



CTF -DPSP(IV-GESP)

PROJECT TITLE: PROGRAM FOR TRANSFORMATIVE MOBILITY AND BATTERY STORAGE
COUNTRY: INDIA
MDB: IBRD

**Cover Page for CTF Project/Program Approval Request^[a]
Global Energy Storage Program (GESP / DPSP-IV)**

Country/Region	India	CIF Project ID#	Auto Generated by CIF AU
Type of CIF Investment:	X	Public	Private
Project/Program Title (same as in CCH)	Program for Transformative Mobility and Battery Storage		
Sector	Energy		
Theme	GESP		
Technology	Batteries		
Project Lifetime	5 Years (Phase 1) of the Multiphase program which is for 7 years.		
Is this a private sector program composed of sub-projects?	Yes		
	No		X
Financial Products, Terms and Amounts (same as CCH)			
Financial Product	USD (million)	EUR (million)^[b]	
Grant	13.00		
MPIS	0.30		
Public sector loan (Senior loan)	0.00		
	0.00		
First loss guarantees	0.00		
Second loss guarantees	0.00		
Equity	0.00		
Senior loan	0.00		
Senior loans in local currency hedged	0.00		
Subordinated debt / mezzanine instruments with income participation	0.00		
Subordinated debt/mezzanine instruments with convertible features	0.00		
Convertible grants and contingent recovery grants/loans	0.00		
Other (please specify)	0.00		
Total	13.30		
Implementing MDB(s)	IBRD		
MDB Focal Point and Project/Program Task Team Leader (TTL):			
Headquarters-Focal Point: Chandrasekar Govindarajalu cgovindarajalu@worldbank.org			
TTL: Mani Khurana: mkhurana@worldbank.org Gerald Paul Ollivier: gollivier@worldbank.org			

National Implementing Agency:

State Bank of India (SBI)

Brief Description of Project/Program (including objectives and expected outcomes) ^[c]

Project Development Objectives (Phase 1 PforR). To scale up investments for BESS in India and strengthen the capacity of the key stakeholders for BESS.

The seven-year MPA Program would support in meeting the GoI's target of fulfilling 50 percent of its energy requirements from RE by 2030 in the national energy mix and 30 percent of EV sales penetration by 2030. Through its various phases, the Program design and target dates have been aligned with the dedicated multidisciplinary mission (NMTMBS) supported by a longer-term, adaptive, and continuous engagement across the RE and e-mobility sectors. The primary focus of the MPA is to reduce emissions through increase in the deployment of battery storage for both integration of RE in the power system and uptake of EVs. The three phases under the MPA will facilitate the energy and transport transition envisioned under the NMTMBS and contribute to achieving the net-zero emission target. E-mobility remains the primary driver of demand for battery storage closely followed by stationary storage applications. To realise the full emission reduction benefit from the GoI's EV30@30 target, an accelerated integration of battery storage and undertaking of complementary investments in charging infrastructure are needed, which are supported by this MPA.

Phase 1 would adopt a PforR instrument to provide concessional financing for BESS in the power system, support the evolving BESS ecosystem, and kick-start the nascent market to accommodate high penetration of variable RE in the grid. This phase will be implemented by the selected FI (SBI) and is scheduled to go to the World Bank Board in June 2023. The TA program in this phase will focus on addressing sector barriers for deployment and adoption of battery storage and develop the necessary ecosystem for battery storage, charging infrastructure, and e-bus adoption. The first phase of US\$355 million (US\$189.2 million IBRD loan, US\$47.8 million concessional financing, **US\$13 million CTF Grant** and US\$105 million private sector financing).

The CTF financing of USD 13 million is crucial to overcome several barriers to uptake of BESS, which is an enabler of the power system's progressive transition to solar power. The Program will provide concessional climate finance blended with development finance to reduce the overall cost of debt for the battery storage to help kickstart these markets. The Program will work with SBI as the financial intermediary to introduce financing models and products tailored to the owner of battery storage for generation, transmission, and distribution or behind the meter projects. The expected outcome is to increase the participation of the number of system integrators and battery storage providers through the lending provided by the financial intermediary. The lending options will be extended for both Capex i.e., funding for battery infrastructure as well as Opex i.e., battery storage related services projects. The Program will provide discounted financing to early catalytic investments to prove feasibility and signal further commercial investment in battery storage.

CTF financing under the program will catalyze early investment and signal further investment opportunities in battery energy storage systems to develop a strong self-sustaining domestic market. The Program will use a two-pronged approach analogous to the 'finance-plus' concept, whereby the Bank's value-added goes beyond financing and contributes to the transfer of knowledge and international best practices, reform processes and systems, strengthening institutional capacity, and exploration of innovative financing mechanisms. The program will support targeted TA to remove barriers to large-scale adoption of battery storage by; (i) Strengthening the capacity of SBI, other banks, discoms, transmission utilities, load dispatch centre about battery storage operation for these stakeholders; (ii) Create an enabling policy and regulatory environment through extended support to Federal and State regulators to develop an enabling framework for monetizing value propositions of battery storage; (iii) Support creation of a circular economy through studies evaluating solutions for battery waste management and re-use as well as the development of environmental standards and Guidelines/SOPs for battery recycling facilities; (iv)

Support safety practices for BESS, through studies that will evaluate the safety practices surrounding manufacturing, transportation, handling and installation including policy and regulatory framework for testing, codes and standards for safety requirements and Environment Health and Safety standards for battery storage use in India and (v) strengthening institutional capacity; institutional and consumer awareness on the above aspects.

The proposed Program is designed around three results areas: RA1: Strengthening institutional capacity; RA2: Market development of battery storage; and RA3: Increasing installed capacity of battery storage.

Four disbursement linked indicators (DLIs), consistent with the PforR framework and based on the Program’s Results Framework and results chain, have been developed in consultation with SBI. The World Bank will disburse against the achievement of these DLIs. They have been identified over five disbursement periods corresponding to the launch and the five years of the Program implementation period. The details of the DLIs including the disbursement arrangements and verification protocols are provided in Annex 2. The POM is being finalized by SBI and its satisfactory completion will be an effectiveness condition.

Results Chain of the BESS Program

PDO/Results Area	Actions	Intermediate Outputs	Outcomes	DLIs
RA1: Strengthening institutional capacity	<ul style="list-style-type: none"> • Establish a PIU for the BESS program • Set up internal credit procedures and provide incentives to staff for undertaking the promotion of BESS loans • Provide training to staff • Develop and implement innovative business models including aggregators for the financing of battery storage owners • Create an enabling policy and regulatory environment for monetizing the value of battery storage systems in the grids • Create system and incentives for recycling and reuse of batteries • Implement the TA program for other banks and regulators with the help of the PMC and under the guidance of NITI Aayog 	<p>Innovative financing models and products tailored to BESS consumers</p> <p>Launch of Program contract signed with the consulting firm for the implementation of the TA and capacity-building program of key stakeholders</p> <p>Different studies under the TA program completed</p>	<p>Institutional capacity improved and BESS lending mainstreamed at SBI</p>	<p>PIU in SBI Corporate Center is fully functional, with the finalized POM and IT systems strengthened to process and track BESS loans (DLI 1)</p> <p>Consulting firm for the implementation of the TA program mobilized; studies under the TA program are completed (DLI 2)</p>
RA2: Market development of BESS	<p>Undertake outreach to generate market demand for BESS, especially by private investors</p>	<p>Cumulative amount of lending approved by SBI (US\$, millions) and</p>	<p>BESS market deepened by increasing the</p>	<p>Amount of BESS lending signed by SBI (DLI 3)</p>

		capacity (MW) of BESS Cumulative amount of equity invested by sub-borrowers/private parties under the project (US\$, millions)	number of participants	
RA3: Expanding BESS capacity installed	Sub-borrower installs BESS	Capacity (MWh) of BESS installed	Tons of CO ₂ emissions reduced	BESS capacity (MWh) installed (DLI 4)

Consistency with CTF investment criteria	
a. Potential GHG emissions savings	325,302 tCO ₂ eq/yr and, 4.2 MtCO ₂ eq over the lifetime of the investments
b. Cost-effectiveness	US\$3.1 _{CTF} /tCO ₂ eq
c. Demonstration potential at scale	<p>The Proposed Program – by improving the capability of the power system to integrate distributed energy resources – is expected to be instrumental in accelerating the growth of battery and energy storage in India.</p> <p>Modeling studies have reviewed the potential role of energy storage in least cost development of India’s power system, and its consequent benefits for system cost savings, changes in the generation mix and particularly accelerated growth of renewable energy, and associated emissions reductions.</p>
d. Development impact	<p>Economic analysis by the Bank finds that indicative investments under the Program, as well as the Program’s scaled-up phase, will bring substantial economic benefits to India’s economy. Battery deployment in the scaled-up phase could save India US\$6 billion in capital expenditure, fuel costs, and operations and maintenance, mostly by allowing solar power to compete more effectively with coal-fired generation. The Net Present Value of the Program scenario was over US\$ 9.7 billion when the social benefits of avoiding 232 MtCO₂ by 2030 are included.</p>

<p>e. Implementation potential</p>	<p>The implementation potential of the program is high as it is aligned with the Government's plans for the sector and there is strong ownership within the Government of India. The Program for Transformative Mobility and Battery Storage aims to achieve India's five-point climate action plan as laid out in COP26 and the latest NDCs by supporting transition to nonfossil energy capacity with focus on RE sources by implementing the planned interventions under the three phases. These include greening the power grid by increasing battery storage capacity and developing the necessary ecosystem for further adoption of RE integration in power systems as part of the first phase and supporting green charging and deployment of e-buses which would result in reduction of carbon emissions through accelerated adoption of RE and e-mobility in India's energy and transport transition as part of the second and third phases. The Program is also aligned with the GoI's National Action Plan on Climate Change to enhance India's ecological sustainability and encourage sustainable energy sources. It is consistent with the National Solar Mission that promotes the development of solar power in India and the broader RE targets. The Program is aligned with the World Bank's support to the GoI's National Clean Air Program for adoption of cleaner technologies in cities.</p>
<p>f. Additional costs and risk premium</p>	<p>The CTF Grant will help to overcome the viability gap for energy storage for SBI while BESS costs remain higher than prevailing international prices. The CTF support will also help mitigate perceptions of technology risk given undemonstrated performance in India, and commercial risk given the uncertain value streams as the market and regulatory environment for energy storage matures. The CTF funds will support technology funding for a nascent battery storage market and in turn bring down the cost of lending and support the development of an eco-system around the battery storage market. They will support the adoption of a cleaner solution rather than significant ramp up of coal in the short- and medium terms, and therefore help reduce the lock-in of millions of tons of GHG emissions for the long term.</p>
<p>Additional CTF investment criteria for private sector projects/ programs</p>	
<p>g. Financial sustainability</p>	<p>It is a public sector project</p>
<p>h. Effective utilization of concessional finance (including a detailed analysis on how the proposal meets the minimum concessionality principles, and on how it is aligned with the blended concessional finance principles)</p>	<p>It is a public sector project</p>
<p>i. Mitigation of market distortions</p>	<p>It is a public sector project</p>
<p>j. Risks</p>	<p>It is a public sector project</p>

<p>For DPSP projects/programs in non-CTF countries, explain consistency with FIP, PPCR, or SREP Investment Criteria and/or national energy policy and strategy</p>
<p>India is a CIF eligible country.</p>
<p>Stakeholder Engagement</p>
<p>The MPA's learning agenda will include collaboration with a wide range of stakeholders in both the private and public sectors to create and sustain an ecosystem for BESS in India's power and e-mobility sectors. The objective will be to foster the technical readiness, policy, and regulatory enabling environment and institutional capacity for large-scale deployment of BESS in the power and e-mobility sectors.</p>
<p>Gender Considerations</p>
<p>This is a gender tagged program in the World Bank and the program under the Strengthening Institutional Capacity area will be Strengthening women's employment and advancement strategies in the RE sector. Under Results Area 1 (RA1), the Program will leverage existing SBI initiatives to aid women's training and career advancement in battery storage. Priority interventions leveraged under the TA include (i) Garima Portal, which is an anonymous portal for employees to lodge complaints related to sexual harassment at the workplace and for delivering an inclusive and secure workplace for its women employees, and (ii) Maitreyi, which is a mentoring program designed for in-house preparation of identified mentors to guide younger women in the organization and help resolve any challenges faced by them. Priority interventions supported under the TA include (i) training a select percentage of SBI's women officials on battery storage systems, (ii) providing talent management for women officials trained in battery storage, and (iii) offering on-the-job skilling opportunities including industry exposure linked to career progress. Under the proposed TA, a new paid internship scheme will be created and rolled out to on-board female graduates and create opportunities for on-the-job training and industry exposure. The battery storage space is at a nascent stage in India, and early exposure and on-the-job learning will help women graduates access highly skilled jobs at a later stage. This will be the first program of its kind on battery storage support by SBI and an innovation for the RE sector in South Asia. To track the gender result chain, the RF includes two intermediate indicators on gender: (i) Percentage of female graduates recruited for paid internships under the Technical Assistance and (ii) Female graduates who are employed for more than six months after their graduation tracked through tracer study.</p>
<p>For projects/programs with activities in countries assessed as being at moderate or high risk of debt distress, macro-economic analysis to evaluate the potential for the CTF project or program to impact the country's debt sustainability</p>
<p>N/A</p>
<p>For public sector projects/programs, analysis of how the project/program facilitates private sector investment</p>

<p>This project will adopt the Multiphase Programmatic Approach (MPA) to support NMTMBS. The MPA aims to catalyze early investments and mobilize private sector financing for the development of sustainable markets for BESS, charging infrastructure and e-mobility. These activities will be implemented through a series of projects. Phase 1 of the MPA will be a US\$250 million PforR aimed to provide concessional financing for battery energy storage system (BESS) in the power system and support the BESS ecosystem to kick start the nascent BESS market to accommodate high penetration of variable renewable energy in the grid.</p>	
Indicators and Targets	
Project/Program Timeline	
Expected start date of implementation ^[d]	15-Jun-2023
Expected end date of implementation ^[d]	31-Mar-2028 (MPA end date 31-Mar-2030)
Expected investment lifetime in years (for estimating lifetime targets)	5 years for Phase 1
Core Indicators	Targets
CTF 1. GHG emissions reduced or avoided (Tons CO ₂ e)	325,302 tCO ₂ eq/yr and, 4.2 MtCO ₂ eq over the lifetime of the investments
CTF 3. Installed capacity of RE as a result of CTF interventions (MW) (Please provide disaggregation)	Installed capacity of VRE supported [MW] = 665 MW. Solar PV [MW]: 430 Wind [MW]: 235
GESP specific indicators	Targets
GESP 1. Energy rating (MWh) (Please provide disaggregation) ¹	Installed capacity of BESS (MWh) - 1,001 MWh The program is expected to support installation of about 1001MWh of BESS. Since this a technology agnostic project information on the capacity, ratings & location is not known at the moment. A detailed report with these parameters can be generated post-installation
GESP 2. Power rating (MW) (Please provide disaggregation)	The program is expected to support installation of about 1001MWh of BESS. Since this a technology agnostic project information on the capacity, ratings & location is not known at the moment. A detailed report with these parameters can be generated post-installation
GESP 3. Regulations, codes, or standards for energy storage solutions (number) (Please provide disaggregation)	
Other project-specific indicators (Project specific indicators may vary among operations, and thus are not mandatory to report. Regardless, CIF AU encourages them to be reported on wherever possible)	Targets
<p><i>Please also submit the full project results framework to the CIF AU upon MDB Board approval of project.</i> Please refer to the results framework and annex 9 of the PAD</p>	
Development co-benefit indicators (Please identify at least one development co-benefit indicator that will be tracked (mandatory))	Targets

¹ Please refer to the list of disaggregated indicators via the [GESP Monitoring and Reporting Toolkit](#)

<ul style="list-style-type: none"> • Number of innovative energy storage and renewable energy sub-projects implemented • Number of knowledge products/technical studies prepared • Percentage of women in the total workforce of a company implementing energy storage systems (disaggregated by technical departments, management, and/or board level) • Female graduates who are employed for more than six months after their graduation tracked through tracer study (Percentage) 	<ul style="list-style-type: none"> • Baseline 0 sub-projects in 2023 • Target 10 sub-projects (Total capacity of 1001MWh) by 2028 • Baseline 0 studies in 2023 • Target 3 studies by 2030 • Baseline 0 in 2023 • Target: 30 percent by 2030 • Baseline 0 in 2023 • Target: 30 percent by 2040 	
Co-financing		
	Please specify as appropriate	Amount (in million USD)
MDB 1	IBRD	189.2
MDB 2 (if any)		
Government		
Private Sector	Commercial Financing	105.0
Bilateral	CCEFCF	47.8
Others (please specify)		
Total		342.0
Expected Date of MDB Approval:		June 15, 2023

NOTES:

[a] This cover page is to be completed and submitted together with the MDB project/program proposal when requesting CTF funding approval by the Trust Fund Committee.

[b] For products denominated in EUR, please also provide USD equivalent in the column to the left

[c] Please provide the information in the cover page or indicate page/section numbers in the accompanying project/program proposal where such information can be found.

[d] Insert “not applicable” (N/A) if dates cannot be determined at the time of submission (e.g. private sector programs)

[e] Insert value N/A if indicator is not applicable to the project/program.

Version: November 2022