

## **Terms of Reference (TOR)**

### **(Extension of deadline)**

# **Hiring a Senior Technical Expert (Power/Energy Storage) for an assessment study on promotion and adoption of Battery Energy Storage in two Indian cities**

## **1. Background**

India's ambitious plans to use renewable energy (RE) sources, particularly solar and wind, to satisfy rapidly increasing electricity demand necessitates additional flexibility in the power system for the foreseeable future. Also, the automobile market in India is at the cusp of transitioning from internal combustion engine vehicles to electric vehicles, with rising fuel prices, high pollution levels in several major cities, and commitment to reduce the carbon emissions key drivers in making electric vehicles an attractive option in the Indian market.

Battery Energy Storage Systems (BESS) have emerged as a key technology supporting energy transition and carbon emissions reductions around the world. The current landscape in India presents opportunities to integrate BESS to cater to rising energy demand, changing load profiles due to aggressive e-mobility targets, increased variable renewable energy (VRE) generation at the urban scale. Given its improving cost-competitiveness and various services and benefits offered, BESS can be an enabling technology that offers various solutions to address technical barriers resulting from higher penetration of VRE and electric vehicles (EV) in the Indian power system, which is getting more and more complex to manage. Given the expected penetration of VRE and EV, significant potential requirement of BESS is estimated across various applications, at the grid scale along with adoption of behind the meter solutions.

To help fully realize the potential of BESS and enable transformation to RE and EV paradigm, there is a need for DISCOMs and energy regulators to undertake closely coordinated action with local governments and urban development/planning agencies. Roles and coordination between different agencies operating the power system and those responsible for urban development and planning are not clearly defined in the Indian context, thereby hindering coherent action to promote and incentivize BESS deployment at the urban scale in India. The aspirations, drivers and challenges with regard to RE and EV scale up and BESS adoption should be understood by DISCOM and energy regulators/planners as well as by city governments and urban planning agencies.

In this context, ICLEI-Local Governments for Sustainability, South Asia (ICLEI South Asia) is undertaking an assessment study to help identify gaps and specific strategies, approaches, and regulatory measures to be adopted by energy regulators for city governments to supplement and enable DISCOM actions on promoting large scale RE and BESS in cities. This study is being undertaken in two cities of Rajkot and Surat in Gujarat state. The study will highlight

linkages between urban planning and energy/power planning and seek to generate awareness and identify avenues for coordinated action between DISCOMs and city governments.

**2. Details of the consultancy assignment:**

<p><b>A) Location of the project</b></p>	<p>Predominantly remote work (desk-based) and in-person meetings as required in Gujarat.</p> <p>The assessment study targets the state of Gujarat and specifically its two cities of Rajkot and Surat. The study is being undertaken through a combination of desk literature study and analysis coupled with on-ground information gathering and stakeholder engagement.</p>
<p><b>B) Objective</b></p>	<p><b><i>The objective of the project is to:</i></b></p> <ul style="list-style-type: none"> <li>• Enable urban local authorities and DISCOMs to identify strategies and policy interventions for the cities to leverage urban planning linkages to promote demand for energy storage.</li> <li>• To make the DISCOMs and city governments aware of potential drivers for BESS at the urban scale and the opportunities and challenges associated with it.</li> <li>• To identify and develop specific opportunities and institutional frameworks for increased coordination and coherence between the urban authorities and energy sector actors.</li> <li>• To identify applicable business models for BESS deployment at the city scale for both BTM and FTM applications in two project cities based on global use cases.</li> <li>• To identify potential changes in regulation to address regulatory barriers and enable joint action by DISCOMs and city government.</li> </ul> <p>The outcomes of the project are targeted towards actors in the urban and energy sector including DISCOMs, municipal corporations, state and local urban planning/development departments, Smart City agency, energy development agencies, regulatory authorities.</p>
<p><b>C) Scope of Work</b></p>	<p>The scope for the expert would be to play a <b>part-time advisory role as a Senior Technical Expert (Power/Energy Storage)</b> to support the project.</p> <p>The expert is expected to guide, review, and provide advisory inputs to steer the project team on the technical analysis, assessment framework and</p>

stakeholder engagement for promotion and adoption of utility-scale BESS at the city scale in the two project cities of Rajkot and Surat in Gujarat state. The consultant shall lead technical analysis

***The specific responsibilities of the consultant in the assignments are as following:***

***Review and Advisory Support***

- Review and provide advice to the project team on collection of data from stakeholders as required for technical analysis and information gathering related to RE & EV deployment, and local programs & policies influencing opportunities and potential of BESS for the target state and two cities.
- Advise the project team on selection of priority use cases (3 to 4 cases envisaged) for BESS deployment (front-of-the-meter and behind-the-meter) that offer high opportunities/potential for city government, DISCOMs and consumers, for further investigation in the two project cities.
- Review and provide advice to the project team in development of a city-specific assessment framework for BESS adoption in the two project cities. The assessment framework will be applied by the project team to identify and analyze opportunities, readiness, gaps, enabling policy and regulatory recommendations for at-scale adoption of battery energy storage systems (in support of/conjunction with renewable energy and electric mobility) in the two project cities.
- Advise on identification of suitable business models or investment strategies for pilot testing and early-stage development of BESS (BTM and FTM systems) solutions, jointly by DISCOMs and ULBs in the project cities, for further exploration.

***Lead Technical Analysis***

- Support the project team in validating the shortlisted use cases through quantitative and qualitative analysis, such as the cost-benefit analysis on deploying RE and BESS to support large scale EV charging infrastructures against distribution capacity upgradation.
- Recommend priority regulatory interventions and modifications that address regulatory barriers identified for deployment of BESS (BTM and FTM systems) and promote investments towards BESS adoption.

	<p><b>Lead Stakeholder Consultations</b></p> <ul style="list-style-type: none"> <li>• Lead discussions with key stakeholders on project kick-off and dissemination workshop. The two workshops (half-day) will engage urban and energy sector stakeholders such as urban local body (ULB) representatives and DISCOMs from two project cities, Gujarat state government representatives, energy regulators, think-tanks, private sector, and technology/solution providers. The workshops will be organized by the project team and shall be either virtual or in-person events (subject to COVID-19 pandemic restrictions).</li> <li>• Lead technical discussions with stakeholders in two city-specific roundtables (one half-day roundtable in each project city) on opportunities, barriers, readiness, and enabling strategies for coordinated planning and action by key local urban and energy sector stakeholders to promote and adopt utility scale BESS that supports distributed RE and EV transition locally. The roundtables will engage DISCOMs, ULB, Smart City SPV, state nodal energy agency, energy regulators, urban planning, and infrastructure agencies in each city. The roundtables will be organized by the project team and shall be either virtual or in-person events (subject to COVID-19 pandemic restrictions).</li> <li>• Undertake a minimum of two one-to-one in-person meetings with key senior management officials/decision-makers of ULBs and DISCOMs in each project city to discuss opportunities, identify priority interest areas, and enabling solutions for BESS adoption.</li> </ul>	
<p><b>D) Time Schedule of delivery</b></p>	<p>This assignment is expected to last for the duration of the project (slated to end in June 2022), albeit in a part-time role supporting the project team in the delivery of the project.</p>	
	<p><b>Deliverables</b></p>	<p><b>Envisaged Timeline</b></p>
	<p>1a) Completion of review and submission of inputs for shortlisting of use cases and city specific assessment framework for both target cities</p> <p>1b) Conduct of project kick-off workshop with key stakeholders</p>	<p>October 15, 2021</p>

	<p>2) Completion of review and submission of technical inputs to the draft city specific assessment reports prepared by project team for two target cities</p>	<p>December 15, 2021</p>
	<p>3a) Submission of meeting minutes to capture inputs and recommendations on enabling strategies gathered from conduct of minimum two stakeholder roundtables</p> <p>3b) Identification of suitable business models or investment strategies for BESS deployment, regulatory interventions for both project cities</p> <p>3c) Completion and submission of quantitative and qualitative analysis to validate shortlisted use cases for each city</p> <p>3d) Review and inputs to final project report on strategies and recommendations on BESS adoption at the urban scale; and conduct of final dissemination workshop</p>	<p>June 30, 2022</p>
<p><b>E) Payment and delivery schedule</b></p>	<ul style="list-style-type: none"> <li>• <b>30% of total work value:</b> On signing of contract</li> <li>• <b>20% of total work value:</b> Satisfactory submission and acceptance of deliverables 1a, 1b and 2 (refer section D) by ICLEI South Asia</li> <li>• <b>30% of total work value:</b> Satisfactory submission and acceptance of deliverables 3a, 3b and 3c (refer section D) by ICLEI South Asia</li> <li>• <b>Remaining 20% of total work value:</b> On satisfactory completion of deliverable 3d (refer section D) by ICLEI South Asia</li> </ul>	
<p><b>F) Timeline for proposal submission</b></p>	<ul style="list-style-type: none"> <li>• ToR published – September 1, 2021</li> <li>• Last date for submission of proposal <b>(extended) – September 15, 2021</b></li> </ul>	

<p><b>and selection</b></p>	<ul style="list-style-type: none"> <li>• Issue of work order to selected consultant – September 20, 2021</li> </ul>
<p><b>G) Contact</b></p>	<p><b>For bid submission (soft copy):</b></p> <p>i) Soumya Chaturvedula, Deputy Director, ICLEI South Asia, Email: <a href="mailto:soumya.chaturvedula@iclei.org">soumya.chaturvedula@iclei.org</a></p> <p>ii) Nikhil Kolsepatil, Senior Manager (Energy &amp; Climate), ICLEI South Asia, Email: <a href="mailto:nikhil.kolsepatil@iclei.org">nikhil.kolsepatil@iclei.org</a></p> <p><b>For any queries:</b> Nikhil Kolsepatil, Senior Manager (Energy &amp; Climate), ICLEI South Asia, Email: <a href="mailto:nikhil.kolsepatil@iclei.org">nikhil.kolsepatil@iclei.org</a> (+91) – 85859 73062</p>
<p><b>H) Consultant Credentials</b></p>	<p><b>Both independent consultants and firms are welcome to apply. The consultants should ideally have the following expertise and experience:</b></p> <p><b>Technical requirements</b></p> <ul style="list-style-type: none"> <li>• Graduate degree in <b>Electrical/Mechanical engineering</b> and allied fields</li> <li>• Post graduate university degree from similar background or completion of relevant <b>post-graduate education related to power systems, energy management, finance, or allied fields.</b></li> <li>• <b>Minimum 10 years professional experience in the power sector with at least 5 years’ experience in energy storage and related research and consultancy work</b></li> <li>• Demonstrated understanding of current energy storage issues including energy storage applications and use cases; energy storage component technology; integration of conventional or renewable generation with energy storage; and valuation of energy storage in various applications.</li> <li>• Demonstrated experience of collaborating with and delivering technical solutions/consulting services to municipal energy authorities, DISCOMs, regulatory authorities and/or other stakeholders in the areas of power, renewable energy, and energy storage.</li> </ul>

	<ul style="list-style-type: none"> <li>• Experience of working effectively with technical public sector, commercial business stakeholders and technology providers, including strong facilitation skills.</li> <li>• Comfortable with public speaking in varied settings, ranging from working groups to conferences.</li> <li>• Excellent report writing, language, communication, and IT skills (including full familiarity with applications including MS Excel, Word, PowerPoint, any other tools).</li> </ul> <p><b>Financial requirements</b></p> <ul style="list-style-type: none"> <li>• The bidder (if a firm) should possess a valid national registration certificate.</li> <li>• The bidder should be submitting VAT registration (if a firm) and up-to-date PAN certificate.</li> <li>• The bidder (if an individual) should possess valid national identity document to prove nationality.</li> </ul>
<p><b>I) Details required in proposal</b></p>	<p><b><u>Technical Bid:</u></b></p> <p><b><i>Technical bid shall cover the following points:</i></b></p> <ol style="list-style-type: none"> <li>1. Credentials of organization(s) or individual consultant</li> <li>2. Concept proposal on how the consultant will play the advisory and supporting role in the execution of the project including workplan, timelines and travel logistics for stakeholder engagement based on location of consultant to accomplish the tasks specified during the scheduled project duration.</li> <li>3. Details of similar previous projects (at least 5) in the power sector/energy storage domain implemented by the organization(s)/individual with documentary proof for the same</li> <li>4. Names and qualifications of the key personnel that will perform the services indicating who is Team Leader, who are supporting (if it is a multi-personnel team). CVs demonstrating qualifications must be submitted. If the CV of a proposed staff is found incorrect, the award of the consultancy to the bidder may also be liable to cancellation in such an event.</li> </ol> <p><b><u>Financial Bid:</u></b></p> <p><b><i>Financial bid shall cover the following points:</i></b></p> <ol style="list-style-type: none"> <li>1. Financial bid for the tasks listed in the ToR document. The total cost should include all the expenses required to complete all the tasks as</li> </ol>

	<p>mentioned in this ToR.</p> <ol style="list-style-type: none"> <li>2. A financial proposal clearly stating manpower/expert time and costs as may be required, adequately addressing the manpower stated available for the assignment, as given in the technical proposal.</li> <li>3. The financial bid shall be inclusive of all the costs including taxes associated with the assignment. The financial bid should be prepared in INR.</li> <li>4. The total amount indicated in the financial bid shall be without any condition attached or subject to any assumption and shall be final and binding. In case any assumption or condition is indicated in the financial bid, it shall be considered non-responsive and liable to be rejected.</li> <li>5. In case of any discrepancy between the amount quoted in figures and words, the amount quoted in words will be considered for evaluation purposes.</li> <li>6. Latest audited financial statement</li> </ol> <p><i>Failure to comply with or provide the above listed items in the Technical Proposal may result in disqualification. The bidder shall produce, original documents for cross verification as and when requested by ICLEI South Asia. Bidders shall ensure that the technical and price bid documents shall have a sign of the authorized representative/signatory, on the first and last pages at a minimum.</i></p> <p><b>All Technical and Financial bids should be in English.</b></p> <p><b>Soft copy of the proposal/bid document (technical and financial) should be mailed to ICLEI South Asia on the contact details mentioned in this document no later than 15<sup>th</sup> September 2021.</b></p> <p><b>Please note:</b></p> <ol style="list-style-type: none"> <li>1. All or any accessories/consumables/items required for satisfactory commissioning of the study/work shall be deemed to be included in the contract and shall be provided by the bidder without extra charges</li> <li>2. <i>Bid Validity:</i> All bids submitted shall remain valid for a period of 30 days from the time of submission. Any bids submitted for a lesser duration can be disqualified.</li> <li>3. In case the bidder wishes to sub-contract part of his deliverables, the final responsibility of delivery and performance solely lies with the bidder.</li> </ol>
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### 3. Terms and Conditions:

<b>Deviation from date of</b>	1. Time is the essence of the contract and as such all works shall be
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<p><b>completion and timeline</b></p>	<p>completed within the time stipulated in the contract/ work order</p> <ol style="list-style-type: none"> <li>2. If the bidder, without reasonable cause or valid reasons, commits default in commencing the work within the aforesaid time limit, ICLEI South Asia shall without prejudice to any other right or remedy, be at liberty, by giving 15 days' notice in writing to the contractor to commence the work, to forfeit the balance payment depending on the status of work, and to cancel the Work Order.</li> <li>3. In the event of any occurrences causing delay, the bidder shall intimate immediately in writing to ICLEI South Asia.</li> </ol>
<p><b>Conflict Resolution</b></p>	<p>In case of a conflict, the same would be addressed through mutual discussions. In case the conflict cannot be mutually sorted, ICLEI South Asia's decision would be final and binding.</p>
<p><b>Termination of Contract</b></p>	<p>In case the expert/consultant is unable to perform as per the expectations of the project team and/or project cities, the contract of the expert/consultant can be terminated based on mutual consent. In case of contract termination, the expert/consultant would be paid based on deliverables completed to the satisfaction of ICLEI South Asia.</p>
<p><b>Ownership and Copyright</b></p>	<p>The selected consultants shall understand that as part of the Consultancy, they might be asked to create, modify, or contribute to the creation of designs, documentation, and other copyrightable works. The Consultant agrees that all designs and assignment outputs, including text, photographs, work-up files, documentation, and other copyrightable materials that have been prepared as part of this contract shall be "works made for hire" and that ICLEI South Asia shall own all the copyright rights in such works.</p>