Request for Proposal (RfP)

Using an Agent Based Model to predict the impact of city-level policies on the adoption of distributed renewable energy

C40 Cities Climate Leadership

44 Featherstone Street,

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September 1, 2026

C40 CITIES

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1. C40 Cities Climate Leadership

C40 is a network of nearly 100 mayors of the world's leading cities working to deliver the urgent action needed right now to confront the climate crisis and create a future where everyone, everywhere, can thrive. Mayors of C40 cities are committed to using a science-based and people-focused approach to limit global heating in line with the Paris Agreement and build healthy, equitable and resilient communities. We work alongside a broad coalition of representatives from labour, business, the youth climate movement and civil society to support mayors to halve emissions by 2030 and help phase out fossil use while increasing urban climate resilience and equity.

To learn more about the work of C40 and our cities, please visit our website or follow us on X, Instagram, Facebook and LinkedIn.

2. Summary, purpose and background of the project

C40 is representing 5 member cities in India (Mumbai, Ahmedabad, Bengaluru, Chennai, New Delhi, Karachi). From 2021 to 2024, all cities developed their first Paris Agreement-aligned Climate Action Plans and reported their emissions. 43 cities in Maharashtra signed the Cities Race to Zero pledge, and C40 supported the cities in developing a roadmap towards decarbonising their energy and building sector. Mumbai also became the fourth city in the world – and the first in the Global South – to launch a climate budget in June 2024, under C40's Climate Budgeting Programme.

C40 Research team is launching a new project to accelerate Indian grid decarbonisation and improve public health, funded by the Wellcome Trust, and in collaboration with Ashoka ACPET and CHART centres. This project is split into three work packages that will deliver evidence at different scales: work package 1 is focusing on the national scale and will integrate a health component in the national planning tool (India Energy Security Scenario, IESS). Work package 2 (led by C40) delivers on the urban scale, and focuses on city-level interventions to help the development of distributed solar energy to reduce the dependence on coal-generated electricity. The third work package focuses on rural communities and will look at the

adoption of electric cookstoves and produce local evidence on the health benefits of transitioning to clean cooking.

This project focuses on Work Package 2 (WP2). While national models like the India Energy Security Scenarios (IESS) provide information on top-down decarbonisation pathways, they lack the granularity required for city-level planning and decision-making. WP2 intends to provide a bottom-up perspective that analyses how urban mitigation interventions can accelerate the deployment of distributed solar and batteries, while reducing dependence on coal-generated electricity, which lowers GHG emissions and improves local air quality and health.

Cities can take direct actions to reduce electricity demand by retrofitting their municipal building portfolio and installing renewable energy on public land/buildings, but they do not have direct control over the composition of the state grid or private residential and commercial buildings. However, cities can act as accelerators: for example, introducing mandates or financial incentives on renewable energy, introducing enabling legislation that improves coordination in residential multi-family buildings, facilitating discussions with state ministries and DISCOMs, structuring group purchasing of solar, or providing information and guidance to residents and businesses.

The primary objective of this Request for Proposals is to apply an Agent-Based Modelling approach (ABM) to analyse the impact of specific local policy measures on the adoption of solar and batteries in Mumbai and Chennai (by residential and commercial actors). The successful supplier will:

- Develop the methodology and assess the data needs for this analysis. Conduct local ground surveys to understand appliance ownership and energy use patterns, if needed. Collect data, with C40 support, from local energy actors. Model a baseline of energy consumption amongst different types of households and businesses in the city.
- Develop (or repurpose) an Agent-Based Model to assess how several policy interventions (e.g., renewable energy mandates, change in the metering limitations, change in peak hour tariffs, etc.) would impact the uptake of distributed solar energy and batteries by heterogeneous agents, from an economic and behavioural perspective.
- Model how the change in use of solar energy can be translated into changes in the capacity factors of specific coal power plants that supply customers within Mumbai and Chennai, and in turn a reduction of the plants' hourly emissions (GHG, PM2.5, and NOX).

The results will inform the next iteration of Climate Action Plans (CAPs) for Indian C40 cities, providing evidence-based pathways for achieving net-zero by 2050. C40 will engage with the city and local energy agencies to enquire about the policies to prioritise for the analysis, based on feasibility and political interest. The points of contact in agencies will also be engaged throughout the process in order to collect feedback on the policies, the model, the data, and the outputs.

Scope: the model should represent all energy use in the built environment and industries within Mumbai and Chennai's urban boundaries. The model will represent different types of households (owners/renters, lower income/higher income) and businesses in the city (including industrial businesses). The solutions should focus on distributed solar electricity generation and use, and the installation of battery storage. The model does not represent solar thermal solutions or solutions for institutional buildings. The energy generation model covers the whole state.

The use of AI-supported tools for producing reports and data must be kept to a minimum, and no final output (text or visuals) should be produced by AI. Any AI-supported tools used must be clearly outlined and justified in the methodology section. Furthermore, the methodology must explicitly detail how results will be validated and verified using a combination of independent human oversight and cross-referencing with trusted databases/sources. Any data C40 shares is strictly confidential and cannot be shared with any AI tools.

Review: C40 reserves the right to engage an external auditor to review the methodology and the results.

Deliverable 1 - Methodology, local ground surveys and data collection

The Supplier will draft the methodology for the study. The methodology should include a mapping of the data sources, the data gaps, the model used, the scope of the analysis, the number of scenarios modelled and the outputs produced. This methodology will also highlight the protocol to collect the data: data requests to the city / state / discom, and other relevant actors, direct data collection, or publicly available data usage.

C40 has previously run several energy-related analyses in Chennai and Mumbai, and can provide some background data on the total city electricity consumption, the daily profile of energy consumption across broad categories (residential, industrial, commercial), a cost-benefit analysis on solar solutions, and a policy recommendation assessment. These sources can be used as background information, but shouldn't be used as main data inputs.

For the direct data collection, the Supplier will oversee the collection of data for a representative sample of heterogeneous actors in both cities. This can include (and not limited to): household size, income, appliance ownership, level of debt, preferences, availability of the technology, trust in renewable energy and available savings. The data should be cleaned, and a short report will describe the main findings. The collection of data should be part of the budget, and can be produced by the Supplier or a sub-contractor. The use of pre-collected surveys can also alternatively be used, if enough information is available and up-to-date.

Outputs:

- **Methodology** (20 pages maximum, Google Doc) summarising the approach and the data sources, and survey approach.
- **Data mapping,** with clarity on how to access each data source, and options in case the initial source is not available (Google Sheet)
- **Sample survey results** (Google Sheet) and report with the main findings (Google slides, and Google doc, 5 pages).
- **Data collection documents** (Google sheets, or csv): structured folder with all the data collected for the project

Engagement: The Supplier will meet on a weekly basis with the leading C40 team. Additionally, engagements with the wider C40 teams will happen when needed and a workshop engagement with the cities will be planned, in order to receive feedback on the main findings from the survey, explain the approach, and collect feedback from the list of policies considered for the ABM modelling. The Supplier's participation in in-person workshops in Mumbai and Chennai needs to be included in the budget.

Deliverable 2 - Model the uptake of distributed renewable energy with an Agent-Based model

Following the data collection and methodology phase, the Supplier will set up the energy and Agent Based model. The energy model should be a bottom-up representation of the city's overall energy consumption based on the different actors' profiles, and crossed with the top-down observations of the actual energy consumption. The energy model should represent the daily and seasonal energy use, with enough granularity to represent the variation of use of different sources of energy within a day.

An Agent-based model will include the representation of the complex interactions within cities, and behavioural responses from various heterogeneous actors. The model will also generate multiple future scenarios, modelling a baseline growth in energy use based on income and population growth, and scenarios based on policies agreed in Deliverable 1.

Outputs:

- **Updated Methodology from Deliverable 1**
- **ABM simulation runs for different scenarios.** The outputs will include the uptake of distributed solar and battery solutions as a response to various policies between different actors; the total daily energy consumption from those actors; the total energy consumption from the city.
- **ABM outputs:** Deliverables should be provided as a Google sheet, and a report (up to 15 pages, Google Doc, not including appendices).

Deliverable 3 - Model the change in power plant utilisation rates.

The model from Deliverable 2 should feed into Deliverable 3, to model how the change in energy consumption from the city can affect the grid at the state level. The model should take into account current power plants' utilisation rates, their (technical/economic) conditions, current PPA signed, and the potential difference in energy demand that they may face.

The model should represent the change in utilisation rates from power plants, the economic impact for the plant owners and the discom, and the change in emissions from the power plants (on an hourly basis).

Outputs:

- **Updated Methodology from Deliverables 1 and 2**
- **All files representing the change in energy use at a plant level (hourly basis)**
- **Report with the main findings**(up to 15 pages, Google Doc).

3. Proposal guidelines

This Request for Proposal represents the requirements for an open and competitive process. Proposals will be accepted until **12 pm EST 20th September 2026**. Any proposals received after this date and time will not be accepted. All proposals should include clear timetables, how you will work with C40, clear costs and detail on experience in this area, **and be under 15 pages (all included)**.

The proposal should give C40 evaluators all the information they need to assess your bid. Please clearly indicate where applicable:

- How your proposal is responsive to the Evaluation Criteria;
- **The assumptions you are making about the project; and a detailed description of the approach to Agent-Based Modeling (ABM) and the strategy for conducting the sample surveys in Mumbai and Chennai.**
- **Experience: Evidence of previous work in urban energy modeling, specifically within the Indian context. Please note that Suppliers must submit reference letters or recommendation letters from the past 3 years, attached to their proposal** (not included in the 15-page limit)**.**
- Risks you have identified and appropriate mitigation measures;
- Information about your fee; clear justification for costs related to data collection and technical modeling;
- Proposed timeline of implementation;
- Key Personnel: resumes of lead modelers and survey coordinators.
- Any additional support that you need to make the project a success, including any inputs you will need from third parties or C40 staff;
- Proposed working partnership with C40, including (as applicable) project governance and management, key personnel, key roles and responsibilities, and escalation procedure for issues.

You must include adequate information about how your costs were calculated to enable evaluation of cost reasonableness.

The use of AI-supported tools must be kept to an absolute minimum, and no final output (text or visuals) should be produced by AI. Any AI-supported tools used must be clearly outlined and justified in the methodology section. Furthermore, the methodology must explicitly detail how results will be validated and verified using a combination of independent human oversight and cross-referencing with trusted databases/sources. Any data C40 shares is strictly confidential and cannot be shared with any AI tools.

Supplier diversity

C40 is committed to supplier diversity and inclusive procurement through promoting equity, diversity and inclusivity in our supplier base. We believe that by procuring a diverse range of suppliers, we get a wider range of experiences and thoughts from suppliers and thus are best able to deliver to the whole range of our diverse cities and the contexts that they operate within.

We strongly encourage suppliers (individuals and corporations) that are diverse in size, age, nationality, gender identity, sexual orientation, majority owned and controlled by a minority group, physical or mental ability, ethnicity and perspective to put forward a proposal to work with us.

Feel welcome to refer to C40's Equity, Diversity and Inclusion Statement. Supplier diversity and inclusive procurement is one element of applying equity, diversity and inclusion to help deliver the goals of the Paris Agreement and build healthy, equitable and resilient communities.

Contract

Please note this is a contract for professional services and not a grant opportunity. Organisations unable to accept contracts for professional services should not submit bids. The work will be completed on the C40 Standard Services Contract. These terms and conditions are non-negotiable. Organisations unable to accept them as drafted should not submit bids in connection with this opportunity.

If C40 is unable to execute a contract with the winner of this competitive process, we reserve the right to award the contract to the second highest Potential Supplier.

Subcontracting

If the organisation submitting a proposal needs to subcontract any work to meet the requirements of the proposal, this must be clearly stated. All costs included in proposals must be all-inclusive of any outsourced or contracted work. Any proposals which call for outsourcing or contracting work must include a name and description of the organisations being contracted.

4. RfP and project timeline

RfP timeline	Due date
Request for Proposals sent	*September 1, 2026*
Questions submitted to C40	*September 10, 2026*
C40 responds to questions	*September 14, 2026*
Deadline for receiving Offers	*September 20, 2026*
Clarification of Offers	*September 25, 2026*
Evaluation of Proposal	*September 28, 2026*
Interviews (if needed)	*September 29, 2026*
Selection decision made	*September 30, 2026*
All Potential Suppliers notified of outcome	*October 10, 2026*

Project timeline	Due date
Deliverable 1 - Methodology, local ground surveys	*March 30, 2026*

and data collection	
Deliverable 2 - Model the uptake of distributed renewable energy with an Agent-Based model	*May 15, 2026*
Deliverable 3 - Model the change in power plant utilisation rates.	*June 15, 2025*
The project is due to run until	*June 30, 2027*

5. Proposal evaluation criteria

Proposals will be evaluated against the following criteria.

Evaluation criteria	Weighting
Methodology rigour and clarity of the delivery: Robustness of the proposed methodology and delivery timeline. Clear roles, data needs, and risks are identified.	20%
Technical Expertise: Experience with complex Agent-Based Modeling, Energy modelling, and the Indian policy context. The reference projects are closely related to the proposal.	30%
Project management experience: the Supplier will be working on a large project as part of a multidisciplinary team. The successful applicant will need to demonstrate their capacity to manage such a complicated project and provide a plan for reporting on the progress of this large project.	20%
Cost Reasonableness: Efficiency and effectiveness of the proposed budget.	20%
Equity and Alignment: C40 is looking to appoint an organisation that shares our values and is grounded in the context of the local community. Organisations that are based in India are strongly encouraged to apply.	10%

Following the evaluation of written submissions, C40 reserves the right to invite a shortlist of the highest-ranked bidders for an interview or technical presentation to further validate their proposals. If conducted, the results of these sessions will be incorporated into the final technical score as outlined in the evaluation criteria above.

6. Project budget

The project budget is 50,000 USD for all deliverables. Payment will be made according to meeting project milestones as approved by the C40 point of contact. Travel is expected for this work, and estimated expenses are to be included in the budget.

All proposals must include proposed costs to complete the tasks described in the project scope, **including all VAT and taxes, and exchange rates.** All costs incurred in connection with the submission of this RfP are non-refundable by C40.

7. C40 policies

C40 expects third parties to able to abide by these C40 policies

- Non-Staff Code of Conduct Policy here (C40) and here (Wellcome)
- Equity , Diversity and Inclusion Policy here (C40) and here (Wellcome)
- C40 Non-Staff Travel and Expenses Policy - here (C40) and here (Wellcome). All travel must be justified and minimised.
- All original published research must be made available in line with Wellcome's open access policy

8. Submissions

Each Potential Supplier must submit **one copy of their proposal** to the email address below by to:

- Markus Berensson, Head of Mitigation Research, mberensson@c40.org
- Honorine van den Broek d'Obrenan, Senior Research Manager, hvandenbroek@c40.org

Anonymised responses to questions will be provided here (link) when the Q&A period closes.

Based on the submissions received, C40 reserves the right to promote the establishment of consortium relationships or request potential suppliers refine their submission after receipt.

Have a concern?

C40 is committed to the highest standards of ethical behaviour. As such, we are committed to being open and responsive to complaints and suggestions on how we can improve from outside the organisation. Please refer to C40 Complaints Procedure on how to reach us.

Disclaimer

C40 will not accept any liability or be responsible for any costs incurred by Potential Suppliers in preparing a response for this RFP. Responses submitted will be accessible by all C40 staff and external evaluators (if any).

Neither the issue of the RFP, nor any of the information presented in it, should be regarded as a commitment or representation on the part of C40 (or any of its partners) to enter into a contractual

arrangement. Nothing in this RFP should be interpreted as a commitment by C40 to award a contract to a Potential Supplier as a result of this procurement, nor to accept the lowest price or any tender.