

## Minutes of Meeting

The second meeting of experts for Pumps under the aegis of the BEE UNIDO GEF Project on Facility for Low Carbon Technology Deployment (FLCTD) was held at the Conference Room, Bureau of Energy Efficiency, 4<sup>th</sup> Floor, Sewa Bhawan on 18<sup>th</sup> April 2018.

### List of participants

S. No.	Name	Organization
1.	Mr. Milind Deore	Director, Bureau of Energy Efficiency (BEE)
2.	Dr. Dinesh K Goyal IAS (Retd.)	Retd. Additional Chief Secretary to Govt of Rajasthan and Principal Secretary of Horticulture Department
3.	Mr. V. Krishnakumar	Vice President of Southern India Engineering Manufacturers' Association (SIEMA)
4.	Dr. Alok K Sikka	India representative and Principal Researcher - International Water Management Institute (IWMI)
5.	Dr. Prosanto Pal	Senior Fellow, The Energy and Resource Institute
6.	Mr. Mayur Karmarkar	Director – Asia, Sustainable Energy, International Copper Association
7.	Mr. Sandeep Tandon	National Project Manager, FLCTD project, UNIDO
8.	Mr. P. V. Kiran Ananth	Principal Counsellor, Confederation of Indian Industries
9.	Ms. Reshmi Vasudevan	Programme Expert, FLCTD project, UNIDO
10.	Mr. Rishabh Goel	Programme Associate, FLCTD project, UNIDO
11.	Mr. Kishore	Associate Consultant, CLASP
12.	Mr. Bibek Ranjan Patnaik	Project Engineer, BEE

1. The meeting began with a brief welcome remark by Mr. Milind Deore, Director, Bureau of Energy Efficiency). This was followed by a presentation by the Project Management Unit that gave an overview of the pump industry and market segmentation in India and also looked at some of the efficiency gaps identified by recent studies. The presentation included challenge specific questions and suggested criteria to screen the applications and paved the way for discussion among the expert panel members to define the innovation challenge considering potential for replication of innovative technologies and solutions.
2. This presentation was followed by SIEMA on various issues that can affect the Agriculture pumping efficiency and how Pumping Systems can improve the efficiency in the utility of pumps.
3. The experts acknowledged that Pumping systems play a key role in improving the efficiency of pumps. They agreed that pumping efficiency in the agriculture sector was a key challenge and it was easier to work with the industrial sector which was more organized and tend to take corrective actions to improve efficiencies of their systems and processes. However, Director, BEE pointed out that efficiency issues in 21 million agriculture pumps installed in the country contribute to large

budget deficits in states owing to the electricity costs of agriculture pumps. He also pointed out that despite of various initiatives in the states have not been able to address this issue. Hence there need to be new approaches to look at agriculture pump efficiency.

4. As diesel pumps are still used in the country, widely in Northern India, Dr. Sikka shared that they are of great concern as they are highly inefficient and have high carbon dioxide emissions. Mr Krishnakumar added that diesel pumps should be considered in the Innovation Challenge as there are large number of diesel pump-sets in use in spite of high operating cost on account of the fuel. Bringing the panel's attention to the opportunities offered by the Solar Pumps, Dr. Dinesh Goyal pointed out that as a large number of pumps need to be operated in the absence of reliable grid supply, there is an urgent need for the intervention of Solar Pumping technology. He however pointed out that the success of Solar Pumps will need wider opportunities, whereby extending the power of the solar photo-voltaic system can be harnessed to operate other farm equipment or appliances for households.
5. Mr. Krishnakumar added one of the key issues was the ignorance among farmers about the right selection of pump-sets, on drawdown level and available water-level. Some states like Punjab have taken precaution to avoid water level depletion by banning irrigation during summers while increasingly paddy cultivation is shifting towards eastern regions (from the western states) given the water availability.
6. Dr Prasanto Pal pointed shared that TERI's fieldworks have shown that the borewell drillers tend to play a decisive role in influencing pump selection among the farmers. As the borewell width influence the cost-economics of pump-selection, a smaller pump's efficiency tends to drop with the depth of borewell water-levels.
7. After deliberations on various issues on the ground which need to be addressed it was agreed that with regard to the agriculture pumps, the innovation challenge should consider the entire pumping system to deliver efficiency benefits whereas for the industrial pumps that design improvements, material of construction resulting in improved hydraulics should be considered. The experts called for defining the problem statements for the FLCTD Innovation Challenge, with individual focus on Agriculture, Building, Industry and Municipalities. Innovations challenge should invite solutions for electric, off-grid and diesel-pumps.
8. The PMU will be prepared the Terms of Reference for the innovation challenge based on the above suggestions and circulate it for feedbacks thereafter share the final version before public announcement. The selection criteria will be discussed and finalized before the start of the screening process.
9. The meeting ended with a vote of thanks to the panel members.