



# NET ZERO ACCELERATOR PATHFINDER

Market Engagement Session (MES)

24 April 2024

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**Please note all information is correct as of 24 April, but details are subject to change**

**We are looking for two partners to lead the decarbonisation of a batch of 50 schools and colleges.**

# AGENDA

This market engagement session will cover the following three parts:

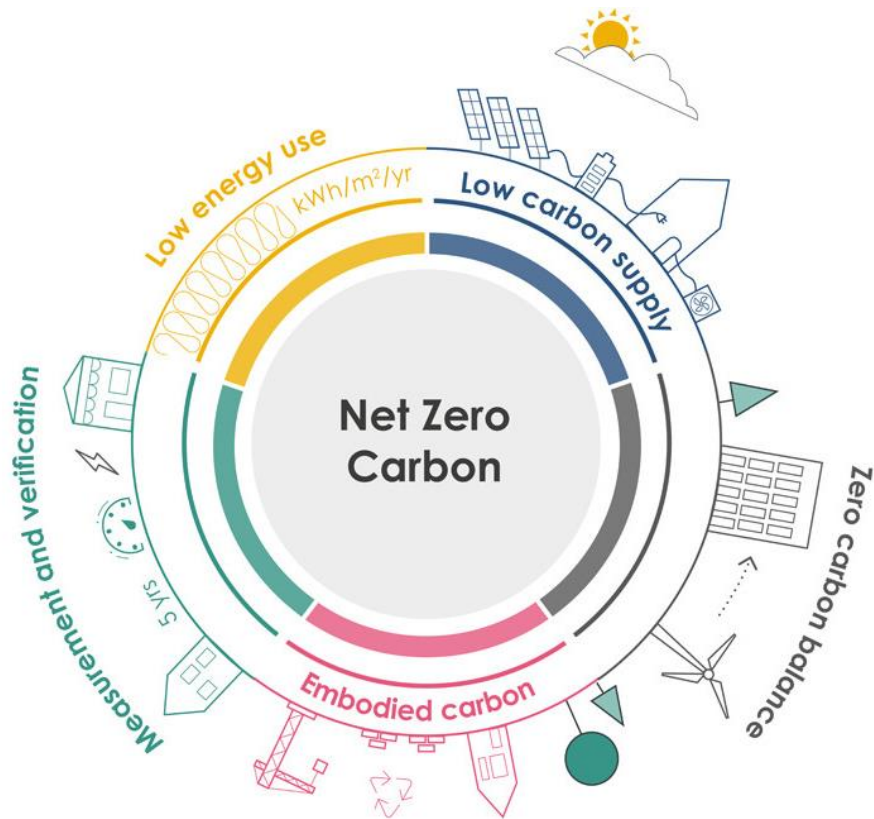
- **Part 1:** Background to the Net Zero Accelerator (NZA)
  - **Part 2:** Feasibility findings
  - **Part 3:** Pathfinder procurement
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- This session is interactive. We encourage you to share your thoughts and ideas (please use the chat function!)
  - We are keen to hear the market's view of our proposals for the pathfinder.





# BACKGROUND

# BACKGROUND



## Education estate: the context

UK Government has committed to achieving net zero by 2050



DfE estimates an energy spend of £1.8bn this year



Education estate represents 37% of total UK public sector building emissions



The school estate covers 514 million m2 (circa 127,000 acres)



24,000 school buildings are beyond their estimated design life



70% of English school floor area built before 1976

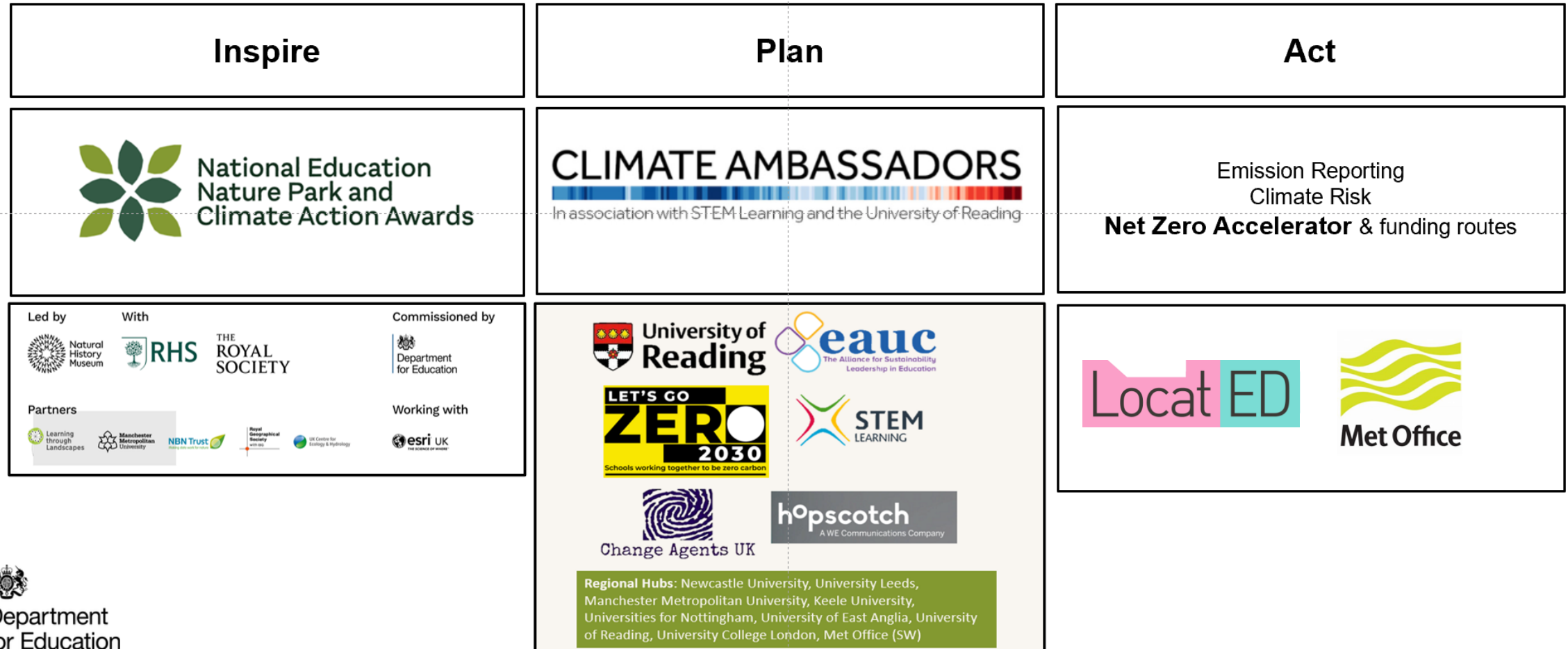


Opportunity for significant improvement of energy performance in the education estate





# DFE SUSTAINABILITY LEADERSHIP HUB



## VISION

### **The Net Zero Accelerator will facilitate the rapid rollout of decarbonisation initiatives across the education estate**

- The vision is to create a new service that supports responsible bodies to decarbonise their estates
- Regional teams will oversee the delivery of interventions including behaviour change programmes, M&E upgrades, energy efficiency measures, energy generation, heat decarbonisation and building fabric improvements
- This will be supported by a finance scheme.





# NET ZERO ACCELERATOR SUMMIT

**NZA Summit brought together 100+ leaders and 40+ speakers from education, sustainability, government, finance, construction and technology**

Delegates heard from LocatED's five delivery partners who have conducted a feasibility study for the NZA. The summit featured four roundtables exploring:

- Delivering Net Zero: Priorities for estate leaders
- Using data to inform decision making for Net Zero
- Public sector estate decarbonisation
- How climate education and green skills can support the delivery of Net Zero.







# FEASIBILITY FINDINGS



# FEASIBILITY STUDY: FINDINGS



A **£20m** capital investment could reduce annual CO2 emissions by **34%**



This would save the 40 school batch **£1.5m annually**, equivalent to **30% reduction** in energy bills (excluding bulk buy opportunities)



A **£120m** investment would result in **over 100%** reduction in annual CO2 emissions (i.e. the batch would be net zero negative)



A **50%** reduction in annual CO2 emissions can be achieved through **20%** of the total capital investment



Rooftop solar PV on schools could deliver equivalent of **7%** of existing offshore wind generation capacity at 1/3 of the cost per kW



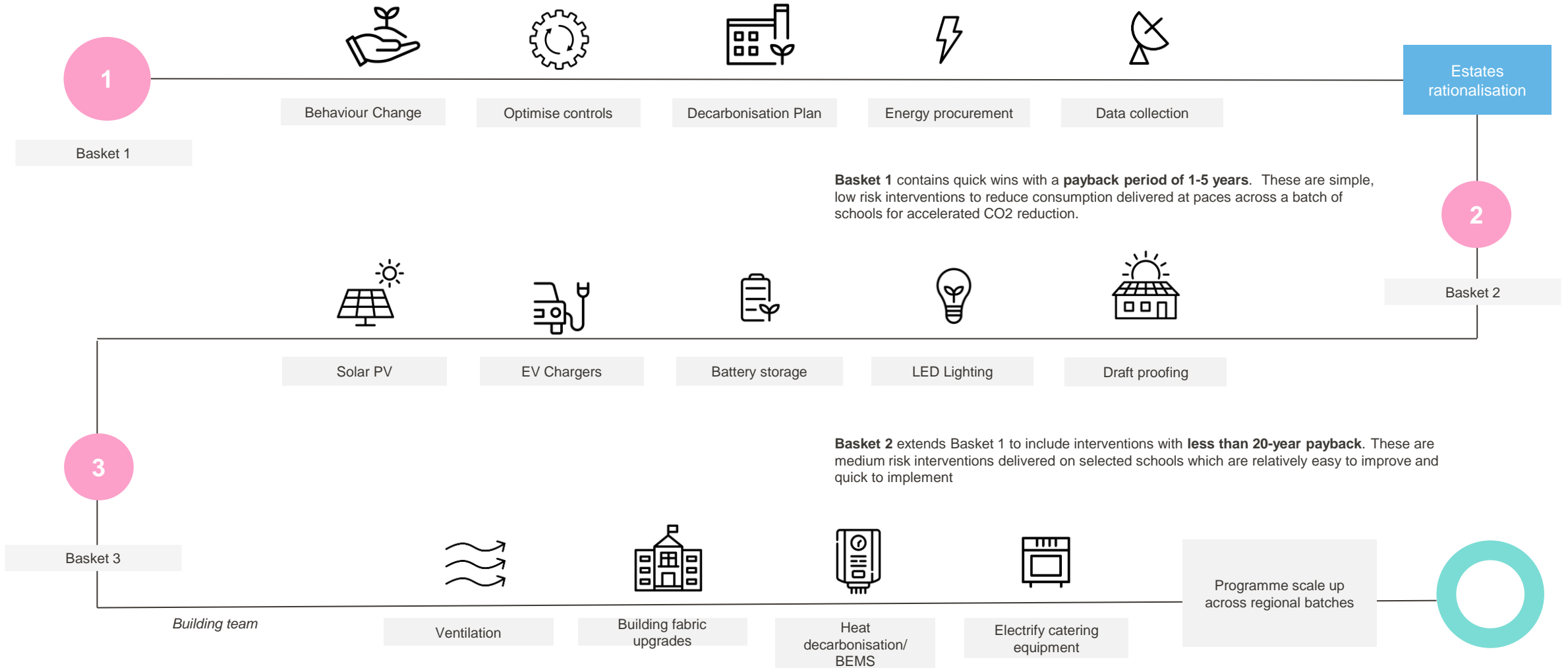
**5-7%** of the energy savings could be delivered through low-cost interventions and behavioural change

*Note: 10 schools excluded as findings were anomalous*



# DELIVERY ROUTE MAP - NZA

Simple, low risk & high speed

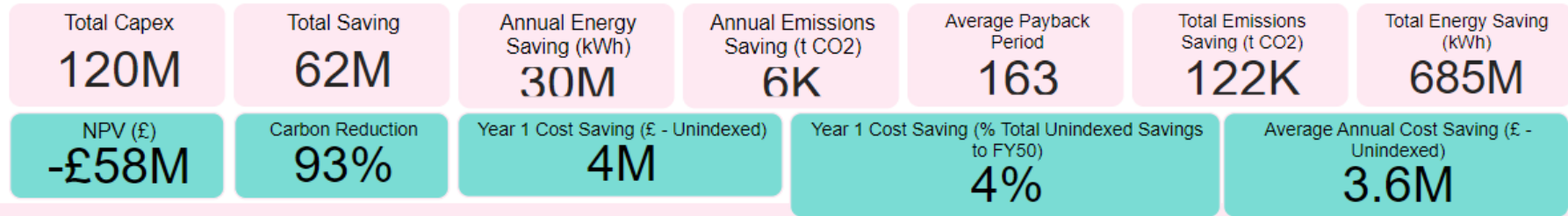


**Basket 1** contains quick wins with a **payback period of 1-5 years**. These are simple, low risk interventions to reduce consumption delivered at paces across a batch of schools for accelerated CO2 reduction.

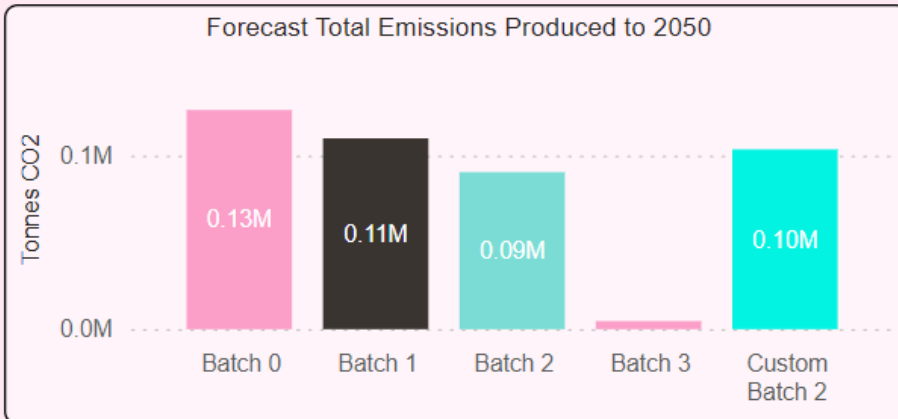
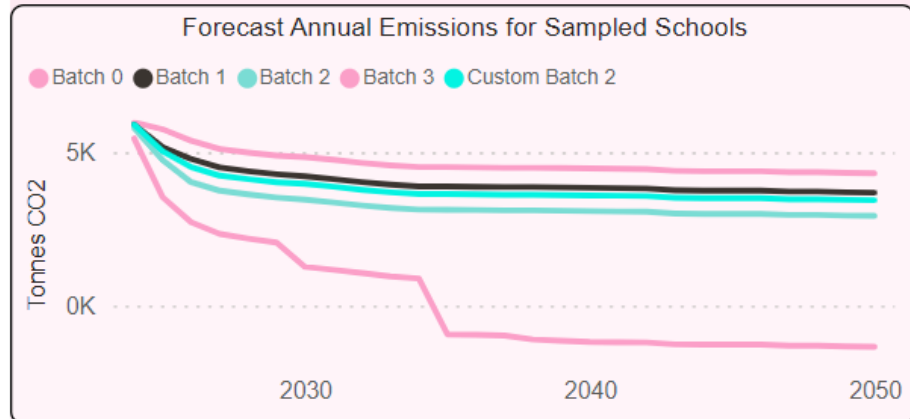
**Basket 2** extends Basket 1 to include interventions with **less than 20-year payback**. These are medium risk interventions delivered on selected schools which are relatively easy to improve and quick to implement

**Basket 3** extends Basket 2 and **includes all interventions**. These are holistic whole-building retrofit which encompasses a deep building fabric and condition improvement measures along with heat decarbonisation

# FINANCIAL MODEL: 40 SCHOOLS, ALL INTERVENTIONS (EXC FEES)

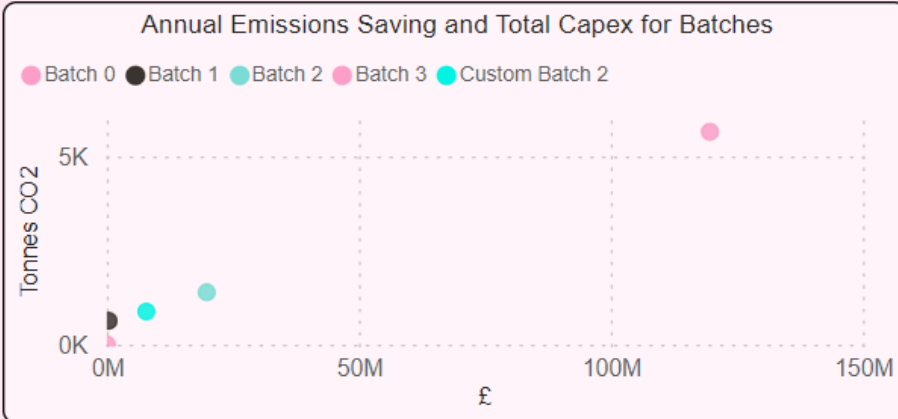


**Finance**      **Energy**      **Emissions**

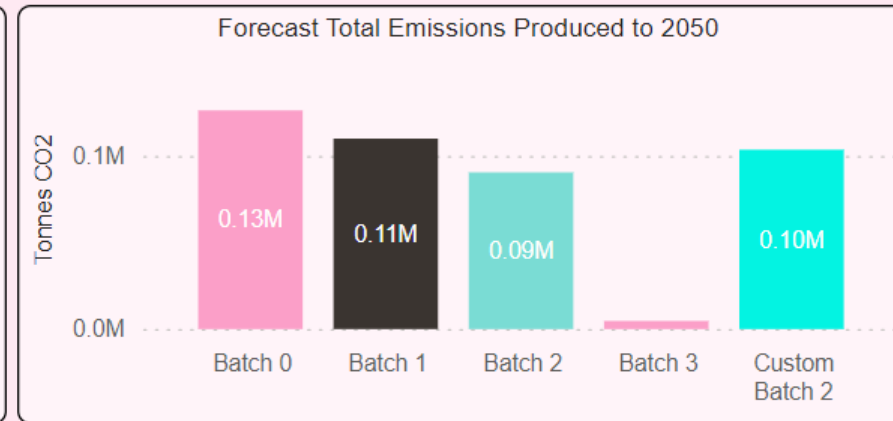
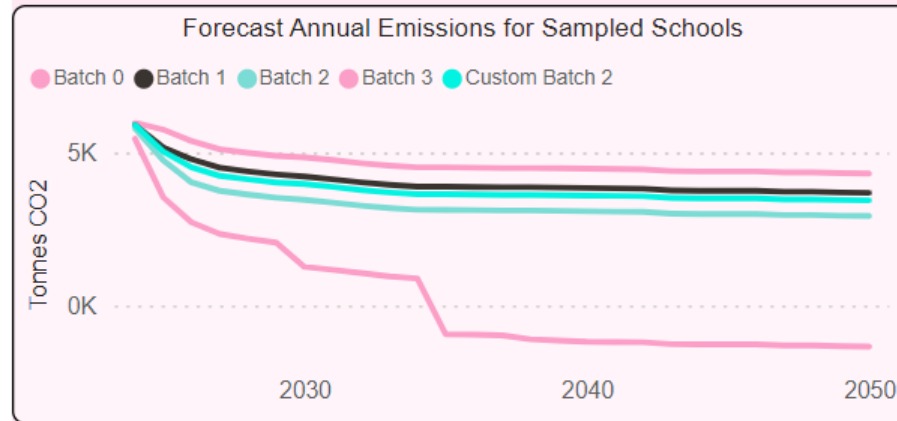
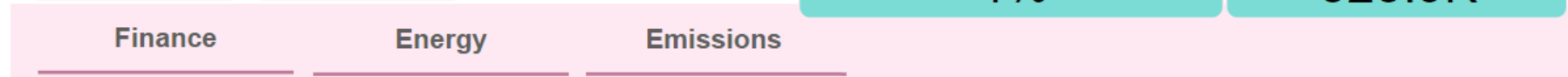
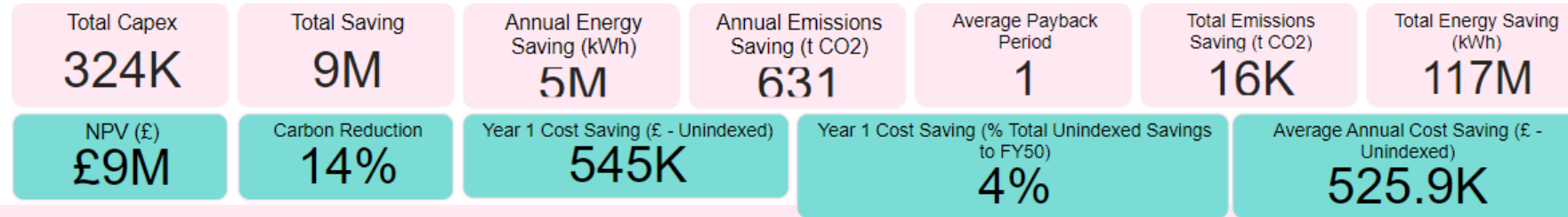


Batches Emission KPIs

Batch	Number of Mitigations	Annual Emissions Saving (t CO2)	Forecast Annual Emissions Reduct 2050 (% Now)
Batch 0	0.00	0.00	
Batch 1	90.00	630.78	
Batch 2	175.00	1,390.17	
Batch 3	429.00	5,655.15	
Custom Batch 2	0.00	878.36	

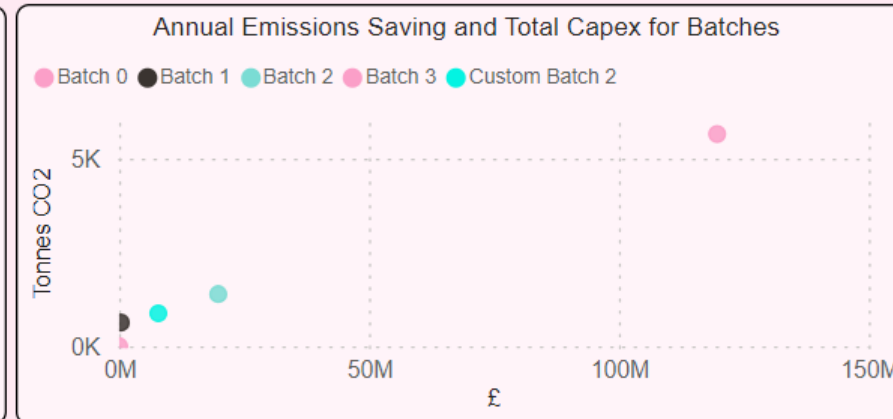


# FINANCIAL MODEL: 40 SCHOOLS, BATCH 1 INTERVENTIONS ONLY (EXC. FEES)



Batches Emission KPIs

Batch	Number of Mitigations	Annual Emissions Saving (t CO2)	Forecast Annual Emissions Reduct 2050 (% Now)
Batch 0	0.00	0.00	
Batch 1	90.00	630.78	
Batch 2	175.00	1,390.17	
Batch 3	429.00	5,655.15	
Custom Batch 2	0.00	878.36	

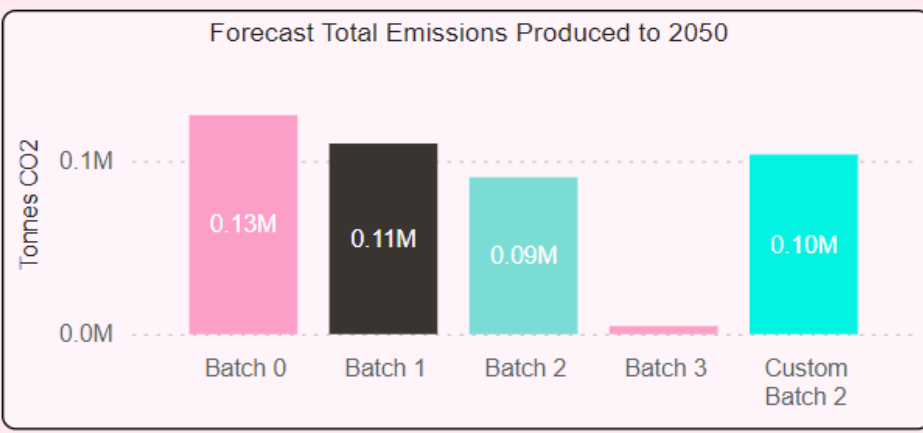
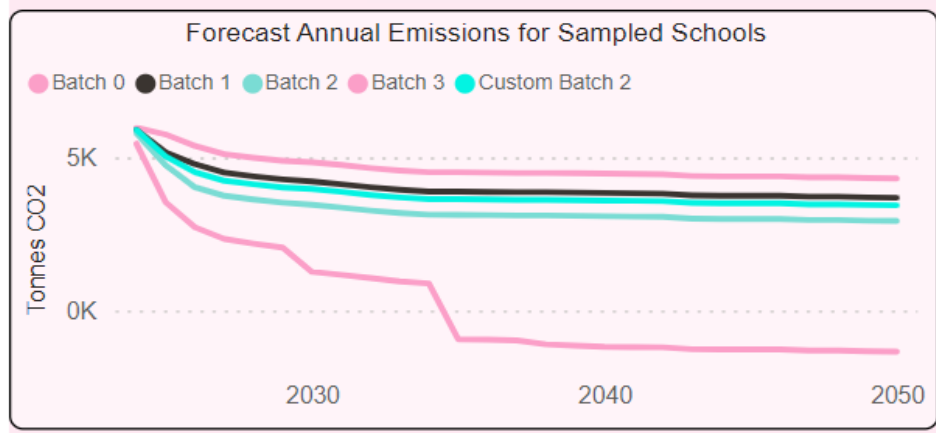




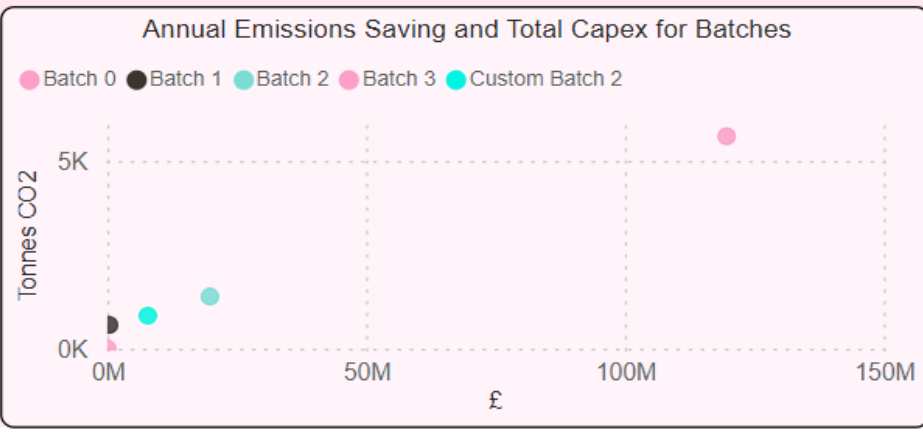
# FINANCIAL MODEL: 40 SCHOOLS, BATCH 1 & 2 INTERVENTIONS ONLY (EXC. FEES)

Total Capex <b>20M</b>	Total Saving <b>25M</b>	Annual Energy Saving (kWh) <b>11M</b>	Annual Emissions Saving (t CO2) <b>1K</b>	Average Payback Period <b>4</b>	Total Emissions Saving (t CO2) <b>36K</b>	Total Energy Saving (kWh) <b>286M</b>
NPV (£) <b>£6M</b>	Carbon Reduction <b>34%</b>	Year 1 Cost Saving (£ - Unindexed) <b>2M</b>	Year 1 Cost Saving (% Total Unindexed Savings to FY50) <b>4%</b>		Average Annual Cost Saving (£ - Unindexed) <b>1.5M</b>	

**Finance**      **Energy**      **Emissions**



Batch	Number of Mitigations	Annual Emissions Saving (t CO2)	Forecast Annual Emissions Reduct 2050 (% Now)
Batch 0	0.00	0.00	
Batch 1	90.00	630.78	
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Batch 3	429.00	5,655.15	
Custom Batch 2	0.00	878.36	



QUESTIONS...

# PATHFINDER PROCUREMENT



## PATHFINDER OVERVIEW

**We are seeking to appoint two partners to lead the decarbonisation of two batches of 25 schools and colleges.**



Deliverables for the initial stage include:




- Developing a detailed decarbonisation plan
- Delivering a programme of behavioural change
- Optimisation and installation of controls
- Optimising energy procurement
- Data collection and capture including reporting via a dedicated platform.

The scope for future stages will depend on the output of the initial stage



# BASKET 1

Category	Sub-category
<b>Behavioural change</b> 	<p><b>Policy statement:</b> Set out school's commitment to energy efficiency and carbon management and develop action plan. Signed &amp; agreed by leadership team</p> <ul style="list-style-type: none"> <li>• <b>Signed letter of authority;</b> carbon management plan and sustainability strategy</li> </ul>
	<p><b>Quantify baseline:</b> for example: existing CO2 consumptions and energy consumption and agree objective</p> <ul style="list-style-type: none"> <li>• <b>Evidence of existing tariff data</b> and report summarising existing consumption. Signed baseline assumptions and objectives.</li> </ul>
	<p><b>Project milestones:</b> agree project specific milestones and present to relevant staff to define roles and responsibilities for relevant people</p> <ul style="list-style-type: none"> <li>• <b>Signed delivery programme:</b> detailed Basket One delivery programme presented to school leadership team which is formally agreed.</li> </ul>
	<p><b>Communications plan:</b> develop strategy for communications including e-mails, corridor talks, staff engagement meetings, poster campaigns, social media</p> <ul style="list-style-type: none"> <li>• <b>Message house:</b> signed strategy, evidence of meetings, campaigns and shared/tagged LocatED to social content</li> </ul>
	<p><b>Climate ambassadors:</b> link up with existing climate ambassador network and integrate into programme delivery</p> <ul style="list-style-type: none"> <li>• <b>Climate ambassadors:</b> Evidence of approved application from project lead and liaison feedback from hub manager</li> </ul>
	<p><b>Teacher/pupil/parent champions:</b> encourage teacher/pupil climate champions to act as engagement lead throughout year groups</p> <ul style="list-style-type: none"> <li>• <b>Green Skills:</b> Deliver a minimum of 12 hours of sustainability and climate change themed education and engagement with school pupil</li> </ul>
<b>Control optimisation</b> 	<p><b>Existing system inspection:</b> Asset locations; user training assessment; typology; part number; manufacturer; warranty; system diagram</p> <ul style="list-style-type: none"> <li>• <b>Condition report:</b> Provide a detailed report on condition of existing system and delivery optimisation/maintenance and training programme</li> </ul>
	<p><b>Usage monitoring system:</b> Develop and implement usage monitoring system. Use intermediary data collection system</p> <ul style="list-style-type: none"> <li>• <b>Live data collection:</b> Facilitate live data capture system to enable hourly meter readings to be collected. Data to also include building usage where appropriate.</li> </ul>
	<p><b>Monitor system performance:</b> Analyse capability of existing system to ensure meter readings are capturing consumption accurately/frequently</p> <ul style="list-style-type: none"> <li>• <b>Develop energy baseline</b> and aggregate data capture across school batch; batch wide data matrix</li> </ul>

Category	Sub-category
<b>Decarbonisation Plan</b> 	<p><b>Policy statement:</b> Set out school's commitment to energy efficiency and carbon management and develop action plan. Signed &amp; agreed by leadership team</p> <ul style="list-style-type: none"> <li>• <b>Signed letter of authority;</b> carbon management plan and sustainability strategy</li> </ul>
	<p><b>Lighting:</b> Asses and report on scope, extent, position and condition of existing lighting system including extent of LED fixtures / luminaires</p> <ul style="list-style-type: none"> <li>• <b>Detailed survey</b> incl. detailed survey of existing lighting system including F&amp;F, cabling, condition and controls to include quantitative data</li> </ul>
	<p><b>Fabric assessment:</b> provide block by block survey of existing fabric including wall/roof build-up, glazing type, condition to assess performance gap</p> <ul style="list-style-type: none"> <li>• <b>Detailed survey:</b> detailed fabric survey including window positions, wall-build-ups, photographic roof/ceiling surveys, building condition survey</li> </ul>
	<p><b>Thermal camera:</b> run a thermal camera assessment of each building block to assess thermal performance / visual performance gaps.</p> <ul style="list-style-type: none"> <li>• <b>Thermal modelling:</b> Provide screen shots and digital data files taken from thermal imagery</li> </ul> <p><i>Full decarbonisation plan</i></p>
<b>Data collection</b> 	<p><b>Measured survey:</b> obtain and commission a detailed LIDAR 1:100 2D site survey, including 2x 1:100 sections and elevations of each block to include car park survey (for EV charging scope)</p> <ul style="list-style-type: none"> <li>• <b>File supply:</b> Supply survey in *Dwg/*Dxf format to LocatED with 1:100 plans, sections and elevations of all buildings and site boundary identified.</li> </ul>
	<p><b>Energy tariff data:</b> Collect and collate all existing energy/water tariff data and existing contract.</p> <ul style="list-style-type: none"> <li>• <b>MPAN data:</b> obtain meter reads, photographic reads and MPAN numbers for all electricity, gas and water supplies and share with LocatED</li> </ul>
	<p><b>Crowd sourced data capture:</b> Ensure school is aware of Nature Parks programme. Delivery 3 x hours of crowd sourced data capture with teachers/pupils</p> <ul style="list-style-type: none"> <li>• <b>Legal review:</b> Complete review of existing arrangements and ensure no restrictions to delivery of interventions including existing building warranties</li> </ul>
	<p><b>Legal data:</b> Obtain existing contract data relating to site ownership/title restrictions and any existing interventions including existing building warranties</p> <ul style="list-style-type: none"> <li>• <b>CDC Data:</b> ensure data collection initiatives are integrated with existing DfE Condition data, e.g. building block references</li> </ul>
<b>Energy procurement</b> 	<p><b>Met office data:</b> obtain local climate data from the met office modelling set and integrate into decarbonisation plan</p> <ul style="list-style-type: none"> <li>• <b>Unify assumptions:</b> provide data requirements provided by LocatED to inform development of unified dataset across school batches</li> </ul>
	<p><b>Existing system:</b> annotate existing meter locations and exchanger locations on 2D site plan</p> <ul style="list-style-type: none"> <li>• <b>System plan:</b> Indicate locations, type and specification on 2D site survey drawings. Carry out cable search (UKPN or other supplier) underground mapping / grid capacity assessment</li> </ul> <p><b>Market appraisal:</b> provide summary on existing tariff data including cost per KWH and provide market comparison</p> <ul style="list-style-type: none"> <li>• <b>Framework Review:</b> Liaise with DfE Commercial team to assess best options for bulk buy of energy</li> </ul>

# BASKET 2

Category	Sub-category	
<b>Solar PV</b> 	<ul style="list-style-type: none"> <li><b>Develop brief:</b> Set out key factors including what scheme is to achieve, and suggested locations considering trees, shading, nearby buildings and existing plant and equipment.</li> </ul>	<ul style="list-style-type: none"> <li><b>Design and specification:</b> Confirm method of PV mounting system are fully compatible and that the integrity of the roof finish is uncompromised. Durability of the roofing system should match the life span of the PV array.</li> </ul>
	<ul style="list-style-type: none"> <li><b>Capacity assessment:</b> Assess potential to deliver solar on to existing building rooftops. Provide digital analysis of potential area; panel numbers; generation potential</li> </ul>	<ul style="list-style-type: none"> <li><b>Roof survey:</b> survey existing roof, assess condition, roof type e.g. single ply flat roof, pitched roof, slate etc. Access existing attic spaces (if available) and asses' structural condition</li> </ul>
	<ul style="list-style-type: none"> <li><b>Climatic analysis:</b> link capacity assessment with regional climate data from the met office to ensure performance is accurate based on climate region</li> </ul>	<ul style="list-style-type: none"> <li><b>Inverters:</b> assess capacity for cabling and inverter unit install including dedicated Solar PV metering to assess building by building generation</li> </ul>
	<ul style="list-style-type: none"> <li><b>Need assessment:</b> Understand existing consumption to assess quantum of Solar PV required. Identify if surplus capacity is available.</li> </ul>	<ul style="list-style-type: none"> <li><b>Preliminaries</b> assess requirement for additional access prelims including scaffold/man safe requirements</li> </ul>
	<ul style="list-style-type: none"> <li><b>Novel solutions:</b> Asses surplus land and surrounding buildings for novel Solar PV capacity opportunities. For example, harnessing underutilised land for ground mount solar (if secure)</li> </ul>	<ul style="list-style-type: none"> <li><b>System integration:</b> determine potential for dedicated solar battery When determining the battery also determine the capacity of the power shield and how long it will take to fully charge the battery.</li> </ul>
	<ul style="list-style-type: none"> <li><b>Contractor selection:</b> Ensuring that the installing contractor understands the site needs and are familiar with both the solar <b>and roofing requirements is paramount.</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Existing M&amp;E:</b> ensure that the installation of the new system does not impact the performance of any existing Mechanical and Electrical Systems</li> </ul>
<ul style="list-style-type: none"> <li><b>Monitoring:</b> Outline plan for performance monitoring of systems against projected performance and optimise controls</li> </ul>	<ul style="list-style-type: none"> <li><b>Maintenance:</b> Plan and deliver long term maintenance service. Ensure design liability and wind load calculations are accounted for and included within the guarantee cover proposed.</li> </ul>	
<b>EV Chargers</b> 	<ul style="list-style-type: none"> <li><b>Existing supply:</b> Asses existing electrical supply to ascertain if there is sufficient supply for EV implementation at the volume required.</li> </ul>	<ul style="list-style-type: none"> <li><b>Transport Plan:</b> Develop parking and transport plan to assess the capacity for greener transport methods. For example, EV school bus and cycle storage.</li> </ul>
	<ul style="list-style-type: none"> <li><b>Travel path assessment:</b> If EV chargers are to be used outside of hours ensure that spaces are accessible and that turning circles are sufficient to facilitate continuous access.</li> </ul>	<ul style="list-style-type: none"> <li><b>Vehicle capacity:</b> Asses charging capacity including maximum vehicle size per charging bay considering opportunity to charge commercial vehicles</li> </ul>
	<ul style="list-style-type: none"> <li><b>Signage:</b> Ensuring there is appropriate signage in place to ensure that the users can easily find and operate the chargers.</li> </ul>	<ul style="list-style-type: none"> <li><b>Maintenance:</b> Plan and deliver long term maintenance service. Ensure design liability is accounted for and included within the guarantee cover proposed.</li> </ul>

Category	Sub-category	
<b>Battery Storage</b> 	<ul style="list-style-type: none"> <li><b>Energy Storage capacity:</b> Determine appropriate energy storage capacity. Consider peak demand, expected duration of backup power, and available renewable energy generation.</li> </ul>	<ul style="list-style-type: none"> <li><b>Environmental:</b> Consider actors such as temperature, humidity, ventilation, and physical space availability which can significantly affect the performance of battery storage.</li> </ul>
	<ul style="list-style-type: none"> <li><b>Technology assessment:</b> Consider battery technology to be deployed: considering life cycle life, operational temperature range, energy density, and maintenance requirements.</li> </ul>	<ul style="list-style-type: none"> <li><b>Resilience:</b> Consider capacity for battery storage to provide critical back-up during potential grid-outages. This must be able to provide uninterrupted power supply and increase overall system reliability.</li> </ul>
	<ul style="list-style-type: none"> <li><b>Integrate with renewable energy sources:</b> Coordinate the battery storage system with the intermittent nature of existing/proposed renewable energy system to ensure a stable and reliable power supply.</li> </ul>	<ul style="list-style-type: none"> <li><b>Safety protocols:</b> Assess system to ensure that fire safety measured, emergency shut down systems are in place. This includes developing and agreeing appropriate safety protocols.</li> </ul>
	<ul style="list-style-type: none"> <li><b>Storage enclosure:</b> ensure appropriate enclosures are provided either an outdoor module or container solution along with appropriate thermal mitigation measures.</li> </ul>	<ul style="list-style-type: none"> <li><b>Maintenance:</b> Plan and deliver long term maintenance service. Ensure design liability is accounted for and included within the guarantee cover proposed.</li> </ul>
<b>LED Lighting</b> 	<ul style="list-style-type: none"> <li><b>Survey existing:</b> Carry out existing survey of light fixtures internally and externally. Assess condition and compatibility for LED lighting.</li> </ul>	<ul style="list-style-type: none"> <li><b>Design and specification:</b> develop lighting plan including detailed specification of fixtures and fittings on a room-by-room basis</li> </ul>
	<ul style="list-style-type: none"> <li><b>Recycle existing:</b> Remove existing fluorescent/incandescent bulbs and recycle</li> </ul>	<ul style="list-style-type: none"> <li><b>Lighting controls:</b> asses existing lighting controls and usage. Including optimisation/autos-switching of underutilised lighting e.g. timers, dimmers, smart switches</li> </ul>
	<ul style="list-style-type: none"> <li><b>Delivery plan:</b> agree lighting zones with trust leaders to ensure that lighting can be switched over whilst building remains in operation if required</li> </ul>	<ul style="list-style-type: none"> <li><b>Modelling:</b> model lighting scenarios/carry out calculations to ensure optimum positioning and performance throughout school buildings</li> </ul>
	<ul style="list-style-type: none"> <li><b>Accessibility:</b> consider long term maintenance including bulb/fixture replacement and cleaning</li> </ul>	<ul style="list-style-type: none"> <li><b>Monitoring:</b> monitor usage to ensure that external/internal areas are lit during optimum times and adjust lighting control systems accordingly e.g. are any unused external areas lit needlessly?</li> </ul>
<b>Draft Proofing</b> 	<ul style="list-style-type: none"> <li><b>Survey existing:</b> asses existing open areas of insulation: e.g.. Fibre rolled insulation above ceiling panels and provide photographic survey</li> </ul>	<ul style="list-style-type: none"> <li><b>Schedule:</b> Provide a detailed building schedule for each block identifying areas which require draft proofing including proposed mitigation approach</li> </ul>
	<ul style="list-style-type: none"> <li><b>Design and specification:</b> Confirm design, specification and locations of proposed draft proofing measures.</li> </ul>	<ul style="list-style-type: none"> <li><b>Quality and monitoring:</b> Provide quality management plan and proposals for ensuring that measures are delivering without performance gap. Monitor impact on energy use.</li> </ul>



# PATHFINDER DELIVERY STRUCTURE

Delivery partners responsible for delivering the initial stage of the decarbonisation routemap (basket 1, pink) across the batch.

The decarbonisation plan (produced by the delivery partner) informs future stages of the routemap.

Delivery partners provide oversight (contract administration) for the onsite works, delivered in packages (basket 2, green) by the most appropriate contractor team.

All works and services procured and overseen by NZA.

**Net Zero Accelerator**  
(LocatED)

## KPIs

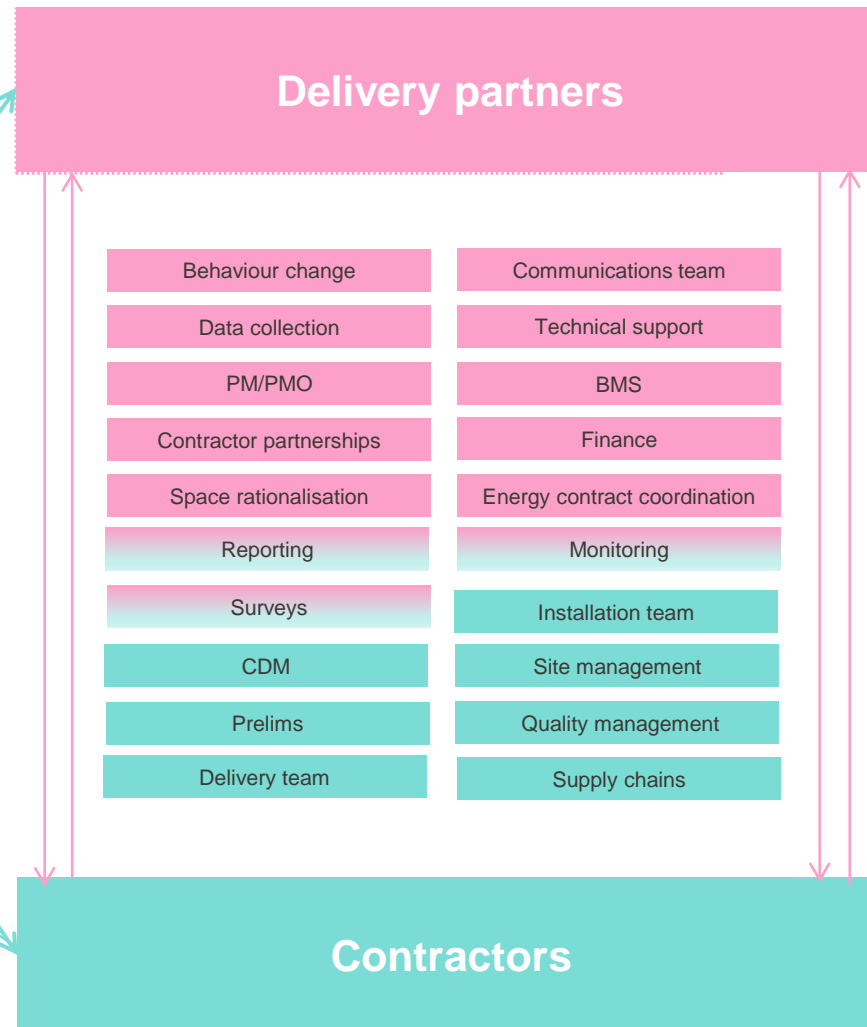
- Engagement scores
- Energy saved (KwH)
- CO2 Saved
- ££ saved
- Education delivered

KPIs

PROCURES

KPIs

PROCURES



Delivery of basket one

Collective Savings Aggregations



School batch

Delivery of basket two

DfE Commercial oversight for frameworks and bulk buy of energy and potential solar and LED

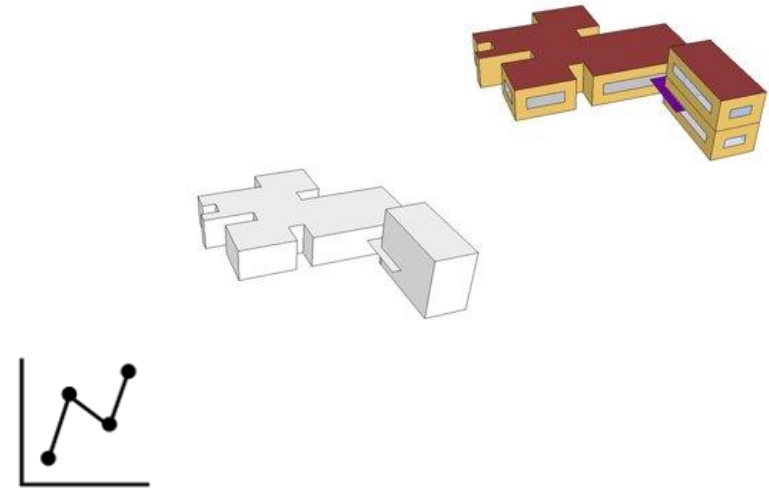
# BID SELECTION PROCESS

- We are appointing two delivery partners
- Bids will be assessed based on the following criteria:
  - Commitment
  - Experience
  - Scope
  - Delivery
  - Stakeholder engagement
  - Programme
  - Quality Assurance
  - Risk
  - Social value
  - Price – including proposed energy savings



# PERFORMANCE RELATED FEE:

- We want to work with partners to achieve financial and carbon emission savings across their batch
- The performance related fee is to incentivise delivery partners to meet targets and to maintain positive engagement with key stakeholders
- Performance evaluation will be data driven and based on objective assessments of performance against the targets (pre-agreed with the delivery partners)
- Incentive of additional 10% payable if pre agreed targets are met.



Engagement	Technical performance		Financial performance
Service feedback scores from key stakeholders	CO2 Carbon reductions achieved against agreed targets	KwH Energy savings achieved against agreed targets	££ Cost savings achieved against agreed targets

# NEXT STEPS

## Stage 1: April 2024

- Market Engagement Session (MES) – 24 April 2024
- Feedback from MES to inform ITT – launching May 2024

## Stage 2: June 2024

- Suppliers submit ITT returns
- Submissions are likely be judged on the following:
  - Commitment: corporate progress towards carbon reduction targets
  - Experience: experience in delivering relevant projects
  - Delivery: methodology, skills and resources
  - Price: Including proposed energy savings

## Stage 3: July 2024 – March 2025

- Two partners will be appointed to oversee the delivery of a decarbonisation route map for two batches of 25 schools and colleges.
- The delivery of these initial interventions is expected to deliver financial and CO2 savings within the first year and on an ongoing basis.





# Q&A

## Net Zero Accelerator

[netzero.accelerator@located.co.uk](mailto:netzero.accelerator@located.co.uk)

 @LocatEDproperty

 [linkedin.com/company/LocatED](https://www.linkedin.com/company/LocatED)