



## **CTF -DPSP (IV-GESP)**

**PROJECT TITLE: MAHARASTRA POWER DISTRIBUTION ENHANCEMENT PROGRAM**  
**COUNTRY: INDIA**  
**ASIAN DEVELOPMENT BANK**

Cover Page for CTF Project/Program Approval Request <sup>[a]</sup> Global Energy Storage Program (GESP / DPSP-IV)			
Country/Region	India/South Asia	CIF Project ID#	Auto Generated by CCH
Project/Program Title (same as in CCH)	Maharashtra Power Distribution Enhancement Program for Facilitating Solarization and Expanding Agricultural Connections		
Type of CIF Investment:	<input checked="" type="checkbox"/> Public <input type="checkbox"/> Private		
Sector/Focus/Pillar (Please select all that apply)	<input checked="" type="checkbox"/> Enabling Environment <input type="checkbox"/> Energy Efficiency <input checked="" type="checkbox"/> Energy Storage <input checked="" type="checkbox"/> Renewable Energy <input type="checkbox"/> Renewable Energy/ Energy Efficiency <input type="checkbox"/> Transport <input type="checkbox"/> Other ( _____ )		
Technology/Area (Please select all that apply)	<input type="checkbox"/> End Use <input type="checkbox"/> District Heating <input checked="" type="checkbox"/> Smart Grid <input checked="" type="checkbox"/> Capacity Building <input type="checkbox"/> Multiple <input checked="" type="checkbox"/> Batteries <input type="checkbox"/> Hydro <input type="checkbox"/> Green Hydrogen <input type="checkbox"/> Geothermal <input type="checkbox"/> Wind <input checked="" type="checkbox"/> Solar <input type="checkbox"/> Hydropower <input type="checkbox"/> Cookstoves <input type="checkbox"/> Waste to Energy <input type="checkbox"/> Bioenergy <input type="checkbox"/> Mixed RE <input type="checkbox"/> Green Fuels <input type="checkbox"/> Modal Shift <input type="checkbox"/> Vehicle Technologies <input type="checkbox"/> Mass Transit <input type="checkbox"/> Electric Vehicles <input checked="" type="checkbox"/> Other (Agriculture Solarization)		
Project Lifetime (MDB Board/Management approval to project closure)	58		
Is this a private sector program composed of sub-projects?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Financial Products, Terms and Amounts (same as CCH)			
Financial Product	USD (million)	EUR (million) <sup>[b]</sup>	
PPG (Project Preparation Grant)	-	-	
Grant	-	-	
MDB Project Implementation and Supervision Services (MPIS) <sup>1</sup>	-	-	
Public sector loan – Senior loan	40	-	
First loss guarantee	-	-	
Second loss guarantee	-	-	
Equity	-	-	
Senior loan	-	-	
Senior loan in local currency hedged	-	-	
Senior loan in local currency unhedged ( <b>EXCEPTIONAL REQUEST</b> )	-	-	
Subordinated debt/loan/ mezzanine instrument with income participation	-	-	

<sup>1</sup> MPIS - CIF Operational Modalities For New Strategic Programs [here](#)

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

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

[c] Please provide high-level information/appropriate links to relevant project documents and/or annexes as applicable.

[d] Insert (n/a) if not applicable to the project/program or cannot be determined at the time of submission.

[e] Per MDBs' own Paris alignment climate finance tracking methodologies.

Subordinated debt/loan / mezzanine instrument with income participation local currency unhedged ( <b>EXCEPTIONAL REQUEST</b> )	-	-
Subordinated debt/loan/mezzanine instrument with convertible features	-	-
'Convertible/contingent recovery' grant/loan/guarantee (loans convertible to grants or vice versa)	-	-
Convertible Loans (convertible to equity only)	-	-
For loans and guarantees – is this a revolving structure? <sup>[2]</sup> <input type="checkbox"/> Yes <input type="checkbox"/> No	-	-
<b>Specify local currency type here</b>	-	-
Other (please specify)	-	-
<b>Total</b>	<b>40</b>	<b>-</b>
<b>Co-Financing</b>		
	<b>Please specify as appropriate</b>	<b>Amount (Million USD)</b>
<b>MDB 1</b>	ADB	975
<b>MDB 2 (if any)</b>	-	-
<b>Government</b>	Govt. of Maharastra	420
<b>Government</b>	Govt. of India	620
<b>Private Sector</b>	Solar Power Developers	2,800
<b>Bilateral</b>	-	-
<b>Others (please specify)</b>	-	-
<b>Total Co-financing</b>		<b>4,820</b>
<b>Total Financing (Co-financing + CIF Funding)</b>		<b>4,860</b>
<b>Proportion of Total Financing for Adaptation</b>		<b>20%</b>
<b>Proportion of Total Financing for Mitigation <sup>[e]</sup></b>		<b>70%</b>
<b>CIF Financial Terms and Conditions Policy</b>	<a href="#">Link</a> Is this request in accordance with the CIF Financial Terms and Conditions Policy? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (if no, please specify detailed information under the justification section)	
<b>Justification (exceptional request) <sup>[c][d]</sup></b>		
Not Applicable		
<b>Implementing MDB(s) (please enter full name, job title and email address)</b>		
MDB Headquarters-Focal Point:	Christian Ellermann, Senior Climate Change Specialist	
MDB Task Team Leader (TTL)	Jaimes Kolantharaj, Principal Energy Specialist, Energy Sector Office	
<b>National Implementing Agency (please enter full name, job title and email address)</b>		
Country Focal Point/s		

<sup>2</sup> With a revolving structure, after the loan or guarantee matures, instead of returning the funds to the Trustee, the funds are redeployed as a new loan or guarantee.

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

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

[c] Please provide high-level information/appropriate links to relevant project documents and/or annexes as applicable.

[d] Insert (n/a) if not applicable to the project/program or cannot be determined at the time of submission.

[e] Per MDBs' own Paris alignment climate finance tracking methodologies.

### Brief Description of Project/Program (including objectives and expected outcomes) <sup>[c][d]</sup>

Maharashtra is India's state with the largest economy, third largest by land area and the fifth most populated state with population of around 127 million, of which about half are dependent on agriculture. The agriculture sector is heavily rain-fed dependent and needs technification and modernization. The electricity mix in the state is predominantly thermal based with 62% of the electricity generated from thermal sources particularly coal. Presently, the state provides fixed hours electricity supply to farmers especially during nighttime. This is inconvenient to farmers as reliable electricity supply is required during the daytime. On the other hand, to boost the state economy and industry competitiveness, electricity needs to be supplied at competitive rates. However, since agriculture is highly subsidized, providing electricity to farmers during daytime instead of industries will be detrimental to the financial strength of the MSEDCL.

Therefore since 2017, the state has been pursuing solarization of the agriculture sector through the Mukhyamantri Saur Krushi Vahini Yojana (MSKVY). The MSKVY supports decentralized solar projects to provide electricity to agriculture sector during daytime and complements the Component-C Feeder Level Solarization modality of the Government of India PM KUSUM scheme. Considering the immense benefits of the program, the Government of Maharashtra (GoM) has reframed the scheme as MSKVY 2.0 project, which has set a 30% feeder solarization objective by 2025. This will be achieved through implementation of 7,000 MW decentralized solar projects ranging from 0.5 MW to 25 MW installed within 5 to 10-kilometre radius from agriculture load dominated distribution sub-stations. This will also require distribution network upgrade to manage grid stability. Through the implementation of the program, the state renewable energy capacity will increase by 54% and lead to the creation of 25,000 jobs. This is the largest agriculture solarization program in the world. The GoM has approached ADB to support this project.

The objectives of the investment program are: (i) providing day-time reliable power supply to farmers by supporting the MSKVY 2.0 program, (ii) encouraging private participation in renewable energy (RE) sector through RESCO/PPP model, (iii) installing adequate power infrastructure to connect and support reliable power supply to more than 250,000 agricultural consumers, (iv) setting up a command-and-control center and modernizing the distribution network, including automation and monitoring of substations, (v) Pilot Battery Energy Storage System (BESS) for integrating RE into the grid, (iv) enhance the financial viability of MSEDCL by reducing subsidized power supply, and (v) establishing a center of excellence to promote innovative agriculture-linked and energy-based livelihoods and skills development in solar technologies for the rural population (especially women) to fulfill the requirements of green jobs created.

The expected outcome of the investment program is to increase the agriculture solarization - that will not only provide reliable electricity supply to farmers during the daytime enhancing agriculture output, but also will reallocate the existing electricity to agriculture loads to improve supply to households and industries. The project has two outputs – Output 1: “Low carbon development of the agriculture and power sectors through Private Sector investments facilitated”; Output 2: “Seamless integration of renewable energy into grid and green energy-based gender inclusive livelihoods facilitated.” Output 2 is proposed to be supported through the CTF Investment.

The sub-components under Output 1 are: (i) Viability Gap Funding (VGF) to facilitate private sector investments in solar power projects development, (ii) Distribution system strengthening to facilitate agriculture feeder solarization to supply daytime reliable power to agriculture consumers and connect the household rooftop solar system to the electricity grid, (iii) Substation monitoring system to facilitate optimum energy management and forecasting to support agriculture solarization, (iv) IT based project monitoring dashboard to support project implementation and execution, and (v) Awareness programs for women in rural areas to support participation in productive agricultural activities arising due to agriculture feeder solarization. The sub-components under Output 2 are: (i) Distributed Battery Energy Storage System (BESS) to integrate renewable energy into the grid [75 MWh BESS], and (ii) Support “just transition towards sustainable development,” by building skills of participating rural population, especially women and youth, to meet the requirements of green jobs to sustain the solar power projects and green energy-based livelihoods activities.

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

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

[c] Please provide high-level information/appropriate links to relevant project documents and/or annexes as applicable.

[d] Insert (n/a) if not applicable to the project/program or cannot be determined at the time of submission.

[e] Per MDBs' own Paris alignment climate finance tracking methodologies.

<b>Consistency with CTF investment criteria<sup>3</sup> (please refer to design document)</b>	
a. Potential GHG emissions savings	1,58,994 tCo <sup>2</sup> per annum <sup>4</sup>
b. Cost-effectiveness	The 75 MW BESS pilot is estimated to cost INR 280 Crores (US\$ 35 million) which translates to INR 3.75 crore/MWh (0.467 million/MWh). The pilot will serve as proof of concept and will help the state in scaling up BESS at GW scale. Considering that the MSKVY 2.0 project targets implementation of 9,000 MW decentralized solar projects, GW scale BESS can be implemented that will lead to achieving an optimized cost in the range of INR 2.20-2.40 crore/MWh (0.275-0.300 million/MWh) <sup>5</sup> .
c. Demonstration potential at scale	75 MWh BESS will be piloted serving as a proof of concept and potentially scaling up in future to all MSKVY solar projects. MSKVY 2.0 project targets implementation of 9,000 MW decentralized solar projects.
d. Development impact	MSKVY 2.0 project will lead to the creation of 25,000 jobs. The project will support “just transition towards sustainable development” by building skills of participating rural population especially women and youth to meet the requirements of green jobs to sustain the solar power projects and green energy-based livelihoods activities. The project will support skill development and jobs to at least 1,000 personnel (with at least 400 women) with a proposed project cost of US\$ 5 Million.
e. Implementation potential	The sub-components under Output 2 will support integration of renewable energy into grid and facilitate green energy-based gender inclusive livelihoods. The BESS pilot will serve as a “proof of concept” and help facilitate integration of the 9,000 MW decentralized solar projects into the distribution grid. The project will support establishing a solar skill development institute to support skills development in solar technologies for the rural population (especially women) to fulfill the requirements of green jobs created under the MSKVY 2.0.
f. Additional costs and risk premium	Not Applicable
<b>Additional CTF investment criteria for private sector projects/ programs</b>	
g. Financial sustainability	Not Applicable

<sup>3</sup> Design Document/Indicative Pipeline and Monitoring and Reporting [here](#)

<sup>4</sup> 75 MWh BESS connected with a 75 MW solar project will generate 1,64,250 MWh of electricity generation per annum at 25% plant availability factor. [Co2 emissions abated per unit of thermal power generation in India is 0.968 tCo2/MWh.](#)

<sup>5</sup> The Ministry of Power, Government of India anticipates the cost of battery energy storage system (BESS) to be in the range of ₹2.20-2.40 crore per megawatt-hour (MWh) during 2023-26 for the development of the BESS capacity of 4,000 MWh ([link](#)).

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

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

[c] Please provide high-level information/appropriate links to relevant project documents and/or annexes as applicable.

[d] Insert (n/a) if not applicable to the project/program or cannot be determined at the time of submission.

[e] Per MDBs’ own Paris alignment climate finance tracking methodologies.

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)	Not Applicable
i. Mitigation of market distortions	Not Applicable
j. Risks	Not Applicable
<b>For DPSP projects/programs in non-CTF countries, explain consistency with FIP, PPCR, or SREP Investment Criteria and/or national energy policy and strategy.</b>	
Not Applicable	
<b>Social Inclusion and Stakeholder Engagement</b> <sup>[c][d]</sup>	
[To be added later]	
<b>Gender Considerations</b> <sup>[c][d]</sup>	
<b>Gender Analysis</b> (Please insert the text from the project document on the analysis of gaps in access to services, markets, and jobs by women in relation to the project sectors)	In a recent evaluation study <sup>6</sup> based on primary studies undertaken it was found that most of project developers employed at least 70% of their workforce from local district. However, the study revealed that merely 10-15% of the skilled workforce and 25-30% of the semi-skilled workforce were hired locally. Most of the local workforce engaged are unskilled labor and contractual workers (e.g. security guards, grass cutting, cleaning etc.). In this study, it was also revealed that substantial participation of women in skilled workforce was not observed. The women participation in semi-skilled and unskilled workforce was in the range of 5-10%, in activities like cleaning, grass cutting, transportation of small equipment.
<b>Gender Activities</b> (Please insert the text describing gender-specific activities included in the project)	An institution located in peri-urban or rural areas will be identified with support of the Government of Maharashtra, to be established as a Solar Skill Development Institute (SSDI). The institute will serve as a premier skill development institution in the state to provide vocational education and training programs to rural population (especially women) for operation and maintenance of solar project equipment. The SSDI under this project will target providing skill development and jobs to at least 1,000 personnel (with at least 400 women). Please refer to Annexure 1 for details.
<b>Gender Indicators</b> (Please insert the text on selected gender specific indicators, including annual targets. from the Project Log Frame that the project is committing to report on)	The SSDI under this project will target providing skill development and jobs to at least 1,000 personnel (with at least 400 women). Please refer to Annexure 1 for details.
<b>Just Transition</b> <sup>[c][d]</sup>	
<b>Just Transition Analysis</b>	

<sup>6</sup> Evaluation of Social, Economic and Environmental Impact of Renewable Energy Projects in Northern Maharashtra Revenue Zone (Nashik Division), March 2023, Maharashtra Energy Development Agency

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

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

[c] Please provide high-level information/appropriate links to relevant project documents and/or annexes as applicable.

[d] Insert (n/a) if not applicable to the project/program or cannot be determined at the time of submission.

[e] Per MDBs' own Paris alignment climate finance tracking methodologies.

<b>Just Transition Activities</b>	The Subcomponent 2 will support “just transition towards sustainable development” by building skills of participating rural population especially women and youth to meet the requirements of green jobs to sustain the solar power projects and green energy-based livelihoods activities. Please refer to Annexure 1 for details.
<b>Just Transition Indicators</b>	
<b>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</b> <sup>[c][d]</sup>	
Not Applicable	
<b>For public sector projects/programs, analysis of how the project/program facilitates private sector investment</b> <sup>[c][d]</sup>	
Not Applicable	
<b>Expected Results (M&amp;R)</b>	
<b>Project/Program Timeline</b>	
Expected MDB Board Approval date <sup>[d]</sup>	February 2025
Expected project closure date <sup>[d]</sup>	December 2029
Expected lifetime of project results in years (including beyond project closure)	5 years
<b>CTF Core Indicators</b>	<b>Project-Defined Indicators/Targets</b>
<i>Please list the corresponding project-defined indicator(s) and report all targets, including disaggregated targets. (See the <a href="#">GESP Program Monitoring and Reporting Toolkit</a> for additional guidance.)</i>	
<b>CTF 1:</b> GHG emissions reduced or avoided (mt CO <sub>2</sub> eq)	
<i>Annual</i>	1,58,994 tCo <sub>2</sub> per annum
<i>Cumulative Lifetime</i>	19,07,928 tCo <sub>2</sub> per annum
<b>CTF 2:</b> Volume of direct financing leveraged through CTF funding (\$)	<i>Indicator calculated from the co-financing section below</i>
<b>CTF 3:</b> Installed capacity of RE as a result of CTF interventions (MW)	
<i>Wind</i>	Not Applicable
<i>Solar</i>	75 MW <sup>7</sup>
<i>Hydro</i>	Not Applicable
<i>Geothermal</i>	Not Applicable
<i>Other/Mixed</i>	Not Applicable
<i>TOTAL</i>	75 MW
<b>GESP-Specific Indicators</b>	<b>Project-Defined Indicators/Targets</b>
<b>GESP 1:</b> Energy rating of storage systems installed (MWh)	75 MWh
<i>Please specify storage technology type (i.e., thermal, mechanical, electrochemical, etc.):</i>	Lithium

<sup>7</sup> The proposed 75 MWh BESS pilot will be connected to a 75 MW solar power project.

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

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

[c] Please provide high-level information/appropriate links to relevant project documents and/or annexes as applicable.

[d] Insert (n/a) if not applicable to the project/program or cannot be determined at the time of submission.

[e] Per MDBs’ own Paris alignment climate finance tracking methodologies.

<i>Please specify location on the energy value chain (i.e., generation, transmission, distribution, stationary end use, mobile end use):</i>	Distribution substation grid connected
<i>Please specify if distributed storage or utility scale:</i>	Utility scale
<b>GESP 2:</b> Power rating of storage systems installed (MW)	75 MWh BESS connected to a 75 MW solar power project
<b>GESP 3:</b> Policies, regulations, codes, or standards adopted for energy storage solutions (number)	Not Applicable
<i>Please specify if policy, regulation, code, or standard:</i>	Not Applicable
<b>GESP Co-Benefit Indicators</b>	<b>Project-Defined Indicators/Targets</b>
<i>Please identify one or more expected co-benefit indicators—i.e., other social, economic, environmental benefits beyond the CTF and GESP core indicators—that the project will track and report.</i>	
<b>GESP Co-Benefit</b> (e.g., Gender, employment, energy access, social inclusion, health and safety, competitiveness and industrial development, SDGs):	1,000 green jobs especially targeting rural women and youth.
<i>Please also submit the full project results framework to the CIF Secretariat upon MDB Board approval of the project for consideration of project-specific indicators to track.</i>	
<b>Expected Date of MDB Approval</b>	February 2025
<b>Additional Details (to Members)</b>	

**Version: February 2024**

Link to Documents Management – [here](#)

CCH – [here](#)

CIF Website – [here](#)

CIF Pipeline Management and Cancellation Policy - [here](#)

CIF Financial Terms and Conditions Policy updated for FY24 - [here](#)

CIF Operational Modalities For New Strategic Programs - [here](#)

CTF M&R Toolkit – [here](#)

GESP Indicative Pipeline and Monitoring and Reporting Approach - [here](#)

GESP Program Monitoring and Reporting Toolkit – [here](#)

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

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

[c] Please provide high-level information/appropriate links to relevant project documents and/or annexes as applicable.

[d] Insert (n/a) if not applicable to the project/program or cannot be determined at the time of submission.

[e] Per MDBs’ own Paris alignment climate finance tracking methodologies.



## **Annexure 1 – Detailed proposal for Output 2 proposed to be financed under the CTF**

The Output 2 of the Maharashtra Power Distribution Enhancement Program for Facilitating Solarization and Expanding Agricultural Connections will support “Seamless integration of renewable energy into grid and green energy-based gender inclusive livelihoods.” The sub-components under Output 2 are: (i) Distributed Battery Energy Storage System (BESS) to integrate renewable energy into the grid [75 MWh BESS], and (ii) Support “just transition towards sustainable development”, by building skills of participating rural population especially women and youth to meet the requirements of green jobs to sustain the solar power projects and green energy-based livelihoods activities.

### *Subcomponent 1: 75 MWh BESS pilot to integrate renewable energy into the grid*

Solar power, despite its environmental benefit and low cost is an infirm power source i.e. its generation depends on solar irradiation and it is not available during evening and nighttime and it cannot be increased or decreased as per demand. Therefore, it cannot be treated as base capacity, and we need to have adequate firm capacity to cater to instantaneous demand of the system when solar power is not generating up to its installed capacity. The firm capacity can be in form of thermal or nuclear plant or storage solutions like BESS or Pumped Storage Plant (PSP). Having firm capacity in the form of thermal sources defeats the very purpose of renewable source as it would produce greenhouse gases. Therefore, utilities and governments world over are pursuing storage solutions to provide firm capacity in line with the demand profile.

The proposal is with respect to the installation of the solar PV project with a capacity of 75 MWh BESS based on Lithium-ion Technology connected to a 75 MW solar power project. This project is expected to supply 20 MW of firm power during morning and evening peak or alternatively during nighttime, depending on supply-demand gap and cost of power from power exchange. The discharge period of solar power has been designed at four hours. The project shall be executed in 18 months from the date of Letter of Award (LoA) which will be issued after the financing and regulatory approvals. The power generated from the plant will be utilized by MSEDCL for supply of solar power which will be utilized for RPO targets and the power stored in the BESS will be supplied during period when solar power is not available or high demand.

Land Requirement: The solar project will be set up under the Output 1 and the BESS will be installed at the solar power project. The land requirement for the proposed solar projects has been estimated at 4.0 - 5.0 acres per MW. Land will be required mainly for installation of modules, inverters, cable & control rooms for the proposed solar power plants including switchyard. The BESS will be integrated with the solar project to deliver energy as per requirement into the grid. The land would be government land preferably in the vicinity of the substation.

Evacuation: The Solar power project will be connected to the nearest MSETCL substation within 5 km from the project site. The power generated from the proposed Solar Power Plant will be step up to 33 kV with single circuit line voltage level and will be connected to MSETCL substation at 33 kV.

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

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

[c] Please provide high-level information/appropriate links to relevant project documents and/or annexes as applicable.

[d] Insert (n/a) if not applicable to the project/program or cannot be determined at the time of submission.

[e] Per MDBs’ own Paris alignment climate finance tracking methodologies.

**Technology:** The brief technical details of the 75 MWh BESS connected to a 75 MW solar power project is presented below:

Proposed ESS	75 MWh
Individual Cell Capacity	>= 280 Ah
Charge Discharge Rate	0.25P across Project Life
Cycle Life	>=7000
Internal Resistance of Cell	<= 0.3 milli Ohm
Cell Cooling Technology	Liquid Cooled
Enclosure painting material anticorrosion requirement	Minimum C4
Communication protocol	MODBUS
Communication Interface	Ethernet
Cell Chemistry	LFP
Enclosure IP rating (Rack/Container)	IP 55 or better
Module IP rating	IP 66 or better
Operating Temperature Range	-5 degrees C to 55 degrees C
Design Temperature	50 degrees C
Fire Suppression System	Gas based/Aerosol based/others (mention) + water sprinkler
Sensors	Heat, Gas, smoke sensor
Gas sensors	Yes
Explosion Protection Mechanism	Deflagration Vents
Max. DC Voltage of Rack	~ 1500 V DC
Spacing between Battery Enclosures	Integrator shall provide row spacing with clear area between rows of Battery Enclosures for O&M, augmentation (in case of DC augmentation), or fire mitigation for vehicle access. The spacing provided with adjacent Battery Enclosures shall not be less than as recommended by Battery OEM.

**Estimated cost:** The BESS pilot is estimated to cost INR 3.50 Crores/MWh. A contingency cost of 7.5% is estimated which makes the total cost to INR 3.75 crore/MWh (0.467 million/MWh). The 75 MW BESS pilot is estimated to cost INR 280 Crores (US\$ 35 million).

*Subcomponent 2: Support “just transition towards sustainable development” by building skills of participating rural population (esp. women and youth) to meet the requirements of green jobs to sustain the solar power projects and green energy-based livelihoods activities*

### Background

By installing 7,000 MW of decentralized solar projects, Maharashtra will increase the state renewable energy capacity by 54%, which will be significant to transition to a green economy. A green economy is an economic model that aims to reduce the impact of production and consumption on the environment while

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

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

[c] Please provide high-level information/appropriate links to relevant project documents and/or annexes as applicable.

[d] Insert (n/a) if not applicable to the project/program or cannot be determined at the time of submission.

[e] Per MDBs’ own Paris alignment climate finance tracking methodologies.

also creating a virtuous relationship between economic growth and environmental wellbeing<sup>8</sup>. The key elements of economic growth that the green economy can address are fostering jobs and skills, inculcating a spirit of innovation and fostering competitiveness. The proposed project will be implemented in rural areas targeting the farmers and agrarian households who are vulnerable communities. Therefore, to ensure inclusive socio-economic development, the transition from a fossil fuel-based agriculture economy to a green energy-based agriculture economy, is required to be looked at from the perspective of facilitating “just transition<sup>9</sup> towards sustainable development.” In “just transition towards sustainable development,” the skills of the participating rural population need to be reoriented to meet the requirements of green jobs<sup>10</sup> and green energy-based livelihoods.

Similarly, Skill Council for Green Jobs (SCGJ)<sup>11</sup> defines green jobs “as a class of jobs that directly have a positive impact on the planet and contribute to overall environmental welfare. These are jobs that seek to use or develop renewable forms of energy, conserve resources, ensure energy efficient means, regulate waste management, and promote sustainable development. These jobs seek to enforce regulations, support education and training, and increase public influence for benefit of the environment.” The installation of 7,000 MW of decentralized solar projects, will lead to creation of ~25,000 jobs.<sup>12</sup> Therefore, it is imperative to undertake skill development interventions so that the local population employment with the solar power developers (SPDs) can be maximized. Further, the installation of solar project will also create entrepreneurship avenues in the solar project development, solar power livelihoods, agriculture output value chain activities and water management, which need to be supported for inclusive development.

### Objectives

The effective implementation of the large-scale agriculture solarization initiative in the state can promote inclusive and sustainable development. However, to implement the initiative it is imperative to address the challenges, as discussed above, through a set of complementing interventions that can be implemented as a “just transition project.” The broad interventions envisaged under the project are presented below:

- Develop an institutional mechanism to facilitate green energy transition through community inclusion and promote skill development for green jobs; and
- Establish a premier institution in the state to promote skill development among rural population in solar technology.

The specific objectives of this subcomponent are to:

- SO1.** Institutionalize a mechanism with public-private collaboration to facilitate green energy transition through community inclusion and promote skill development for green jobs
- SO2.** Establish a state government recognized premier skill development institution in the state to provide vocational training to rural population (especially women) for operation and maintenance of solar project equipment.

---

<sup>8</sup> [The Global Green Economy: Understanding and capturing the opportunity](#), January 2023, Oxford Economics

<sup>9</sup> A ‘Just Transition’ means greening the economy in a way that creates decent work opportunities, and leaves no one behind

<sup>10</sup> The ILO defines green jobs as “Green jobs are decent jobs in any economic sector (e.g. agriculture, industry, services, administration) which contribute to preserving, restoring and enhancing environmental quality.”

<sup>11</sup> Skill Council for Green Jobs is one of the most recently launched initiatives of the Government of India aligned to the National Skill Development Mission. It is promoted by the Ministry of New and Renewable Energy and Confederation of Indian Industry.

<sup>12</sup> As per SCGJ, an estimated 3.26 million cumulative jobs will be created due to estimated installed capacity of 940 GW by 2050. [a] This cover page is to be completed and submitted together with the MDB project/program proposal when requesting funding approval by Committee.

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

[c] Please provide high-level information/appropriate links to relevant project documents and/or annexes as applicable.

[d] Insert (n/a) if not applicable to the project/program or cannot be determined at the time of submission.

[e] Per MDBs’ own Paris alignment climate finance tracking methodologies.

By installing 7,000 MW of decentralized solar projects, Maharashtra will increase the state renewable energy capacity by 54%, avoiding about 15 million tons of CO<sup>2</sup> emissions per year. However, the “just transition project” intended scope goes beyond addressing immediate energy challenges. It seeks to induce just energy transition promoting inclusive and sustainable development and carbon-neutral practices within the energy sector.

The “just transition project” will support skill development of rural population (especially women) that can help fulfill the requirement of jobs created due to solar project installation, by providing skill development and jobs to at least 1,000 personnel (where at least 400 are women).

#### Description of the action and related activities

Since the “just transition project” involves interventions across multiple sectors a Working Group will be formed under the Government of Maharashtra with the Energy Department, being the nodal agency for the program. The Energy Department will work in coordination with the relevant implementing agencies – the Agriculture Department, the Water Resources Department, the Directorate of Vocational Education and Training, Maharashtra (DVET); Maharashtra State Rural Livelihoods Mission (MSRLM); and the relevant electricity sector utilities i.e. MSEB Solar Agro Power Limited and Maharashtra State Electricity Distribution Company Limited (MSEDCL).

- *Council for Energy Transition and Green Skills (C-ETGS)*. With the collaboration of the Government of Maharashtra and Industry Association e.g. Maharashtra Industry Development Association or Confederation of Indian Industry-Maharashtra chapter, a Council for Energy Transition and Green Skills will be established. The council will be a not-for-profit, autonomous and industry-led initiative with a mission to promote industry led energy transition initiatives and skilling needs of service users as well as manufacturers/ service providers, across the various industrial sectors, and implement state-specific, collaborative skills development & entrepreneur development initiatives that will enable to meet state potential for Sustainable and Green Business.
- *Establishing a Solar Skill Development Institute (SSDI)*. An institution located in peri-urban or rural areas will be identified with support of the Government of Maharashtra, to be established as a Solar Skill Development Institute. The institute will serve as a premier skill development institution in the state to provide vocational education and training programs to rural population (especially women) for operation and maintenance of solar project equipment. The programs’ curriculum will be aligned to the National Skill Development Mission and the Maharashtra skill development strategy, and will be recognized by the state government. The program will ensure placement or supporting a green business entrepreneurial project, to the participants. The placement support can be linked to the solar projects being developed by the various SPDs, who require local manpower for project implementation and operations. The green business entrepreneurship project can be supported through (i) engaging a facilitation agency who through a digital application will support the rural entrepreneurs to access the various government schemes aimed at promoting entrepreneurship and access financing from banks/financial institutions, and (ii) establishing a rural green entrepreneurship financial facility, in coalition with corporate social responsibility (CSR) support from industries, philanthropic institutions, impact investors and development partners grants, to provide viability gap financing to entrepreneurship projects. The SSDI under this project

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

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

[c] Please provide high-level information/appropriate links to relevant project documents and/or annexes as applicable.

[d] Insert (n/a) if not applicable to the project/program or cannot be determined at the time of submission.

[e] Per MDBs’ own Paris alignment climate finance tracking methodologies.

will target providing skill development and jobs to at least 1,000 personnel (at least 400 are women).

#### Indicative activities

The indicative activities supported by the proposed “just transition project” linked to the respective SO are listed below:

##### *Envisaged activities linked to SO1:*

- Memorandum of Understanding (MoU) between Government of Maharashtra and Industry Association to establish the C-ETGS;
- Prepare the roadmap for C-ETGS till at least 2030 along with the vision, mission and organization structure; and
- Undertake discussions with concerned stakeholders to provide necessary infrastructure and manpower to operationalize the C-ETGS.

##### *Envisaged activities linked to SO2:*

- Identify list of state government institutes in rural and peri-urban areas that have potential to be transformed into the SSDI;
- Discuss with stakeholders to finalize the institution that will be transformed into the SSDI;
- Prepare the roadmap for SSDI till at least 2030 along with the vision, mission and organization structure;
- Undertake discussions with concerned stakeholders to provide necessary infrastructure and manpower to operationalize the SSDI;
- Undertake discussions with concerned stakeholders to finalize the project charter on the list of activities to be supported under this grant to operationalize the SSDI; and
- Design the project curriculum in discussion with concerned stakeholders;
- Undertake necessary approval measures to get SSDI programs to be recognized by the state government;
- Undertake discussions with industries and SPDs on job placement of the program participants and facilitate employment;
- Appoint a facilitation agency to support the rural entrepreneurs in accessing various government schemes aimed at promoting entrepreneurship and access financing from banks/financial institutions; and
- Undertake discussions with the industry CSR cells, philanthropic institutions, impact investors, development partners and other stakeholders and establish a rural green entrepreneurship financial facility.

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

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

[c] Please provide high-level information/appropriate links to relevant project documents and/or annexes as applicable.

[d] Insert (n/a) if not applicable to the project/program or cannot be determined at the time of submission.

[e] Per MDBs’ own Paris alignment climate finance tracking methodologies.

### Expected outputs

The expected outputs supported by the proposed “just transition project” linked to the respective SO are listed below:

#### *Outputs linked to SO1:*

- Output 1: Memorandum of Understanding (MoU) signed between Government of Maharashtra and Industry Association to establish the C-ETGS;
- Output 2: Roadmap prepared for C-ETGS till at least 2030; and
- Output 3: C-ETGS is operationalized.

#### *Outputs linked to SO2:*

- Output 4: Institution finalized to be transformed into the SSDI;
- Output 5: Roadmap prepared for SSDI till at least 2030;
- Output 6: Project charter prepared on the list of activities to be supported under this grant to operationalize the SSDI;
- Output 7: Project curriculum designed and recognized by the state government;
- Output 8: Job placement facilitation for the participants;
- Output 9: Facilitation agency appointed to supporting rural entrepreneurs in accessing government schemes; and
- Output 10: Rural green entrepreneurship financial facility established.

This overall loan project and “just transition project” is relevant to the ‘Agenda 2030’ and has a wide ranging and deep impact on the SDGs. The agriculture solarization project (that is being enabled by the “just transition project”) contributes primarily to the progressive achievement of SDG 7 (affordable and clean energy), SDG 13 (climate action), SDG 1 (no poverty) and SDG 2 (no hunger). Along with the above, the proposed “just transition project” has a clear contribution to SDG 5 (gender equality), SDG 6 (clean water and sanitation), SDG 8 (decent work and economic growth), SDG 10 (reducing inequalities) and SDG 12 (responsible consumption and production).

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

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

[c] Please provide high-level information/appropriate links to relevant project documents and/or annexes as applicable.

[d] Insert (n/a) if not applicable to the project/program or cannot be determined at the time of submission.

[e] Per MDBs’ own Paris alignment climate finance tracking methodologies.