



**Green Growth and Energy Transformation (GROW-GET)
Solar for Education
Delhi Expert Group Meeting
Thursday, 18th May, 2017, Delhi**

1. Background:

CUTS International, in collaboration with Friedrich Ebert Stiftung had commenced a project called Green Growth and Energy Transformation (Grow GET) in April, 2016 in Jaipur, Rajasthan. The core idea of the project is to create an implementable strategy for energy transformation at sub-national level by engaging all the concerned stakeholders into fostering a dialogue to identify common interests. To serve this purpose, long-term multi-stakeholder working groups or the 'Seed Communities' were set up at Rajasthan, West Bengal, National and the International (India- EU Cooperation) levels. The ultimate target of the project is in coherence with the national aim of increasing the share of renewable energy in the overall energy mix.

Through the several deliberations, a catalytic project called '**Solar for Education**' was identified, wherein the key elements of a transformational strategy, namely, Technology, Market, State and Citizens could be included. Solar for Education stands for provide Solar Rooftop Solutions for facilitating a learning environment in schools.

In order to successfully implement the project, it is important to locate and understand the challenges or bottlenecks and work out solutions for them. In the previous forum, the key challenges that were identified for both rural and urban areas are lack of awareness, lower security, high cost of maintenance of the solar rooftop project, unsustainable financial sources, change in subsidy policies, red tape, etc. among others.

The report is based on the discussions of the forum on the key challenges and recommendations for the same.

- Pointers with respect to Policy and Regulation:
 - Renewable Purchase Obligations (RPOs) are only applicable for grid connected electricity generators
 - There is a lack of clarity with respect to the mandates of the States and the Centre
 - There are Legal framework and policy gaps in promotion of Decentralised Renewable Energy (DRE) solutions
 - Use of energy efficient appliances in schools and other educational institutions should be made mandatory

The recommendations are summarised as below:

- Key recommendations with respect to Project Design:
 - Need for an assessment framework for assessing energy requirements for last mile connectivity
 - Standardising product quality and employing a remote monitoring system was considered essential

- Establishing framework for operation and maintenance based on some benchmarks and ensure its compliance.
- Chhattisgarh State Renewable Energy Development Agency (CREDA) has a dedicated workforce for operation and maintenance of solar equipment.
- There is also a need to promote local entrepreneur participation in the tendering process
- In order to promote usage of solar rooftop solutions, sustainable source of finance is imperative
- In the coming times, off-grid is considered to be the most feasible solution to provide last mile energy access.

2. Key Points discussed:

a. Project Design

- **World Bank's loan to State Bank of India:** The World Bank has provided a loan of UD\$625 mill. to the State Bank of India (SBI) to be invested into the commercial and industrial organisations to be utilised for investing as a capital for installation of solar rooftop solutions and generation of electricity through that. The SBI shall lead the team to look over the deployment of the above-mentioned funds. The SBI shall be working with the states to inspect the investment of these funds. However, the states are of the opinion that the funds shall be provided only for large scale and bulky generation. Therefore, the question here arises whether educational institutions and schools can be considered as commercial organisations and whether the Aanganwadis are also under its purview. The forum was doubtful of whether educational institutions can be termed as commercial organisations.
- **Operation and Maintenance:** Operation and maintenance of the solar rooftop systems can prove to be very demanding for the consumers. A system for operation and maintenance has to be designed in such a way that it remains an off grid system and can facilitate remote monitoring. Also, proper benchmarks are needed to assess the performance. For this purpose, best practises from other states such as Chhattisgarh can be followed. Chhattisgarh (CREDA) has its own workforce for operations and maintenance.
- **Mandate on Energy Efficiency:** To begin with, the use of energy efficient electrical appliances in educational institutions has to be made mandatory.
- **Framework for Assessment of Performance:** A common assessment framework based on benchmarks and good state practises can be employed to evaluate the performance of the solar rooftop projects.
- **Categorisation of Aanganwadis:** Aanganwadis are not considered as the typical educational institutions. More than 60% of the Aanganwadis do not have their own buildings and function from rented buildings. In order to bring standardisation, a thorough assessment of Aanganwadis and their categorisation is important. This shall help to customise provision of solar rooftop solutions to them based on whether they function through rented buildings or owned ones.
- **Need of standardisation:** In order to ensure last mile connectivity of electricity, a standardised product quality has to be brought into effect, i.e. the solar rooftop solutions have to be common throughout the rural landscape.
- **Reliability through Batteries:** Reliability of electricity is a crucial concern in rural areas. Therefore, it shall be important to promote off-grid solar modules along with batteries.

b. Policy Issues

- **Improving market for the solar energy sector:** The forum was of the opinion that a market was getting established for the solar rooftop solutions in tier-3 cities and it has to be tapped at the right time. In such cities, the MPs and MLAs have their own informal arrangement to support the Aanganwadis in order to establish the solar rooftop solutions. From the policy point of view, the state

governments have an aim of providing 10,000 solar lanterns at a discounted rate of INR500 per lantern to people. However, the initiative has not picked up pace.

- **Mandate on Energy Efficiency:** To begin with, the use of energy efficient electrical appliances in educational institutions has to be made mandatory.
- **Need of Integrated Energy Programme:** There is a need of an integrated energy programme. However, lack of coordination among the ministries and the difference in the priorities of the Centre and the States may dilute the efforts and it poses as a challenge.
- **Ensuring Financial Sustainability:** Solar rooftop projects are capital intensive. Off-grid solutions means adding batteries for storage. This will add to the costs. At a small scale, they are mostly soft-funded (or one-time funded), i.e. through CSR activities and banks. In order to ensure steadiness in supply of electricity in rural areas, the projects need a regular and fixed source of funding. It was also brought forward that banks are less willing to provide loans to commercial organisations because of a poor track record of servicing of the debt. So this can be seen as an opportunity to push for providing these loan to the educational institutions for the solar rooftop projects.
- **Accountability of Rooftop Project Developers:** In order to pay electricity bills, as against the Atal Seva Kendra models in rural areas, a system (an Op-ex model or RESCO Model) for consumers can be so formulated that the payments to the project developers can be tied to the performance of the project. This will ensure that the risk and responsibility of the operation of the project gets shifted to upon the project developer and it shall hence, make project developers more accountable to provide better services.
- **Tapping Local Entrepreneurship:** It was noted that government's tenders for solar rooftop project development that are awarded to enterprises (or project developers) consist such conditions that most of the local enterprises providing solar rooftop services get excluded from the tender process. The tendering process should be local entrepreneur friendly as they have the required expertise and infrastructure required for developing solar rooftop projects. Also, the government can play a catalytic role in mobilising local stakeholders by earmarking funds for them such that they do not have to go through the tendering route at all.
- **Promotion of Mini- Grids:** Mini-grids need to be gradually promoted in the rural areas. With improvement in technology, integration of mini-grids could be aimed and therefore, the mini-grid developers have an important role to play in the future. As the energy consumption is low in the rural areas, the cost of metering is high. Therefore, policies at the Centre need to promote grid-interactive mini-grids throughout the rural landscape. A long term impact of such policies shall be that mini-grids will also be able to contribute to a considerable extent towards fulfilling the RPO targets of the DISCOMS.
- **Need of Integrated and Seamless Policies:** To ensure optimisation of existing resources with the State, it is important that the State governments and the Central Government work in harmony and there is clarity on implementation of policies. Also, each state has different social, political and geographical dynamics. Therefore, it has to be ensured that state policies are not duplicated or simply imitated by other states.
- **Convergence of funds:** In order to improve the uptake of decentralised solutions for education in rural areas, there is a need to ensure convergence of funds from various government schemes and various sources.
- **Best Practises Exchange Platform:** A platform like **CLEAN (Clean Energy Access Network)** is needed where data is exchanged by the DRE players. However, it became a failure as despite of more than 100 subscribers of CLEAN, very few of them voluntarily share data on the portal. There is a need to build trust and confidence among the project developers that the data shall not be misused.

