



Innovation in Solar Power and Hybrid Technologies (P160379)

SOUTH ASIA | India | Energy & Extractives Global Practice |
IBRD/IDA | Investment Project Financing | FY 2019 | Seq No: 3 | ARCHIVED on 29-Jun-2020 | ISR42352 |

Implementing Agencies: Solar Energy Corporation of India Limited, DEPARTMENT OF ECONOMIC AFFAIRS

Key Dates

Key Project Dates

Bank Approval Date: 29-Mar-2019

Effectiveness Date: --

Planned Mid Term Review Date: 11-Jul-2022

Actual Mid-Term Review Date:

Original Closing Date: 31-Dec-2024

Revised Closing Date: 31-Dec-2024

Project Development Objectives

Project Development Objective (from Project Appraisal Document)

The Project Development Objectives (PDO) are to demonstrate the operational and economic feasibility of utility-scale innovative renewable energy technologies and battery energy storage solutions, and to strengthen institutional capacity to facilitate scale-up of such technologies on a commercial basis in India.

Has the Project Development Objective been changed since Board Approval of the Project Objective?

No

Components Table

Name

Component A: Investments in Innovative RE Technologies & BESS (Estimated Cost: US\$398 million of which IBRD Loan: US\$150 million; CTF loan: US\$28 million; and CTF Grant: US\$20 million):(Cost \$398.00 M)

Component B: Technical Assistance, Capacity Building, Implementation Support, Monitoring and Dissemination (Estimated Cost: US\$1.81 million of which CTF Grant: US\$1.81 million):(Cost \$1.81 M)

Overall Ratings

Name	Previous Rating	Current Rating
Progress towards achievement of PDO	<input type="checkbox"/> Satisfactory	<input type="checkbox"/> Moderately Satisfactory
Overall Implementation Progress (IP)	<input type="checkbox"/> Moderately Satisfactory	<input type="checkbox"/> Moderately Satisfactory
Overall Risk Rating	<input type="checkbox"/> Substantial	<input type="checkbox"/> Substantial

Implementation Status and Key Decisions

This is the third ISR after the approval of the project on March 29, 2019. The legal agreements are expected to be signed and made effective after SECI has completed the 30% procurement award before loan signing as per DEA's requirements and the Ministry of Finance completes its deliberation on the sovereign guarantee fee on the two loans (IBRD and CTF) charged to SECI.



Risks

Systematic Operations Risk-rating Tool

Risk Category	Rating at Approval	Previous Rating	Current Rating
Political and Governance	Low	Low	Moderate
Macroeconomic	Low	Low	High
Sector Strategies and Policies	Substantial	Substantial	Substantial
Technical Design of Project or Program	Moderate	Moderate	Moderate
Institutional Capacity for Implementation and Sustainability	Substantial	Substantial	Substantial
Fiduciary	Substantial	Substantial	Substantial
Environment and Social	Substantial	Substantial	Substantial
Stakeholders	Moderate	Moderate	Moderate
Other	--	--	--
Overall	Substantial	Substantial	Substantial

Results

PDO Indicators by Objectives / Outcomes

Demonstrate Operational & Economic Feasibility of Utility-Scale Innovative RE Technologies & BESS				
► Generation Capacity of Renewable Energy (other than hydropower) constructed (Megawatt, Corporate)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	400.00
Date	29-Mar-2019	05-Dec-2019	16-Jun-2020	31-Dec-2024
Comments:	This measures the capacity of renewable energy (other than hydropower) constructed under the project. The TTL should specify the type of renewable power (i) wind; (ii) geothermal; (iv) solar; or (iv) other. For hydropower refer to code Hydropower (LH). The baseline value for this indicator will be zero.			
□ Generation Capacity of Renewable Energy constructed - Other (Megawatt, Corporate Breakdown)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	400.00
Date	29-Mar-2019	05-Dec-2019	16-Jun-2020	31-Dec-2024



► Renewable Energy generated (in megawatt hours) (Megawatt hour(MWh), Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	764,550.00
Date	29-Mar-2019	05-Dec-2019	16-Jun-2020	31-Dec-2024
Comments:	This indicator measures actual energy generated from the subprojects supported under this Project.			
► Greenhouse Gas Emissions Avoided (tons of CO2 equivalent per year) (Tones/year, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	510,000.00
Date	29-Mar-2019	05-Dec-2019	16-Jun-2020	31-Dec-2024
Comments:	This indicator calculates Greenhouse Gas (GHG) emissions avoided for all subprojects.			

Strengthen Institutional Capacity to Facilitate Scale-Up of Such Technologies on a Commercial Basis				
► Each solution (hybrid, floating solar PV and battery energy storage) demonstrated at least once through subprojects (Yes/No, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	No	No	No	Yes
Date	29-Mar-2019	05-Dec-2019	16-Jun-2020	31-Dec-2024
Comments:	Each solution (hybrid, floating solar PV and battery energy storage) demonstrated at least once through subprojects			
► Regulations, codes or standards for battery energy storage solutions issued (Yes/No, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	No	No	No	Yes
Date	29-Mar-2019	05-Dec-2019	16-Jun-2020	31-Dec-2024
Comments:	Regulations and/or codes and/or standards for battery energy storage solutions issued in the country			

Intermediate Results Indicators by Components

Investments in Innovative Renewable Energy Technologies and Battery Energy Storage Solutions				
► Installed Generation Capacity of Hybrid Power Plants (Megawatt, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target



Value	0.00	0.00	0.00	300.00
Date	29-Mar-2019	05-Dec-2019	16-Jun-2020	31-Dec-2024
Comments:	Installed generation capacity of hybrid power plants by SECI with financing from ISHTP.			
► Installed Generation Capacity of Floating Solar PV Power Plants (Megawatt, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	100.00
Date	29-Mar-2019	05-Dec-2019	16-Jun-2020	31-Dec-2024
Comments:	Installed generation capacity of floating solar PV power plants by SECI with financing from ISHTP.			
► Number of MW/MWh-Scale Battery Energy Storage Solutions Installed (Number, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	2.00
Date	29-Mar-2019	05-Dec-2019	16-Jun-2020	31-Dec-2024
Comments:	Installed number of battery energy storage solutions by SECI with financing from ISHTP.			
► Grievances received that are addressed within two months of receipt (Percentage, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	100.00
Date	29-Mar-2019	05-Dec-2019	16-Jun-2020	31-Dec-2024
Comments:	This indicator measures the grievances/complaints received and percentage addressed within a period of two months from the date of receipt.			

Technical Assistance, Capacity Building, Implementation Support, Monitoring and Dissemination

► Number of Market Sounding, Workshops and Other Dissemination Activities Completed (Number, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	1.00	15.00
Date	29-Mar-2019	05-Dec-2019	16-Jun-2020	31-Dec-2024
Comments:	The number of workshops, market sounding and other dissemination activities implemented by SECI using ISHTP financing. One stakeholder consultation on Chhattisgarh 100 MW AC solar with 50 MW/150 MWh battery energy storage solution was conducted by SECI on May 15, 2020.			



▶ Number of Stakeholders Informed and Consulted Through Market Sounding and Dissemination Activities (Number, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	50.00	250.00
Date	29-Mar-2019	05-Dec-2019	16-Jun-2020	31-Dec-2024
Comments:	The number of stakeholders participating in dissemination activities and stakeholder consultations implemented by SECI for ISHTP-supported innovative solutions. A stakeholder consultation for Chhattisgarh solar with battery project was organized by SECI on May 15, 2020.			
▶ Number of Innovative Battery Energy Storage and Renewable Energy Subprojects Implemented (Number, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	3.00
Date	29-Mar-2019	05-Dec-2019	16-Jun-2020	31-Dec-2024
Comments:	The number of subprojects implemented by SECI using ISHTP financing.			
▶ Number of Types of Innovative Battery Energy Storage and Renewable Energy Solutions Demonstrated (Number, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	3.00
Date	29-Mar-2019	05-Dec-2019	16-Jun-2020	31-Dec-2024
Comments:	The number of types of innovative solutions demonstrated by SECI using ISHTP financing.			
▶ Number of Standard Procurement Documents for Innovative Solutions Developed (Number, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	3.00
Date	29-Mar-2019	05-Dec-2019	16-Jun-2020	31-Dec-2024
Comments:	The number of standard procurement documents developed for innovative solutions that have been demonstrated by SECI using ISHTP financing.			
▶ Number of Detailed Project Reports/Feasibility Studies for Innovative Battery Energy Storage and Renewable Energy Projects Prepared (Number, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	1.00	1.00	2.00	4.00
Date	29-Mar-2019	05-Dec-2019	16-Jun-2020	31-Dec-2024
Comments:	Technical reports prepared for innovative RE projects. DPRs for Ramagiri (AP) and Rajnandgaon (Chhattisgarh) drafted by SECI.			



► Study to Develop Career path for women employees in SECI and Implementation of Recommendations of such Study (Yes/No, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	No	No	No	Yes
Date	29-Mar-2019	05-Dec-2019	16-Jun-2020	31-Dec-2024
Comments:	Study to be completed by Year 2 and the implementation of the recommendations to be implemented by Year 4 of the project period			
► Percentage of women in total workforce of SECI (Percentage, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	20.00	20.00	20.00	30.00
Date	29-Mar-2019	05-Dec-2019	16-Jun-2020	31-Dec-2024
Comments:	This indicator will monitor increase in number of women employees in SECI (share of total).			
► Percentage of women in technical departments of SECI (Percentage, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	13.00	13.00	13.00	23.00
Date	29-Mar-2019	05-Dec-2019	16-Jun-2020	31-Dec-2024
Comments:	This indicator will monitor increase in number of women in technical departments of SECI (share of total).			

Performance-Based Conditions

Data on Financial Performance

Disbursements (by loan)

Project	Loan/Credit/TF	Status	Currency	Original	Revised	Cancelled	Disbursed	Undisbursed	% Disbursed
P160379	IBRD-89440	Not Effective	USD	150.00	150.00	0.00	0.00	150.00	0%
P160379	TF-A9875	Not Effective	USD	28.00	28.00	0.00	0.00	28.00	0%

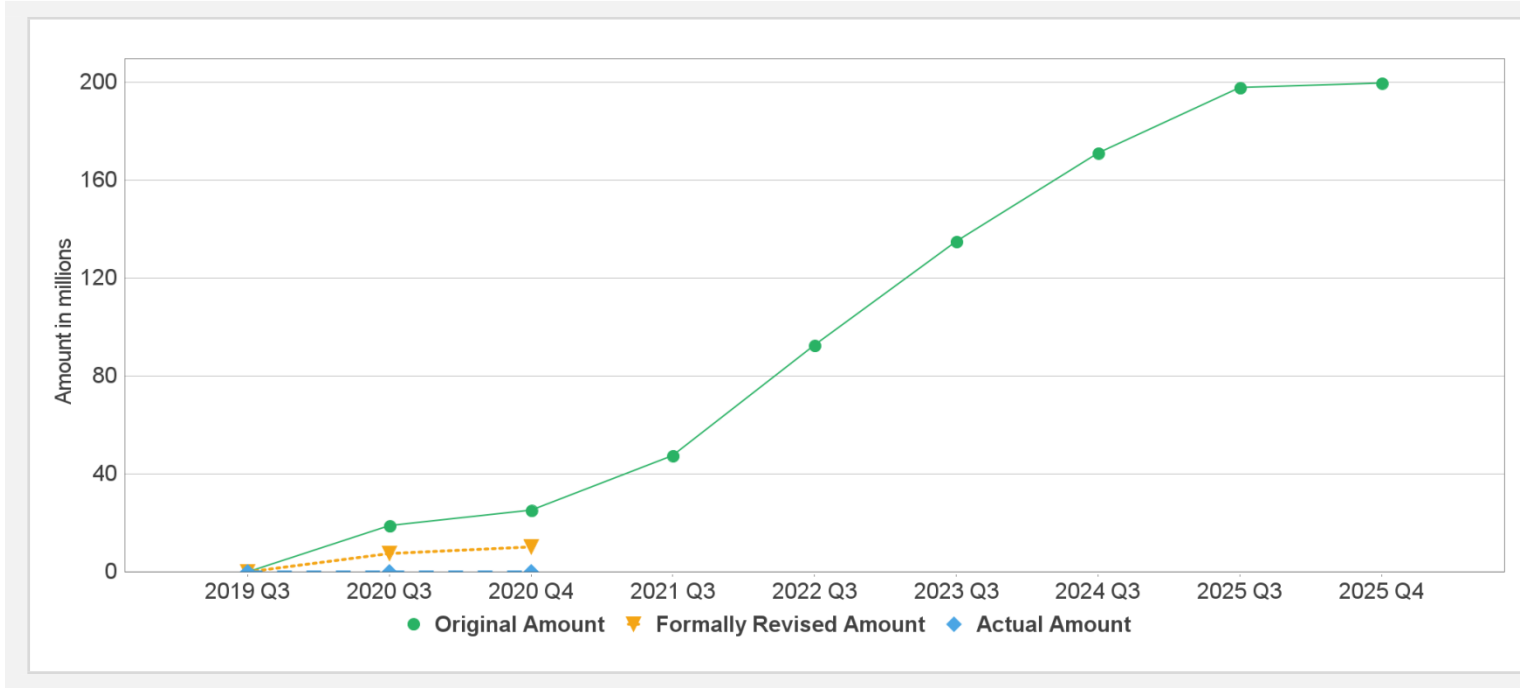
Key Dates (by loan)

Project	Loan/Credit/TF	Status	Approval Date	Signing Date	Effectiveness Date	Orig. Closing Date	Rev. Closing Date
P160379	IBRD-89440	Not Effective	29-Mar-2019	--	--	31-Dec-2024	31-Dec-2024



P160379	TF-A9875	Not Effective	29-Mar-2019	--	--	31-Dec-2024	31-Dec-2024
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Cumulative Disbursements



PBC Disbursement

PBC ID	PBC Type	Description	Coc	PBC Amount	Achievement Status	Disbursed amount in Coc	Disbursement % for PBC

Restructuring History

There has been no restructuring to date.

Related Project(s)

There are no related projects.