

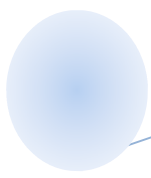


Knowledge Exchange Workshop on Net Metering Based Solar Photo Voltaic Systems in West Bengal

16th January, 2015, Vidyut Bhavan, Kolkata

Snapshot:

- The Government of West Bengal is expected to publish a policy on Net Metering by the first week of February, 2015
- Grid tied SPV systems would be implemented across KMDA area, Salt Lake and New Town
- In the context of West Bengal, implementation of Net Meter based SPV rooftop systems will help a lot towards minimizing the need for major land acquisition
- The advantage of the Net Metering system is that even when the Grid goes down, which is a very frequent case in India, the system continues to generate and supply power to the household. This could be achieved simply by using Hybrid Inverters or Power Control Units interfaced with batteries and in case of Grid Failure it will isolate the rest of the house from the Grid
- Feasibility studies for implementation of Grid-tied systems should be undertaken in rural areas, where mainly off-grid RE systems are implemented
- The scope for the Net Meter connected RE systems should be broadened and feasibility of deploying Solar-Hybrid Technology systems should be undertaken
- Maintaining Grid Parity, addressing Safety and Security of the grid by implementing islanding techniques are few of the important objectives of the Utilities
- It will be important to consider Grid Penetration at two levels: one at the overall grid level and the other at the Distribution Transformer Level, while finalizing the policy on Net Metering
- There should be a check on the quality of the equipment which are to be installed and it will be crucial to adhere to the nationally and/or internationally accepted standards and such adherence needs to be appropriately monitored
- A careful study on the various business models for implementing the Net Meter based systems needs to be undertaken and the most appropriate, adoptable and sustainable model should be chosen
- A study on Net Metering Systems has been proposed to be jointly undertaken by CUTS, EBTC, IISWBM, HNU and ID-EEE
- Market driven programmes should be launched so that it also generates employment opportunity and ensures sustainability
- Capacity Building of the consumers on how to efficiently operate and maintain the systems should be done with utmost priority
- There should be Single Window solutions, for addressing the requirements of both the individuals and entrepreneurs, so that the required processes to put up Net Metering systems is facilitated
- The energy bill should clearly mention the amount of energy exported to the grid, the amount of energy imported and the amount of CO₂ emission reduction achieved through the process
- Mass Level Consumer Awareness Programme on Net Metering is expected to be implemented by CESC. CUTS has proposed to collaborate with the utility to this end



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Agenda

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- 0930-1000 Registration with Morning Tea & Coffee
- 1000-1115 Opening Session: The Relevance and Necessity of Net Metering based Solar Photo Voltaic systems in West Bengal: A Background Study

Welcome Remarks and Introduction of the Theme

Dr. Keya Ghosh, Advisor, CUTS International

Esteemed Speakers

- Mr. Narayan Swaroop Nigam, IAS, Chairman & Managing Director, West Bengal State Electricity Distribution Company Limited (WBSEDCL)
- Mr. Sujan Pandit, Member, Governing Body, West Bengal Renewable Energy Development Agency
- Dr. S.P Gon Choudhury, Chairman, Ashden India Collective and President NB Institute of Rural Technology

- 1115-1130 Tea Break & Networking

- 1130-1200 Key Note Address

Shri Manish Gupta, Honourable Minister in Charge, Department of Power & Non-Conventional Energy Sources, West Bengal

- 1200-1300 Session 2: Technical Session (i) – The Tamil Nadu Experience

Chair

Mr. Swapan Kumar Dutta, Independent Consultant, Energy Efficiency & Visiting Faculty Member, Master of Public Systems Management (Energy Management) Department, Indian Institute of Social Welfare and Business Management (IISWBM), Kolkata

Presentation

Mr Toine Van Megen, Co-Founder, Auroville Consulting

Designated Panelists

- Mr. Swapan Kr. Dey, Additional Chief Engineer, WBSEDCL
- Mr. Subramanya Umashankar, Sr. Deputy General Manager, Sales, Metering & Protection, L&T, Kolkata

Open Floor Discussions for 15 minutes

- 1315-1400 Lunch & Networking



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- 1400-1500 Session 3: Technical Session (ii) – The Gujarat Experience

Chair

Mr. Sujan Pandit, Member, Governing Body, West Bengal Renewable Energy Development Agency

Presentation

Dr. Omkar Jani, Principal Research Scientist, Solar Research Wing, GERMI-RIIC

Designated Panelists

- Mr. Rajib Das, Senior Manager, CESC Limited
- Mr. Tathagata Sarkar, Centre of Excellence for Green Energy and Sensor Systems, Indian Institute of Engineering, Science & Technology, Shibpur (Formerly BESU)
- Mr. C.R Bhowmick, Ex-Advisor (Engineering), WBERC

Open Floor Discussions with Tea and Snacks for 15 minutes

- 1515-1600 Session 4: West Bengal : Issues & Case Studies

Moderator

Dr. Keya Ghosh, Advisor, CUTS International

Designated Panellists

- Mr. Chandan Ghosh, Superintendent Engineer, Electrical, WBSEDCL
- Mr. Udayan Ganguly, Senior Manager, CESC Limited
- Swami Kamalasthananda, Principal, Ramakrishna Mission Vivekananda Centenary College, Rahara
- Dr. B.K. Choudhury, Professor, Master of Public Systems Management (Energy Management) Department, Indian Institute of Social Welfare and Business Management (IISWBM), Kolkata

- 1600-1615 Special Address

Prof. Dr. Bernard Wagemann, Co-Founder and Director, Institute for Decentralized Electrification, Entrepreneurship and Education GmbH & Co. KG

Prof. Dr. Elmar Steurer, Vice President, HNU, Germany

- 1615-1725 Session 5: A Way Forward : Panel Discussion

Chair

Dr. A.N. Biswas, Joint Secretary, Department of Power, Government of West Bengal



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Panel Discussion Members

- Dr. Keya Ghosh, Advisor, CUTS International
 - Mr. C.R. Bhowmick, Ex-Advisor (Engineering), WBERC
 - Mr. Sukanta Basu, General Manager, CESC Limited
 - Mr. Suman Lahiri, Regional Director (Kolkata), European Business & Technology Centre (EBTC)
 - Mr. Biswajit Chatterjee, Superintendent Engineer, Barrackpore Division, WBSEDCL
 - Mr Toine Van Megen, Co-Founder, Auroville Consulting
 - Dr. Omkar Jani, Principal Research Scientist, Solar Research Wing, GERMI-RIIC
-
- 1725-1730 Vote of Thanks

Mr. Prithviraj Nath, Centre Head and Policy Analyst, CUTS International

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The Event:

CUTS International organized the first of a kind Knowledge Exchange workshop on Net Metering Based Solar Photo Voltaic Systems in West Bengal on 16 January, 2015 at Vidyut Bhavan, Kolkata with support from the West Bengal State Electricity Distribution Company Limited (WBSEDCL) and Calcutta Electric Supply Corporation (CESC) Limited and in partnership with WBREDA. There were more than eighty numbers of participants from various spheres, which included the DISCOMS, Civil Society Organizations, Private Project Developers, Educational and Research Institutes, Notable Consultants, End Users and Media. Among the notable guests were Mr. N.S. Nigam, IAS, Chairman and Managing Director, WBSEDCL; Mr. Sujan Pandit, Member, Governing Body, WBREDA; Mr. Abhijit Bose, Executive Director, CESC Limited; Dr. S.P Gon Choudhury, President NBIRT and Chairman Ashden India Collective; Mr. Toine Van Megen, Co-Founder, Auroville Consulting, Puducherry; Dr. Omkar Jani, Principal Research Scientist, GERMI-RIIC, Gujarat; Professor Dr. Bernard Wagemann, Institute for Decentralized Electrification, Entrepreneurship and Education GmbH & Co.KG, Germany; Dr. Elmar Steurer, Vice President, Hochschule fur angewandte Wissenschaften Neu. Ulm – University of applied Sciences, Ulm Germany; Mr. Suman Lahiri, Regional Director (Kolkata), European Business & Technology Centre (EBTC); Dr. B.K. Choudhury, Professor, Indian Institute of Social Welfare & Business Management (IISWBM); Swami Kamalasthananda Maharaj Ji, Principal, Rahara VC College; Dr. Keya Ghosh, Advisor, CUTS International and many others.

Minister Speech:

'The Potential is there, the question is of investment, we have a policy in place, we have to have a very bold public awareness programme, people must know what the benefits of Net Metering are. Those who are involved need to exchange ideas on technological applications', said Shri Manish Gupta, Honourable Minister in Charge of the Department of Power & NES, Government of West Bengal, speaking at the Knowledge Exchange Workshop. He was also of the opinion that, 'The Net Metering Project is much important in Calcutta and we are going to launch it in a very big way, we

intend to provide subsidy. We look forward to provide 20% subsidy. We are looking forward to add 100 MWs by 2017 and thereafter another 500 MWs by 2022'.



Figure 1- L-R: Dr. Keya Ghosh; Mr. N.S. Nigam; Mr. Abhijit Bose; Shri Manish Gupta; Dr. S.P Gon Choudhury and Mr. Sujan Pandit

The minister also pointed out that West Bengal can deal with the issue of land availability by implementing Net Meter based SPV systems which do not require free land rather would utilize the either wise unutilised roof top area.

Introduction, Background & Context:

It is evident that the DISCOMs struggle to meet the Demand during Peak Period. Moreover the current Reserve to Production rate suggests that Fossil Fuels are about to get extinct much before the commencement of the next century. Thus, it is the need of the hour to shift constantly but consciously towards clean & green energy technologies. The choice of technology in this respect is important. The Net Meter connected Solar Photo Voltaic Systems is one of the best suited technologies to be implemented now. It eliminates the use of batteries, thus eliminating the extra cost and maintenance issues that the battery operated systems face often. In this system the SPV systems are grid tied and the power produced from the solar generators are utilized by the consumer and the excess energy is fed into the grid. A Net Energy Meter is used to measure the import and export of Energy from the household. At the end of the month a simple arithmetic calculation (Net Energy Imported from Grid – Net Energy Exported from the system to the Grid) would help settle the bills of the consumer

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with the Utilities. These systems would help to address all the issues including meeting the Power Demand by the Utilities during Peak period, reducing the load on DISCOMs by offering them an option of purchasing power from RE sources, earning extra revenue for the System Owner, reducing Carbon Emission and thereby addressing the issues of Climate Change. Various states of India, including Gujarat and Tamil Nadu, have successfully implemented this concept. Although it was in West Bengal that the country's first MW level Solar Power Plant was implemented at Jamuria in Asansol, the state stands at a distance when it now comes to implementing the RE based systems. CUTS International realizing that this is the need of the hour took interest in organizing a knowledge exchange workshop on Net Meter Based SPV systems and met with the Honourable Power Minister of the State, who gave a go-ahead signal.

Presentations and Panel Discussion:

Mr. N S Nigam pointed out that India is an energy hungry nation and the nation has a lot of potential with Solar Power. He also said that through Net Metering based SPV systems both the consumers as well as the DISCOMs gain, which leads towards a Socio-Economic upliftment.

Mr. Abhijit Bose remarked that Solar Power can be utilized to meet the demand during Peak periods. He also correctly pointed out that the SPV based systems would also address and minimize the issue of high Transmission & Distribution (T&D) losses that West Bengal rather India struggle to address now.

Mr. Sujan Pandit said that we are now on the verge of seeing a revolution which would pave the way for Decentralized Distributed Generation. For almost a century the nation has experienced Centralized Power Sector. He rightly said that in West Bengal the Grid Parity is expected to occur within next 3-4 years as the Retail Tariff Rates as well as the Solar Insolation of the state are pretty low. Smart Meters and Time of Day (ToD) tariffs can provide solution to some of the teething problems that the utilities face now.

Dr. Gon Choudhury informed the audience that Ashden India Collective has been working on

formulating a policy for connecting the rooftop SPV systems of size 5-25 kW for the cities of Kolkata, Salt Lake and New Town through Net Meter. The same is expected to be published by first week of February.

'2013 saw many states taking baby steps towards conceptualizing and implementing the Net Metering policies in different states. However as West Bengal stands at a very important moment of releasing the net-metering policy, it will be important to learn from other states who have been ahead in terms of implementing such policies', said Dr. Keya Ghosh, which set the tone for the day.

Mr. Toine Van Megen said that Auroville Consulting implemented the first grid connected SPV system fifteen years back. He mentioned that the Net Metering part was added at the very last moment to the Solar Policy of Tamil Nadu which came into effect in 2012. He explained the connections of the system. He also clarified that almost all digital meters available now are bi-directional meters. He also said that Grid connected systems are less complicated and hassle free as they eliminate the use of Charge Controllers and Batteries. He demonstrated a few of the Net meter based SPV pilot projects that Auroville has implemented across Tamil Nadu. He urged CUTS to look into minute details of the



Figure 2 L-R: Dr. Keya Ghosh; Mr. Udayan Ganguly; Swami Kamalasthananda Maharaj Ji; Mr. Chandan Ghosh and Dr. B.K Choudhury

policy so that mistakes are not made when it is passed. Referring to a confusing statement in the Tamil Nadu Solar Energy Policy (22.1 Net Metering) which states that, 'Net Metering Facility will be extended to Solar Power Systems installed in



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commercial establishments and individual homes connected to the electrical grid to feed excess power back to the grid with “power credits” accruing to the Photovoltaic energy producer”; he said that, ‘this has given rise to an unwanted situation in which although the dwellings or shopping malls can have Net Meter connected systems, the private educational institutes do not have the provision to do so’. He requested the Government of West Bengal to consider Grid Penetration at two levels: one at the overall grid level and the other at the Distribution Transformer Level, while framing the policy on Net Metering. He also discussed the issues with the Tamil Nadu order on Net Metering. Mr. Megen also advocated for Gross Feed In tariff systems in place of Net Metering System, in which only one meter is to be added to the existing meter. He urged that after 4-5 years when the grid parity is achieved one can switch over to Net Metering. The solution should not be Net Metering plus GBI, he opined.

Mr. Swapan Kumar Dutta advocated for having a check on the quality of the equipment which are to be installed. He also mentioned that it would be crucial to adhere to the BIS standards for the systems and stressed on having mechanisms to periodically monitor the same. He was interested to know about the Payback of the entire system, after adding the capital subsidy scheme available from MNRE. He also suggested that a proper protocol and policy should be followed as in some places REC can be obtained in addition to the benefits that are derived from Net Metering.

Mr. Subramanya Umashankar, Senior DGM, Sales-Metering and Protection Division, L&T, said that type of Meters to be supplied and installed depends on the type of consumers.

Dr. Jani discussed in details, the type of connections that are available for On-Grid SPV systems. He described the advantages as well as disadvantages of having two numbers of meters that are connected in the grid-tied SPV systems. He said that a Net Energy Meter is a bi-directional 4 quadrant meter connected with both the house and the Grid. He said that ‘one of the advantages of the Net Meter based SPV systems over the previous type of meters is that even if the Grid

goes down, which is a very frequent case in India, the system continues to generate and the household enjoys power’. This could be achieved simply by using Hybrid Inverters or Power Control Units (PCUs). These PCUs can be interfaced with batteries and in case of Grid Failure it will isolate the rest of the house from the Grid. The system will continue to generate and the stored power in the battery can be utilized in the household. He discussed in details the various business models that are practiced in the country and Gujarat. He said that one of the usual practices in the country is that the Government, through the State Nodal Agency, makes the Capital Investment initially and would locate places to install the system. However, in this process the beneficiary is least informed and is not educated or aware about the system and the process. He said that since there would be numerous rooftop SPV systems it would be difficult for a State Nodal Agency to keep track of all these systems. He discussed the PPP model, which was implemented in the Gandhinagar Rooftop Projects. In this model the third party solar project developers invest for the systems to get installed. The advantage of having third Party developers investing in the system is that, he said, they are technically competent to maintain the systems and it is easier to interact with a group of developers than number of building owners. Another advantage of this model is the generation based revenue earning mechanism. The developers who would invest will make their money back from the generation and they would ensure that the systems operate hassle free. The third model according to him can be an individual ownership model. The advantage would be that the individuals would come forward, be educated and install the systems on their rooftops, he said. He explained in details on maintaining Grid Safety and Grid Parity along with islanding. He said that a perfect Business Model would be to involve the Government, Developers, Regulators, Home Owners and the Power Utilities. A lot of R&D is going on this. He also said that in many states there are no Solar Policies however; Roof Top SPV system installation is taking place in many cases.

Swami Kamalasthananda Maharaj Ji spoke at length from the perspective of a consumer. Following are the excerpts:

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- The Institute installed 30 kW Rooftop Net Meter based SPV system in September, 2013. The yearly generation from the system has been 40,200 units.
- When he spoke with engineers from WBSEDCL, they informed him that the system should have generated 42,000 units a year.
- The game spoiler in this case, he found out, was the dust particles emitted from the CESC Titagarh Power House located very near to the college. The dust particles, he said, has magnetic properties and get stuck on the PV panels and reduces the efficiency of the same. It needs to be removed with the help of Detergent water, and cannot be dusted off simply with the help of dry clothes or washed off by pure water. So that requires time and a constant expense.
- Cost of the system, he said, is an issue. The Institute had to pay Rs 30 lacs for the 30 kW system even after availing the 30% MNRE capital subsidy scheme.
- He also requested the utilities to clearly mention in the energy bill the amount of energy exported to the grid the amount of energy imported and the amount of CO2 emission reduction done through this process.

Dr. B.K Choudhury highlighted the fact that blindly imitating the Western lifestyle would see India having a per-capita consumption of 4000 kWh (approx.) of electricity and if India and China consume this much of energy then it would require having one more earth, which is not feasible. Thus, he stressed on using energy efficiently and utilizing the renewable energy. He focussed on the three types of Photo Voltaic Systems in use: Grid Tied, Off-Grid and Hybrid systems (having battery as a back-up but tied to grid). He said that for Gross Meter based systems monitoring is an issue but in case of Net Meter this issue is largely addressed by the metering system itself. He stressed on having a proper coordination amongst the stakeholders, which includes the users of the systems, the owners (self or third party), Government bodies like Electricity Regulatory Commission, State and Central Renewable Energy Development Agency,

MNRE, Municipal Corporations, ULBs, Gram Panchayats, PWD and also Manufacturers of SPV systems and its components. He requested the Power Department to consider that if a single window solution could be developed for implementation of the Net metering system. He said that R&D work has reduced the cost of bi-directional meters to a few thousand of rupees which is quite an achievement. He said that a major issue which is still pertaining is that the KMC norm and the Hon'ble high Court Order which says that all buildings of 14.5 mtrs and above and all new extensions and constructions of same should have RE provisions, but the capacity of the RE technology to be deployed has not been maintained in the same. He also said that in case of external grid failure, the local grid could be made capable to support export-import of power among the deserving users with Net-meters. This would also reduce excess demand on the grid on restoration of power and would improve the overall efficiency. This scenario would not only enhance the use of RE technologies, he said, but also Energy Efficiency practice including the use of Vapour Absorption Cooling System utilizing Waste Heat and/or surplus heat of Solar Water Heating System during summer.

Special Address - Research on Rural Electrification:

Dr. Bernard Wagemann, and Dr. Elmar Steurer, Germany, informed the house that a MoU has been signed between European Business and Technology Council, HNU, CUTS International, IISWBM and Institute for Decentralized Electrification, Entrepreneurship and Education (ID-EEE) for conducting research on Rural Electrification and Renewable Energy.

They also stated that very soon a research work would commence on the feasibility of setting up Mini Grids in ten villages of the Sunderbans.

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Figure 3 L-R: Dr. Bernard Wagemann and Dr. Elmar Steurer

Way Forward:

The Way Forward Session which was chaired by Dr. A. N. Biswas, Joint Secretary, Department of Power & NES, Govt. of West Bengal; consisted of a rich panel with representatives from the Government of West Bengal, Power Utilities, Educational & Research Institute, Civil Society Organization, retired professional from the State Electricity Regulatory Commission and the Regional Director of European Business and Technology Centre.



Figure 4 - The Way Forward Session - L-R: Dr. Keya Ghosh; Mr. Sukanto Basu; Mr. Suman Lahiri; Dr. Omkar Jani; Dr. A.N. Biswas; Mr. C.R Bhowmick; Mr. Toine Van Megeen and Mr. B. Chatterjee

The Chair informed the house that the Government of West Bengal will take up the matter of implementation of Grid Connected SPV systems in a very ambitious manner.

Mr. Sukanta Basu opined that the Solar tariff is about to have a parity with the Utility Power

Tariffs and the Net Metering based SPV systems has the capability to be the 'Game Changer'. A few benefits of the system, according to him, are Reduction of Peak Demand, Creation of Economic Value and Need Based Market Potential. He suggested that for mandatory installation of Rooftop SPV Systems on buildings of business and commercial activities, schools, colleges, hospitals, large housing societies and Government establishments some changes in the Building Code can be formulated. He suggested to take care of and to address the issues of Voltage fluctuation as well as Harmonics as that might disturb the balance of the system and thus the quality of the power. He suggested keeping suitable provisions in the Regulations to maintain Grid Parity and Discipline. He stressed on the need of having automatic disconnections and isolations of the systems connected to the grid. He also pointed out that maintenance of Solar systems should be given due importance so that the issue is resolved and also there is a common interest of installing rooftop SPV Systems.

Mr. Suman Lahiri said that certain changes need to be incorporated to develop a perfect business model for Net Metering based SPV systems. He opined that a big generation capacity is going to be utilized by feeding the generated power into the Grid System. He stressed on having perfect business models for net metering. He suggested that several factors need to be examined before setting up Net Meter connected SPV systems. Depending upon the feasibility it is important to design whether the Net Meter connected systems are to be pure SPV based systems or hybrid technologies including solar systems. The choice of technology should be done after examining several factors such as geographical locations, etc. He said that when a policy on Net Meter based SPV systems is to be drafted it is important to take into account of the suppliers, module manufacturers and the manufacturers of the inverters. Framing of this needs a proper



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stakeholder consultation. He also suggested of taking into account the rural population as he said that usually off-grid RE systems are installed in the remote locations and when Grid reaches to the zone, the RE systems are rendered dysfunctional. To avoid this situation he advocated for having a strong policy and regulation. 'We need to analyse the business models and we need to prepare the regulations to enable the business models', he opined.

Dr. Jani advocated for having a robust framework in place which would make Net Metering a happening thing in West Bengal.

Mr. Toine had a one line prescription from his end, for the successful implementation of the Net Meter connected rooftop SPV systems, 'the issue should not be whether to do it but how to do it'!

Dr. Ghosh rightly pointed out that 'without consumer education & awareness this programme is not going to be successful'. She also stressed on having a market transformation, which can only happen when the consumers are educated and aware of the subject. She suggested having a developed market and not a situation in which a buyer has to go through the REDAs and apply for MNRE subsidy schemes. This would open up livelihood opportunities for many, she opined. She urged the utilities to train the unemployed youth and build a network of master trainers.

Dr. Biswas, the Chair of the Session, concluded by saying, 'The New Policy on Roof Top SPV systems is going to come up. The kind of workshop which has taken place today by the initiative of CUTS is the need of the hour and it has been done at the right time. This workshop will help us in setting a stronger foot for the Policy'.

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List of Participants:

Chief Guest:

Shri Manish Gupta, Honourable Minister in Charge, Department of Power & NES, Government of West Bengal

Utilities:

Sr. No.	Name	Designation	Organization
1	N.S. Nigam	IAS; Chairman and Managing Director	WBSEDCL
2	Abhijit Bose	Executive Director	CESC Limited
3	Sukanta Basu	General Manager	CESC Limited
4	Rajiv Kumar Das	Senior Manager	CESC Limited
5	Udayan Ganguly	Senior Manager	CESC Limited
6	Santosh Chattopadhyay	Deputy Manager	CESC Limited
7	Pranab Kumar Bhunia	Senior Engineer	CESC Limited
8	Sourav Dutta	Distribution Engineer	CESC Limited
9	Ranjit Kumar Majumder	Director; Distribution	WBSEDCL
10	Pradip Kumar De		WBSEDCL
11	S.K Raha	DE (C), PPSP	WBSEDCL
12	Subhamoy Dasgupta	Additional Chief Engineer; Distribution & Testing Department	WBSEDCL
13	Sudip Kumar Bhaduri		WBSEDCL
14	Dipali Chatterjee	OSD to CMD	WBSEDCL
15	Arup Kumar Chattopadhyay		WBSEDCL
16	Swapan Kumar Dey		WBSEDCL
17	Siddhartha Roy		WBSEDCL
18	Dipankar Chowdhury		WBSEDCL
19	Nirmal Kanti Biswas		WBSEDCL
20	Tapas Haldar		WBSEDCL
21	Anil Chandra Bir		WBSEDCL
22	Shyamal Kumar Hazra		WBSEDCL
23	Manik Chandra Pal	Superintendent Engineer & Regional Manager, Bardhaman	WBSEDCL
24	Subhrendu Sarkar		WBSEDCL
25	Chandan Ghosh	Superintendent Engineer; Distribution, Testing Department	WBSEDCL
26	Mousumi Bhowmik		WBSEDCL
27	Amitava Sen		WBSEDCL
28	Rabi Shankar Banerjee		WBSEDCL
29	Basanta Mallik		WBSEDCL
30	Biswajit Chatterjee	Superintendent Engineer, Barrackpore Division	WBSEDCL
31	Moupali Mukhopadhyay		WBSEDCL

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32	Tapas Kumar Sarkar		WBSEDCL
33	Suman Chakraborty	Assistant Engineer, Planning Investigation & Design Department	WBSEDCL
34	Anindya Roy		WBSEDCL
35	Diptya Sarkar		WBSEDCL
36	Dipti Basu		WBSEDCL
37	Anindya Kishore Manna		WBSEDCL
38	S.N. Das		WBSEDCL
39	S.K. Saha		WBSEDCL
40	T. Ghosh Chowdhury	CE (Commercial)	WBSEDCL
41	Bodhisattwa Sarkar	Superintendent Engineer (Electrical)	WBSEDCL

Other Participants:

Sr. No.	Name	Designation	Organization
1	Anindya Narayan Biswas	Joint Secretary	Department of Power, Government of West Bengal
2	Toine Van Megen	Co-Founder	Auroville Consulting, Puducherry
3	Omkar Jani	Principle Research Scientist	GERMI, Gujarat
4	Sujan Pandit	Member, Governing Body	WBREDA
5	C.R. Bhowmick	Ex-Advisor	WBERC
6	S.P. Gon Choudhury	Chairman	Ashden india Collective
7	Bernard Wagemann	Co-Founder & Director	ID-EEE, Germany
8	Elmar Steurer	Vice President	HNU, Germany
9	B.K. Choudhury	Professor	IISWBM, Kolkata
10	Swami Kamalasthananda Maharaj	Principal	Rahara Ramakrishna Mission Vivekananda Centenary College
11	Swapan Kumar Dutta	Visiting Faculty Member & Independent Consultant	IISWBM, Kolkata
12	Tathagata Sarkar		IEST (BESU), Shibpur
13	Suman Lahiri	Regional Director	EBTC
14	S.S. Ganguly	BDE	EBTC
15	S. Sahoo	Manager	Agni Power
16	Subramnya Umashankar	Senior Deputy General Manager – Sales, Metering & Protection	L&T Limited
17	Arnab Bose	Assistant Manager - Metering	L&T Limited
18	Chandra Nath Halder	Marketing Manager - Solar	Chloride Power
19	Sanjoy Mukherjee	Assistant Manager - RE	Chloride Power
20	Hirak Mitra	Director – Solar Sales	G.P. Tronics
21	Sejuti Jha	Trade & Investment Adviser	British Deputy High Commission

Knowledge Exchange Workshop on Net Metering Based Solar Photo Voltaic Systems in West Bengal

16th January, 2015, Vidyut Bhavan, Kolkata

22	Tariq Imtiaz	Technical Co-ordinator	Onergy Solar
23	Arijit Ghosh		Onergy Solar
24	Suvra Majumdar	Associate Vice President	CTTRAN Consulting Limited
25	Goutam Banik	Senior Consultant	S.K. Dutta P.E Consulting
26	Vijay Shankar Sharma	CEO	Invictus Saur Urja Pvt. Limited
27	Abhishek Singh	Sales Executive	Invictus Saur Urja Pvt. Limited
28	Urvashi Aasawat	Sales (Co-op.)	Invictus Saur Urja Pvt. Limited
29	Sujoy Ghosh	Chief Manager	Bhaskar Solar
30	Nadir Babaycon	Director	Indo-American Electricals Ltd.
31	Tapan Godani	Head	EECIAL
32	Bikash Das	Assistant Professor	SKFGI
33	Palash Bardhan	Secretary	Atghara Sanhati Kendra
34	S. Nag	Chairman	Kaibolyanath Development Public Charitable Trust
35	Shantanu Chatterjee	Secretary	Kaibolyanath Development Public Charitable Trust
36	Hitesh Kumar Kyal	Entrepreneur, Educator, Consultant, Motivator	Hiteshi
37	Keya Ghosh	Advisor	CUTS International
38	Prithviraj Nath	Centre Head	CUTS International
39	Sayantana Sengupta	Programme Officer	CUTS International
40	Sumanta Biswas	Project Co-ordinator	CUTS International
41	Sucharita Bhattacharjee	Assistant Researcher	CUTS International
42	Nishi Kant Sinha	Office Manager	CUTS International