



## **Green Growth and Energy Transformation**

### **Solar for Education**

### **Forum for Grassroots**

**Tuesday May 02, 2017, Kolkata**

### **Report of Proceedings**

#### **I) Background**

In April 2016, CUTS International with the support of Friedrich Ebert Stiftung (FES) commenced a project on Green Growth and Energy Transformation, in short called Grow-GET. The central idea of the project is to formulate a strategy towards energy transformation in the state of West Bengal and Rajasthan, amongst others. The project focus is mainly on renewable energy and the project goal also complements the efforts of National and State governments on increasing the share of renewable energy in the overall energy mix.

During the course of deliberations it became clear that any transformational strategy must encompass atleast four key elements – technology, market, state and citizens. Accordingly, the stakeholders who came together under the Grow-GET initiative in the form of a seed community identified a catalytic project on ‘Solar for Education’ with an understanding that not only the above four elements could converge on this project idea but it will also be able to catalyze action on many other fronts. To implement the project further strategic framework was designed and it mainly includes five activities namely scoping visits to identify locations; grassroots forum to assess need, scale and concerns of the grassroots amongst others; finance and job forum to assess ways of channelizing the required finance for implementation; policy forum to take up issues related to finance and technology policies which act as bottlenecks and awareness forum to ensure that there is adequate awareness amongst stakeholders of how best to provide solar solution to the last mile.

This report is based on the discussions and outcomes of the grassroots forum. Therefore, it may be pertinent to elaborate on some of the key objectives of the grassroots forum. The following points summarise them in brief:

- To bring select grassroots stakeholders together so that they could connect with peers from different locations and rally together over common problems, challenges and solutions. This in effect can create a broader societal coalition of beneficiaries who can catalyze the implementation by suggesting ideas that can help in streamlining business models for the last mile;
- Grassroots forum is also supposed to promote peer to peer exchange of information including good practices. This works better for community learning and motivation;
- The forum also gives an idea of scale of the immediate need. This is important for prospective project developers, politicians or other actors like media and educationalists, amongst others for whom scale matters for economic and political reasons;
- The forum is also supposed to bring out several other concerns that prevent projects from scaling up such as crucial information on why progressive initiatives have failed on the ground in the past.

Under the overall theme of “Solar for Education”, the initiative in West Bengal focussed on understanding the underlying issues and challenges in promoting installation of Grid Connected Rooftop Solar PV (GRSPV) among educational institution. This was based on a number of initial interviews with key Government Officials, Seed Community Members, Solar Project Developers and Educational Institutions. The Forum of Grassroots meeting in Kolkata aimed at bringing together these stakeholders, not only to facilitate exchange of ideas but also identify key bottlenecks and their probable solutions in an inclusive manner considering varied stakeholder concerns.

Representative from various educational institutions, Renewable Energy Service Companies (RESCO), Civil Society Organisations, and DISCOMs participated at the consultation.

To sum up, the forum was designed to gather and assess inputs on need, scale, relevance of policy on finance and technology and level of awareness, both basic and advance. These inputs are crucial to inform the project team about questions and suggestions that can be taken up in other forums. It may be reiterated here that role of CUTS International is only to facilitate the implementation and not to implement the project by itself.

## **II) Key Issues: Perspective of key stakeholders**

### **A. Perspective of Educational Institutions**

The Educational Institutions (viz. schools, colleges, vocational training centers etc.) are keen to install Grid Connected Rooftop Solar PVs (GRSPV) keeping in view the need for reduction of carbon emission and hence deal with the issue of climate change, creating a sustainable future for their students and also create awareness among the students on alternative sources of energy. Together these would ultimately help the institutions in building their image as socially and environmentally responsible. One of the key reasons for adopting GRSPV is the hybrid nature of the system where a consumer will have the option of taking electricity either from the grid or from solar. Further, the consumer can have a shorter payback period, since the consumer has the option of selling electricity to the grid. From an economic perspective, it will further help the institutions in cutting down their electricity bills.

However, some of the biggest challenges facing these Institutions is the lack of awareness pertaining to the following issues:

- cost of installation which requires changing from single phase system to three phase system among others;
- the procedures involved in installation of GRSPV i.e. documents to be submitted, approvals required etc.;
- the Government / Private Agencies to be approached for installation of GRSPV;
- the monetary benefits accruing to the Institutions after installation of GRSPV i.e. how much investment will be required, what would be the approximate cost savings, what would be the average payback period; and
- The cost and process of maintenance of the solar panels.

The institutions particularly underlined the need for information related to various financing (Subsidy, Bank Loan, MP funds, MLA funds, and CSR funds) options for installation of GRSPV.

## **B. Perspective of Financial Institutions**

The financial institutions are willing to provide the required financial support as loans to the institutions that are willing to install rooftop solar. To encourage consumers or organisations to avail the loan facilities, the rate of interest has been set within the range of 8 – 8.9%, depending upon the credit rating of the borrower, for a period of maximum 10 years. In addition, the banks do not ask for any collateral security from the borrower who wants to avail this loan. Further, a borrower willing to borrow an amount for upto Rs. 10 lakhs, may also avail loan under Pradhan Mantri Mudra Yojna but at a higher interest rate of 11.5% per annum on a reduced cost basis. However, it was underlined that there is the need for generating greater awareness among project developers and various category of electricity consumers about availability of such schemes.

## **C. Perspective of Renewable Energy Service Company(RESCOs)**

RESCOs are expected to operate on a model wherein they will purchase the asset (solar panels/collectors) using long term funds, generate power, distribute it and collect revenues from their customers. The Ministry of New and Renewable Energy (MNRE), Government of India have empanelled RESCOs as ‘channel partners’ who are entitled to receive 30 percent subsidy from MNRE. The RESCOs emphasised the need for building capacities of officials at the local level who are responsible for disbursing loans pertaining to installation of GRSPV. In addition, the governing bodies of the educational institutions are not agreeing to enter in a long term contract with the RESCOs, since most of the governing bodies serve a span of 5 – 7 years. In this regard, it is pertinent to mention that if the process of loan disbursement is made effective and the rate of interest does not exceed 9% then the expected payback period could be as low as 5 years for RESCOs.

## **D. Perspective of Utility Service Providers**

Regulations pertaining to the electricity sector in West Bengal allow use of Net Meter for consumers installing grid connected rooftop solar. Net metering is an agreement that allows the solar PV system owner to sell excess solar energy to the utility company or buy deficit energy from the utility company using a meter to track this energy exchange. In case of Kolkata, CESC is the largest utility service provider. As per existing system, an organisation or an individual household can install a minimum of 5 Kw Grid Connected rooftop solar system. In that case the institution or the household will have to enter into an agreement with CESC for installing Net Meter and CESC has no issues allowing installation of such a system.

However, one of the key challenges facing CESC is the issue of load balancing. When too many consumers will start injecting solar energy in one particular location, there will be significant adverse impact on the whole distribution system. It is essential that such issues needs to be addressed while preparing appropriate regulations.

## **E. Perspective of Consumers**

Under the present system of net metering, a consumer cannot inject more than 90% of the electricity consumed from the grid. This is working as a disincentive to the consumers interested to install / augment generation capacity through GRSPV.

## **III) Success Stories**

- a) Jadavpur Sammilita Girls High School is one of the pioneering institutions that have installed GRSPV. Being a Government supported school it was electrified under the Government of West Bengal's initiative to solarize Government Institutions. The entire project was funded by West Bengal Pollution Control Board (WBPCB) along with West Bengal Green Energy Development Agency Ltd (WBGEDCL). Shri Manish Gupta, who was the Minister in Charge, Department of Power, Government of West Bengal, played a key role in installation of GRSPV at Jadavpur Sammilita and other schools in the adjoining area.

Initially Jadavpur Sammilita installed a 5KWp plant but the savings in electricity bills was only to the tune of Rs. 4,000/-. As a result, the school again applied to West Bengal Renewable Energy Development Agency (WBREDA) for installation of another 10 KWp solar plant which got sanctioned. In monetary terms, the school is saving approximately Rs.16,000/- on their monthly electricity bills.

- b) SIRSA a 12 storeyed housing complex in Kolkata installed GRSPV of 37.5 KWp. 96 flats of the building, including a guest house, its seven lifts, 24-hour filtered water supply run on solar power. The total cost of installing the project was Rs 37.35 lakh (including a five-year maintenance contract). Out of the total cost of installation, 70 percent was provided by Council of Scientific & Industrial Research (CSIR), and the balance 30 percent was provided by Ministry of New and Renewable Energy (MNRE), Government of India.

## **IV) Probable Ways to effectively address the issues**

Based on the issues discussed at the Forum of Grassroots the following probable ways were proposed by the members of the forum to effectively address the issues:

- There is a need to sensitise the Education Institutions on various aspects pertaining to the procedures involved in installing rooftop solar; information about RESCOs empanelled with MNRE; what are the probable funding avenues; what is the total cost the institution will have to incur to install rooftop solar; how the education institutions can benefit in tangible & intangible terms; what would be the expected payback period; and the basic steps that are required to maintain the panels. In this regard, developing a simple manual and circulating the same among education institutions could be a good idea to address the awareness gap;
- In general, key decisions such as installing rooftop solar are taken by members of the Governing Board of an education institution. Hence, it is important to involve those stakeholders in the sensitisation process;
- Many large corporates recruit candidates from the education institutions. It was suggested that the institutions can approach these corporates with a request to finance installation of rooftop

solar under Corporate Social Responsibility initiative. It will also help the corporates project themselves as socially and environmentally responsible entities who are investing in their future.

- There is an urgent need to build capacity of bank officials at the branch level on policies towards financing solar projects. While the senior officials at the Head Office level are keen to finance solar installations and have come with appropriate policies, the same needs to be effectively communicated to the branch managers at the district/sub-district level.
- Branding solar projects with a bankers name can lead to greater dissemination about the availability of bank finances in solar technologies;
- There is a need for adequate publicity by Government Agencies like West Bengal Renewable Energy Development Agency (WBREDA), Department of Power, Government of West Bengal through newspapers, electronic media about the various available schemes on installation of rooftop solar in the state;
- It was mentioned that there are various category of educational institutions depending upon student strength, availability of infrastructure etc. Such diversities requires separate business models and hence a one size fits all model may not be a feasible one.
- The need to have a sustainable business model other than the CAPEX and RESCO model for promoting rooftop solar was emphasised, especially in the context of withdrawal of subsidy by MNRE (channelized through NABARD). In this regard the following business models were proposed :
  - ✓ Rooftop Leasing: In this model an institution can lease out their unused rooftop to a RESCO, who will set up rooftop solar in lieu of a monthly rent. In this case the institution need not invest any funds from its own to install the system;
  - ✓ A RESCO can introduce the organisation willing to install rooftop solar on its premises. The bank can then provide loan to the RESCO and open an escrow account where the RESCO will deposit their proceeds from sale of solar energy. The banks can then deduct the EMI from the same and give the rest to the education institution. Further, the opposite case might also be thought of where the intending institution will introduce the RESCO to the Bank. In both the scenarios the banks will do the monitoring of the project to ensure collection of the loan amount.
- Various peoples' representatives need to be sensitised and motivated to contribute a part of their MLA or MP Lad funds to promote rooftop solar. In this regard, it was proposed that an institution installing rooftop solar could think of supplying electricity to the nearby underprivileged communities which in turn could motivate the MLAs or MPs to partly fund the project.
- At present, most of the education institutions engage in a number of non-academic activities such as cleaning drive, waste management drives, nature camps etc. where CSOs coming from

different sectors are engaged. It was proposed that creating CSOs from diverse fields, that closely work with education institutions, need to come together and integrate the issue of popularising rooftop solar with their work agenda. In this regard, it was proposed that a simple brochure with key messages need to be developed and provided to the CSOs for them to take it forward;

- It was proposed that the schools instead of installing a large solar generation project can take a phase wise approach by gradually stepping up generation capacity according to specific needs. In this regard, the option of mixing solar PV with Solar Thermal was also underlined;
- The need to organise exposure visit and discussion with champions was underlined to help the education institutions understand the various practical aspects of rooftop solar installation.

**Annexure – I**

**List of Participants**

<b>S.No.</b>	<b>Name</b>	<b>Organization &amp; Address of Organization</b>
1	Arabinda Ghosh	Professor, Jadavpur University
2	Avijit Ghosh	Professor, CGCRI
3	Debashis Dhar	Chief General Manager, Onergy
4	Dr. Sudeshna Chakraborty	Headmistress, Jadavpur Sammilita High school
5	Franklin Menezes	Director, Seva Kendra Kolkata
6	Judhajit Sanyal	Director, SDRC
7	Karuna Singh	Country Director, Earth Day Network - India
8	Kuladeep Roy	Assistant Manager, WWF India
9	Lata Bhatia	Founder Member, Green Legion
10	Navonil Das	Senior Manager, Earth Day Network
11	P. Choudhury	Director (Corporate), Pulse Power Ltd.
12	Prasant Kumar Das	Assistant General Manager, State Bank of India
13	R. K. Das	DGM, CESC Ltd
14	Rana Mitra	Senior Manager, UCO Bank
15	Sabyasachi Roy	Senior Manager, Onergy
16	Sanjukta Mukherjee	Director, Optima Solutions
17	Satrajit Sanyal	Director, SDRC
18	Sharmistha Sen	Primary Coordinator, St. Lawrence High School
19	Snehamoy Mondal	Program Staff, Ramkrishna Lok Seva Kendra, Gosaba, Sunderban
20	Subhasis Neogi	Professor, Jadavpur University
21	Susmita Banerjee	H. S. Coordinator, St. Lawrence High School
22	Tapas Kumar Halder	Assistant General Manager, NABARD

**List of Participants: Project**

<b>Sl. No.</b>	<b>Name</b>	<b>Assignment/ Organisation</b>
1.	Arnab Ganguly	CUTS International
2.	Kanika Balani	CUTS International
3.	Prithviraj Nath	CUTS International
4.	Sayantana Sengupta	CUTS International
5.	Sayoni Chaudhuri	CUTS International
6.	Sumanta Biswas	CUTS International
7.	Udai Singh Mehta	CUTS International

## Annexure - 2

### Solar for Education

#### Forum of Grassroots

*Access to energy slows down development in its tracks. An important area to address development gaps is education and hence reliable provisioning of energy in educational institutions will lay infrastructural foundation for a better learning environment. But this process can't be steered by state alone or by people or private sector acting discreetly, and definitely not without assessing the need, incentives, disincentives, community appetite and awareness on policies and technologies that are available in alternative sources of energy provisioning.*

*The forum for grassroots is the first strategic step being facilitated by CUTS International to record response of key stakeholders from the grassroots on the above parameters. Inputs sought from the forum will be taken to market actors, government and civil society to develop a foolproof strategy to provide energy access through the medium of solar technology.*

Tuesday 2<sup>nd</sup> May ,2017 | Venue: Park Plaza, Kolkata

#### Agenda

10:00– 10:30	<b>Registration and Tea</b>
10:30-10:40	<b>Welcome Address by CUTS International</b>
10:40-12:00	<b>Interactive session with stakeholders</b> <i>The session will have interactive discussion with diverse stakeholders from the grassroots to assimilate the need, concerns, comments and suggestions. The participants will include representatives from the Education Institutions, community, administration, relevant departments, NGOs, project developers and media, amongst others.</i>
12:00 – 12:15	<i>Tea Break</i>
12:15 – 13:00	<b>Conclusion and Way Forward</b>  ✓ <i>Presenting the key highlights of the forum</i> ✓ <i>Discussing the strategy to take forward the initiative.</i>
13:00– 14:30	<b>Lunch</b>