

LONDON BOROUGH OF RICHMOND UPON THAMES

REPORT TO: Finance, Policy and Resources Committee

DATE: 28th June 2021

REPORT OF: Director of Housing and Regeneration

TITLE OF DECISION Decarbonisation of Operational Buildings Update

WARDS: All

KEY DECISION? YES

IF YES, IN FORWARD PLAN? YES

For general release

GLOSSARY

BCCS	Bioenergy with carbon capture and storage
BEMS	Building Energy Management System
CPD	Continuing Professional Development
DACCS	Direct air carbon capture and storage
DEC	Display energy certificate
GHG	Greenhouse gas
GIA	Gross internal area
HVAC	Heating, ventilation, and air conditioning
kWh	Kilowatt hours
MFD	Multi-function printer
RCES	Richmond Climate Emergency Strategy
RIBA	Royal Institute of British Architects
SEG	Smart export guarantee
Solar PV	Solar Photovoltaics
tCO ₂	Tonne of carbon dioxide
UKGBC	UK Green Building Council

1. MATTER FOR CONSIDERATION

- 1.1 This report provides an update on progress on decarbonisation of the operational portfolio, highlighting actions delivered and progress made to date.
- 1.2 The proposed programme of work for carbon reduction emissions for Richmond Council as an organisation.

2. RECOMMENDATIONS

- 2.1 Note this update report on decarbonisation of the operational portfolio and other sustainability activities to reduce the environmental impact of Council operations.
- 2.2 Approve new additions to the capital programme of £1.03 million in 2021/22 for the Phase 1 projects as set out within this report.

3. BACKGROUND

- 3.1 In July 2019 Richmond Council declared a climate emergency and in February 2020 agreed the Richmond Climate Emergency Strategy (RCES). A key commitment in this Strategy is for the Council's operations to be carbon neutral by 2030. Achieving this challenging target by 2030 means that no fossil fuels should be used in the operation of any Council buildings. Where this is not possible and some emissions from fossil fuels remain, any residual emissions must be 'offset'. Offsetting is a last resort and the cost of offsetting is highly likely to increase year-on-year as we approach and go beyond 2030 as all local authorities and private sector companies will look to offset any remaining emissions.
- 3.2 Achieving the Council's 2030 target therefore requires action to be taken to reduce emissions from buildings. To deliver this challenging target a Decarbonisation Strategy was agreed by the Finance, Policy and Resources Committee in November 2020. Following agreement of this strategy detailed work, including feasibility studies, have been undertaken to identify the precise works which are required to each building to reduce their emissions. This work was funded using external grant from the Low Carbon Skills Fund. The results of these audits have informed the individual plans set out in this paper.
- 3.3 Reducing the overall energy demand required to operate the buildings will be an essential component of achieving reduction and established improvements will include efficient fabric, natural daylighting to reduce artificial lighting demand, natural ventilation to reduce heating, ventilation, and air conditioning (HVAC) demand and appropriate sizing of building systems to limit over-engineering. Increasing the energy efficiency of the building systems such as HVAC, lighting as well as essential energy management will ensure that consumption remains low by the implementation of smart energy/building management systems, managing occupant behaviour and increasing building user awareness thus ensure that the Council can take remedial action as required.
- 3.4 The National Grid's future energy scenarios are based on projections in line with the national target, but the actions they produce show what will need to be achieved to reach net zero by 2030. Particular emphasis will be placed on driving innovation to secure efficiency improvements and cost reductions and exploring innovative finance and service models. All scenarios and pathways are not set in stone, they are subject to annual review as new data, science and technology emerges to help reduce emissions which will be at the heart of the Council's decarbonisation plans as they develop.

PROGRESS TO DATE

- 3.6 There have been a number of significant achievements over the last 12 months which have progressed the decarbonisation of the Council's buildings.

Funding

- 3.7 The Council successfully bid for £130,000 from the Low Carbon Skills Fund. This was designed to help public sector bodies to source specialist and expert advice to identify and develop energy efficiency and low carbon heat upgrade projects for the Public Sector Decarbonisation Scheme (PSDS). The fund facilitated feasibility studies for around 90 projects across the top consuming sites in the November 2020

paper.

- 3.8 An application to the PSDS secured a further £200,000 of funding to deliver several projects which include building energy management system (BEMS) upgrades, LED lighting installation, heating and cooling control improvements and insulation upgrades across 18 top consuming sites.

Projects- works have commenced to various sites

- 3.9 The Civic Centre lighting replacement has been tendered and is scheduled to start in Q1 2021. The works are to replace the existing linear and modular florescent lighting with LED energy saving lights and lighting control system. This will mean that the lights in the Civic Centre will no longer be left on for longer than necessary including during out of hours and will be generally more energy efficient.
- 3.10 There has been a review of the installation of any new gas boilers as standard from April 2021 with a review of all scheduled works and switch to low carbon heat (e.g. heat pumps) where possible. Moving forward, robust assessments of technologies will be undertaken, and where it is not possible to install a low carbon heat source, a business case will be documented. This will be added to a register held with the Sustainability Team that will be subject to regular review and update as new technologies emerge.
- 3.11 Facilities Management operations have rolled out energy efficient multifunctional device printers (MFDs). Replacing individual printers with MFDs reduces energy usage and floor space and intelligent printing reduces waste of printing paper and ink cartridges thus having a positive environmental impact.
- 3.12 New recycling stations across the core sites in the portfolio have been installed. These will make recycling more convenient in many offices by placing clearly marked collection bins in convenient locations. This will increase the recycling taking place across Council buildings.
- 3.13 Consultants will be commissioned to deliver energy audits to the remaining sites in the operational portfolio which will provide a more detailed depiction of the works required across the entire portfolio to achieve net zero carbon and start accurate trajectory projections which will illustrate the proposed upgrades and tentative costs and carbons savings associated with achieving net zero per building.
- 3.14 A Sustainable Schools Framework is being developed that aims to embed sustainability and learning about energy efficiency and carbon reduction throughout the school via membership of the Framework which will offer support and advice for schools soft and hard measures. The Council has provided £122,000 funding through the Climate Change Fund to deliver energy audits and project feasibilities to all Council maintained schools in the borough. The projects identified will help inform a more holistic approach to sustainability and more informed project selection during the school capital works programme and will allow the Council to make grant applications for carbon reduction projects from government funding for schools where possible. Each school benefits from a plan that sets out what improvements are required for the school buildings to be net zero.

Operations

- 3.16 Provision of the energy management services has been outsourced to Laser who now provide comprehensive bill validation, cross referencing of all bills invoiced over £10,000, assistance with smart metering and smart data applications. The services

provided by the team will be further reviewed as part of the Facilities Management Service review to facilitate the best service to deliver decarbonisation and sustainability programmes to the Council. This enables the Council to understand energy use in more detail and therefore assess how to manage energy and utilise storage options.

- 3.17 A campaign to change behaviour around energy use began by updating internal communications encouraging staff to turn off equipment at night and use natural light to illuminate the office where possible etc. There will be further communications developed around waste management, which can be tied into the plans being developed for agile working and the return of more staff to the office along with other measures as we start to emerge from lock down restrictions over the coming months.
- 3.18 The Council's waste and recycling approach for operational buildings has been improved with development of an Office Waste Strategy alongside a plan to minimise single use plastics across Council buildings. The office stationery supply options have been reviewed to ensure that colleagues are aware of and are making use of more sustainable options with removal of single use items.
- 3.19 To achieve the ambitious net zero carbon target, it is crucial to understand current energy use consistently and track its evolution over time. A sustainability project tracking database that will help track and measure the success of the projects delivered across the operational portfolio and plot the net zero trajectory has been commissioned.
- 3.20 The Facilities Management Team, working with officers in Property Services, have established a standard scope of works for decarbonisation projects and a review of all outstanding capital works to ensure all works delivered will consider carbon emissions. All boiler replacement works and other works that deliver carbon savings will be signed off by the Sustainability Manager and Head of Facilities Management to ensure that all projects deliver adequate carbon and financial savings and provide optimum contribution to the emissions trajectory.
- 3.21 Information workshops on the RCES and the implications for operational buildings have been hosted for all teams in Property Services. These are designed to help each Service Area manage the environmental impacts and ensure operations and policies are in line with the Strategy.

BASELINE AND TRAJECTORY

- 3.22 Figure 1 (below) illustrates the change in carbon emissions measured in tonnes of carbon dioxide (tCO₂) for operational buildings between 2017/18 to 2019/20. Over this period, there has been a 6% reduction for Scope 1 emissions, which reflects the emissions from gas and other fuel use, and a 29% reduction in Scope 2 emissions, which are the emissions associated with electricity use. The graph shows 2017/18 to 2018/19 being the most successful year for tCO₂ reduction as Scope 2 consumption dropped by 18%. Following this, Scope 2 tCO₂ consumption dropped only by 14% between 2018/19 and 2019/20. Scope 1 indicates a slower decline over this period, as tCO₂ dropped by 4% in 2017/18, and 3% in 2018/19.

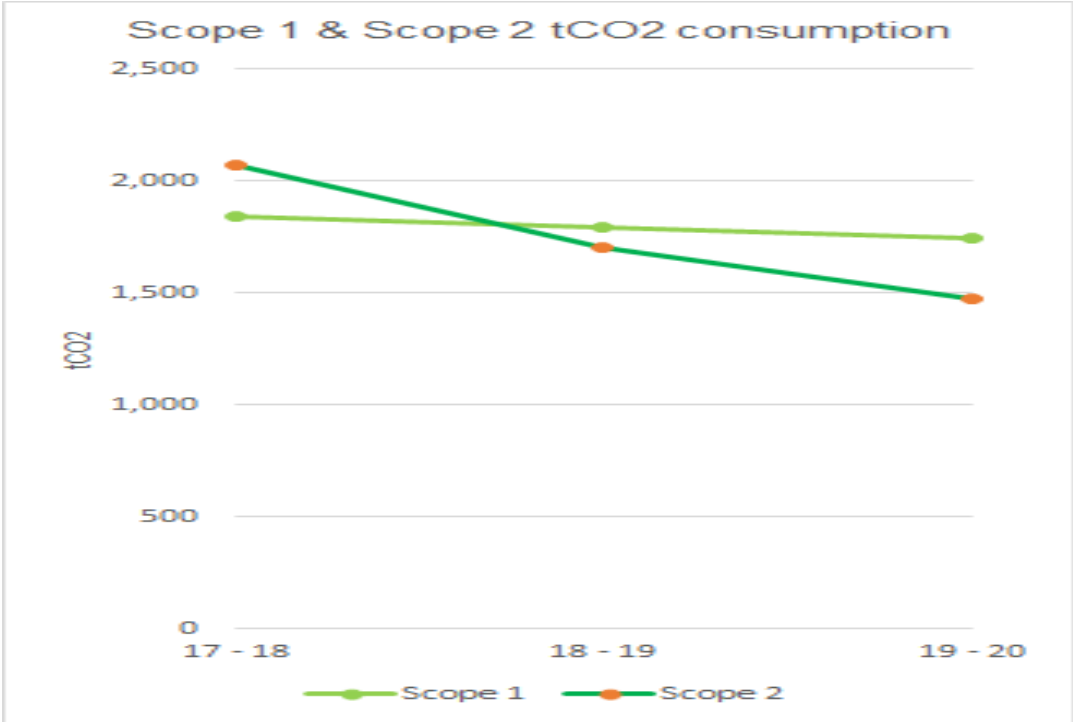


Figure 1

- 3.23 The Council has had to adjust to different ways of working over the last twelve months in response to the pandemic. This is likely to have an impact on how staff work within Council buildings in the future while looking to build on experiences of agile, hybrid and home working that have been more widely utilised for service delivery. The outcome of this is that the way in which the Council uses its buildings and office space is likely to change which could well mean a smaller office footprint and the use of touch down space in satellite buildings. These new ways of working are likely to play a part in reducing emissions from key office buildings.
- 3.24 Figure 2 illustrates the difference in Scope 1 and Scope 2 emissions during the initial nine months of lockdown due to COVID-19, compared to the same nine months the year before. Scope 1 kWh consumption dropped by 8% and Scope 2 dropped by 24%.

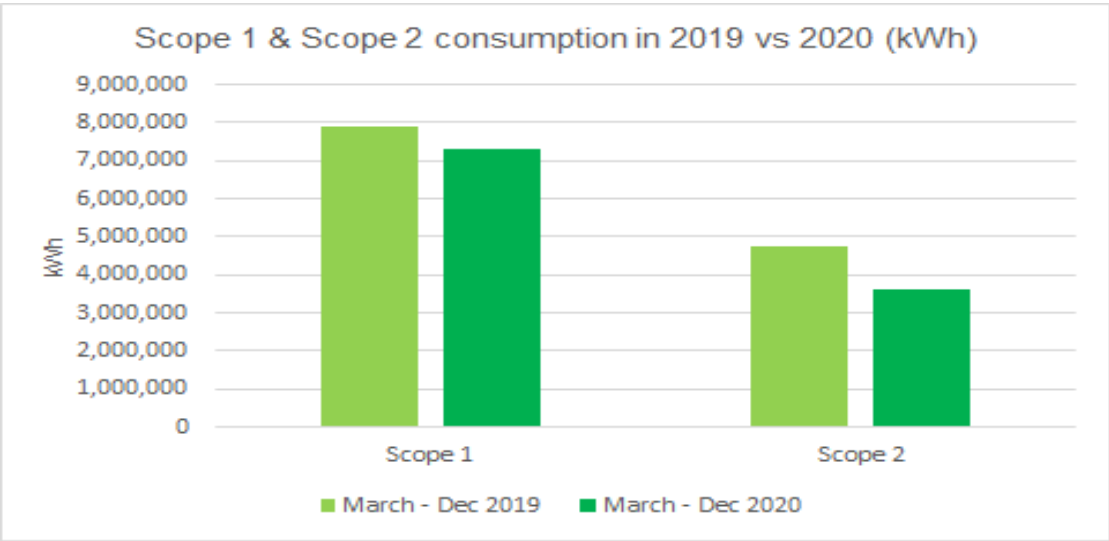


Figure 2

- 3.25 Overall, under the current ‘business as usual’ trajectory, it is estimated that by 2025 the Council’s direct control emissions would be approximately 9% lower than currently. Unfortunately, these emissions are still over four times higher than where the Council will need to be to achieve the required level of carbon reduction, minus the offset residual emissions to be zero carbon by 2030. Under the ‘project investment’ trajectory, it is estimated by 2025, the Councils direct emissions will be 41% lower than currently. While it is still over twice where the council would need to be, it is considerable progress to the path to net zero by 2030. The power sector is decarbonising at pace and is key to our trajectory, but this is not the case with the gas grid, where emissions change very little. To decarbonise Richmond’s buildings, the Council need to transition from gas to electrified forms of heating and make sure the electricity used is as clean as it possibly can be. While Council buildings will be unable to solely operate using onsite renewable generation (such as Solar PV’s), their addition where necessary will reduce the need to draw power from the grid, further improving sustainability.
- 3.26 The outcome-based approach to setting energy performance targets buildings recommends a display energy rating of B(40) to achieve Net Zero (typically measured from A-G) and 55kWh for net zero has been remodeled (shown below) to align with the Council 2030 Net Zero target and will be used to illustrate the trajectory to net zero.

		Interim Targets			Net Zero
		Year			
Scope	Metric	2021-2023	2023-2025	2025-2027	2027-2030
Whole building energy	kWhe/ m ² (GIA)/ year	130	90	70	55
	DEC rating	D90	C65	B50	B40
Building baseload energy	kWhe/ m ² (GIA) / year	70	55	45	30

- 3.27 The graph below illustrates the trajectory to achieve the milestones as per the framework. The average of the Council’s buildings current emissions performance is higher than the industry levels. If the Council projects are consistent over the decade, the expected outcome by 2030 will be considerably closer to the target. The ‘current path with no intervention’ forecasts the current rate of kWh/SQM, using data from 2017 – 2019. These forecasts are evolving with the availability of data, and future forecasting will encapsulate science-based emissions reduction tools.

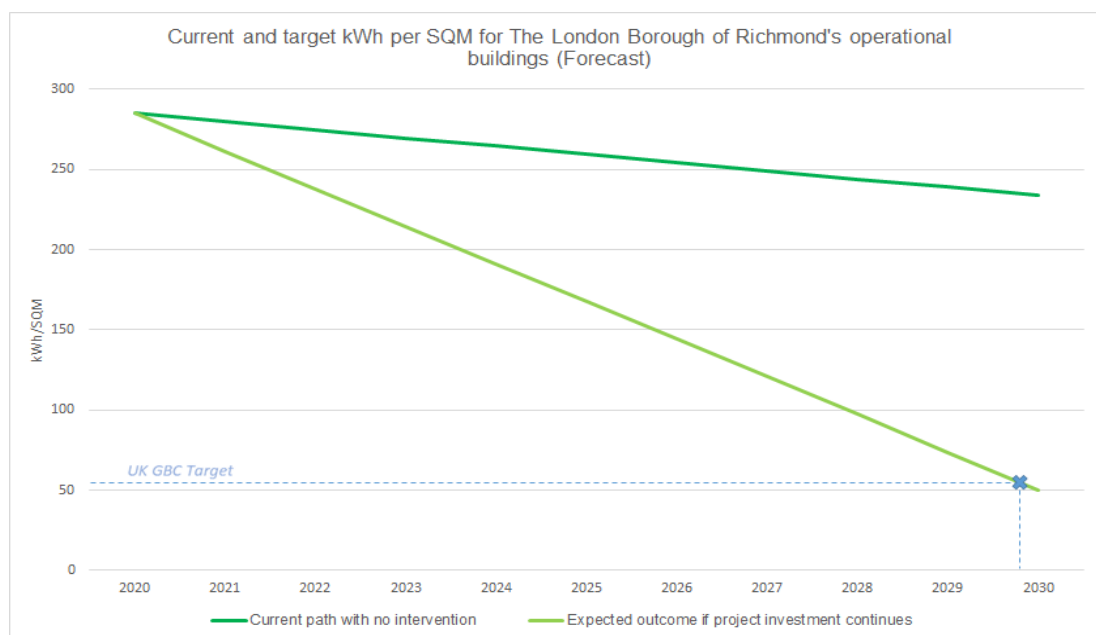


Figure 3

SUMMARY OF THE PROPOSED PROGRAMME OF WORKS

- 3.28 Emissions from buildings are also significant but spread over a large number of sites. The largest emitters are the Council's leisure centres and larger operational buildings such as the transport depot and larger offices. While there are over 64 sites in the portfolio, 10 buildings were responsible for 72% of the tCO₂ emissions from the operational portfolio (excluding street lighting and feeder pillars).
- 3.29 Outline energy audits previously undertaken to the property portfolio tentatively predicted a capital investment of approx. £1.5m. These high level energy audits did include for various interventions to mechanical and electrical plant and building fabric that would be required in order to reduce carbon emissions across the top consuming sites. However, these were early stage estimates and did not include for supporting infrastructure upgrades that will be required such as rewiring or power supply upgrades as well as associated building works and sufficient allowances for design & engineering, project management fees and contingency. This level of detail, while not sufficient for reaching a final decision on implementing proposed measures, is adequate to prioritise energy efficiency projects, identify areas of waste, projects that will provide quick wins and to identify and assess the need for a more detailed feasibility studies. The completed feasibility studies are more comprehensive in identifying the full scope of works required and include all professional services and design fees, project management costs and contingencies. The overall total level of capital investment is now estimated at £3.9 million. However, these costs are subject market testing via the procurement of contractors at the appropriate time.
- 3.30 The Council successfully bid for and received £130,000 from the Low Carbon Skills Fund (LCSF) to conduct comprehensive feasibility studies to confirm that the projects can deliver carbon savings. Approx. 100 feasibilities were conducted to a variety of sites with the scope including measures such as energy efficiency improvements and retrofitting of existing technology with particular emphasis on decarbonisation of heat and reducing waste which will allow faster and more efficient decarbonisation of the operational buildings. Moving forward, in line with the (UKGBC) Net Zero Carbon Buildings Framework recommendations, there will be a 'whole building' approach

developed and trajectory modelling and will allow for accommodating technology advancement such as battery storage and dynamic energy use and storage.

- 3.31 The four consultants procured to deliver the feasibilities via the LCSF have been appointed to provide professional consultancy services from Royal Institute of British Architects (RIBA) Stage 1- Stage 7 subject to Council approval. Further sustainability schemes will be delivered by the internal PMO team with Facilities Management and value managed to maximise economies of scale.
- 3.32 Projects have been shortlisted and prioritised by apportioning points based on two main measures carbon savings and efficiency and cost and have been awarded scores out of 100. The carbon cost effectiveness of a project measures cost-effectiveness in terms of the average cost of saving each tonne of carbon dioxide (equivalent). In addition to assessing projects against their carbon cost effectiveness, a further metric that was used is to score projects based on their lifetime carbon cost effectiveness which allows prioritisation of projects that deliver cost effective carbon savings over their lifecycle taking into account energy bill savings, technology operational costs and any income streams.
- 3.33 Details of the proposed phased works and scores are set out in Appendix A. It is recommended that all the projects proceed based on the estimates as set out. The total value of all the projects across the four-phase programme is £3.9m. It is recommended that the identified works are phased in a programme set out in Appendix A with the top scoring sixteen (16) projects shortlisted for funding with an expectation that they will be completed before March 2022. Projects in Phase 1 include insulation upgrades, installation of heating control, LED lighting and air source heat pumps to the top carbon emitting sites (such as Pools in the Park Civic Centre and Central Depot). The remaining projects valued at circa £3.4m will be delivered in further Phases over the next three years and be held in reserve and will be progressed should earlier funding become available via decarbonisation schemes. A summary of the financial, carbon and kWh savings are summarised in the table below.

	Savings		
	Annual savings (£)	kWh	tCO ₂
Phase 1	£98,695	782,483	42.4
Phase 2	£24,565	244,860	16
Phase 3	£14,926	131,517	13.7
Phase 4	£7,732	82,407	10.4
TOTAL	£145,918	1,241,267	82.5

- 3.34 The works outlined are necessary to reduce the carbon emissions from Council's operational buildings to as close to zero as possible. The Council, in common with most if not all other councils, does not have the necessary funds in reserve to upgrade its entire stock to the level required for net-zero. However, the programme of works has been designed so that as soon as external funding opportunities are published, the Council is ready and able to access that funding.
- 3.35 As part of delivery of the larger schemes the Council will explore using specialist contractors that have experience of these projects. Reporting on the progress of

decarbonisation scheme will be undertaken by Facilities Management alongside the annual Capital programme report.

EXISTING CAPITAL PROGRAMME

- 3.36 The Council also has an existing programme of capital investment and projects being delivered across its property portfolio these projects are designed and constructed to comply with planning policies around sustainability and utilising zero carbon and sustainable technologies. Works programmed to invest in and maintain buildings will be done so to support the Council's commitment to the reduction of emissions and climate change strategy.

OFFSETTING

- 3.37 Foregoing deep emissions cuts on the basis that net zero can be reached with carbon removals will require even more carbon removal capacity. Viable UK based options are limited, with options such as afforestation (the establishment of a forest or stand of trees) and soil carbon sequestration (a process in which CO₂ is removed from the atmosphere and stored in the soil carbon pool) are important, but they are limited in their potential scale
- 3.38 Current modelling suggests that if the Council follow the "current path with no intervention" line on Figure 3, by 2030, the Council will consume an estimated 17,000,000 kWh. While the 2030 carbon factor remains an unpredictable figure, based on the current cost of carbon (as charged to developers and secured through section 106), the Council's estimated offset payment will be £10.7m. This estimate is likely to be at the lower end as it is anticipated that price of carbon offsets will increase for a number of reasons including:
- Carbon-offsetting is not currently used across industry or local government and as such there remains some affordable off setting options which are highly unlikely to be unavailable in 2030.
 - The price of the carbon offset in Richmond, in line with the London Plan, has recently increased from £60 to £95 per tonne of carbon, and this price is likely to increase again. Other London boroughs already have an offset price of £104 per tonne.
 - In light of the Government's commitment to reduce emissions UK-wide by 78% by 2035 (against 1990 levels), it is likely that this or future Governments will introduce carbon pricing in sectors including the built environment.

FUNDING

- 3.39 The level of investment required is unlikely to be achieved without the need for additional funding and without access to external funding. On April 7th 2021, a further £75 million was to be released nationally as part of Phase 2 of the PSDS fund which opened to applications on April 11th, 2021. The objective of the Phase 2 PSDS is to support the transition to low carbon heating in public sector buildings, in addition to improving energy efficiency.
- 3.40 The scheme mandates that applications in this phase is limited to buildings currently using a fossil-fuelled heating system which must be coming to the end of its useful life. While the scheme is limiting, it is anticipated that an application will be submitted for all eligible low carbon heat projects.

- 3.41 Salix (who administer the scheme on behalf of the Department for Business, Energy & Industrial Strategy) have revealed that the current interest free loan mechanism will be withdrawn and there have been no details provided if another similar scheme will be made available. This limits the ability to use zero interest loans to deliver schemes in the immediate future.
- 3.42 In this regards it is proposed that the works set out in Phase 1 are funded via a combination of the Council's Carbon Offset Fund (funded from developer contributions through the planning process) the Climate Change Fund (Sept 2019 report to FPR Committee refers) as listed below.

Carbon Offset Fund	£15,000
Climate Change Fund	£1,015,000
Total	£1,030,000

- 3.43 Further works for the remaining schemes, as set out in Phases 2 to 4, will be approved subject to the confirmation of available funding. This could be met from within existing approved Climate Change Strategy (RCES) capital budgets, external grant funding subject to successful bids against new streams becoming available or following approval via the capital bids process.

CONCLUSION

- 3.44 If the Council is to achieve the net zero ambition for Corporate buildings, gas boiler systems will need to be replaced by a low carbon heat source. Buildings will have to be made more efficient – with at least EPC rating of B – through wall and roof insulation, energy efficient fittings such as LED lighting and the installation of renewables. Failure to take action to reduce emissions now will cost the Council £10,700,000 per annum to offset and more importantly the Council will be adversely impacting on the environment. This is part of an ongoing programme which will see the Council invest in a greener future.
- 3.45 Careful sequencing of the interventions to achieve energy demand reduction is important. Timing of interventions can be planned around factors such as plant replacement, refurbishment, leasing. The proposed projects will result in a notable decrease in the emissions from the portfolio and marked progress towards net zero. Sustainability analysis of all capital projects will become an essential component project shortlisting and selection to ensure projects deliver gains required to meet the Council's carbon target.

4. COMMENTS OF THE DIRECTOR OF RESOURCES ON THE FINANCIAL IMPLICATIONS

- 4.1 The Director of Resources comments that to achieve the Council's ambitious target of being a net zero carbon organisation by 2030 significant capital investment will be required in preparing and implementing energy efficiency projects in the short to medium term.
- 4.2 The report sets out a number of initiatives that will assist in achieving the net zero carbon target, estimated to cost a total of £3.952 million, as set out in Appendix A. It is proposed to split the works into four phases covering this and the following 3 financial years focusing on the highest-ranking projects first assessed and ranked by both financial and environmental savings. Considering the limited available resources some of the later phase projects will need to be reviewed to assess whether the

carbon and financial savings estimated justify the required level of investment when compared to other opportunities that come forward through emerging technologies. This relativity will be assessed via the Climate Change Steering Group prior to be recommended for approval.

- 4.3 Phase 1 is proposed as being funded from two separate sources. £1.015 million from the Climate Change Fund and a further £15,000 from the Council's Carbon Offset Fund.
- 4.4 In September 2019 the FPR Committee received an update on the Climate Change Fund. Essentially the objective of the Fund is to make funding available for energy efficiency projects and recycle the savings back into the Fund to re-establish the resource level for future re-investment. The Fund provides interest free 'loans' and is considered an 'invest to save' scheme. The outturn paper elsewhere on this agenda tops up the balance of the Fund from £552,000 to £1.567 million in order to prioritise the actions in this paper. The assumption remains that any energy efficiency savings delivered through this decarbonisation programme will continued to be recycled in back into the Fund with the amounts to be applied to the fund to be confirmed by the Facilities Management Team each year.
- 4.5 The Carbon Offset Fund is built up through developer contributions and is available for use on projects that decarbonise Council buildings. The current balance is minimal but is sufficient to cover the proposed £15,000 contribution. Whilst the balance is minimal there is a further £471,000 secured in planning agreements with no review mechanism and another £61,000 potentially secured where there is a review mechanism that could be available for use in future. The timing of these receipts are subject to trigger points within the development process so should only be committed once received.
- 4.6 In summary, the proposed funding is as follows:

Funding Stream	Opening balance	Proposed use	Closing balance	Comments
Carbon Offset Fund	£17,000	£15,000	£2,000	Topped up via Developer Contributions in Planning Agreements (S106). £470,000 secured in future agreements with another £61,000 potential subject to review.
Climate Change Fund	£1,567,000	£1,015,000	£552,000	Topped up via the annual recycling of Energy Savings (Sept 2019 report to FPR Committee refers).
Total		£1.03m		

- 4.8 The Phase 1 works are expected to deliver just under £100,000 per annum in energy efficiency savings so, on that basis, it will take a minimum of 10 years to reimburse the Fund from the Phase 1 use.
- 4.9 Whilst the use of the Council's Climate Change Fund has previously been delegated to the Assistant Director of Property Services in consultation with the Director of Resources and the chairs of the relevant committees (Sept 2019 report to FPR Committee refers) it is considered necessary to formally approve the addition of £1.03 million to the capital programme for 2021/22 at this time.
- 4.9 With regards funding later phases it is anticipated that, if approved, significant elements of this future work will be funded by seeking opportunities for external grant funding. In addition, this will be supplemented from existing approved Climate Change Strategy (RCES) capital budgets that remain available (which currently stand at £4 million of the total £6 million approved) any available resources in the Council's Climate Change Fund through the recycling of savings and any further build-up of the Council's Carbon Offset Fund. Beyond the full utilisation of all the aforementioned funding sources additional borrowing may be required.
- 4.10 Whilst the expected savings from energy efficiency measures are modest, noting that the projected annual savings from all the £3.952 million of efficiency works set out in the four proposed phases are £145,918 per annum (27 year payback based on energy savings alone), failure to meet the UK GBC target of 55 will lead to significant 'offsetting' payments in the future. As explained in para 3.41, these offsetting payments are current estimated at £10.7 million per annum to fully offset to net-zero but with the level of intervention works as proposed in this report, these offsetting payments could be reduced to £2.3 million per annum if all projects deliver the energy efficiency and carbon savings anticipated.

5. SUPPORTING THE RICHMOND CLIMATE EMERGENCY STRATEGY (RCES)

- 5.1 This paper provides an update on progress on the decarbonisation of the council buildings, which was outlined in the meeting of [November 2020] and is required under the RCES and its action plan - both the previous action plan and the refreshed action plan for 2021 approved at the 17th February 2021 meeting of [ESCS]. The paper highlights actions to be delivered in 2021 and beyond, includes how Richmond will reduce emissions from operational buildings and develop a pathway to net zero by 2030.

6. PROCUREMENT IMPLICATIONS

- 6.1 The Head of Procurement can confirm that all procurement activity associated with the contents of this paper will be undertaken in accordance with internal policies and procurement regulations.
- 6.2 All tollgate 1 scoping papers considered by the Procurement Board and associated Committee's makes specific reference to sustainability associated with the goods, works or services being procured.

7. COMMENTS OF THE SOUTH LONDON LEGAL PARTNERSHIP ON THE LEGAL IMPLICATIONS

- 7.1 In light of the climate emergency declared by the Council and in accordance with the general power of competence conferred by section 1 of the Localism act 2011, the Council is acting within its powers in adopting these measures. If any of the projects

which go forward requirement contracts to be entered into with third parties, those contracts should comply with the Council's Procurement Regulations.

8. CONSULTATION AND ENGAGEMENT

9. WIDER CORPORATE IMPLICATIONS

9.1 POLICY IMPLICATIONS / CONSIDERATIONS
The decarbonisation programme of works supports the Climate emergency strategy and commitment to Net Zero carbon.
9.2 RISK CONSIDERATIONS
Risk considerations to be highlighted if not picked up in Legal / Finance and Procurement Implications. Please confirm whether this item is on the risk register/ assessment.
9.3 EQUALITY IMPACT CONSIDERATIONS
EINA is attached at Appendix B.
9.4 ENVIRONMENTAL CONSIDERATIONS
Climate change and air pollution are two major environmental challenges that are linked because many of the underlying drivers are common. Reductions in emissions from Council operational buildings will result in reduction in pollutants that affect air quality.

10. BACKGROUND INFORMATION

11. BACKGROUND PAPERS

12. APPENDICES

Appendix A - Programme of works
Appendix B - EINA

13. CONTACTS

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Appendix A- Proposed programme of works

Phase 1- 2021/22

Site name	Description	Annual kWh savings	Annual tCO2 savings	Payback in years	Annual financial savings	Weighted score	Total cost (£)
Pools on the Park	Insulation upgrades to pipework	62,736	0.21	6	£3,137	96	£20,789
Pools on the Park	LED to all areas	50,000	0.52	10	£7,500	94	£76,905
Civic Centre	BMS system	143,150	0.52	1	£21,473	90	£32,512
Central Depot	LED lighting throughout	15,113	0.52	12	£2,267	86	£28,917
Hampton Youth Centre	Controls upgrade	21,176	0.21	4	£1,059	79	£5,018
Orleans House Gallery	Zonal controls to heating system	29,268	0.21	11	£1,463	75	£16,694
Orleans House Gallery	Underfloor heating	12,300	0.21	22	£615	73	£14,537
Heatham House Youth Centre	Single Heat Pump to outer building	77,154	0.21	15	£12,717	68	£66,119
Orleans House Gallery	Heat Pumps installation to Stables	84,778	0.52	23	£3,858	68	£91,285
Queens Road Hostel	Secondary glazing	47,591	8.75	12	£8,090	65	£99,163
Hampton Youth Centre	Insulation throughout	7,722	0.21	30	£386	64	£12,474
Richmond Library	Secondary glazing	39,442	7.25	11	£6,705	62	£76,402
42 York Street	Replace boilers with ASHP	108,404	9.9	13	£16,261	62	£226,243
Twickenham Library	Fabric improvements - Secondary glazing	30,829	5.67	15	£5,241	60	£80,815
Central Depot	Heat controls to office buildings	27,820	6.96	28	£3,750	59	£104,102
42 York Street	Lighting upgrade to LED	25,000	0.52	17	£4,173	59	£76,665
Totals		782,483	42.39	-	£98,695	-	£1,028,640

Phase 2- 2022/23

Site name	Description	Annual kWh savings	Annual tCO2 savings	Payback in years	Annual financial savings	Weighted score	Total cost (£)
Castelnau Library	Air Source Heat Pump	68,513	0.52	36	£3,426	57	£129,268
Hampton Wick Library	Insulation	7,401	1.85	29	£346	57	£10,942
Kew Library	LED to all areas	3,523	0.52	24	£1,012	55	£26,041
Whitton Community Centre	LED lighting throughout	32,187	0.21	31	£1,170	55	£38,796
Orleans House Gallery	LED lighting throughout	22,991	0.21	64	£289	54	£19,570
Twickenham Family Contact Centre	Air Source Heat Pump	5,483	1.37	28	£1,486	54	£43,829
Kew Library	Air Source Heat Pump	4,212	1.05	34	£2,023	54	£72,997
Heatham House Youth Centre	Insulation to main building	4,050	0.52	46	£1,488	53	£72,215
Hampton Library	LED to all areas	2,565	0.46	25	£1,012	52	£26,573
Castelnau Library	LED to all areas	8,500	0.21	28	£1,042	52	£30,793
Twickenham Library	Fabric improvements - Roof and glazed roof	1,926	0.52	54	£5,241	52	£288,550
Richmond Old Town Hall Library	Secondary glazing	2,916	0.73	42	£6,030	51	£260,507
Total		244,860	16.44	-	£24,565	-	£1,020,081

Phase 3- 2023/24

Site name	Description	Annual kWh savings	Annual tCO2 savings	Payback in years	Annual financial savings	Weighted score	Total cost (£)
Hampton Wick Library	Air Source Heat Pump	13,487	0.52	51	£800	50	£43,110
Hampton Library	Air Source Heat Pump	16,000	0.52	41	£2,023	50	£86,252
Ham Library	LED to all areas	2,467	0.52	41	£370	50	£16,334
Teddington Pools	Lighting upgrade to LED	9,709	2.43	54	£1,456	48	£82,956
Hampton Youth Centre	LED lighting throughout	18,488	3.4	49	£933	48	£186,790
42 York Street	Insulate Roof	6,222	0.52	42	£3,143	48	£139,053
Hampton Hill Library	LED to all areas	6,570	1.64	37	£578	46	£22,978
Woodville Ham Centre	Lighting upgrade to LED	3,853	0.52	61	£986	46	£64,769
Hampton Wick Library	LED lighting throughout	4,866	0.52	34	£730	46	£26,573
Heatham House Youth Centre	LED lighting throughout	6,744	0.52	51	£1,012	45	£54,240
Civic Centre	Refurbish AHUs	7,401	1.85	144	£176	45	£26,666
Richmond Old Town Hall Library	Lighting upgrade to LED	3,523	0.52	76	£1,110	45	£88,400
Whitton Community Centre	Insulation upgrades	32,187	0.21	106	£1,609	45	£176,130
Totals		131,517	13.69	-	£14,926	-	£1,014,251

Phase 4- 2024/25

Site name	Description	Annual kWh savings	Annual tCO2 savings	Payback in years	Annual financial savings	Weighted score	Total cost (£)
Ham & P Youth Centre	Insulation to building	22,991	0.21	103	£1,150	43	£123,360
Richmond Library	Lighting upgrade to LED	5,483	1.37	78	£822	41	£65,381
Twickenham Training Centre	LED lighting throughout	4,212	1.05	55	£608	41	£35,201
68 Sheen - Centre House	Lighting upgrade to LED	4,050	0.52	143	£632	41	£95,578
Castelnau Library	Ventilation inc Heat Recovery	2,565	0.46	89	£425	41	£39,703
Whitton Youth Zone	Insulate roof	8,500	0.21	49	£436	41	£23,190
Ham & P Youth Centre	LED lighting throughout	1,926	0.52	119	£289	39	£36,108
Queens Road Hostel	Lighting upgrade to LED	2,916	0.73	93	£437	39	£43,758
Windham Nursery/Windham Croft	Lighting upgrade to LED	2,555	0.64	88	£383	39	£36,336
Ham Library	Air Source Heat Pump	8,000	0.52	93	£400	39	£39,234
74 Sheen - Sheen Centre	Lighting upgrade to LED	4,131	1.03	150	£620	38	£98,079
Ham & P Youth Centre	Radiant panels to main hall	4,878	0.21	186	£244	36	£47,862
Twickenham Family Contact Centre	LED lighting throughout	2,800	1.46	93	£420	36	£40,953
Teddington Library	Lighting upgrade to LED	1,782	0.45	134	£267	34	£39,645
Twickenham Library	Lighting upgrade to LED	1,370	0.34	337	£206	33	£72,913
Richmond Library Annex	Lighting upgrade to LED	1,809	0.45	109	£271	31	£32,021
Hampton Library	Underfloor heating	2,439	0.21	157	£122	31	£20,289
Totals		82,407	10.35	-	£7,732	-	£889,611

GRAND TOTAL PHASES 1 - 4	1,241,267	82.5	-	£145,918	-	£3,952,583
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