

Impact assessment of IndusInd bank's Institution on Solar program for FY 22-23



February 2024

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Executive Summary

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The "Institution on Solar" (IoS) initiative is an ambitious program led by CERE in collaboration with Avesta Solar, and supported by IndusInd Bank, designed to shift institutional energy reliance to solar power, fostering renewable energy adoption and supporting sustainability goals. This program is intricately linked to Sustainable Development Goals, particularly SDG 7, aiming for clean and affordable energy.

The "Institution on Solar" project has successfully met its objectives by enabling a significant number of institutions to transition to solar power, leading to a marked reduction in carbon emissions and electricity costs. This transition has not only supported environmental sustainability but also provided financial benefits, which institutions are leveraging to enhance the services offered to their communities. Proactive measures have also been implemented to ensure the durability and efficiency of solar installations.

However, challenges such as data capture inconsistencies and maintenance irregularities by the institutions have been noted, indicating areas for further improvement to maximize the project's positive impact. But despite these, the initiative's long-term prospects for fostering sustainability and community well-being are promising.

Key Impacts:

- Facilitated a smooth transition to solar power for various institutions, demonstrating a viable model for clean energy uptake.
- Realized significant cost savings, reinvested to enhance institutional services and operational capabilities.
- Contributed to climate change mitigation with an estimated 18,728 Mt reduction in CO2 emissions over 25 years.
- Decreased reliance on fossil fuels, promoting better air quality and community health.
- Enabled broader access to institutional services, enriching the local community.
- Emphasized sustainability education, empowering stakeholders with knowledge for solar energy system maintenance and efficiency.

Key recommendations:

- CERE should actively explore and empanel more solar technology suppliers like Avesta Solar.
- The data monitoring process needs strengthening to ensure reliable and continuous reporting.

About Institution on Solar (IoS) project

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Implemented by Centre for Environmental Research and Education (CERE), the Institution on Solar (IoS) project aims to create a low-carbon, clean energy environment that contributes to mitigating climate change.

Program Objective: The primary objective of the Institution on Solar (IoS) project is to facilitate the transition towards renewable energy sources thereby reducing carbon emissions, alleviating the burden on the electricity grid, and generating significant cost savings for the participating institutions.

Program Strategy: CERE identifies viable institutions, giving priority to those serving vulnerable societal groups, for the IoS project and provides the initial funding required for implementing the project. As a result, these participating institutions realize immediate cost savings from reduced electricity bills. Over time, these participating institutions, utilize these savings to create more value for their customers.

Program Implementation Team: The IoS project is being implemented by CERE supported by Avesta Solar.



States: 2

Districts: 6

Educational Institutions: 9

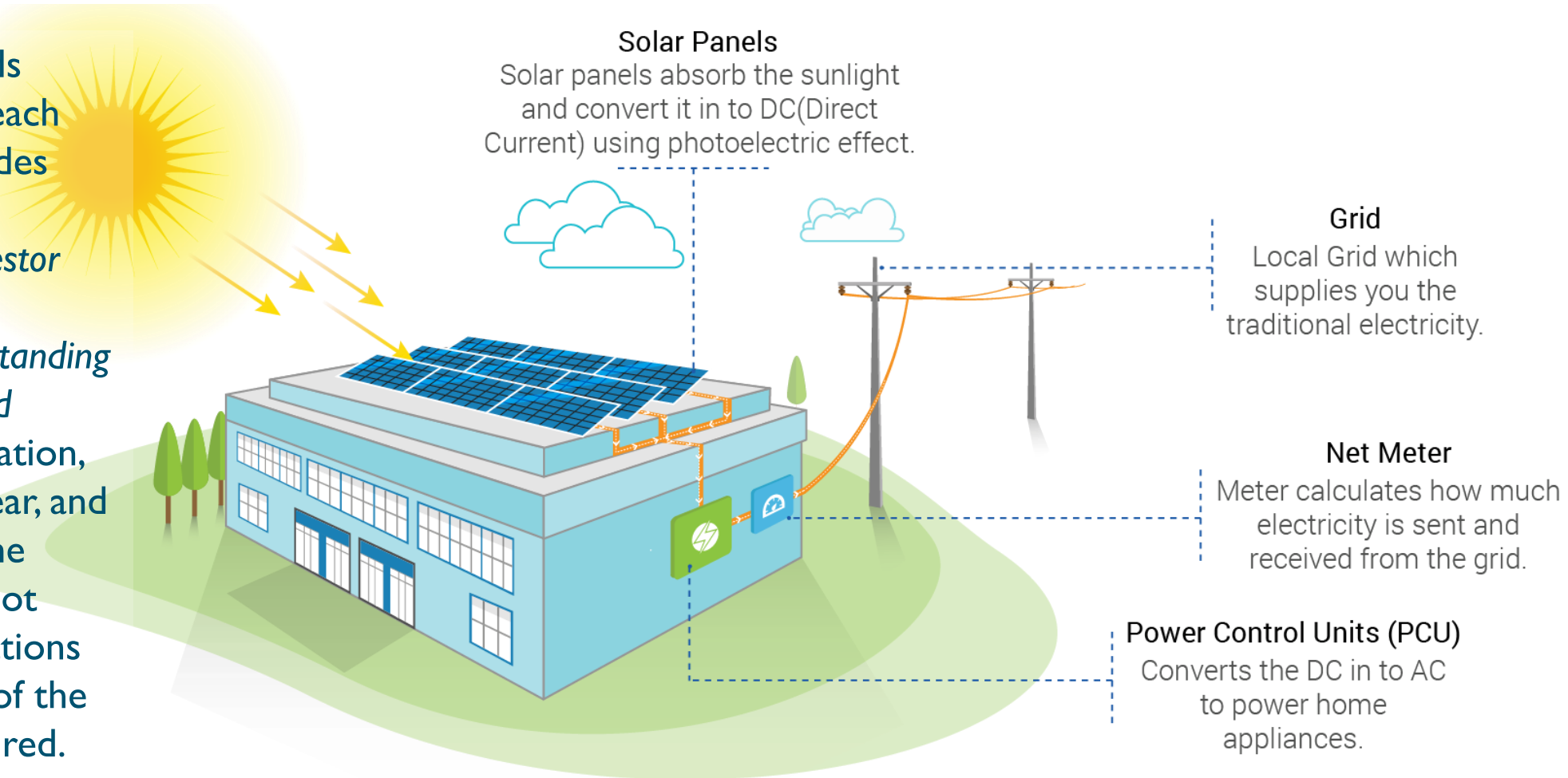
Hospitals: 4

Other Institutions: 7

About Institution on Solar (IoS) project

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IndusInd Bank fully funds almost the entirety of each IoS project which includes costs pertaining to all hardware (*Lightning arrestor and earthing, Centralized inverter and ACDB, free-standing inverter and Racking and mounting system*), installation, maintenance for one year, and pre-installation tests. The bank's provision does not extend to civil modifications such as waterproofing of the roofs that may be required.



Using a mixed method (quantitative & qualitative) approach, the evaluation has captured a 360-degree perspective of the impact from the lens of participating institution and implementing agency.

Purpose of the evaluation

- Assess the extent to which the IoS project has achieved the intended objectives
- Identify lessons learnt for informing future interventions, i.e., strengthen the existing program

Evaluation Approach:

- A mixed method approach was employed to evaluate the IoS program. Physical verification assessed the on-ground implementation status of the project. KIIs with institution authorities and program team provided perspectives on the impact of solar installations, while analysis of the actual energy generation data helped to understand the variance between the estimated and actual impact delivered by the project.

Evaluation Parameters: The impact assessment was done based on the OECD DAC criteria.

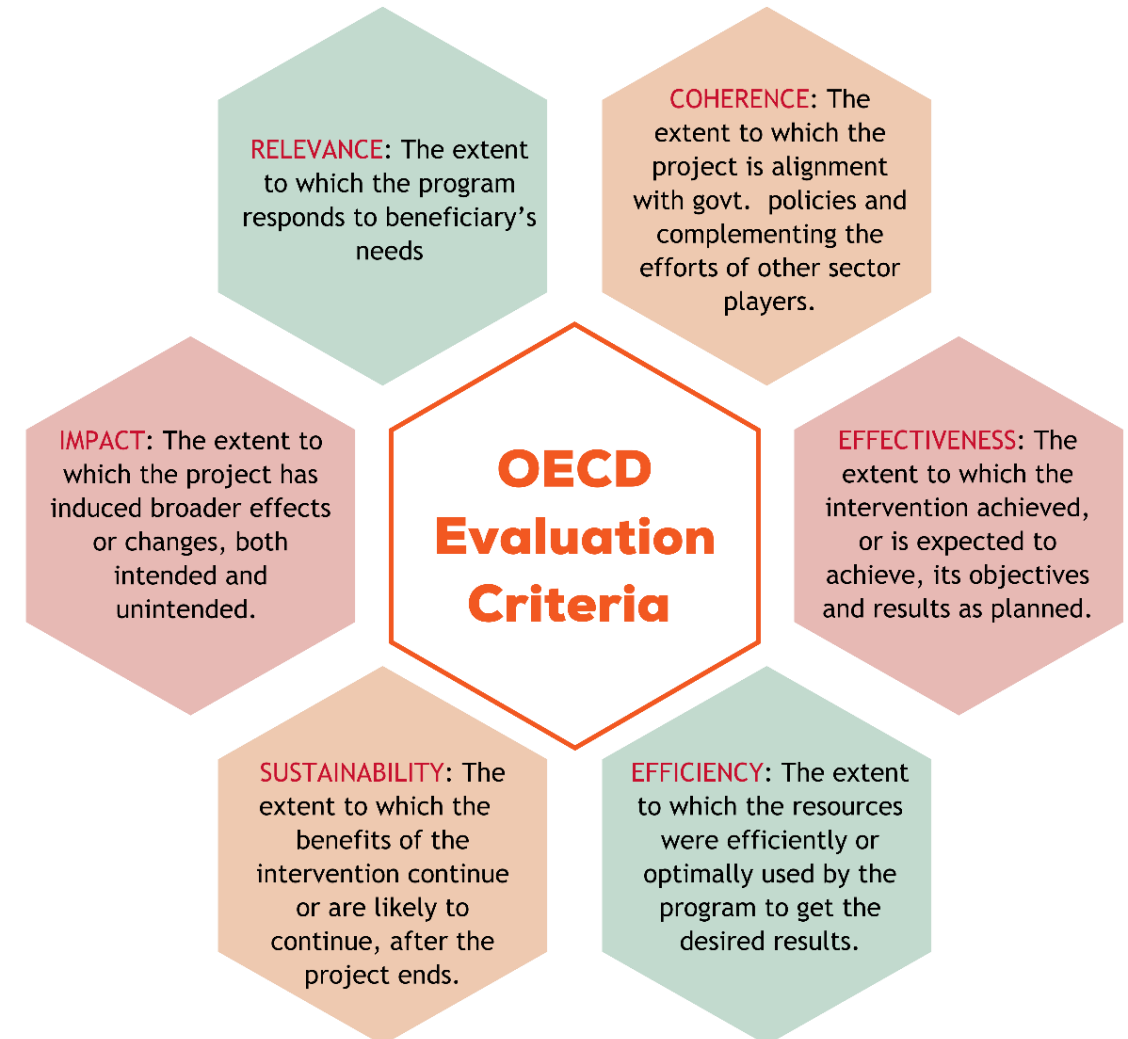
Evaluation Tools:

- Physical verification of the infrastructure
- KII with institution authorities
- KII with program team

Sample design

State	District	Institution	Installed Capacity (kW)
Maharashtra	Mumbai	4	68.65
Maharashtra	Pune	3	250.65
Maharashtra	Raigad	2	319.49
Gujarat	Anand	3	85.47

Organization for Economic Co-operation and Development (OECD) approach has adopted for evaluation is based on six aspects



Key observations & findings – ‘Relevance’

4.1

The IoS program is relevant to the current global priorities and national policies, and with the needs of the primary stakeholders (i.e., Institutions) on the other hand.

Relevant to the SDGs: The IoS project directly contributes to SDG 7 by promoting the use of affordable and clean energy. By harnessing solar power, the project addresses the need for sustainable energy sources, aligning with the global effort to ensure access to reliable, and sustainable energy.

Relevant to the Institutions: The project facilitates the transition of schools, hospitals, and charitable institutions to renewable energy. This not only contributes to environmental sustainability but also results in reduced electricity bills for participating institutions. Over a period, these savings, can be used to support more beneficiaries.

Relevant to the Policy Environment: The program directly supports the installation of solar panels, furthering the government's efforts to reduce dependence on traditional, more expensive energy sources and promoting sustainable practices in rural electrification and thus supporting the National Solar Mission.



Image: Sri Sathya Sai Sanjeevani Hospital, Kharghar, Maharashtra

The IoS program aligns with the interests of both the participating institutions and IndusInd Bank, as well as with national policies and schemes

Role in India's Net-Zero Quest: The program complements India's renewable energy ambitions by adhering to policies that promote solar energy adoption and aim for net-zero emissions, in line with the country's Paris Agreement commitments. It supports Schedule 7 of the Companies Act, which emphasizes corporate responsibility towards environmental sustainability, thus advancing India's target of 450 GW renewable capacity by 2030 and bolstering the national strategy to achieve net zero carbon emissions by 2070.



“ At IndusInd Bank, the triple bottom line approach is one of the key drivers in generating sustainable value for our stakeholders. While delivering a consistent growth in profits, the Bank conducts its business by converging social impact and environmental responsibility. This reflects in our focus on sustainable investing and the reduction of our carbon footprint. IndusInd Bank's CSR initiatives too, align to this approach, by striving for social upliftment and environmental conservation.

Sumant Kathpalia
Managing Director & CEO

The IoS project and CERE's educational efforts are reshaping educational institutions into green campuses, fostering a culture of sustainability that extends its influence well beyond school boundaries.

Green Campuses for Sustainable Education : The IoS project goes beyond merely harnessing solar energy; it actively converges with the concept of green campuses. By facilitating the installation of solar panels in educational institutions, IoS not only reduces the carbon footprint but also transforms these campuses into sustainability hubs. Green campuses are essential in fostering environmental awareness, sustainability education, and a culture of responsible resource management among students, creating a ripple effect that extends to the broader community.

Complementing the physical infrastructure of solar panels, CERE has furthered this mission by conducting educational workshops on climate change and renewable energy. These workshops, targeted at the staff and students within the educational institutions, have bolstered awareness and understanding of environmental issues.



Image: Ashramshala, Panvel, Raigad, Maharashtra

The program was effectively implemented in Maharashtra but faced challenges in Gujarat due to delays in net metering.

Effectiveness in implementation: Physical verification has confirmed that all installations were completed as per design and were observed to be in working condition.

In Maharashtra, the stakeholders from the participating institutions have confirmed that the solar installations were installed on-time, with agreed upon timelines, and are operating as estimated during the design phase. They have also confirmed that they have witnessed a reduction in their electricity bills.

However, in Gujarat, the program encountered challenges due to delays in net metering, resulting in an extension of the timeline for project completion. This was attributed to misalignment in coordination between the institution, the local contractor assigned for net metering, and Avesta Solar. Despite these setbacks, there was no need for additional resources from IndusInd Bank, nor did it lead to any loss of PV system efficiency.



Image: Installation of panel mounting system at HV Desai Eye hospital, Pune.

Key observations & findings – ‘Effectiveness’

4.3

Site	Installed Capacity (kW)	Energy generation (kWh)	Est. energy generation (kWh)	% Difference	Reasons for variation
	Based on CERE report	Based on generation data	Based on CERE report		
PBMA's H.V. Desai Eye Hospital	120.25	15,4375	168,000	-8.1%	Variation within expected range
Sane Guruji Aarogya Kendra**	100	49,332	58,391	-15.5%	Variation within expected range
CVM's S.G. Patel Ayurveda Hospital and Maternity Home*	15.17	5,576	10,619	-47.5%	Incomplete data capture
CVM's G.J. Patel Institute of Ayurvedic Studies & Research*	15.17	8,335	10,619	-21.5%	Incomplete data capture
CVM's A.D. Patel Institute of Technology*	55.13	33,441	38,591	-13.3%	Variation within expected range
Kushtrog Niwaran Samitee Ashramshala	20.25	7,240	28,350	-74.5%	Technical issues, Poor internet connectivity
Sophia Baba Hall	29.32	33,290	40,000	-16.6%	Variation within expected range
Sophia Polytechnic	16.56	22541	22,000	+2.5%	Variation within expected range
Marwari Vidyalaya High School	12.42	14,312	16,000	-10.5%	Variation within expected range
Sri Sathya Sai Sanjeevani Hospital	299.24	334,903	415,000	-19.3%	Variation within expected range
J N Petit	30.4	31,981	42,560	-24.9%	Incomplete data capture
Panday high School	10.35	12,815	13,000	-1.4%	Variation within expected range

Energy generation as reported in the digital application varies from initial estimates raising concerns about panel cleaning frequency and the effectiveness of the online monitoring system.

Effectiveness in energy generation: Energy generation was calculated from the online monitoring system data shared by CERE. The analysis of energy generation has revealed variances, with deviations ranging from +2.5% to -74.5% between the estimates provided by CERE during the design stage and the actual data recorded across various institutions.

These discrepancies could be because of any of the following factors or combination of the same:

- Production outage due to equipment failure
- Decline in production efficiency due to panel degradation
- Seasonal variations. For e.g., energy production could significantly decline during the monsoon seasons;
- Internet outage, i.e., incomplete data capture by the online monitoring systems;
- Poor maintenance, i.e., cleaning of solar panels.

Based on KIIs with CERE, RTI infers that the predominant reason for the observed variance is internet outage which has led to incomplete data capture in the application. However, there are exceptions. For example, the solar installation at Kushtrog Niwaran Samitee Ashramshala, has experienced more than 60 days of inactivity due to technical issues.

Overall, there appears to be a systemic issue with the current monitoring infrastructure. This challenge with data capture and monitoring significantly affects the perceived impact of the project, as it impedes the accurate assessment and reporting of energy generation, resulting CO₂ emission reduction and, consequently, the program's effectiveness.


Key observations & findings – ‘Effectiveness’

4.3

The IoS program has achieved savings on monthly electricity bills for institutions, with these benefits expected to continue for the project's 25-year duration, significantly enhancing community service capabilities.

Cost savings for institutions: The "Institution on Solar" program has delivered substantial economic benefits by significantly reducing electricity bills for the affiliated institutions, with reductions ranging between 20-50% on average every month. These financial gains, stemming directly from decreased dependency on conventional power sources, are projected to persist throughout the project's lifespan, estimated at around 25 years. This long-term cost-saving effect represents a substantial economic advantage, enabling the institutions to reinvest in their primary missions and amplify their community services, thereby underscoring the initiative's enduring effectiveness.

The image on the right details the successful solar energy generation at F. D. Pandey Girls' High School for May 2023. The school's 10.35 kW solar system produced 1,439 units of electricity, leading to a surplus with 675 units exported to the grid and only 366 units imported. This efficient energy management resulted in no electricity bills for the school that month, providing additional budget for institutional improvements.



बृहन्मुंबई विद्युत पुरवठा आणि परिवहन उपक्रम

(बृहन्मुंबई महानगरपालिका)

बेस्ट भवन, पो.बॉ.नं.१९२, बेस्ट मार्ग, कुलाबा, मुंबई - ४०० ००१

Ward Office Address:

Customer Care 24 Hours S & T

Underground New Administrative Bldg, 3rd Floor, Tardeo Complex, S. V. Wadkar Marg, Tardeo, Mumbai-400038, Tel No: 23326757

Name :

THE PRINCIPAL P. GIRL SCHOOL

Mobile No: 98XXXXX957

Email ID: XXXXXXXXsch@yahoo.co.in

Billing Address :

FLOOR-GRD-2, 148, PANDAY GIRLS HIGH SCHOOL, GILDER LANE, OFF D B MARG NAVJIVAN SOCIETY, MUMBAI CENTRAL, MUMBAI-400008

Power Supply Address :

FLOOR-GRD-2, 148, PANDAY GIRLS HIGH SCHOOL, GILDER LANE, OFF D B MARG NAVJIVAN SOCIETY, MUMBAI CENTRAL, MUMBAI-400008

Bill For : May-2023

ate of Bill : 25/05/2023

voice No. 305135400024

Book Folio No.

Cycle 35

Type of Supply 3P

Service No 78488-X-X

Installation No.

Sanctioned Load 9.40

Security Deposit 5000.00

Consumer No. 135-400-024*,

C.A.No. 400012970

Bill Period 31/03/2023 - 29/04/2023

Tariff LT II A

Category COMMERCIAL

Ward D

Last Payment Received ₹ 0.00

Last Payment Received Date 11/04/2023

Reading Parameter Of Net Meter

Meter No.	P.F.	Demand Details(KVA)			M.F.	Unit Details		
		MD	BD	CD		B/F	C/F	Billed
S180083					1.000	0	309	0
TOD UNITS	Import Reading		Import Units(A)	Export Reading		Export Units(B)	Net Units (A-B)	TOD Units
	PREVIOUS	CURRENT		PREVIOUS	CURRENT			
TOTAL KWH	23659.00	24025.00	366	27482.00	28157.00	675	-309	
T1 (22-06-HRS)	5020.00	5144.00	124	0.00	0.00	0	124	
T2 (6-9 & 12-18 HRS)	8694.00	8749.00	54	19311.00	19818.00	506	-452	
T3 (09-12 HRS)	6690.00	6818.00	128	8142.00	8311.00	169	-41	
T4 (18-22 HRS)	3255.00	3315.00	60	29.00	29.00	0	60	
RKVAH(lag)	4275.00	4374.00	99.00	326.00	339.00	13.00	86.00	
RKVAH(lead)	1158.00	1191.00	33	2574.00	2667.00	93	-60	
MD (22-06 HRS)		0.9200	1.0000					
MD (06-09 & 12-18 HRS)		4.8000	5.0000					
MD (09-12 HRS)		6.0800	6.0000					
MD (18-22 HRS)		1.2800	1.0000					

Reading parameters of Solar Generation Meter

Meter No.	MF	Meter Reading		Generated Units
		PREVIOUS	CURRENT	
N215406	1.000	5197.00	6636	1439

Electricity bill, Pandey High School, Mumbai, May 2023

Key observations & findings – ‘Effectiveness’

4.3

Site	Installed Capacity (kW)	Energy generation (kWh)	Cost savings (Rs)
	Based on CERE report	Based on generation data	Calculated based on generation data
PBMA's H.V. Desai Eye Hospital	120.25	1,54,375	20,06,875
Sane Guruji Aarogya Kendra**	100	49,332	5,91,984
CVM's S.G. Patel Ayurveda Hospital and Maternity Home*	15.17	5,576	41,708.48
CVM's G.J. Patel Institute of Ayurvedic Studies & Research*	15.17	8,335	62,345.8
CVM's A.D. Patel Institute of Technology*	55.13	33,441	2,50,138.7
Kushtrog Niwaran Samitee Ashramshala	20.25	7,240	91,586
Sophia Baba Hall	29.32	33,290	2,44,015.7
Sophia Polytechnic	16.56	22,541	1,56,660
Marwari Vidyalaya High School	12.42	14,312	1,11,061.1
Sri Sathya Sai Sanjeevani Hospital	299.24	334,903	43,53,739
J N Petit	30.4	31,981	3,19,810
Panday high School	10.35	12,815	88,039.1

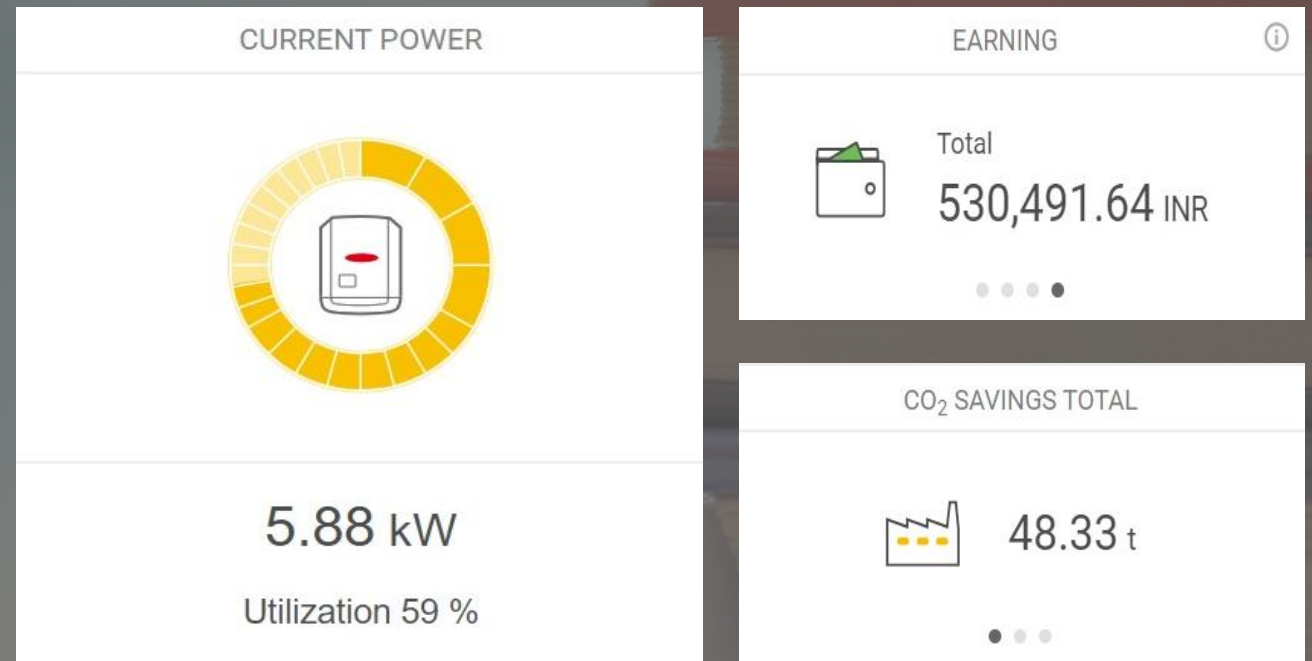
Case study – F. D. Panday Girls' High

Empowering Education:

F. D. Panday Girls' High School is government recognized Parsi Minority unaided institution established in 1898. Located in Central Mumbai, the school serves 600 students. The school sponsors educations for 40 students, including complete sponsorship for students from economically weaker sections.



Image: F. D. Panday Girls' High School , Mumbai, Maharashtra



Energy generation data from online monitoring system at Bai Ruttonbai F. D. Panday Girls' High School in Mumbai showing total CO2 emission reductions and monetary savings resulting from 10.35 kW solar installation. The institute has reinvested the savings into institutional development activities and in providing free and subsidized education for students.

By empowering these institutions with solar installations, the project enhances their societal impact, fostering meaningful and sustainable change in the community.

Social Impact and Community Contribution: The IoS project stands as a catalyst for societal transformation, empowering participating institutions to redirect resources toward pivotal societal contributions. The institution selection criteria undertaken by CERE ensure that all institutions chosen for solar installations inherently contribute positively to society. These institutions, ranging from healthcare providers to educational institutions and other charitable organizations, are strategically chosen to amplify their societal impact. By leveraging the realized savings from the solar installations, these institutions extend their reach and services. They offer free or subsidized healthcare services, create educational opportunities, provide support for children and offer other charitable services thereby actively contributing to community development and fostering inclusive growth. The IoS project, through its thoughtful selection process, aligns with institutions dedicated to bettering society, amplifying their ability to create meaningful and sustainable change.

“ The solar installations have helped us in reducing our electricity bills substantially. It has reduced by as much as 5 lakhs per month on average. This saving is reinvested for the charitable activities of the hospital. 1 surgery on average costs 1.5 lakhs. Thus, due to savings brought about we are able to provide 3 to 4 free lifesaving surgeries for children every month.

Dr Rishikesh Wadke
HOD - Public Health and CSR Coordinator
Sri Sathya Sai Sanjeevani Hospital

Key observations & findings – ‘Effectiveness’

4.3

Site	Number of Beneficiaries			
	Students/Residents/ Patients (M) (Annually)	Students/Residents/ Patients (F) (Annually)	Teachers, Doctors, Staff, Volunteers (Annually)	Total Projected Beneficiaries over 25 years
PBMA's H.V. Desai Eye Hospital	18,423	16,337	200	8,74,000
Sane Guruji Aarogya Kendra	91,500	91,500		45,75,000
CVM's S.G. Patel Ayurveda Hospital and Maternity Home*	37,840	36,357	63	18,56,500
CVM's G.J. Patel Institute of Ayurvedic Studies & Research*	278	182	81	13,525
CVM's A.D. Patel Institute of Technology*	1,468	302	195	49,125
Kushtrog Niwaran Samitee Ashramshala	216	237	26	11,975
Sophia Baba Hall		3,867	160	1,00,675
Sophia Polytechnic		640	60	17,500
Marwari Vidyalaya High School	890	893	65	46,200
Sri Sathya Sai Sanjeevani Hospital	660	840	110	40,250
J N Petit	1,600	0	125	43,125
Panday high School	300	300	37	15,925

Case study – PBMA's H.V. Desai Hospital.

Empowering Vision:

H.V. Desai Eye Hospital in Pune with the support of IndusInd bank and CERE, has embarked on a transformative journey with solar electrification. Established in 2000, this hospital is a pioneer in ophthalmology, having performed over 6 lakhs surgeries, many of them for the underprivileged at no cost.

In a significant leap towards sustainability and efficiency, H.V. Desai Eye Hospital embraced solar electrification. The Hospital, now features a rooftop solar power system with a capacity of 120.25 kW. This green initiative is projected to generate approximately 1.68 lakhs kWh of electricity annually, leading to an estimated energy cost saving of INR 21.88 lakhs per year.

This transition to solar power is more than an environmental or economic triumph; it's a lifeline to the underserved. H.V. Desai Eye Hospital, a sanctuary for underprivileged patients from remote districts of Maharashtra like Satara, Osmanabad, and Raigad, performs 16,915 free eye surgeries and an additional 2,915 at subsidized rates annually. The solar project is set to benefit over 200 hospital staff and approximately 16,915 families living below the poverty line annually. The cumulative impact of these savings extends to an estimated 34,960 people each year, with a 25-year projection of aiding 8,74,000 individuals directly.

“

I have been able to carry forward the vision and mission of the hospital with the help of IndusInd bank and CERE through the Institution On Solar project. The savings generated from the solar installation is being used every year to provide free and subsidized treatment to thousands of patients. I am truly grateful to the program team for blessing me with this project.

*Parvez Billimoria
Executive Director –
H.V. Desai Eye Hospital*

Key observations & findings – ‘Effectiveness’

4.3

Though the IoS program has resulted in emission reduction, results vary from initial projections due to operational challenges.

Effectiveness in CO₂ emission reduction:

Emission reductions have been quantified for the institutions evaluated, utilizing their energy generation data in kWh and applying an emission factor of 0.81 kg CO₂/kW sourced from CO₂ Baseline Database for Indian Power Sector, Ministry of Power, Government of India, December 2022. Please refer to the table on the right for more information.

Although the program has been effective in achieving considerable emission reductions, there has been a noticeable discrepancy from CERE's projected reductions, stemming from various operational challenges detailed in the previous section.

Site	Installed Capacity	Emission Reduction
	In kW	In MtCO ₂
PBMA's H.V. Desai Eye Hospital	120.25	125.04
Sane Guruji Aarogya Kendra**	100	39.96
CVM's S.G. Patel Ayurveda Hospital & Maternity Home*	15.17	45.17
CVM's G.J. Patel Institute of Ayurvedic Studies & Research*	15.17	6.75
CVM's A.D. Patel Institute of Technology*	55.13	27.09
Kushtrog Niwaran Samitee Ashramshala	20.25	5.86
Sophia Baba Hall	29.32	26.96
Sophia Polytechnic	16.56	18.26
Marwari Vidyalaya High School	12.42	11.59
Sri Sathya Sai Sanjeevani Hospital	299.24	271.27
J N Petit	30.4	25.90
Panday high School	10.35	10.38

Throughout the program, CERE effectively managed challenges like delayed net metering, maintenance issues, and online monitoring discrepancies, ensuring smooth operation and optimal performance of solar systems.

Addressing Challenges in Field: Throughout the implementation of the Institution on Solar program, CERE has encountered various challenges and has strategically devised measures to effectively address them, ensuring seamless functioning and optimal performance of solar PV systems at recipient institutions.

Online Monitoring Issues: CERE systematically addresses challenges related to online monitoring, such as missing data, by evaluating the reasons behind the discrepancies and taking corrective action as necessary. Routine check-ins are conducted with institutions to identify and resolve any issues they may encounter with the solar systems. In cases where generation data discrepancies arise from system breakdowns, qualified engineers promptly visit the site to conduct repairs, ensuring continuous and accurate generation and monitoring.

Delayed Net Metering: In cases of delays, CERE ensures no additional resource requirements from IndusInd Bank or loss of system efficiency. The organization has established standardized procedures to proactively tackle such challenges. This encompasses the initiation of net metering discussions at the project's commencement, maintaining regular updates from contractors and increasing communication frequency with institutions to apprise them of any potential delays.

Maintenance Challenges: CERE manages maintenance challenges by implementing a comprehensive strategy. Upon system activation, institutions undergo training and are required to avail of Annual Maintenance Contracts (AMC) to ensure proper system upkeep. In the initial year, servicing visits are conducted at no additional cost. Additionally, institutions are provided access to an online monitoring platform for real-time generation tracking, enhancing accountability and efficiency.

The IoS initiative represents a transformative journey towards sustainability, achieving cost savings, air quality improvement, and educational outreach, ultimately fostering an eco-conscious and empowered community.

Streamlined Renewable Energy Transition: The "Institution on Solar" initiative successfully streamlined the transition to solar energy for a diverse range of institutions, deploying solar solutions in 9 educational facilities, 4 hospitals, and 7 other organizations spread across 6 districts within 2 states. This strategic facilitation not only diversified the energy mix but also exemplified a scalable model for renewable energy adoption.

Significant cost savings: The program has achieved substantial cost efficiencies across participating organizations. These financial savings are being strategically reinvested by the institutions in various domains, enhancing their operational capacities and enabling them to augment the scope and quality of services they provide.

Carbon Footprint Reduction: The program has played a key role in mitigating climate change by substantially reducing CO₂ emissions through its promotion of solar energy, demonstrating a tangible commitment to environmental health. Over a period of 25 years the program is estimated to bring about 18,728 Mt of CO₂ emission reductions across the 12 institutions evaluated within the scope of this study.

Air Quality Enhancement: The "Institution on Solar" project has markedly reduced reliance on fossil fuels, resulting in lower greenhouse gas emissions. This key shift is instrumental in enhancing local air quality, contributing to a cleaner atmosphere and promoting the overall health and well-being of the community by ensuring the air they breathe is purer.

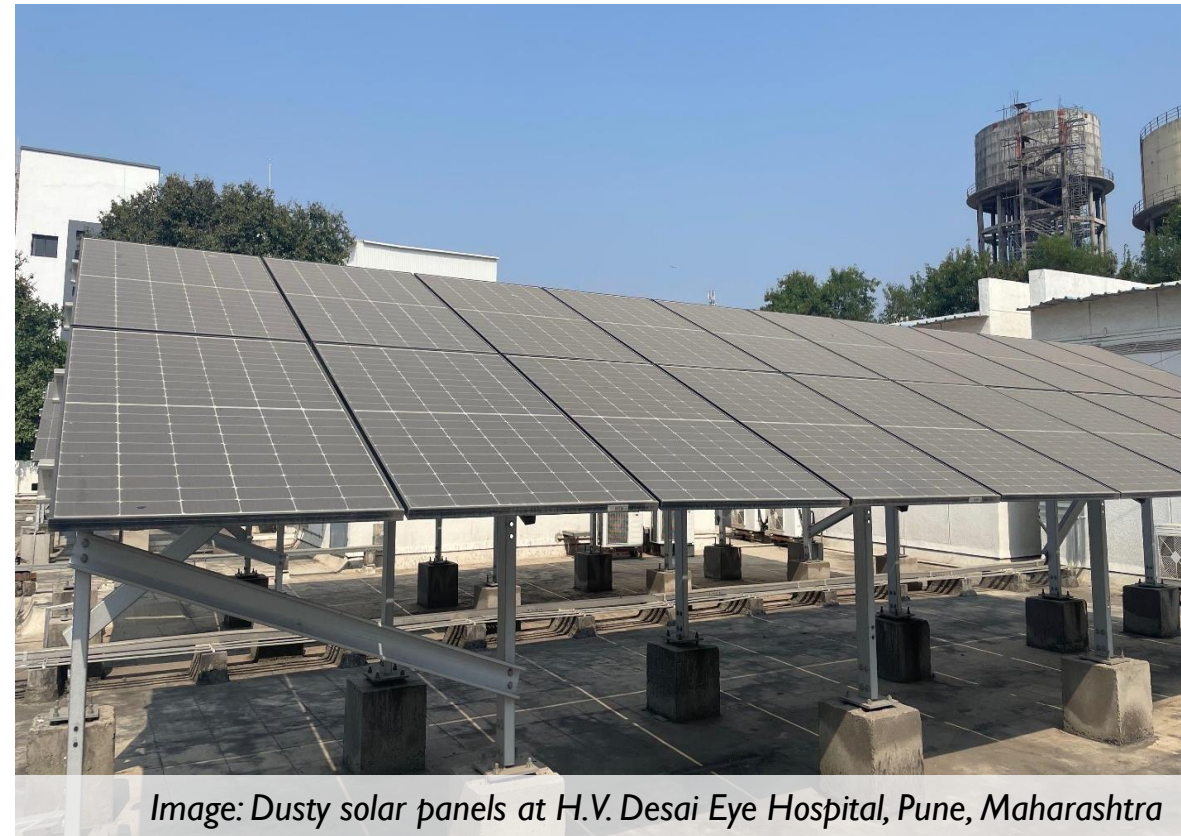
Community Enrichment: The program has been a catalyst for community enhancement, with the cost savings from reduced energy expenses enabling institutions to invest in broadening access to services, thus fostering a more supportive and enriched community environment.

Educational Outreach: The initiative has placed a substantial emphasis on sustainability education, ensuring that stakeholders are well-informed about the long-term benefits and maintenance protocols of solar energy solutions. This educational component is crucial for the enduring success of the program, equipping future generations with the knowledge and skills to maintain and optimize solar energy systems, fostering a culture of environmental consciousness and technological adaptability within the community.

Irregularities in cleaning of the solar panels at certain institutions could result in reduced energy generation, thereby affecting the overall benefits of the program.

Maintenance & Warranty : The IoS program places a strong emphasis on ensuring the lasting performance of its solar installations through a robust partnership with Avesta Solar. Avesta offers a 25-year performance-based warranty on its solar panels, free one year maintenance followed by an Annual Maintenance Contract (AMC). The minimal cost of maintenance, compared to substantial cost savings helps in the sustainability of the project.

Cleaning of solar panels: Regular cleaning of solar panels is critical for maintaining optimal energy output. Although many institutions are committed to this maintenance task, the evaluation has identified a few challenges. Issues such as labor shortages, challenges in accessing the panels, and insufficient water supply have been reported by some of the institutions evaluated. Additionally, physical verification during the site visits have revealed that panels are not always cleaned as frequently as necessary.



Case study – Sri Sathya Sai Sanjeevani Hospital.

Revolutionizing Cardiovascular Care:

The Sri Sathya Sai Sanjeevani Centres for Child Heart Care, operated by the Sri Sathya Sai Health and Education Trust, stand at the forefront of pediatric cardiac care, offering comprehensive services to children with congenital heart diseases at no cost. Anchored by their dedication to super-specialty cardiac care, public health, training, research, and nutrition, these centers are pillars of hope and healing. The selected centre for solar electrification, nestled in Kharghar, Navi Mumbai, specializes in both preventative and corrective pediatric cardiac care, embodying a beacon of curative excellence.

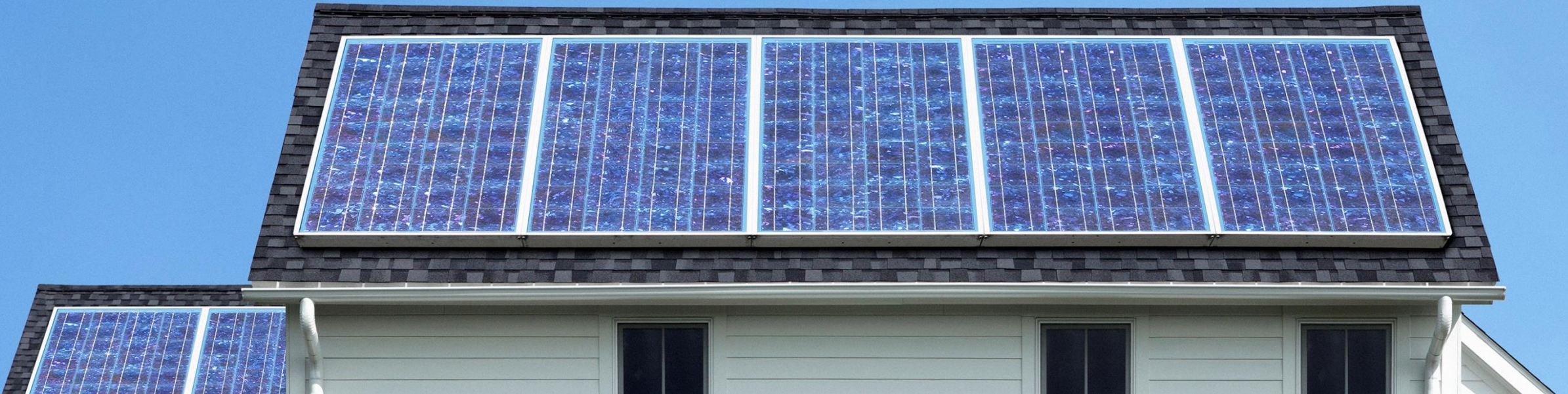
Sri Sathya Sai Sanjeevani Hospital is a sanctuary for rural and tribal children from the depths of Maharashtra battling congenital heart disease. With a compassionate mission for prevention and early detection, the hospital extends crucial antenatal care to expectant mothers and screening services for children under five. Life-saving interventions and surgeries are performed gratis, signifying the hospital's unwavering commitment to health equity. A robust 299.245 kWp solar power system, comprising 780 panels arrayed across the hospital's primary and auxiliary buildings, underscores the hospital's sustainable ethos. This green power source is net metered, epitomizing a synergy of ecological responsibility and healthcare.

Envisioned to aid 1,500 children annually, the hospital's solar initiative is a long-term investment, projected to touch the lives of 37,500 children over the next 25 years. With the hospital's team expected to grow to 374 members within this timeframe, the financial savings from the solar project are earmarked to enhance patient services, enabling the hospital to extend its reach to an additional 852 beneficiaries. Over 25 years, the direct impact is estimated to benefit 38,726 individuals, a testament to the power of integrating sustainable practices within healthcare.

Way forward: Improving program's efficiency & long-term success

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- ❖ CERE should actively explore and empanel more solar technology suppliers like Avesta Solar. This would aid CERE reduce over dependence on a single supplier and explore geographies beyond Maharashtra and Gujarat. Additionally, by employing a competitive bidding process, between empaneled suppliers, we can ensure that IndusInd is receiving the maximum value for every Rupee.
- ❖ The data monitoring process needs strengthening to ensure reliable and continuous reporting. Current inconsistencies in the online system need addressing to affirm the program's effectiveness. It is imperative that CERE implements corrective measures, such as having in place a parallel offline monitoring to minimize data gaps.



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