF will provide additional benefits that carbon offsetting or delivering renewables outside of the city boundary would not offer. Additional benefits should include improved working spaces, lower maintenance liability and improved asset value.
- £20 million (gross) capital budget was approved at Full Council 26<sup>th</sup> February 2020, which consists of £10 million of SCC and £10 million of Salix Finance Ltd 50-50 match funding.

#### 4. Proposed Solution (Full Business Case)

The current Covid 19 pandemic has meant that it has not been possible to secure full on site surveyed quoted costs for all measures; consequently the anticipated maximum estimated pre tender costs based

---

<sup>3</sup> See [Appendix 1](#) for further information on the existing recycling fund.

<sup>4</sup> Grid based energy consumption is more carbon intensive

on expert knowledge and initial contractor quotations have been used. The pre tender estimates are high but will ensure the business case can be met by the delivery of the measures. This also provides additional contingency.

SCC plan to utilise the Salix Finance Ltd funding, to deliver projects under the SCC Clean Growth Fund (CGF):

- That require a 10 year technical return on investment (ROI) and can stretch to a 12 year project repayment period
- That deliver cost avoidance / savings from end of year one post project commissioning
- With a proven and fully auditable financial and technical model which is verified / signed off by Salix Finance Ltd internal technical team and independent consultants.

The recommended CGF proposal will:

- Deliver a whole building approach to energy and carbon reduction within SCC non-domestic buildings and street lighting. To reduce annual revenue costs for energy, whilst delivering on the Green City Charter and climate emergency requirements.
- Provide a total gross of £20 million Clean Growth Fund capital for investment in compliant energy efficiency and renewable energy projects within SCC's assets. This is currently proposed over 5 years. The works will be delivered in phases, with each phase's funding being approved both internally and by Salix Finance Ltd, commencing with Phase 1 within financial year 2020-21.
- Comply with the conditions of the grant, which stipulate that the works:
  - deliver a payback on investment within 10 years
  - meet the cost per tonne of carbon dioxide emissions over the lifetime requirements of £383 per tonne of CO<sub>2</sub> saved
  - reinvest the required energy (gas, electricity, heat and chilled water) related revenue savings into further energy measures using a recycling fund model.
- Make use of and enable the identification of external funding that can be utilised to offset the general fund capital. The Energy Team have identified an ERDF fund that could provide grant funding of £200k for phase 1 based on the application made in March 2020. Formal notification of application success has been delayed due to Covid 19 and is expected in autumn / winter 2020. Salix also have a £1 billion one off Public Sector Decarbonisation Scheme grant announced September 2020 that SCC will be applying for by 11<sup>th</sup> January to provide additional grant options. See the finance section below for further information.
- Ensure that direct staff (including project management), training and behaviour change resources to deliver the programme are covered by the fund management fee, which is up to 15% of the total fund value (based on the Salix compliance criteria). The fund management fee will be used to raise awareness of energy and wider sustainability to key stakeholders, which will enable the savings to be maximised and delivered effectively. The management fee is covered by the overall project costs but sits outside of the 10 year ROI compliance criteria.

## Phase 1 year one proposal – Clean Growth Fund – buildings

Phase 1 buildings include City Depot, Marlands multi storey car park and One Guildhall Square (OGS). These three buildings were chosen as they are some of SCC’s largest energy consumers<sup>5</sup>. They can be easily monitored and evaluated before, during and after works have been completed. Phase 1 provides scope to develop the CGF methodology sufficiently to enable significant scaling up of further phases.

The initial financial model provided desktop assumptions developed in summer 2019. This assessment focused on indicative savings for both energy efficiency and solar photovoltaic electricity generation (rooftop solar panels).

Further detailed surveys and site assessments were carried out to ascertain the specific buildings’ estimated saving potential. Npower Business Solutions consultants and a solar photovoltaic (PV) specialist from Southampton University (Dr Phil Wu) were employed to provide energy and renewable power site audits. Tesla Energy Products have also provided information on battery storage analysis and solutions. Trend Controls Ltd (Anthony Dann) was also consulted on the building management systems cost and feasibility at OGS. The results of which have been assessed by the Energy Manager and Salix Technology Team.

SCC commissioned Npower to undertake energy audits for the first three buildings chosen for phase 1 of the programme. Energy audits have been completed and identified energy saving or electrical generation measures on, City Depot, Marlands multi storey car park (MSCP) and OGS.

City Depot has an existing solar PV array generating renewable electricity with scope for further arrays, whilst OGS and Marlands MSCP have opportunities for energy reduction and installation of solar PV. City Depot and Marlands MSCP are also able to incorporate battery storage solutions to maximise on site electricity generation and use, whilst providing opportunities to shift the grid demand load for electricity. Thus, providing future cost saving and CO<sub>2</sub> reduction benefits.

The 2019-20 energy costs and carbon dioxide emissions (CO<sub>2</sub>) are shown in table 1 below

Site	Tonnes CO <sub>2</sub>	Costs
City Depot	332	£146,799
Marlands MSCP	70	£41,651
OGS	484	£237,874
<b>Total</b>	<b>886</b>	<b>£445,185</b>

**Table 1 - Total CO<sub>2</sub> and cost per site pre measures**

### Site Measures – breakdown of costs and savings

<sup>5</sup> The civic centre was excluded at this stage due to the diverse nature of activities undertaken from a single electrical supply, which would have made it difficult to evaluate the success of individual energy efficiency / generation measures.

The below figures show the breakdown of the proposed site measures identified along with costs and savings. The measures were identified by the Npower consultants in conjunction with the Energy Manager.

The estimated costs and savings have been updated, where required, using the most up to date energy data and firmer installation costs. Further information relating to the measures can be found in the Final Npower Audit Report and the updated figures or calculations of each measure are covered below.

In addition to the technical measures its proposed that energy awareness is undertaken within the sites to enable day to day management savings to be achieved. Awareness training will be focused on operational site staff who manage the buildings along with a generic campaign for other site occupants. The savings equate to 0.8% of total cost reduction at all sites within phase 1. This is a low estimate to ensure it can be reported costs of delivery.

Table 2 below shows the overall figures for energy awareness, which is a separate measure to those on each specific site. As the cost of this measure will be included within the management fee we will not be directly requesting Salix to undertake compliance checks on this measure and therefore any actual savings delivered would add value to the business case for the sites. The below savings have been included within the final business model for internal use.

<b>Energy Awareness measure</b>	<b>Annual cost Saving</b>	<b>Estimated Project Cost</b>	<b>Payback (Years)</b>	<b>Annual CO<sub>2</sub> Savings</b>
All Phase 1 sites	£3,652	£2,000	1	7

**Table 2 – Energy awareness savings**

### **City Depot Investment Measures**

<b>Energy reduction measures</b>	<b>Annual cost Saving</b>	<b>Annual kWh saving</b>	<b>Estimated Project Cost</b>	<b>Payback (Years)</b>	<b>Annual CO<sub>2</sub> Savings</b>
Install solar PV roof mounted 101kWp	£14,118	95,950	£70,700	5	24.5
LED Lighting install stairways	£245	1,664	£1,600	4	0.5
<b>CITY DEPOT TOTAL</b>	<b>£14,657</b>	<b>99,614</b>	<b>£72,300</b>	<b>5</b>	<b>25</b>

**Table 3 – City Depot measures costs and savings**

City Depot’s current electricity usage continues to increase on site and even during the pandemic consumption levels are consistently high. Due to the mixed operational nature of this 24 hour manned site the electrical baseload is higher than a standard office. The site already has a 55kWp solar PV array installed, which reduces energy costs by over £7k per annum.

It is advised that an installation of a 101kWp of solar PV will generate electricity for large periods of the year, thus stabilising energy spend and reducing carbon emissions. The cost here is shown for a roof mounted scheme on the remaining rooftops at the depot, however, there is also scope to include a PV array that could be mounted on a car port type system above the dustcart parking area. Costs for both options are available.

Electrical demand on this site will increase as electric vehicle charging is becoming more prevalent. There are plans to increase charge points and therefore available electrical capacity at the site. The energy team are working with the sustainable transport team and fleet to ensure the financial and environmental benefits of onsite renewable generation are maximised.

There is also a standard lighting control measures included to reduce lighting times on the stairwells. Lighting is currently on 24 hours per day 365 days per year.

Within each measure heading the actual Salix defined estimated lifetime of the technology is stated. This figure is used within the Salix compliance methodology to understand the likely lifetime CO<sub>2</sub> and financial savings.

**City Depot Measures Savings Calculation Methodology**

Install solar PV roof mounted 101kWp – indicative lifetime 22.5 years

The ABSOLAR (Southampton University solar spinoff company) costs and calculation summary is below.

Solar PV to be installed at City Depot on cycle store (18kWp), Balfour site offices (21kWp), remaining main office (36kWp) and salt barn (26kWp), which comprise:

Size of PV systems	101 kWp
Installation cost (unit)	£700/kW
PV production efficiency	950 kWh/kW
Power used locally	100%
PV degradation	1%/ year
Total project cost	£70,700
Total kWh generation	95,950 kWh year 1
Current tariff	14.4 p/kWh rounded down

LED Lighting install stairways - indicative lifetime 25 years

City Depot 38w x 8 fittings = 2663kWh/Annum

City Depot 50% saving from replacing fittings with LED plus 25% saving from controls

LED saving = 2,663x0.5 = 1,331.5

LED + controls saving = 1,331.5 +(1,331.5x0.25) = 1,664kWh

Capex install of 8 light fittings with control £200 each:

City Depot = £1,600



## Marlands Multi Storey Car Park Investment Measures

Marlands MSCP Measures	Annual cost Saving	Annual kWh saving	Estimated Project Cost	Payback (Years)	Annual CO <sub>2</sub> Savings
Install solar PV Car ports 168kWp	£29,165	192,000	£252,000	8.64	49
Install light control	£8,712	57,351	£50,000	6	15
Install battery storage system	£0	0	£96,449	-	-
<b>Marlands MSCP TOTAL</b>	<b>£37,877</b>	<b>249,351</b>	<b>£398,449</b>	<b>11</b>	<b>64</b>

**Table 4 – Marlands MSCP measures costs and savings**

Marlands car park electricity usage is primarily for lighting. The site is shut to the public overnight, and there are periods during the day where natural daylight means lighting can be switched off by incorporating improved control.

There are also 6 electric vehicle (EV) charge points, with more planned in the coming months/ years. EV charge points will form a greater share of electrical consumption at the site in the future. This electricity will at some point be charged to the users; however, this is currently supplied free at the point of use to EV car owners.

It is advised by Npower that an installation of at least 168kWp of solar PV array would help to stabilise energy spend and reduce carbon emissions. There is also a business case from ABSOLAR for installing up to 500kW solar at the site; however, modelling of usage and battery technology shows a lower kW rated solar array would maximise investment potential. The final procurement, design and specification, delivery of the solar at this site will confirm the kW capacity of the final delivered array.

The PV array will need to be mounted on car port type system located on the top level of the car park. It is also advised, that due to the nature of the demand profile and output of this size of potential PV array, an electrical battery storage is incorporated into the solar pv design. With battery, the solar PV will provide over 70% of the onsite electrical needs. Any excess power generated will be exported under the export guarantee scheme. This has been included within the business case. This will enable much, if not all, of the power generated on site to be consumed on site; therefore improving the business case. Three options have been assessed for this site all of which are mounted on a structure that will sit above the car parking spaces on the top floors.

### Marlands MSCP Measures Savings Calculation Methodology

#### Solar PV – indicative lifetime 22.5 years

Savings shown here are based on Npower consultant audit report January 2020 and are as follows:

Marlands Car park:

- Installed Capacity 168kWp
- 579 Modules
- Orientation 45° from south inclined 15°
- Shading assumed as none
- Local weather station data used for Direct & Diffused solar plus Temperature (Base year 2017)

- 5% Aggregated losses from module to grid
- Cost per kWp installed - £1,500
- Generation per kWp installed per annum – 1,140kWh

Lighting controls - indicative lifetime 14.7 years

This measure is identified within the Npower report; however, the figures have been changed to reflect more recent energy consumption figures and data.

Total consumption of the existing LED lighting pre measure is calculated as 178,293 kWh. This figure is based on the calculated lighting load after the delivery of Salix project - CSOU03P097 Marlands MSCP LED Lighting Replacement by Southampton City Council delivered in 2013.

The lighting is currently operational 24 / 7. However, the site is shut overnight from 12am to 5.30am, when the lighting can be fully switched off. It is calculated that this would save an estimated 5.5 hours of lighting consumption equating to a reduction of 40,859 kWh. It's also proposed that the remaining savings will be achieved by intermittent switching during the day / night when light levels are sufficiently high, and the site is unoccupied.

Measure	kWh saving
After Switch Off Overnight Savings	40,859
Including 12% saving for alternate lighting where possible	16,492
<b>Total Lighting Savings</b>	<b>57,351</b>

**Table 5 – Marlands MSCP lighting kWh savings breakdown**

**OGS Investment Measures**

OGS Measures	Annual cost Saving	Annual kWh saving	Estimated Project Cost	Payback (Years)	Annual CO <sub>2</sub> Savings
Office lighting re-design	£33,154	214,859	£307,202	9	55
BMS Upgrade / Optimisation	£18,434	212,926	£180,000	10	38
Install solar PV Roof Mount 60kWp	£10,956	71,000	£60,000	5	18
LED Lighting install stairways	£228	1,498	£2,400	11	0.5
<b>OGS TOTAL</b>	<b>£62,798</b>	<b>500,283</b>	<b>£549,602</b>	<b>9</b>	<b>111.5</b>

**Table 6 – OGS measures costs and savings**

OGS is connected to the city centre district heating network for heating, hot water and chilled water services which is owned and operated by Engie. The site is currently operating during normal office hours. OGS current electricity usage is very stable; however, high energy usage within the building remains around lighting, office equipment and air handling/extract units. Electricity costs continue to increase while carbon emissions remain high.

Lighting is generously spread across all levels while lower occupied areas still remained well-lit.

Office areas have extensive numbers of light fittings and though there is evidence of zonal control, non-occupied areas remain lit during the day.

Full lighting re-design of the site has been instigated; including a full survey considering all locations within each office, stairways, lux levels and hours of occupancy. This will enable a control strategy to be implemented which aims to reduce the total number of fixtures required and identify the remaining lamps that will need to be replaced with an LED equivalent.

There is the potential to phase the works by completing one floor at a time and to exclude those floors that are occupied by Southampton University. Ongoing discussions are being had with the University to agree that estimated savings at the start of the project are recovered annually and reinvested into the CGF.

### **OGS Measures Savings Calculations**

#### Office lighting redesign – indicative lifetime 25 years

Total consumption 1,182,859kWh

A full lighting redesign and costing exercise has been undertaken by the SCC in house electrical design engineer for floor 1 of OGS. This has been used to equate savings and costs for the remaining 4 office floors.

The existing office areas lighting load is = 281,843 kWh

The proposed LED replacement office areas lighting is = 66,984 kWh

Therefore offering a 76% reduction in the lighting load

Capex cost – to include luminaires, installation, controls, wiring, mark up = £307,202.

#### LED Lighting install stairways – indicative lifetime 25 years

Existing load 38w x 12 fittings = 3,994kWh/annum

OGS 50% saving from replacing fittings with new LED plus 25% saving from controls saves

LED saving= (3,994 x 0.5) = 1,997

LED + controls saving = 1,997 - (1,997 x 0.25) = 1,498 kWh

Capex install of 12 light fittings with control is £200 each totalling £2,400.

#### BMS Upgrade / Optimisation indicative lifetime of measure 9 years

A Sauter Building Management System (BMS) is used to control temperature and environmental conditions within the site. This current BMS has proved ineffective at enabling the efficient use of energy. It's clear there is heating and cooling operating within the same areas at times during both winter and summer periods. In addition, floor 3 has had a 24 hour operational requirement that means that, due to poor zoning, the entire site is heated and cooled on evenings and weekends when not required.

Unfortunately, there is limited control and accessibility of the existing Sauter BMS. There are also significant ongoing maintenance costs associated with this closed protocol BMS, with any major changes to the setting of parameters requiring a paid Sauter site visit and additional maintenance costs. It is recommended that an open protocol BMS system replaces the Sauter front end software and where required infrastructure is upgraded to enable improved control of building services.

Estimated savings for upgrading and replacing the BMS have been based on annual savings of 12% for geothermal heating and cooling and 5% electricity related BMS savings due to the existing poor control strategy and inability to control locally. Firmer estimates are being considered as part of specification and design. Costs are currently based on maximum anticipated based on consultant advice and post audit liaison direct with Trend Controls Ltd.

Utility Savings per annum	kWh	Cost	CO <sub>2</sub>
Heating	56,497	£2,722	8
Chilled Water	97,286	£6,718	15
HH electric Combined	59,143	£8,994	15
<b>Total</b>	<b>212,926</b>	<b>£18,434</b>	<b>38</b>

**Table 7 – BMS savings breakdown**

Install solar PV Roof Mount 60kWp indicative lifetime 22.5 years

It is also recommended that an installation of a 60kWp of solar PV is included to stabilise energy spend and reduce carbon emissions. The PV array will be mounted on the roof.

Npower consultant savings assessments using Energy Pro Software and ROI capability

- Installed Capacity 60kWp
- 207 Modules Orientation
- 0° from south inclined 20°
- Shading assumed as none
- Local weather station data used for Direct & Diffused solar plus Temperature (Base year 2017)
- 5% Aggregated losses from module to grid
- Estimated cost savings have been updated in the compliance tool using average unit rate 2019-20.
- Cost per kWp installed - £1,000

Generation per kWp installed per annum – 1,183 kWh

**Procurement Solution for Delivery of Identified Measures**

It is recommended that each technology type is procured under separate procurements (open tenders). A Procurement Project Plan has been instigated with SCC Procurement. The following procurement routes are sought post approval to spend for phase 1. :

- Solar PV and battery – stand-alone open tender or procurement against a compliant framework to include full design and build based on the information provided as part of the initial energy audits. There are a number of suitable frameworks that will be checked for compliance post

- approval to spend. Structural Engineering will be reviewed and checked internally once detailed designs are provided by the chosen installer.
- Lighting – there is the option to utilise Housing Operations services to install all lighting based on the internal electrical engineers lighting design. This would enable all works to be delivered compliantly under the Salix Finance requirements and the Southampton first approach. If Housing Operations are not able to deliver the works in line with the Salix requirements then an external contractor will be procured.
  - BMS – its proposed works will be delivered using the existing Kent Laser framework Y18003, which SCC procure all of its electricity supplies through. This covers work to be completed by our existing BMS maintenance contractor Npower Business / EON.

## 5. Expected benefits – Phase 1 CGF

*1 Benefit	Baseline	Measurable by
Minimum estimated 30% reduction of CO <sub>2</sub> emissions across 3 x buildings	2019-20 annual consumption from all energy consumption recorded by incoming meters at each site	Recording annual energy reductions (corrected by degree day data as required) after full commissioning of the technology
Annual estimated gross revenue savings of £110k per annum from energy costs.	2019-20 annual costs from all energy consumption recorded by incoming meters at each site	Recording annual reduction (corrected by degree day data as required) after full commissioning of the technology
Annual estimated net revenue savings of £27.5k – based on 75% reinvestment of savings per annum	As per 25% of annual gross savings above	As per 25% of annual gross savings above

\*1 Subject to change post procurement.

## Summary of resources needed to achieve next stage

Role	FTE	Costs	Funded/Backfill/Absorb
Energy Project Officer	1 x Grade 10	£56,700	Funded by CGF admin fee
Energy Officer	1 x Grade 7-8	£43,400	Funded by Existing budgets (AG0110) and if required top up from CGF admin fee

- Initially assumed 1 x FTE Energy Project Officer grade 10 and 1 x FTE Energy Officer grade 7-8 to include coordination, project management and expert client roles in Capital Assets and Property.
- The Green City Charter budget will cover project officer resource costs in year one 2020-21 pre project commissioning. All future years will be fully funded by the CGF.

- Finance have confirmed there is budget for Energy Officer' post, which is currently in the structure as the Energy Company Officer post. Due to the sale of CitizEn Energy customers by Robin Hood Energy and subsequent closure of CitizEn the existing post will be redeployed into the Energy Officer post. The post is permanent and budgeted for within the AG0110 cost centre. The Energy Officer outputs have been agreed and awaiting post evaluation. Job Description for both posts will be approved by Property senior manager and Director of Place prior to evaluation and grading taking place. It should be noted that the Energy Officer post would be required to ensure carbon reporting and delivery of the existing energy efficiency works required even if the CGF wasn't being proposed.
- Expert client / energy project officer roles will be funded via management fee allowance of 15% of project cost in agreement with Salix Finance Ltd. Costs have been included to show proposed year one resource requirements.
- Project Management existing resource in property or provided via HCC agreement on a consultancy day / project rate basis will be utilised as required. The cost of which will be covered by the management fee.

**6. Risks of recommended solution**

Risk	Likelihood H/M/L	Impact	Mitigating action
Covid 19 affecting change or delays to the project	H	Medium	<p>All works will be completed in compliance with any local or national guidance or restrictions.</p> <p>Ensure all stakeholders are clearly communicated with if any changes to accessibility or works will be affected. To include but not limited to Salix, site and contractors. Delivery plan to be realigned based on local or central government guidelines.</p> <p>Sourcing of goods or services – if project will be delayed due to chosen goods or service not being available then alternative compliant products will be sought. If this cannot be achieved then the project plan will be realigned based on best knowledge and communicated to all stakeholders (this will also be undertaken if Brexit causes sourcing issues with chosen technology. Suppliers have been contacted and its unlikely this will be an issue based on discussions). See below for resourcing issues relating to project delivery.</p> <p>An assessment of energy consumption pre and post Covid suggest that the savings can still be achieved as the building’s services such as lighting and heating, cooling and ventilation included within the measures have continued to be operational during the reduced occupation of the sites. Significant savings on IT power have been made, however, these are not included within the proposed measures.</p>
Resources to deliver the project – Inexperienced staff assigned or loss of critical staff	M	High	<p>The proposed project team is or will be made up of members with a wide range of experience. Once in post the project officer (manager) / client will document the project correctly and comprehensively to enable the project to be taken forward, highlighting any resource issues to the green city board (as per governance structure). If the resources required as outlined in the previous section are not secured and delivered then the project will not meet expectations. In addition a lack of resources has already led to the existing Salix scheme halting and the loss of further grant or other funding being missed. Covid19 may impact on team availability and this will be dealt with by identifying a replacement member of each team to stand in for any absences. No allowances have been included to take account of any future Covid19 impacts; however, there has been significant rephasing needed to accommodate the impact of Covid19 during 2020.</p>

Insufficient time allocated or significant project team workload – project slippage	M	High	There will invariably be other calls on time for all project team members. To ensure sufficient resources being available, additional contingency will be added to each key milestone and the project team will be consulted on all key milestone timelines to ensure sufficient time allocation. Any challenges with delivery will be reported to the project board and if required additional resources will be made available. There is budget for additional resources to be procured if required either internally, via the partnership with Hampshire County Council property services or external consultancy. Procurement Officers have been consulted to understand the timelines to secure contracts post financial approval. Design/specifications and scope will be passed to procurement once available. Legal have also been consulted on availability once approval has been sought.
Green City or Council Priorities change through project	L	Moderate	Climate change mitigation will continue to be a key council delivery requirement based on all political party aspirations. The project manager will ensure the Green City aspiration of zero carbon to 2030 for corporate buildings is met as far as possible by the CGF project and associated energy management work programme. Regular updates will also be provided on project development and evaluation reporting to all key stakeholders both officer and Councillors.
Project purpose definition, needs, objectives, costs, deliverables are poorly defined or understood	L	Moderate	Ensure that all project team members / stakeholders are clearly consulted on at each stage of the proposed work programme to ensure all documentation reflects accurately the requirements of the project. Ensure that all delivery team members are fully aware of the project requirements and their role in the delivery of these.
Consultant or contractor delays	M	Moderate	There needs to be sufficient contingency within the programme to allow for contractor delays. Note that future Covid19 delays haven't been included within the estimated project timeline. It is likely that Brexit will also have an impact on delivery of products and materials. This has not been factored into the existing timeline until the situation becomes clearer i.e. December 20 to January 21.
Estimating and/or scheduling errors	M	Moderate	As there will be an obligation on SCC reinvesting the savings agreed with Salix back into the fund it is imperative that the savings are not overestimated. To reduce risks of not achieving the estimates the project costs carry significant contingency and the savings will, where required, be



			tempered. There is also very likely to be energy price rises over the payback term of each measure and no energy price inflation included within the business case. The current timeline is partially based on estimates due to contracts not currently being let. Once full programme schedule is agreed with the project team and contractors these will be updated.
Energy price uncertainty	M	Moderate	During the current Covid19 pandemic wholesale energy prices have fluctuated considerably and at times fallen to historical lows. SCC will be procuring new contracts for energy from October 2021. It should be noted that the current global economic uncertainty could increase or reduce energy price moving forward. If energy price increases over the term of the payback then reported savings will be exceeded; however, a reduction in energy price based on the baseline year could mean the project costs savings will not be achieved; even though the overall energy budget is reduced. All energy cost savings within the business case, for each measure, has used the average whole unit rate for energy (excluding vat) for the financial (baseline) year 2019-20. This highlights the importance of underestimating savings or at least adding contingency to the savings. It should be noted that predicted price rises at circa 4% per annum.
Measures not being viable due to unforeseen circumstances	M	Low	Each energy reduction or generation measure has been identified and checked using both site assessment and desktop information. If it becomes apparent that an identified measure cannot be delivered, for whatever reason, this will mean they will need to be cancelled with both the internal governance process and via Salix finance prior to implementation. If required, measures will be modified, or alternative measures sought to ensure expenditure and associated savings are obtained. This may include delivery of measures at another site. Any changes to the project will be identified and approval sought via all internal and Salix procedures.

## 7. Constraints and dependencies

Key constraints and dependencies from ongoing property team and wider council works to include:

- Roof replacement framework contract - align with proposed roofing works with potential solar PV opportunities. Sites mapped and inclusion with Phase 2 CGF delivery. Enablement works to be covered in specification.
- Repairs and Maintenance programme – align with and understand historical, ongoing and future planned works to minimise potential revenue expenditure or waste. Ensure ongoing maintenance liability is minimised where feasible.
- Green City Charter – align with key charters goals including the principle CGF project align aspiration to be net zero carbon by 2030.

## 8. Timescales

No	Key milestones – Phase 1	Baseline date
1	Project Approval 15 <sup>th</sup> December 2020	Known - Cabinet date
2	Procurement Completion 15 <sup>th</sup> March 2021	indicative
3	Salix formal commitment 20 <sup>th</sup> March 2021	indicative
4	Place Order 22 <sup>nd</sup> March 2021	indicative
5	Project on site 10 <sup>th</sup> May 2021	indicative
6	Project Completion 30 <sup>th</sup> September 2021	indicative

## 9. Costs & Investment Appraisal

The below figures are based on Phase 1 cost used for the Salix compliance business case. The figures do not include borrowing costs and ongoing maintenance, which are included in the financial model with section 10 - finance and funding.

Description	Estimated Saving £	Estimated Project Cost	Payback (Years)	CO2 Savings
CITY DEPOT TOTAL	£14,780	£72,300	5	26
Marlands MSCP TOTAL	£37,877	£398,449	11	64
OGS TOTAL	£62,798	£549,602	9	128
<b>Total Technology</b>	<b>£115,454</b>	<b>£1,020,351</b>	<b>9</b>	<b>217</b>
<b>Management fee (15%)</b>		<b>£153,053</b>		
<b>Total Project</b>	<b>£115,454</b>	<b>£1,173,404</b>	<b>10</b>	<b>217</b>

**Table 8 – Overall annual figures showing total project costs including management fee – based on Salix compliance criteria**

The total estimated project costs of Phase 1 at this stage are £1.17M shown in table 2. The technical range of works include solar pv and lighting upgrades at each site with improved building services controls at OGS and City Depot.

Its proposed, the management fee will cover all consultants, Energy Project Officer, monitoring and evaluation and behaviour change costs. The maximum percentage of management fee that can be included against the Salix project is 15% of total costs. The proposed management fee is set at 15% for phase 1.

## **10. Finance and Funding**

### **What will happen to the existing Salix Energy Efficiency Scheme?**

The existing Salix Recycling Fund managed by the council since 2006 and the new CGF (officially called Salix Decarbonisation Fund (SDF) by Salix Finance Ltd), are different funding models and have separate Terms and Conditions.

Salix are not able to open new Recycling Funds (i.e. SCC's existing fund) or add new funds to the amounts to existing recycling funds which is established under a conditional grant agreement. Closing the existing Salix fund would be the most likely option. How this will work has been outlined within [Appendix 2](#). In comparison, the CGF is based on a loan model with a 5 year fixed term (which can be extended if the funding is being well utilised). The Terms & Conditions SCC will agree with Salix cover a 5 year investment period.

### **Proposed CGF Funding Model – including assessed options**

The CGF is for a proposed £20 million fund to help deliver energy and carbon savings to meet the council's Green City commitments to be net zero carbon by 2030. Up to 50% of the fund would be matched by Salix Finance Ltd using the Salix Decarbonisation Fund (SDF). The remaining 50% would need to be met by the council. The £20 million Clean Growth Fund was included in the capital programme as part of the Medium Term Finance Strategy approved in February 2020. Its proposed each phase will be required to obtain approval to spend based on a satisfactory business case and Salix compliance criteria being met.

This business case focuses on the phase 1 £1.17M of expenditure to be funded from the CGF. This demonstrates the type of measures that can be implemented, the impact those measures have in terms of carbon and financial savings and how the proposed financial model is structured.

### **Option Appraisal**

There are two potential options for financing the proposed measures. Option 1 is to simply borrow the capital resources and not involve Salix in the project. Option 2 is to use the proposed CGF partnership with Salix.

## Option 1

The Council could fund these measures without involving Salix through borrowing the capital resources required and then retaining the full saving benefit as the savings are generated.

The total costs of the measures in phase 1 of the CGF is estimated to be £1.17M. Under option 1 it is proposed that this will be funded primarily by borrowing but also utilises Electric Vehicle Action Plan (EVAP) grant funding. More detail on the EVAP scheme is provided in a section below the options appraisal.

<b>Phase 1 – Option 1</b>	<b>2021/22</b>	<b>Source of funding</b>
	£	
Capital expenditure	1,173,404	
<b>Funded by</b>		
Borrowing	973,404	SCC PWLB borrowing
EVAP	200,000	SCC grant funding from DEFRA
	<u>1,173,404</u>	

**Table 9 – Option 1 funding**

The revenue impact of the measures over the life of the assets is detailed in table 7 below. Savings are forecast to be generated from the middle of 2021/22 and projected over the useful asset life of the measures. The financing costs are based on PWLB borrowing rates over 25 year which is currently at 2.52% and incorporates the annual Minimum Revenue Provision charge to the general fund associated with the borrowing. This shows that the net saving of the measures over the life of the assets is estimated to be around £0.95M after financing costs and repairs & maintenance have been considered, which is less than the initial outlay.

	2021/22	2022/23	2023/24	2024/25	2025/26	5 year total	25 year total
	£	£	£	£	£	£	£
Savings	-59,553	-119,106	-119,106	-119,106	-119,106	-535,978	-2,387,905
Financing costs	26,477	52,953	52,953	52,953	52,953	238,290	1,323,833
Repairs & Maint.		3,623	5,268	5,268	5,268	19,427	93,805
Net saving	-33,077	-62,530	-60,885	-60,885	-60,885	-278,262	-970,267

**Table 10– Option 1 revenue impacts**

## Option 2

The second option is to use the proposed CGF partnership with Salix to purchase the assets.

<b>Phase 1 – Option 2</b>	<b>£</b>	
Capital expenditure	1,173,404	
<b>Funded by</b>		
Salix	586,702	Salix loan funding
SCC		
- Borrowing	386,702	SCC PWLB borrowing
- EVAP	200,000	SCC grant funding from DEFRA
	<u>1,173,404</u>	

**Table 11 – Option 2 funding**

This utilises the existing EVAP funding and then the rest of the project is funded 50/50 between SCC and Salix through the CGF. The SCC share will still need to be funded by borrowing so financing costs are again included based on the 25 year PWLB borrowing rates but the principal amount to be borrowed is reduced. Under this funding arrangement the financial savings generated must be repaid into the CGF until the original capital outlay has been reimbursed. The repayments into the fund are based on the Salix project criteria and can be paid at a rate of 75% of the saving generated until the original outlay is covered. Based on this 25% of the saving can be applied to the general fund from the start of the project. Once the initial outlay has been repaid back the full saving benefit is applied to SCC. The repayment into the fund is based on notional saving agreed under Salix funding criteria, the actual saving generated can be higher which would have a positive effect on the general fund position or could be lower. To mitigate the potential for savings to be lower the savings agreed with Salix will be the minimum allowed under their funding criteria and no future cost inflation has been incorporated into future years. This mitigates the potential of future year costs being overstated and therefore the potential savings inflated. Under this option the payback period including financing costs and repairs & maintenance is 15 years.

	2021/22	2022/23	2023/24	2024/25	2025/26	5 year total	25 year total
	£	£	£	£	£	£	£
Savings	-59,553	-119,106	-119,106	-119,106	-119,106	-535,978	-2,406,765
Financing costs	10,518	21,037	21,037	21,037	21,037	94,665	525,916
Repairs & Maint.		3,623	5,268	5,268	5,268	19,427	93,805
<b>Net saving</b>	<b>-49,035</b>	<b>-94,447</b>	<b>-92,802</b>	<b>-92,802</b>	<b>-92,802</b>	<b>-421,887</b>	<b>-1,787,044</b>
Repayments into CGF		73,670	73,670	73,670	73,670	294,678	1,173,404
Savings from recycled projects		0	-3,019	-5,919	-8,819	-17,757	-544,474
<b>Total net saving</b>	<b>-49,035</b>	<b>-20,777</b>	<b>-22,151</b>	<b>-25,051</b>	<b>-27,951</b>	<b>-144,966</b>	<b>-1,158,114</b>

**Table 12 – Option 2 revenue impacts**

Under this arrangement the repayments into the CGF reduce the annual net saving in the early years of the model compared to option 1. However, the benefit of using the CGF is that the repayments into the fund can then be used to fund further measures that will create additional savings. Also, the financing costs are lower so in later years the net savings are higher once the repayments finish.

In table 9 the benefit of using the repayments to fund further measures has been estimated based on net savings being generated in the same proportion to capital outlay as the measures proposed under phase 1. These projects will be funded out of the savings from the previous projects, therefore no additional borrowing would be required. If the first 7 years of repayments are used to fund additional projects in the following financial year, over the 25 year period the net saving is greater under option two and will increase as the repayments from year 8 onwards are invested in subsequent projects.

### **Analysis of the two options**

Under option 1 the net saving generated is higher in the early years of the project as the financial arrangement benefits from not having to repay the initial capital outlay into the CGF. In option 1 the repayment of the original capital is incorporated into the figures through the MRP charge as part of the financing costs, but that is spread over the duration of the borrowing rather than needing to be repaid as soon as possible under the CGF model. The benefit of the proposed option 2 clean growth model is felt in later years. The match funding provided by Salix is interest free which reduces annual financing costs. This has a positive benefit once the repayments to the fund have been made. Also, the repayments can then be used to fund additional projects generating additional savings. It is estimated under the CGF model that the net saving to the general fund is higher from year 8 onwards.

If SCC decide after 5 years that it wishes to cease the CGF with Salix Finance then the match funded proportion would need to be repaid to Salix interest free over a 5 year period.

### **Electric Vehicle Action Plan (EVAP) Funding**

Table 7 shows the minimum total funding requested from Salix directly including the £200k grant from the EVAP fund.

SCC has a defined capital budget to deliver infrastructure for electric vehicle recharging both by members of the public, in our car parking assets, and at our own depots to serve the growing needs of the Councils' own fleet.

This programme of work is known as the Electric Vehicle Action Plan or EVAP for short. £200k of the EVAP budget has been ringfenced for the purpose of supplementing the Clean Growth Fund to enable the delivery of low carbon power generated by solar PV and backed up by battery storage to supply EV chargers within the CGF phase 1.

Due to the CGF project obtaining £200k EVAP funding there is scope to include battery storage that wouldn't ordinarily comply with Salix criteria as it is not classified as an energy reduction technology.

Battery storage will be used to shift electrical loads taken either from the solar PV generated power or power charged using cheaper night time electricity prices, to be used when electricity costs are higher e.g. during daytime and evenings. This load shifting will enable greater savings and improved management of grid based electrical demand.

Contingency has been added to all technology measures as initial costs have not been able to be provided based on site assessed contractor quotes due to Covid19. Therefore, the costs used are the indicative maximum expected costs for the delivery of each project provided by the Npower consultants, suppliers, historical costs or the University of Southampton solar expert. Once the procurement process has been completed the business case figures will be updated with actual costs for delivery.

### **Applied for additional funding and grant funding opportunities**

An application has been submitted the council for Low Carbon Across the South East (LoCASE) 4 - Public Sector Buildings & Low Carbon Strategies ERDF funding. The £200k funding application to integrate further investment into phase 1 CGF was submitted March 2020 and informally approved pre lockdown. Formal approval of a successful application is now not likely to be provided until mid-autumn due to Covid19.

There is also scope to utilise additional funding under the **Public Sector Decarbonisation Grant Scheme** announced in September 2020, to help deliver additional grant funds for phase 1 and phase 2.

The Department for Business, Energy and Industrial Strategy (BEIS) has launched the Public Sector Decarbonisation Scheme which will be delivered by Salix.

The Grant Scheme will offer £1bn of grant funding which encourages green investment and supports the Government's net zero and clean growth goals.

The funding will be available for capital energy efficiency and heat decarbonisation projects within public sector non-domestic buildings.

The scheme allows SCC to apply for a grant to finance up to 100% of the costs of capital energy-saving projects that meet the scheme criteria. All existing proposed works will be assessed for their viability of being funded by the grant and if suitable will be included within the application.

The energy manager is currently coordinating work to develop an application for grant scheme funding of both eligible technology within phase 1 and the phase 2 programme.

SCC also plan to utilise the [Public Sector Low Carbon Skills Fund](#), which provide grants to help all eligible public sector bodies to source specialist and expert advice to identify and develop energy efficiency and low carbon heat upgrade projects for non-domestic buildings, before preparing robust and effective applications to the Grant Scheme. Through this grant SCC will be able to secure resources to develop a heat decarbonisation plan and work programme.

More information on the grants will be provided via the briefing and governance process on an ongoing basis.

### **Ongoing maintenance costs**

Costs for maintenance has been included within the financial model where required. Maintenance costs for replacement or retrofitting technology such as the building management systems and lighting will be added to the existing Asset Management Repairs and Maintenance programme.

There is already budget and maintenance contracts covering the existing technology on site. Consultation with the Asset Management Team has clarified that existing contracts will be able to accommodate BMS and lighting technology. It is confirmed the new technology will reduce both planned and reactive maintenance due to warranty periods and newer technology replacing old.

The lighting will be covered by a minimum refund or replacement 5 year warranty.

Solar PV is an established technology that will require a maintenance regime and programme, which will be developed for the CGF and all existing solar installations. A specification for the delivery of an ongoing solar PV maintenance programme will be developed over the next 12 months to enable the Housing Operations team to undertake maintenance on an ongoing basis. This will be funded via the savings to be agreed once the annual costs are understood. Indicative industry standard ongoing maintenance costs of £10 per kWp installed per annum, excluding reactive maintenance, have been included to the financial model and will be recovered from the savings.

Battery technology will be maintained by the technology provider under a standard battery market 10 year warranty or as part of the project specification and final costs. Preventative maintenance can also be included to provide a belt and braces approach at an additional cost of circa £2k per annum based on proposed costs.



### Clean Growth Fund – Funding for Later Phases

This business case provides evidence to support the investment of £1.17M in phase 1 of the CGF. The full value of the project is potentially up to £20M based on the earmarked funding in the SCC Medium Term Financial Strategy and from discussions with Salix. Subject to the development of a separate business case, the current intention is for around £3M of this to fund an investment in LED Streetlighting which means there is around £17M potentially available for energy and carbon reduction measures over the next 5 years. Each future phase of the CGF will be subject to a business case and Cabinet approval for expenditure but the table below shows the potential financial model of the scheme. Committing to funding phase 1 through the CGF does not tie the Council into funding future phases through the CGF. Each phase can be assessed on its own merits as part of future business cases. This is again based on 75% of the savings generated being returned to the fund and then the built up recycling fund balance is used to part fund the future capital expenditure. Table 13 below provides the breakdown of the funding sources based on the modelled expenditure over 5 years, using the phase 1 breakdown projected forward.

	2021/22	2022/23	2023/24	2024/25	2025/26	5 year Total
	£	£	£	£	£	£
Capital expenditure	1,173,404	4,000,000	4,000,000	4,000,000	3,826,596	17,000,000
<b>Funded by</b>						
SCC PWLB borrowing	386,702	1,963,165	1,791,278	1,619,390	1,360,801	7,121,335
Salix loan funding	586,702	1,963,165	1,791,278	1,619,390	1,360,801	7,321,335
Recycling fund balance		73,670	417,445	761,220	1,104,995	2,357,329
EVAP – SCC held grant	200,000					200,000
	1,173,404	4,000,000	4,000,000	4,000,000	3,826,596	17,000,000

**Table 13 – CGF 5-year funding**

The table 14 below is indicative but shows the potential revenue impact of these future phases if savings are generated in the same proportion to capital expenditure as the measures in phase 1.

	2021/22	2022/23	2023/24	2024/25	2025/26	5 year Total	25 year total
	£	£	£	£	£	£	£
Savings	-59,553	-352,568	-819,491	-1,286,414	-1,743,216	-4,261,241	-39,737,940
Financing costs	10,518	74,435	176,469	268,977	349,602	880,002	9,658,863
Repayments into fund	0	73,670	423,862	774,054	1,124,246	2,395,832	17,000,000
Repairs & Maint.		3,623	19,471	40,123	60,774	123,991	1,548,808
Net saving	-49,035	-200,840	-199,689	-203,260	-208,593	-861,417	-11,530,269

**Table 14 – CGF 5-year revenue impacts**

The first four years of repayments into the fund are used as a source of funding to reduce the borrowing requirement for later phases. After that point the repayments into the fund can start to be used as a

source of funding for later projects. As this is recycling existing resources there are no additional financing costs so new projects can be undertaken where the net saving is proportionally greater.

## 11. Benefits realisation

### **Resource and post for monitoring and evaluation – Measurement and Verification.**

SCC need to obtain assurance that the investments made on energy efficiency or energy generation projects are achieved. These need to be accurately measured and other likely influences need to be continuously reviewed and assessed in order to fully understand the impacts on the investment return. The importance of effective monitoring and evaluation cannot be underestimated and is essential to enable successful delivery of the CGF and wider carbon reduction programme, to include staff training and improving energy management. By monitoring all sites and works greater savings are more likely to be achieved.

Part of the requirement SCC is to employ an officer internally (Energy Officer) to monitor and evaluate (via measurement and verification techniques) the programme as well as source additional funding to help in the identification of further measures. The Energy Officer post will be funded from the redeployed Energy Company Officer post, which can be diverted due to the closure of CitizEn Energy. The Director of Place at Place has approved using the existing Energy Company Officer post budget to fund the Energy Officer post and redeploy the existing staff to the position (in line with SCC redeployment rules).

The key to this role is to ensure that all estimated savings from the installation of the energy measures are delivered effectively alongside the added value management based savings. This could include but not exclusively cover:

1. Site energy consumption and evaluation. Reporting savings versus estimates and ongoing annual reporting for CGF and Green City Charter commitments.
2. Performance and monitoring of specific installed technology - to understand operational benefits or risks of specific technology i.e. if technology performs better or worse than expected and why.
3. Use the results of the monitoring to work with Property and other service areas to ensure technology operates to its maximum environmental, service and energy benefits.
4. Organisation of staff training
5. Set up and monitoring of revenue savings to cover maintenance and recycling back into the fund. This will also cover reporting of savings over and above those required for maintenance and recycling.

**Monitoring and evaluation (measurement and verification) methodology** - All energy (electricity, gas and geothermal district energy) data is recorded using Systems Link Energy Manager (SL) software. Data used to calculate savings potential has been taken from monthly billing reports from Systems Link. Half hourly electricity data has been used to model savings, solar PV power consumption and battery analysis at the sites.

There is more than 10 years of historical data for all sites.

Ongoing monitoring will be undertaken using the SL software reporting using both invoice and half hourly electricity data (where available). Savings will be corrected using degree day data where required and updated carbon grid factors.

An audit methodology will be agreed for the entire Clean Growth Fund programme, using 2019/20 as the baseline year, to ensure transparency with both internal and external stakeholders. Annual reporting of performance against the zero carbon commitment will be undertaken, which will include successes and lessons learnt.

The energy team will utilise monitoring data to ensure that the measures deliver the estimated savings and if not understand; why not. Other energy management measures such as awareness and more detailed technical training will also be delivered as part of the CGF. Savings from these energy management measures are difficult to quantify, so they haven't been included here, but it is hoped this will provide added value and a buffer if measures do not deliver on the original estimates.

SCC are also working with Southampton University to set up a Green City Charter Tracker and a Carbon Action Planning Tool that will help monitor the performance of the separate commitments made by the council including the net zero carbon commitment to 2030. The energy team will report all measures delivered under the CGF / Salix works. This tracker will be submitted annually and then audited by the university before being publicly reported annually. The first years Tracker report was received September 2021 then subsequent years in June to September.

#### **Additional opportunities of the CGF**

As there is scope to increase the council's renewable electricity generation through the CGF, the council will be able to:

- utilise solar PV generated power on each site to reduce reliance on high cost grid power
- export or share generated power (via a sleeving arrangement or power purchase agreement) over the grid to enable other council sites to offset standard grid power consumption (buy back).

An example of this is Marlands MSCP in phase 1 of the CGF. The aim is to supply most, if not all, Marlands MSCP site electricity consumption via solar PV generated power and battery storage, which would mean the site is almost self-sufficient or zero carbon in power terms. Marlands MSCP will be used as the case study to understand the potential revenue benefits for the site and wider electricity consumption across the council non-housing estate. Therefore the solar capacity delivered under phase 1 will maximise immediate benefit but also future proof the site to enable further solar to be installed easily at a later date as and when it becomes financially viable to upscale power generation and therefore offsetting power costs at another site or earning additional income.

Analysis of this opportunity has been undertaken with our existing electricity provider (Npower) and the South West Energy Hub. SCC would need a specific minimum 300 MWh of excess renewable generated electricity through the summer pricing period to make this cost effective. Revenue savings will be gained by supplying cheaper grid electricity to other council sites using this method; therefore, it's likely there

would be the business case to over generate power from solar PV on future CGF phases. Until there is excess capacity to enable buy back across the grid, any exported power will utilise the existing smart export guarantee tariff to earn an income. This currently ranges from 3-5.5p/kWh electricity exported.

Phase 1 maximises the onsite consumption of solar generated electricity; however, there could be scope to oversize solar capacity or future proof installations to enable a surplus of electricity generation, via solar, this would allow the offset of sites consumption where on site energy efficiency and renewable measures would not achieve net zero carbon. This means site like the civic centre could achieve zero carbon from electricity generated at another SCC asset. Battery storage has been included to enable the maximum power from PV to be used on site during peak time hours when power prices are at their highest.

## **12. CGF Governance**

The Phase 1 CGF project governance reporting process will be integrated within the existing Green City Charter governance process under the sustainable energy and carbon reduction remit, this project will be monitored using the new corporate project management system once fully operational in 2020. The project will use the Association of Project Management methodology. Regular monitoring will take the form of highlight reports which will be reviewed by the Green City Board.

The Clean Growth project team led by the Energy Manager will be responsible for the performance of the project and will:

- provide project documents, setup the project, lead on investment grade audit administration and delivery, develop business cases and provide ongoing update and decision reports.
- administer an independently verified monitoring and performance process to scrutinise the impact of the measures installed
- manage the delivery of an annual report to detail cost and carbon savings achieved.
- propose remedial / alternative measures where the existing measures can't be delivered or do not deliver estimated savings. Changes will be dealt with via the weekly, monthly or quarterly governance meetings and recorded appropriately.
- report regularly to stakeholders at all levels within the Green City governance structure.

The project sponsor is Executive Director Place and the Cabinet Member is the portfolio lead for Green City and Place. The CGF sits under the responsibility of the Head of Property who will be updated as part of the monthly Green City governance meetings.

The Green City governance is covered within the Green City Programme Governance report and the structure is below.

The Green City Governance report and structure cover:

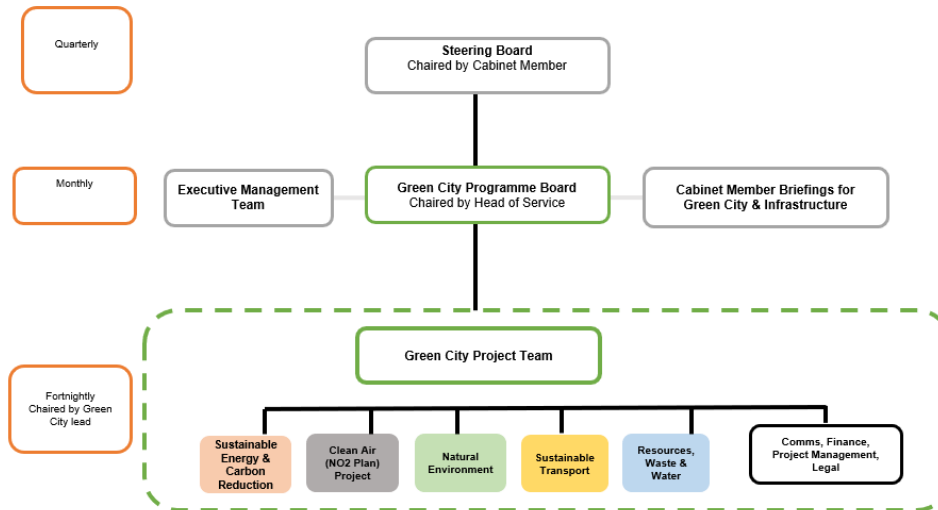
- Where the sustainable energy and carbon reduction along with the Clean Growth responsibility sits within the governance structure.

- How reporting and escalations are managed
- An overview of the governance meetings
- How RAG status and tolerances will be managed.

The roles and responsibilities along with the risk register and project plan for the CGF are managed separately and held with the CGF project folder.

Monthly project reporting will be presented to the monthly Green City Programme Board and the quarterly steering board. Project changes will be managed via the agreed governance structure and where required directly with the Head of Property. Any internal and external audit undertaken will be reported via the proposed structure.

## Green City Governance



### 13. Conclusion

The council has financially committed to the principles of CGF. Cabinet is being requested to approve the CGF project methodology and budget spend of the Phase 1 Clean Growth Fund budget.

This document forms part of the Design stage and should be read in conjunction with other review stage documents, including the Cabinet paper requesting approval to spend on phase 1 (presented at 15<sup>th</sup> December Cabinet 2020).

#### Business Case approved by

Role / Board	Name	Date
Project Sponsor	Kate Martin	
Finance Business Partner	Jon Evans	4 <sup>th</sup> November 2020

## Appendix 1 – Existing Salix Energy Efficiency Scheme Recycling Fund

### Salix Energy Efficiency Programme – Background

1. [Salix Finance Ltd](#) is an independent, publicly funded company, dedicated to providing the public sector with loans for energy efficiency projects.
2. It provides interest-free Government funding to the public sector to improve energy efficiency, reduce carbon emissions and lower energy bills.
3. Salix is funded by the Department for Business, Energy and Industrial Strategy, the Department for Education, the Welsh Government and the Scottish Government and was established in 2004.
4. Its purpose is to accelerate investment by public sector bodies in energy efficiency technologies through invest to save schemes.
5. Salix currently has 117 Recycling Fund partner organisations, including local authorities, higher education institutions, emergency services and the NHS.
6. The Salix national fund has financed thousands of projects, worth more than £360 million.
7. On average, projects have realised a payback of 3.7 years.
8. Southampton City Council's (SCC) participation in the Salix Programme was agreed at Cabinet on 16<sup>th</sup> October 2006. At a follow on meeting on the 22<sup>nd</sup> January 2007, Cabinet agreed the changes to the Environment and Transport Capital programme, which were required to establish the revolving fund through which the Salix match funding and City Council Capital funding operates.
9. Salix Finance provided SCC with £204k, which was match funded by SCC. Thus providing a total recycling (invest to save) fund of £408k. Ordinarily all savings estimated as part of the Salix sign off process would be reinvested back into further energy efficiency measures that meet the Salix compliance criteria; therefore, the SCC Salix programme is a revolving fund that is re-invested in energy efficiency measures that meet the stringent criteria laid down by Salix.
10. The contract with Salix dated 2 November 2006 states that any savings from energy efficiency projects shall be used to fully pay back the project costs into the local fund for use on further energy efficiency projects. Failure to do this will result in SCC having to repay the £204k match funding to Salix.
11. Jason Taylor – SCC Corporate Energy Manager administers the loan fund.
12. SCC's Salix programme has formed an important part of the overall carbon reduction delivery programme.
13. In 2011 the SCC Finance Director stated that the programme would be financed by the corporate centre rather than recovering savings direct from service areas revenue budgets i.e. that corporate finance would reimburse the Salix fund annually in April, which is currently £100k per annum. This amount covers the required fund recycling conditions.

**Summary of programme benefits**

A wide range of energy efficiency measures have been installed within SCC corporate buildings and schools. These include combined heat and power at Bitterne Leisure Centre, LED lamp replacement of traffic lights, internal and external building LED lighting, insulation, heating and hot water bier replacements and control of plant improvements such as building management systems.

The table below shows a summary of the financial and carbon savings achieved to date from delivering the SCC Salix Energy Efficiency programme.

Loan Value – SCC Salix Spend	Total Annual £ Saved	Total Annual CO <sub>2</sub> Savings Tonnes	Tech Payback Years	Total Lifetime Savings	Total Lifetime CO <sub>2</sub> Savings
£1,197,308	£291,507	1,632	4.1	£5,008,653	28,438

**Table 1 – Total combined annual cost and benefits and lifetime saving**

**Salix energy efficiency project delivery methodology**

- An energy efficiency audit is undertaken, and relevant measures are identified. The service area agrees to an energy efficiency measure.
- The measures are put through the Salix compliance tool (excel) to ensure compliance to the 10 year financial payback on investment and the cost per tonne of CO<sub>2</sub> saving delivered over the technology lifetime of £383. Therefore both financial and environmental compliance criteria need to be met for each project.
- Previously the cost of delivering each measure was repaid in full by the site or service area from savings in energy costs (at a rate of 75% to 100% of the annual savings).
- However, in 2011 it was agreed that all centrally funded service areas i.e. leisure, Civic Buildings and social services sites will keep the savings from the measures installed and the loan will be repaid centrally.
- Schools have not been able to access the recycling fund since 2011 when the changes to repayments into the fund were made.

**Example – based on actual SCC project Salix recycling fund principles**

- A Salix loan of £51,688 is made to Civic Buildings to implement a range of measures in the main administrative buildings. The implemented measures are estimated to achieve £20,025 a year saving in energy related costs. No repayments are required as the loan is paid off as part of the annual corporate finance £100k in the following financial year.

**Example – based on standard Salix recycling fund principles**

- Pre 2011 the recycling fund operated like an internal Salix loan scheme to service areas or schools. Once the project was commissioned the cost of the project was then recycled / repaid back into the fund annually via a central journal from each service areas budget at end of year. The annual amount recovered from each service area was based on either an agreed 75% or



100% of the annual saving estimates used within the compliance sign off process i.e. using the pre project estimated achievable savings used to ensure Salix compliance.

- Actual project - £11,970 is made to St Annes Catholic School to implement a range of heating improvement measures in 2008. These measures are estimated to achieve £3,231 a year saving in energy related costs, which gives a 4 year payback on investment. 100% of the total loan is required to be paid back based on 75% to 100% of the annual savings. As the table below shows.

Repayment No	Financial Year	Amount 100% pa	Amount 75% pa	Annual Difference
1	2013/14	£3,231	£2,423.25	£807.75
2	2014/15	£3,231	£2,423.25	£807.75
3	2015/16	£3,231	£2,423.25	£807.75
4	2016/17	£2,277	£2,423.25	-£146.25
			£2,277.00	-£2,277.00
<b>Total</b>		<b>£11,970</b>	<b>£11,970</b>	<b>£0</b>

**Table 2 – St Annes Catholic School Salix Loan Repayment - based on 100% or 75% of total annual saving**

**What decision needs to be made by the Site?**

- Agreement in principle that the site or service area accept the energy efficiency projects to be implemented through the Salix Energy Efficiency Programme. A commitment form is required to be signed for audit purposes.

## Appendix 2 – Closure of SCC’s Existing Salix Energy Efficiency Scheme

The existing Salix Recycling Fund managed by the council since 2006 and the new CGF (officially called Salix Decarbonisation Fund (SDF) by Salix Finance Ltd), are different funding models and have separate Terms and Conditions.

Salix are not able to open new Recycling Funds (i.e. SCC’s existing fund) or add new funds to the amounts to existing recycling funds. In addition, the Recycling Funds are established under a conditional grant agreement, but the CGF is based on a loan model with a 5 year fixed term (which can be extended if the funding is being well utilised). Therefore the Terms & Conditions SCC will agree with Salix cover a 5 year investment period.

Therefore, closing the existing Salix fund would be the most likely option. How this will work has been outlined below.

To close the fund £204,000 would need to be repaid back to Salix. There is currently £519,389.26 ‘cash in the account’ reported on SERS (the Salix recycling fund online tool). The actual cash backing for the fund held by SCC was utilised as part of capital financing for the wider 2019/20 capital programme to minimise the overall borrowing requirement at the end of the year. There is an existing service revenue budget of £100K per year to recognise the savings that have been generated on past delivered measures and to ease the administrative burden of arranging the repayments into the recycling fund from services across the Council. It is proposed to carry forward the £100K from the 2020/21 budget and combine with the contribution in 2021/22 to generate the £204K worth of funding that would need to be repaid to Salix. The repayment would be made by BACS and the Salix finance team would provide their payment details. As all of the projects on the existing scheme are complete there are no project details to tie up.

Then the new agreement for the SDF would need to be signed and the new SERS account opened. The previous RF SERS would be closed.

It is recommended the existing fund is formally closed once formal approval on phase 1 is provided and the CGF is operational.

The following provides financial details of the existing fund and outstanding repayments:

### **Current Fund details (as of 15/10/20) on SERS the Salix online financial and reporting database:**

**Fund Size:** £575,045 (Salix Funding £204,000 / Original Client Matched Funding £204,000 & Additional client contribution £112,281.34)

**Current Cash in account:** Main Fund £352,344.33, Client Additional Fund £167,044.93  
TOTAL £519,389.26

**Outstanding repayments:** Main Fund £44,456.34

10 payment(s) due. Value: £44,456.34

Project ID	Project Title	Applicant	Amount £	Due On	Status	
CSOU03P120	Tudor House LED	Southampton City Council	2,462.61	01/03/2021	Outstanding	<a href="#">Confirm Re-payment</a>
CSOU03P134	Art Gallery - Civic Centre LED Lighting	Admin Buildings	6,221.78	31/03/2021	Outstanding	<a href="#">Confirm Re-payment</a>
CSOU03P131	Civic External Lighting to LED	Southampton City Council	3,388.94	30/04/2021	Outstanding	<a href="#">Confirm Re-payment</a>
CSOU03P134	Art Gallery - Civic Centre LED Lighting	Admin Buildings	6,221.78	31/03/2022	Outstanding	<a href="#">Confirm Re-payment</a>
CSOU03P131	Civic External Lighting to LED	Southampton City Council	3,388.94	30/04/2022	Outstanding	<a href="#">Confirm Re-payment</a>
CSOU03P134	Art Gallery - Civic Centre LED Lighting	Admin Buildings	6,221.78	31/03/2023	Outstanding	<a href="#">Confirm Re-payment</a>
CSOU03P131	Civic External Lighting to LED	Southampton City Council	215.85	30/04/2023	Outstanding	<a href="#">Confirm Re-payment</a>
CSOU03P134	Art Gallery - Civic Centre LED Lighting	Admin Buildings	6,221.78	31/03/2024	Outstanding	<a href="#">Confirm Re-payment</a>
CSOU03P134	Art Gallery - Civic Centre LED Lighting	Admin Buildings	6,221.78	31/03/2025	Outstanding	<a href="#">Confirm Re-payment</a>
CSOU03P134	Art Gallery - Civic Centre LED Lighting	Admin Buildings	3,891.10	31/03/2026	Outstanding	<a href="#">Confirm Re-payment</a>