

C40 Cities Climate Leadership
Group

**London ‘Paris-compatible’
Climate Action Plan**

Final Climate Action Plan
Assessment

4-07

Final | 18 July 2018

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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1 Introduction

Arup was commissioned by the C40 Cities Climate Leadership Group (C40) to conduct an assessment of the London Environment Strategy and other relevant documents¹ against the pillars of the C40 Climate Action Planning Framework (CAPF).

The C40 Climate Action Planning Framework outlines the essential components of a climate action plan to deliver low carbon resilient development consistent with the aims of the Paris Agreement. The Framework was developed in collaboration with cities participating in C40's Deadline 2020 pilot programme and Arup. The CAP Framework has three pillars:

Pillar 1: Commitment and collaboration focuses on the governance and coordination of the plan (including its relationships with national policy and city powers) and the need for community and business engagement, and communications, throughout the plan's development and delivery.

Pillar 2: Challenges and opportunities considers the evidence base and existing city conditions, including: baseline emissions, 2050 emissions trajectory, climate risk and socioeconomic priorities.

Pillar 3: Acceleration and implementation defines the transformational action and implementation plan, including the development and prioritisation of actions and the processes of monitoring, evaluation, reporting and revision.

This assessment was completed in two stages: the first initial gap analysis between 28th September and 17th October 2017 and the second assessment and final review between 21st March and 13th April 2018. An overall summary of the evidence is presented in this report.

2 Final Assessment

The London Environment Strategy and associated documents detail how the Greater London Authority (GLA) will deliver, partner and collaborate to achieve net zero emissions on 1990 levels by 2050 to help deliver the goals of the Paris Climate Agreement.

Table 1 documents the essential criteria required to meet each category and sub-category of the C40 CAPF (version dated 13/03/2018), along with a summary of the evidence that has been provided by the GLA to demonstrate that London's strategies and plans meet these criteria. Hyperlinks are provided where the information is published online. Other information has been received via direct communication with the GLA.

¹ Collectively forming London's Climate Action Plan, and referred to in aggregate as the Climate Action Plan (CAP).

Table 1 Essential criteria for meeting each pillar of the C40 Climate Action Planning Framework with summarised evidence that London meets these criteria.

Pillar & Subcategory		Essential Criteria	Justification/Evidence
Pillar 1 - Commitment & Collaboration	1.1.1	Written (where possible, signed) commitment from the Mayor or city leader, to begin implementing transformational action to deliver an emissions-neutral and climate resilient city by 2050, consistent with the ambitions of the Paris Agreement.	The foreword of the final London Environment Strategy has been signed by the Mayor, and goals are specified later in the document. The London Environment Strategy states the commitment to meet the aims of the Paris Agreement, outlines a plan to achieve zero carbon by 2050 and highlights associated benefits.
	1.1.2	Plan informed by consultation with key government, business and civil society stakeholders (including communities directly impacted by climate change).	A full consultation process was conducted on the draft London Environment Strategy . A consultation response report has been published alongside the final strategy highlighting where consultation responses have resulted in updates to the London Environment Strategy, or providing clear justification where suggestions have not resulted in updates to the London Environment Strategy. In addition, specific research streams to build the evidence base for the London Environment Strategy included targeted engagement with industry experts
	1.2.1	Opportunities for integration with existing regulations, laws, policies, plans reviewed and institutions that are key for accelerating delivery engaged in the development of the Plan.	Appendix 4 of the London Environment Strategy outlines city-level policies for each section of the strategy.
	1.2.2	Identification of relevant commitments (governmental and non-governmental) and acknowledgement of where targets and actions are shared with and/or owned by other tiers of government or stakeholders.	The final London Environment Strategy provides a clear map of how London-led targets and actions of the CAP go further than UK government targets and actions, from 2016 through to 2050, with key interim dates highlighted. London Plan topic papers, such as the topic paper for energy , provide a breakdown of international, EU and domestic policy related to the UK ratifying the Paris Agreement.
	1.3.1	Targets or carbon budget and milestones present an accelerated but realistic picture of declining (or peaking) citywide emissions through to emissions neutrality by 2050.	Short, interim and long-term carbon budgets and ambitions towards net zero carbon are covered in the final London Environment Strategy. These budgets align with the Committee on Climate Change estimation of the UK reductions required to meet the aims of the Paris agreement, as well as C40's ' Deadline 2020 ' analysis. Carbon budgets are costed and supporting commentary is provided. The London Environment Strategy carbon budgets include several 'lead by example' actions for the GLA family.
	1.3.2	Goals and milestones present a realistic picture of projected climate change scenarios and adaptation requirements for the short-term (within 4-5 years from the Plan's formal approval), mid-term (e.g. 2030) and long-term (2050).	The scenarios and goals of the final London Environment Strategy are realistic and up-to-date. The Evidence Base in Appendix 2 contains thorough and robust evidence for the future climate scenarios and associated impacts likely for London. A review is currently being carried out to take stock of the GLA's understanding of the impacts on London's sectors and identify sectors where impacts information is lacking. The report is expected to be published shortly and will be used to inform the development of adaptation-related projects.

	1.3.3	A clear ambition for inclusive climate action, identifying the wider benefits gained through the delivery of the Plan and referencing how benefits impact other city priorities.	Consideration of the plan's inclusivity was covered in the <u>Integrated Impact Assessment</u> (IIA). This was referenced in different sections of the London Environment Strategy, particularly in relation to energy and air quality actions. Wider benefits will be specifically addressed in a co-benefits study currently being carried out, to be published soon after the final London Environment Strategy. The findings of this study will inform the development of projects and support the business case for action delivery. Benefits will be linked back to clearly identified goals and objectives at city level.
	1.4	Determined cost and human resources to deliver the plan. Resourcing and budget allocated for at least the first year of Plan implementation.	The budget for delivery of mayoral climate change actions set out in the London Environment Strategy predominantly lies with the Environment team in the GLA, with other key teams such as Regeneration and Planning supporting the work. Allocation of resources is set out in internal business plans covering a range of policy areas. Transport related actions are the exception, with income including funding sources, costs, and expenditure projections up to 2022 summarised in TfL business planning.
Pillar 2 - Challenges & Opportunities	2.1.1	A description of the current administrative and physical geography as relevant to climate change (e.g. coastal; inland; fluvial; topography; elevation).	Both <u>Appendix 1 and Appendix 2</u> of the London Environment Strategy evaluate indicators and baseline monitoring for subjects including air quality, green space, biodiversity, GHG emissions, energy, waste and water. Information on sources and consumption is also provided. The final London Environment Strategy refers to these in several places. The <u>Mayor's Transport Strategy</u> identifies the relationship between transport and climate change, and includes specific focus on adaptation actions.
	2.1.2	Contextual data and trends (where available) outlined in the Plan, including indicators or information on social and economic priorities for the city.	Baseline socio-economic conditions on population, housing, economy, environment, health and safety are documented in a number of documents including ' <u>A City for all Londoners</u> ', the draft <u>new London Plan</u> , and are included in the final London Environment Strategy. Related topics including affordability, income inequality, living costs, fairness and equity are outlined in the draft <u>Economic Evidence Base for London 2016</u> .
	2.2.1	A description of the city's governance and administrative structure and the scope of the plan (e.g. inclusion non-government organisations).	Both the main document of the final London Environment Strategy and its <u>Appendix 3</u> document the roles and responsibilities of key actors in the city's governance including the Mayor, London boroughs, central government and other organisations. GLA Group operations are included in the final London Environment Strategy.
	2.2.2	Assessment of the powers held by city government over relevant sectors, assets/functions or actions, noting where additional collaboration is needed to accelerate the delivery of transformational actions over the short-term.	Where relevant, the final London Environment Strategy references specific stakeholders to actions and goals, and the GLA has also produced an <u>London Environment Strategy Implementation Plan</u> which includes the lead for each action, as well as key partners. A summary of city powers, detailing key stakeholders for collaborative action across city sectors, has been included as part of the development of the London Environment Strategy and will be published soon after the final London Environment Strategy. Reports and modelling of climate action in buildings and infrastructure quantify the

			impact of actions and detail ownership, informing prioritisation of transformational actions.
2.3	Sector-level inventory with details of, or references to the methodology used, including scope 1 emissions from fuel use in buildings, transport and industry; scope 2 emissions from grid-supplied energy; and scope 1 and 3 emissions from waste generated within the city boundary. The inventory is from a year no more than 4 years prior to publication of the Plan. The inventory also includes Industrial Processes and Product Use (IPPU) and Agriculture, Forestry and Other Land Use (AFOLU) emissions where a city's economy contains strong contributions from industrial and agricultural sectors.		The London Energy and Greenhouse Gas Inventory (LEGGI) contains the city's GHG inventory from 1990 to 2015 and includes a clear methodology, providing a strong evidence base for future emissions trajectory modelling. The inventory covers Scope 1 and 2 emissions from homes, workplaces and transport, and is updated on an annual basis and published on the London Datastore. The final London Environment Strategy commits the GLA to continue to estimate consumption-based emissions for the city.
2.4.1	BAU trajectory presented in the Plan and takes into account future population and economic changes projected for the city, providing a scenario to 2050. Documented methodology, with transparency on inputs and assumptions used.		A BAU emissions trajectory is included in the final London Environment Strategy with detail in Appendix 2 . The Zero Carbon Pathways Tool is published online and details the modelling of the trajectory, including input sources and calculations. The model takes into account future growth and existing and planned policies, and allows high-level choice of scenarios for technology/policy uptake etc. The resulting trajectory has a sectoral breakdown. The city has developed carbon budgets which are included in the final London Environment Strategy.
2.4.2	Evidence-based city-level trajectory or carbon budget to 2050 (or earlier) aligned with the city's interim emissions target(s) and actions. Residual emissions identified in the trajectory (once city action maximised and external actions included).		Short, medium and long-term zero carbon trajectories have been developed from the GLA Zero Carbon Pathways Tool, and these are described in Appendix 2 of the London Environment Strategy. The trajectories align with C40's ' Deadline 2020 ' analysis which sets out the requirements to meet the aims of the Paris Agreement, and are split into sectors. The evidence base is also documented in Appendix 2 . The final London Environment Strategy also contains carbon budgets.
2.5.1	Assessment of the changing frequency, severity and scale of all relevant city climate hazards. Hazard scenarios based on standard local methodologies where available, or a medium-emissions scenario / RCP 4.5 (Representative Concentration Pathways peaking at 4.5 by 2100).		The final London Environment Strategy covers flood, drought and heat risks identified through to 2050 drawing from scientific evidence base such as UKCP09, and suitable adaptation actions are identified. The Evidence Base in Appendix 2 contains thorough and robust evidence for the future climate scenarios and associated impacts likely for London.
2.5.2	A qualitative assessment of the impact to city systems, sectors and vulnerable communities based on the climate hazard assessment. The hazards' impact on all city inhabitants and vital infrastructure (e.g. utilities; hospitals) considered based on their vulnerability and adaptive capacity.		The Evidence Base in Appendix 2 contains thorough and robust evidence for the future climate scenarios and associated impacts likely for London. A review is currently being carried out to take stock of the GLA's understanding of the impacts on London's sectors and identify sectors where impacts information is lacking. The report is expected to be published shortly and will be used to inform the development of adaptation-related projects.

<p>Pillar 3</p> <p>-</p> <p>Acceleration & Implementation</p>	3.1.1	A list of mitigation and adaptation actions across sectors, informed by the evidence base and the emissions reductions impact from existing actions, where quantification is feasible. Mitigation and adaptation actions considered in an integrated way, maximising efficiencies and minimising investment risk.	The final London Environment Strategy includes delivery roadmaps across key city sectors based on evidence, detailed in Appendix 2 and Appendix 4 . There is evidence of mitigation and adaptation actions being considered together in areas such as heat risk and green infrastructure. The strategy is also supported by other sector/subject-specific documents such as the Mayor's Transport Strategy and the Solar Action Plan for London, which both contain actions for climate change mitigation and adaptation. Specific modelling carried out for buildings and infrastructure provide examples of where actions are quantified and considered in an integrated way to maximise efficiencies. The London Environment Strategy Implementation Plan includes mitigation and adaptation actions across all sectors.
	3.1.2	Costs (Opex and Capex) attributed to mitigation and adaptation actions and assigned in line with the phased delivery of actions.	Specific programmes and actions are listed and costed for at least the first city budget, covering many but not all the actions identified within the plan. Modelling of climate actions for buildings and infrastructure include cost estimates. Several sub teams within the Environment team, including Green Infrastructure, Waste, Air Quality, Zero Carbon and the Energy Delivery team have business plans that cost relevant actions.
	3.1.3	Action prioritisation based on action impact on city/sectoral emissions reductions and ability to reduce risk, as well as city power to achieve change. Prioritisation linked to the emissions and risk scenarios presented under Pillar 2. Prioritisation methodology documented.	The final London Environment Strategy is based on prioritised actions that have been considered holistically against wider city environmental and social goals including climate change. The Zero Carbon Pathways work (detailed in Appendix 2) helped quantify and identify priority areas, and modelling of buildings and infrastructure climate actions informs prioritisation of actions based on impact of carbon savings and timeframes. Consideration has also been given towards city powers and the ability to deliver change.
	3.2	The volume of residual emissions following emissions reduction actions through to 2050 estimated and identified in the 2050 trajectory. A written commitment to update emissions reduction trajectories and to maintain an up-to-date estimate of residual emissions.	The Zero Carbon Pathways Tool shows residual emissions are estimated to be 10 per cent of current emissions. Appendix 2 of the London Environment Strategy provides more detail. London is part of the C40 Carbon Neutrality Protocol for Cities group, looking to develop consistent approaches to tackling residual emissions. The emissions inventory (LEGGI) is updated on an annual basis as per Policy 6.1.5. The GLA has committed to setting carbon budgets ten years in advance of each carbon budgeting period – an update to the modelling trajectory and residual emissions would be required for this.
	3.3.1	Wider social, economic and environmental benefits of climate actions identified in the Plan and aligned with local priorities.	The final London Environment Strategy references co-benefits of climate action, and a specific co-benefits study is currently being undertaken. The study will review the wider social, economic and environmental benefits of all climate actions, linked back to local priorities, and findings will be used to inform mayoral programmes.
	3.3.2	An explanation of how inclusivity has been taken into account across the suite of actions and how specific vulnerabilities or inequality in the city have been addressed within the Plan.	An Integrated Impact Assessment (IIA) was carried out to specifically address equality issues during strategy development and implementation. The IIA summarises where the London Environment Strategy will affect various equality groups, outlining positive or

			negative impacts and making recommendations for enhancement or mitigation accordingly. Within the final London Environment Strategy there are examples of targeted actions to safeguard vulnerable groups and addressing inequalities in health, air quality, and fuel poverty.
	3.4	Each action has, at a minimum, a lead organisation. The means of implementation (conditional or unconditional) identified in the Plan.	The final London Environment Strategy includes Mayoral actions and refers to key delivery partners where applicable. The <u>London Environment Strategy Implementation Plan</u> identifies the means of implementing key objectives from the London Environment Strategy, and clearly documents both lead and partner organisations for delivery. Supporting action prioritisation work such as modelling of climate actions for buildings also identifies who is likely to be responsible for each action.
	3.5	Action delivery timescales (start and end) linked to the 2050 emissions trajectory and climate risk profile, demonstrating how actions will contribute to meeting stated goals.	The <u>London Environment Strategy Implementation Plan</u> outlines key objectives and actions required over the next five years to put London on track to achieving its goals. Where relevant, end dates are provided. However, start dates are not provided, except for GLA group actions. The final London Environment Strategy contains an overall route map with target dates. The buildings and infrastructure modelling provides additional examples of where start and end dates are mapped for programmes and policies, linked to the 2050 emissions trajectory.
	3.6	Challenges to action implementation assessed through a risk assessment, and addressed through risk management and monitoring measures.	A high-level risk assessment has been conducted for all GLA-led actions, including programmes such as 'Energy Leap' and the Solar PV collective purchasing pilot project <u>Solar Together London</u> . Monitoring of actions is clearly outlined in the <u>London Environment Strategy Implementation Plan</u> , and it is standard GLA practice that a similar risk assessment will be carried out for all GLA-led actions including any new transformational actions that may be enabled in the future.
	3.7.1	A process for monitoring and reporting progress. Regular monitoring and yearly reporting (at a minimum), in line with existing governance and reporting systems. Progress reported to the Mayor's Office and publicly (except with regard to confidential data), as well as to a common global platform to communicate the city's contribution to the Paris Agreement.	The <u>London Environment Strategy Implementation Plan</u> provides details of regular progress monitoring against each action. The emissions inventory for the city (<u>LEGGI</u>) is updated annually, and as a member of C40, London also has an established process for reporting its climate data annually via <u>the online CDP portal</u> . Most other relevant monitoring and reporting is undertaken at project level on a regular/ad hoc basis through dashboards and reporting templates. However, a monthly report is prepared for the Mayor's Office and London Assembly. There are also quarterly Environment Committee meetings for scrutiny of GLA action, and once a year, the <u>Mayor's Annual Report</u> is published, reporting progress against specific KPIs (which include carbon reduction targets). The GLA <u>London Environment Strategy Implementation Plan</u> will be updated to show progress each year.
	3.7.2	A process for evaluating impact (emissions reduction, risk reduction and wider inclusive benefits). Regular evaluation, at	The GLA uses project dashboards to evaluate impact as well as report progress, and ongoing risk evaluation is also undertaken on a project basis as standard practice.

		<p>pre-defined times and in line with emissions inventory reporting updates or as new information on climate risks becomes available.</p>	<p>Learnings are documented for informing future work. Carbon budgets will be regularly reviewed, and updates on progress against the budget will be undertaken using LEGGI, which is updated annually. If annual reporting includes overall policy impact evaluation, the city will demonstrate best practice.</p>
<p>3.7.3</p>		<p>Commitment to publishing updates, supplements or addenda on a 5-yearly basis, informed by evidence from monitoring and evaluation, and/or at the start of each new mayoral term (particularly where a change of administration has occurred).</p>	<p>The London Environment Strategy Implementation Plan details actions over the next 5 years and so it will need to be updated within 5 years. Actions in the Implementation Plan will be reported against annually and the plan will be updated to show progress each year.</p>
<p>3.8</p>		<p>Communications during the Plan’s development and launch. Communications targeted across different stakeholder groups and supported by engagement, capacity-building and behaviour change programmes to enable key stakeholders to play their part in delivering the Plan.</p>	<p>A full consultation process has been conducted on the London Environment Strategy. A consultation response report has been published alongside the final London Environment Strategy highlighting where consultation responses have resulted in updates to the London Environment Strategy, or providing clear justification where suggestions have not resulted in updates to the London Environment Strategy. The London Environment Strategy Implementation Plan has been published alongside the final London Environment Strategy and it will be updated to show progress each year.</p> <p>The Deputy Mayor and Environment team colleagues have widely promoted the London Environment Strategy at events all over London and have made every effort to facilitate feedback from a wide range of stakeholders in the city through multiple methods of outreach and communication. The release of the final London Environment Strategy was communicated via a press release and promoted through various channels.</p> <p>The London Environment Strategy identifies various partners to communicate the Plan, support engagement and build capacity. For example, climate adaptation action is coordinated by the London Climate Change Partnership who are actively supporting stakeholders across different sectors understand climate risks and opportunities.</p>