



# Training Workshops for Financial Institutions on Energy Efficiency (EE) Financing in India



25 – 26 APRIL 2018, BHUBANESWAR



Indian Banks' Association



**IFC** | International Finance Corporation  
WORLD BANK GROUP

*Creating Markets, Creating Opportunities*



Programme co-funded by the  
EUROPEAN UNION

## 1. ABBREVIATIONS

SL. No	Abbreviation	Extended Form
1.	<b>BEE</b>	Bureau of Energy Efficiency
2.	<b>CC</b>	Climate Change
3.	<b>DPR</b>	Detailed Project Report
4.	<b>EE</b>	Energy Efficiency
5.	<b>EEFP</b>	Energy Efficiency Financing Platform
6.	<b>ESCO</b>	Energy Service Company
7.	<b>ESPC</b>	Energy Savings Performance Contract
8.	<b>EU</b>	European Union
9.	<b>FI</b>	Financial Institution
10.	<b>GHG</b>	Green House Gases
11.	<b>GoI</b>	Government of India
12.	<b>IBA</b>	Indian Banks Association
13.	<b>IFC</b>	International Finance Corporation
14.	<b>IREDA</b>	Indian Renewable Energy Development Agency
15.	<b>M&amp;V</b>	Measurement and Verification
16.	<b>NBFC</b>	Non-Banking Financial Corporation
17.	<b>NDC</b>	Nationally Determined Contribution
18.	<b>OMFED</b>	Odisha State Milk Federation
19.	<b>PRGFEE</b>	Partial Risk Guarantee Fund for Energy Efficiency
20.	<b>RE</b>	Renewable Energy
21.	<b>SDA</b>	State Designated Agency
22.	<b>SME</b>	Small and Medium Enterprises
23.	<b>ToT</b>	Training of Trainers
24.	<b>VCFEE</b>	Venture Capital Fund for Energy Efficiency
25.	<b>WBG</b>	World Bank Group

## 2. OVERVIEW

Energy Efficiency (EE) has emerged as one of the major resources, a viable and the most cost effective solution to meet escalating energy demand in India. EE measures helps in meeting the energy demand without further addition of generation capacities but instead exploring opportunities of doing demand side management. EE measures have three-fold benefits – they are cost-effective, increase energy security and mitigate greenhouse gas emissions.

In India, the Industries (Large and Small and Medium Enterprises (SMEs)), the Buildings (Commercial and Government) and the Municipalities consume around 50% of the total electricity consumption. There exists substantial energy saving potential in these sectors by adopting EE technologies. The Bureau of Energy Efficiency (BEE) estimates that more than INR 1,50,000 crores investment potential exists in EE implementation out of which INR 56000 crore of investment potential exists with the Industries, Buildings and Municipality sectors alone.

In spite of a substantial potential of investment in EE sector, the growth in EE financing has been mild. One of the major barriers to EE implementation is the perceived risk (on EE projects) by Financial Institutions (FIs) due to limited understanding of the sector. In order to create awareness among the FIs on the financing needs for EE implementation, BEE has taken several initiatives. BEE had launched training programs for commercial banks under its Energy Efficiency Financing Platform (EEFP) in June 2015. With the objective to *“build greater knowledge and confidence through training programme within the financial sector on Energy Efficiency financing”*, in Phase I (June 2015 to June 2017) BEE had successfully completed 4 Training of Trainers (ToT) workshops and also supported Canara Bank and South Indian Bank in organizing workshops on EE financing. More than 100 Bank/ Non-Banking Financial Corporations (NBFC) officials were trained in Phase I.

Taking this initiative further, under the Phase II program, BEE in partnership with State Designated Agencies (SDAs), Indian Banks Association (IBA) and with the technical support from International Finance Corporation (IFC) plans to conduct twenty Training Workshops for FIs on EE Financing by September 2018 spread across India. These direct training workshops are designed to create awareness amongst the loan officers / risk managers / credit managers towards technical/financial appraisal of EE projects.

As of date, under the Phase II program, seven training workshops have already been conducted in Mumbai, Thane, Pune, Bangalore, Mangalore, New Delhi and Jaipur. These workshops addressed the need to bring upon the awareness among the financial institutions towards the EE projects and their potential. The workshops also made the FIs aware of the ESCO business model which is backed by various Gol schemes.

### 3. BHUBANESWAR WORKSHOP – AGENDA

#### “Training Workshop for Financial Institutions on Energy Efficiency financing”

Date: 25 – 26 April 2018 (Day 1)

Venue: Hotel Hindusthan International A-112, Shriya Talkies Street, Opposite ICICI Bank, Unit - 3, Kharvel Nagar, Janpath, Bhubaneswar

Time	Topic	Speaker
09:30 AM - 10:00 AM	Registration	
<b>WELCOME SESSION</b>		
10:00 AM - 10:05 AM	Welcome Remarks	Ms. Vineeta Kanwal, Jt Director, Bureau of Energy Efficiency (BEE)
10:05 AM – 10:10 AM	Address	Mr. Hari Govindarajan, World Bank Group (WBG)
10:10 AM - 10:15 AM	Address	Mr. K P Phillip, AGM, IREDA
10 :15 AM – 10:20 AM	Special Address	Mr. D C Sahoo, Engineer – in – Chief- Elec – cum –PCEI, SDA Odisha, Dept of Energy
10: 20 AM – 10:25 AM	Inaugural Address	Mr. Gautam Bhattacharya General Manager, SBI
10:25 AM – 10:30 AM	Vote of Thanks	Mr. Sriraj Mishra, Chief Engineer, State Designated Agency
10.30 AM - 10.45 AM	<b>Group Photograph followed by Tea</b>	
10:45 AM - 11:00 AM	Preliminary assessment of trainees on Energy Efficiency	
<b>TECHNICAL SESSION</b>		
11:00 AM - 11:30 AM	Module 1: Introduction to Energy Efficiency (EE) and Market Opportunity	Ms. Vineeta Kanwal, Joint Director, Bureau of Energy Efficiency (BEE)
11.30 AM - 12:00 PM	Module 2: Introduction to ESCO and various business models for implementation of EE projects	Mr. Lalit Sikaria, Asst. GM, CARE
12.00 PM - 12:15 PM	EE Case Studies – ESCO experience	Mr. Pradeepta Kumar, CEO, G-On Energy Controls
12.15 PM - 12:30 PM	Odisha State Milk Federation(OMFed) experience of EE project	Mr. P.K. Das, EE (EE Training & HR)
12:30 PM - 01:30 PM	<b>Lunch</b>	
01:30 PM – 05:00 PM	Site Visit to an Energy Efficient Project: Odisha State Milk Federation, Bhubaneswar	

**Date: 25 – 26 April 2018 (Day 2)**

**Venue: Hotel Hindusthan International A-112, Shriya Talkies Street, Opposite ICICI Bank, Unit - 3, Kharvel Nagar, Janpath, Bhubaneswar**

<b>Time</b>	<b>Topic</b>	<b>Speaker</b>
09:30 AM - 10:15 PM	Module 3: Financial Appraisal of EE project	Mr. Sunil Agrawal, VP, TATA Cleantech Capital Ltd.
10:15 AM - 11:00 AM	Module 4: Technical Appraisal of EE project	Mr. K P Phillip, AGM, IREDA
Tea		
11:00 AM - 11:30 AM	Activity session for the participants	Moderated by BEE
11:30 AM - 12:00 PM	Module 5: Introduction to M&V	Mr. Joseph Prakash, Meghraj Capital Advisors
12:00 PM - 12:20 PM	Quiz	Moderated by BEE and IFC
12:20 PM – 12: 30 PM	Interactive Session	Moderated by BEE
12:30 PM – 12:45 PM	Distribution of Certificates	SDA and BEE
12:45 PM – 12:55 PM	Distribution of Prizes	SDA and BEE
12:55 PM – 01:00 PM	Vote of Thanks	Ms. Vineeta Kanwal, Jt. Director, Bureau of Energy Efficiency (BEE)

## 4. TRAINING WORKSHOP IN BHUBANESWAR

BEE in collaboration with the SDA Orissa and IBA organized “Training Workshop for FIs on EE Financing” on 25 and 26 April, 2018 in Bhubaneswar. IFC extended the technical support to the workshops, as part of IFC’s Eco-Cities program in India, supported by the European Union (EU).

The two-day training workshop provided a broader perspective of the



technical and economic characteristics of EE projects, business models, financing requirements, and risk management approaches. The workshop provided a platform for the participants from Banks and other financial institutions to interact with EE experts/ Energy Service Companies (ESCOs) on areas such as market opportunities, business models, technical and financial appraisal of projects and measurement and verification (M&V). In order to provide practical exposure to participants regarding EE projects implemented in an industrial plant, visit to Odisha State Milk Federation (OMFED) plant was undertaken. The workshop also included quiz and activity sessions for the participants to test their knowledge of the subject. The following modules were covered as part of the workshop –

- Module 1: Introduction to EE Financing and Market Opportunity
- Module 2: Introduction to ESCO and various business models
- Module 3: Financial Appraisal of EE Projects
- Module 4: Technical Appraisal of EE Projects
- Module 5: Introduction to Measurement and Verification (M&V)

The workshop conducted in Bhubaneswar was attended by 11 speakers and 35 participants from 17 different banks, Non-Banking Financial Corporations (NBFCs) and Institutes, represented mostly by chief managers, credit officers, risk officers, and/or project appraisal officers.

BEE has previously conducted 7 similar workshops in Maharashtra, Karnataka, New Delhi and Rajasthan during September 2017, November 2017, December 2017 and February 2018 and will conduct 12 workshops in different cities in India over the period of next six months.

## 5. BHUBANESWAR – WORKSHOP PROCEEDINGS



## 5.1. INAUGURAL SESSION



### 5.1.1 Vineeta Kanwal, Joint Director, Bureau of Energy Efficiency (BEE)

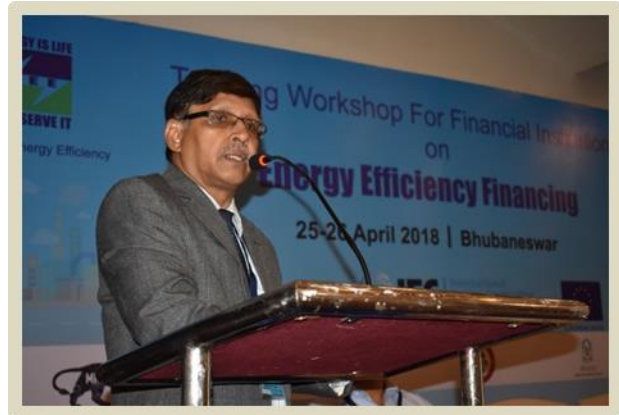
Ms. Vineeta Kanwal welcomed the participants from various financial institutions and expressed gratitude to banks for allowing their executives to participate in the workshop. She began her discourse with message on efficient utilization of energy as a key step towards fulfilling the Government's mission of reduction in emission intensity and dependency on fossil fuels. She appreciated the efforts and contribution of banks on Energy efficiency financing while acknowledging that a lot needs to be done. She appreciated the support provided by SDA, IFC, IBA and consultants in organizing the training

workshops with the objective of sharing their vast knowledge and experiences about the EE financing (laws, fundamentals, technical, economical aspects) with the banking sector and making them realise the untapped potential of EE financing. She informed the participants about the EE policies and programs which were started by BEE 15 years ago and how these workshops are successfully training Financial Institutions about the prospective of investing in the EE sectors by covering live case studies and experiences of the ESCOs. Ms. Kanwal concluded by welcoming participants again and hoped that the two day training workshop would motivate bankers to finance EE projects which would be true success of the event.



### 5.1.2 Mr. Gautam Bhattacharya, General Manager, SBI

Mr. Gautam Bhattacharya in his inaugural address highlighted the uniqueness of EE as a concept and discussed its importance to the Indian economy which is still struggling to bridge the gap between power supply and demand. He discussed that it is important to ensure energy security and bankers have an active role to play in achieving it. Mr. Bhattacharya discussed that the primary focus of every individual should be on energy efficiency irrespective of the sector where it is needed. He mentioned that it is important to conserve energy by replacing inefficient technologies by an efficient one. He informed the participants that BEE has signed an MoU with IBA to conduct several workshops. Mr. Bhattacharya explained about the active role of SBI in lending for RE projects as well as other climate change projects through various funds. He ended his discourse by acknowledging the efforts of the organizers in setting up the workshop in Odisha for benefitting local bankers and expects it to be a thought provoking one.



### 5.1.3 Mr. Hari Govindarajan, World Bank Group (WBG)



Mr. Hari presented the World Bank perspective on EE and shared the WB's objective of ending extreme poverty and promoting shared prosperity through support of financial institutions. He mentioned the climate change to be a critical issue in India and discussed impacts of the carbon emissions in daily life. He highlighted the barriers which the financial institutions face while lending to ESCOs, such as low demand for EE loans, small size of the EE projects and the technical jargon. He informed the participants that the World Bank and BEE are committed to address the barriers to EE financing. He also mentioned that the WBG has selected 5 cities as pilot cities for conducting

energy audits and capacity building, namely Bhubaneswar, Mumbai, Chennai, Bangalore and Pune, for making them highly energy efficient.

### 5.1.4 Mr. D C Sahoo, Engineer – in – Chief- Elec – cum –PCEI, SDA Odisha, Dept. of Energy

Mr. D.C.Sahoo highlighted the importance of EE projects in reducing carbon footprint in the environment. He mentioned that Odisha has a substantial energy saving potential in various sectors especially in Industry sector. He also informed the participants that SDA, Odisha has been taking a lot of initiatives to promote EE implementation and financing. He mentioned that EE interventions in Odisha State Milk Federation (OMFED) have been financed by SDA through revolving fund. He thanked BEE for organizing the workshop and hoped that the participants would be hugely benefitted by attending the workshop.



### 5.1.5 Mr. K P Phillip, AGM, IREDA



Mr. K. P. Phillip discussed the importance of EE in Indian context. He mentioned that it is important to ensure energy security which is possible only when existing energy resources are utilized efficiently. He further mentioned that the energy saving potential in industries is immense and it is also financially sound for banks to finance EE projects due to its attractive payback period. He also highlighted that through ESCO business model, expertise of an energy auditor can be utilized to achieve desired results which transcends to a win-win situation for all. He hoped that this workshop would help to bridge knowledge gap of financial institutions regarding financing an EE project.

### 5.1.6 Vote of Thanks

Mr. Sriraj Mishra, Chief Engineer, State Designated Agency, Odisha thanked Ms. Vineeta Kanwal, Joint Director, BEE and Mr. Hari Govindarajan, World Bank Group for sharing their encouraging ideas. He acknowledged the efforts of BEE and World Bank in making the workshop possible. He also appreciated IREDA's support for EE Financing across all the sectors of the country by thanking Mr. K. P. Phillip, AGM, IREDA He thanked Mr. Gautam Bhattacharya GM, SBI by mentioning the important role that SBI is playing in the EE domain. He also thanked participants for taking out their valuable time to attend the workshop.



## 5.2. PRELIMINARY QUIZ

Post the Inaugural Session, the participants were provided with a preliminary quiz questionnaire to understand their awareness levels on EE and its financing aspects. Moreover, a technology assessment questionnaire was also circulated to understand the participants' awareness of EE technology and whether they have financed or have been approached to finance EE projects. The summary of assessment is provided as Annexure A.

This was followed by the technical session.

## 5.3. TECHNICAL SESSION

### Day 1:

#### 5.3.1 Module 1: Introduction to Energy Efficiency Financing & Market Opportunity

By – Ms. Vineeta Kanwal, Joint Director, BEE

The first technical session was on "Introduction to Energy Efficiency Financing and Market Opportunity presented by Ms. Vineeta Kanwal, Joint Director, BEE. She emphasized the importance of efficient management of energy resources in order to achieve sustainable economic growth. She discussed about various schemes and programmes of BEE which promotes EE implementation and financing. She discussed in detail about two funds under the Framework for Energy Efficient Economic Development (FEEED), the Partial Risk Guarantee Fund for Energy Efficiency (PRGFEE) and Venture Capital Fund for Energy Efficiency (VCFEE) and highlighted the fund features. While discussing PRGFEE, she elaborated on the size and features of EE loans that could be guaranteed by PRGFEE. She also shared the benefits for the Banks in terms of a sovereign guarantee and which would help ESCOs in getting lower rate of interest on their loans and would reduce the burden of collateral.



Ms. Kanwal also explained about other funds like Partial Risk Sharing Facility (PRSF), available for EE projects and various international credit lines which are available for EE and RE projects. She discussed about possibility of providing priority sector lending status for EE projects similar to RE projects. She shared that over INR 1,50,000 Crore of investment potential exists for EE implementation. She mentioned that although banks provide EE loans to clients but they do not keep track of it, so it is important for the bankers that they should check the term loans and if any EE component is there then should make a note of it and help BEE in consolidating data from all FIs regarding assessment of actual EE financing carried out by FIs.

She concluded the session by sharing the Banker's perspective on EE projects, highlighted the barriers for implementing EE project and solutions to overcome it.

### 5.3.2 Module 2: Introduction to ESCOs and various Business Models for Implementation of EE projects

By – Mr. Lalit Sikaria, Assistant General Manager, CARE Ratings



Mr. Sikaria started the session by explaining about the EE value chain and the various stakeholders involved (especially ESCO) and their roles and responsibilities. He discussed about ESCO market in various countries like China and US. He also stated that ESCO market in India is at a very nascent stage. He discussed about various services offered by ESCOs such as installation, commissioning, M&V, design, engineering, and construction etc. He explained in detail the different various ESCO models like shared savings, guaranteed savings, etc., their key features and advantages of various ESCO models. He

discussed about Energy Savings Performance Contract (ESPC) and its importance. He concluded the session by discussing on ESCO assessment methodology.

### 5.3.3 EE Case Study- ESCO Experience

By- Mr. Pradipta Kumar Panigrahi, CEO, G-ON Energy Controls



Mr. Pradipta shared about his EE experience especially the ESCO experience. He shared various EE/ESCO projects implemented by his company in Odisha like EE lighting project (LED) in Odisha Legislative Assembly; Flyover bridge at Rajmahal Square, Bhubaneswar; Rail Sadan, Bhubaneswar; Odisha Judicial Academy, Cuttack; National Law University, Cuttack; etc. He also shared that the current EE projects have been financed by Oriental bank of Commerce.

He presented an innovative product termed as Self

Illuminating LED based Solar Paver Blocks. The product is a unique combination of EE (LED) and Renewable Energy (Solar). The product uses solar energy for LED illumination. He mentioned that the product can be implemented in various places like railway stations, road intersections, highways, etc. He also shared that their company is looking for funding from banks and NBFCs for manufacturing and marketing of the innovative product. Several banks and NBFCs like Bank of India, Oriental Bank of Commerce, State Bank of India, Bank of Baroda and Tata Cleantech Capital approached Mr. Pradipta for financing the innovative product. Hence, the workshop provided a platform for matchmaking between ESCO company (which is looking for EE financing) and Financial Institutions (who are willing to finance EE projects).


### Who We are ?



G-ON Energy Controls is a reputed name in the field of Renewable Energy, Energy Efficiency, Green and Clean form of Energy, Equipment, services, Concept to commissioning, turnkey projects across India having origin at Bhubaneswar.


G-ON Energy Controls is actively working in CDM, Carbon Credits, Energy Efficiency, Fuel Cell Technology, Energy Efficient Equipments (LED, Energy Savers in AC under HVAC, Green Buildings Equipments and consultancy, Power Generation by clean Energy, Building Automation, Online data monitoring.

#### Our Banker:




Particulars	2015-16	2014-15
Revenue	100	80
Expenses	80	60
Profit	20	20

### Supply, Installation, Testing & Commissioning of 180 Watt to 200 Watt LED Light Fittings inside OLA Hall, BBSR




Installed Energy Efficient LED Lighting System

### ESCO Financing Models:



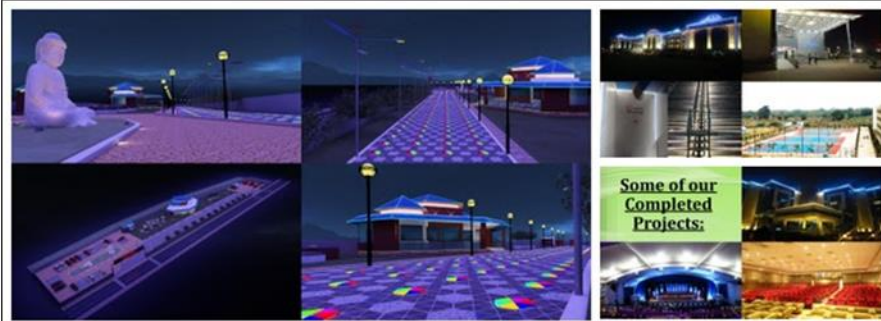
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    graph TD
        Utility -- Utility Bill --> BO[Building Owner]
        BO -- Energy Savings Service Fee --> ESCO[ESCO]
        ESCO -- Financing* --> FI[Financial Institution]
    
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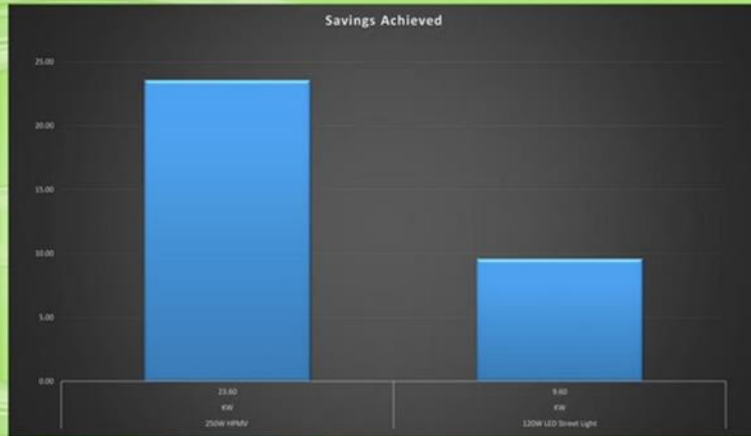
- An ESCO charges the building owner a fee to deliver energy savings on the owner's utility payments.
- Savings are often guaranteed over a set period of time.

### BANKABLE PROJECTS:

- Industries Process
- Industries Common
- Smart Metering
- Water Management
- Smart City
- Smart Town
- Smart Playground
- Smart Bus Stand etc...



Some of our Completed Projects:



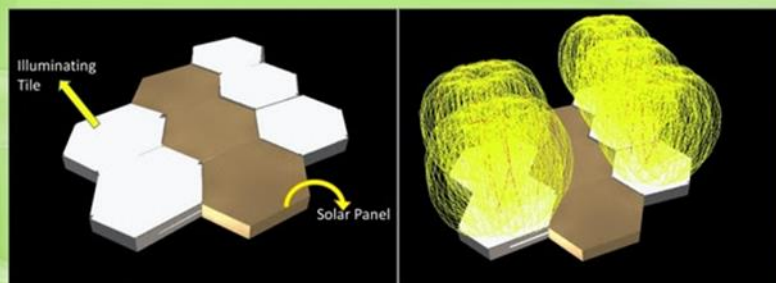
## Case Studies: 2

**Illumination of Fly over Bridge at Rajmahal Square, Bhubaneswar with Energy Efficient LED Lighting System**



## New Innovative Product

**Self Illuminating PAVER BLOCKS for Outdoor Application:**



### 5.3.4 EE Project Experience - Odisha State Milk Federation (OMFED)

By Mr. P.K. Das, Executive Engineer, Odisha SDA



Mr. P.K. Das, SDA Odisha detailed out a successful EE case study implemented in OMFED, Bhubaneswar and financed using revolving fund of Odisha SDA. He shared following details of the project:

- Before the EE project implementation, the annual energy bill (Electricity and Furnace Oil) of OMFED was INR 4.69 Cr and the specific energy consumption of OMFED was 56.75 (Kwh/Metric tonne of Milk handled).
- It was identified after energy audit that energy saving potential of around 28% is possible by implementing EE interventions in utilities and production processes with an investment of INR 2.51 Cr.
- OMFED approached SDA Odisha for financing of EE project through revolving fund of SDA. As per the Energy Performance Contract between OMFED with SDA, the loan would be interest free loan and to be repaid to SDA in 6 years. OMFED has to return 50% of monthly energy savings achieved through the energy efficiency project into Revolving Investment Fund (RIF) on a quarterly basis. Out of the total sanctioned amount of INR 3.4 Cr, an amount of INR 1.38cr has been released up to June 2017.
- A monthly savings of INR 7.52 lakhs is already being achieved through EE project implementation in Phase 1 and INR 28 lakhs per month is expected to be saved after completing the Phase 2 of EE implementation.

Energy Scenario at OMFED Dairy During IGEA		Works Under Implementation																															
<ul style="list-style-type: none"> <li>• Contract Demand – 1394 KVA</li> <li>• Avg. Monthly Consumption – 2,72,207 KWH</li> <li>• Furnace Oil Consumption – 2,600 Ltr/day</li> <li>• Annual Electricity bill was around Rs.1.33 <u>crores</u> (Rs 4/Kwh)</li> <li>• Annual Furnace oil bill was around Rs.3.36 <u>crores</u> (Rs 34,630/tonne)</li> <li>• Specific Energy Consumption (2009-10): (Kwh/Metric tonne of Milk handled) =56.750</li> </ul>		<table border="1"> <thead> <tr> <th>Sl. No.</th> <th>Description</th> <th>Expected Date of Completion</th> <th>Funds Invested in Rs</th> <th>Monthly Savings In Rs</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>4MT Boiler Room Civil work</td> <td>May-2018</td> <td>33,99,984</td> <td></td> </tr> <tr> <td>2</td> <td>4MT Boiler and Machineries</td> <td>May-2018</td> <td>40,02,894</td> <td>28,00,000</td> </tr> </tbody> </table>	Sl. No.	Description	Expected Date of Completion	Funds Invested in Rs	Monthly Savings In Rs	1	4MT Boiler Room Civil work	May-2018	33,99,984		2	4MT Boiler and Machineries	May-2018	40,02,894	28,00,000																
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Mr. Das shared that SDA Odisha is looking forward to replicate similar successful case studies in Odisha.

### 5.3.5 Site Visit to Energy Efficient Project: Odisha State Milk Federation, Bhubaneswar



A site visit was arranged to Odisha State Milk Federation (OMFED), Bhubaneswar which has successfully implemented EE projects financed through Odisha SDA.

The OMFED officials explained in detail about the milk production process and EE interventions implemented in their plant. The participants were then taken to the various departments where EE interventions were implemented or under implementation. After the site tour, a meeting was arranged with Dr. Sanjay Sahu who explained how energy cost plays an important role in total production cost. He further explained about various EE interventions implemented/ under implementation. He shared that a monthly savings of INR 7.52 lakhs is already being achieved through EE project implementation in Phase 1 and he further shared that INR 28 lakhs per month is expected to be saved after completing the Phase 2 of EE implementation. He thanked Odisha SDA for financing the EE projects through their revolving fund. After witnessing successful implementation of EE projects in Bhubaneswar unit, he informed that the other units of OMFED are also planning to undertake EE interventions.



## Day 2:

### 5.3.6 Module 3: Financial Appraisal of EE Projects

By – Mr. Sunil Agrawal, Vice President, Tata Cleantech Capital Ltd.

An interactive session on "Financial Appraisal of EE projects" was presented by Mr. Sunil Agrawal, Vice President, Tata Cleantech Capital Ltd. He started the session by explaining about the investment opportunities in EE sector. He discussed about the various financial risks and the mitigation measures that can be undertaken. He discussed in detail about the key elements in financial appraisal like project costs, financial parameters, financial structure, ESPC etc., of EE projects. He also shared the different types of loans (technology based and project based) available for EE projects. He further answered to queries of the participants regarding queries of risk mitigation and project appraisal through his own experience of financing EE projects.



### 5.3.7 Module 4: Technical Appraisal of EE Projects

By – Mr. K P Phillip, AGM, IREDA



Mr. K P Philip, AGM, IREDA presented the module on "Technical Appraisal of EE projects". He discussed in detail about the various technical aspects of EE project appraisal. Mr. Philip elaborated about the possible EE projects in different sectors. He discussed in detail about the various documents/ information sources like DPR, Investment Grade Audit Report (IGAR), Technology/Equipment specifications, and Operations and Maintenance manuals, which should be referred for carrying out technical appraisal. He highlighted that the technical appraisal of EE projects should include a detailed

evaluation of the products and technologies, assessment of energy savings calculation and consideration of risks and uncertainties and project implementation plan. He reiterated that it was important to comply with legal and environmental regulations. He explained in detail about the technical appraisal of EE projects by providing relevant case studies. In a thoroughly interactive session, he mentioned the challenges and ways of addressing it during technical appraisal of EE projects.

Mr. Philip shared his experience of financing EE Projects. He highlighted a particular case wherein a waste heat recovery project of an Iron & Steel sponge unit was financed by IREDA. He mentioned that despite all the right financial attributes of the projects and the proven technology, there were challenges in recovery of the loan. He informed the participants that it was due to the sector specific issues at the time of financing of the project. He thereby urged the participants to carry out detailed sector analysis during project appraisal.

## 5.4. ACTIVITY SESSION



Post the completion of technical and financial appraisal session, an activity session was conducted. The participants were divided into teams and were provided with different EE case studies. The task given to the participants was to understand, analyze and appraise the projects both on technical and financial aspects and select one project for financing. The case studies comprised of projects that had a host or ESCO as implementing agency and different

financial parameters like IRR, Debt Service Coverage Ratio, etc. and various modes of ESCO project implementation (shared savings, guaranteed savings, deemed savings), etc. Each of the team reviewed the case studies critically and one of the members from each team presented the project which was selected for financing and reasons for financing. Some of the key highlights of the presentation is shared below.

- Most of the participants chose ESCO projects for financing because they felt ESCOs have better understanding of the technical aspects of EE projects. In the ESCO business model, the revenue from the project is very critical. Hence, the bankers felt that ESCO would try to make the project successful.
- Under ESCO model, bankers prefer shared savings model.

## TECHNICAL SESSION (CONTINUED)

### 5.3.8 Module 5: Introduction to Measurement & Verification (M&V)

By – Mr. Joseph Prakash, Associate Director, Meghraj Capital Advisors Pvt. Ltd.

The workshop concluded with the last session was on “Introduction to Measurement & Verification” and was presented by Mr. Joseph Prakash, Meghraj Capital Advisors Pvt. Ltd. He explained the key aspects to be considered in M&V like who conducts the M&V, how much does it cost, various M&V methodologies and the protocols available. The participants were informed that either the Project Host, ESCO or a third party could conduct the M&V and the cost depends on EE technologies, measures to be implemented and the approach and methodology utilized.



Simple approaches are preferred to reduce costs and minimize the potential for disputes in EE projects, particularly in the ESCO model. He also stressed on the need for engaging independent third party verification agency and also presented the international protocols for M&V. The session was concluded by presenting a M&V case study involving a lighting project, where he explained how M&V helps in confirming and validating the anticipated and actual savings from an EE project.

### 5.5. FINAL QUIZ

All the participants actively participated in the final quiz round. The quiz questionnaires covered the learning on overall session and modules presented during the workshop. All the participants performed well in the quiz. The quiz results were announced and prizes were distributed.

The prizes were won by Mr. Tapas Kumar Mishra (Indian Bank), Mr. Ajit Kumar (Indian Bank), Mr. Atish Kumar Pattnaik (Axis Bank), Mr. Sri Subhrajit Sahoo (SBI) and Mr. Anup Kumar (Union Bank).



## 5.6. CONCLUDING SESSION

### 5.6.1 Distribution of Certificates

The workshop concluded with Certificate distribution to all the participants.



### 5.6.2 Vote of Thanks

Ms. Vineeta Kanwal, BEE thanked SDA for providing logistic support for the training program, the participants for sparing their time to be part of the workshop, and speakers for taking the time to share their experiences with the trainees. Ms. Kanwal also thanked IFC for their technical support to the BEE in organizing the training workshops. She also thanked IBA for their continuous support and hoped that these initiatives will build the capacity of banks to provide loans to EE projects and increase EE financing manifold. Ms. Kanwal highlighted that the success of the workshop will truly be defined only when EE projects are financed and she requested the banks to make a note of any EE project they henceforth finance or have already financed and send the details to BEE. She mentioned that BEE will contact banks for information regarding any such projects soon and concluded by thanking all the attendees of the workshop.



## ANNEX A – Bhubaneswar Workshop – Summary of Technological Evaluation

### Summary of EE Technology Assessment

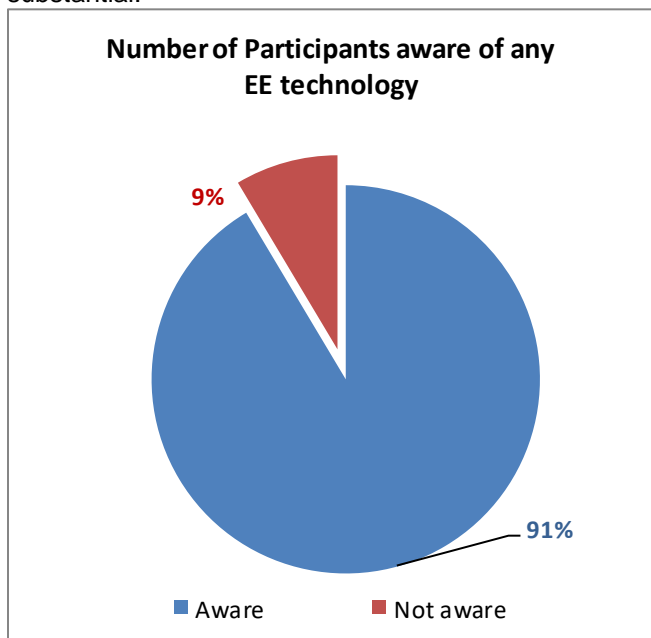
#### Background:

Bureau of Energy Efficiency (BEE) with technical support from International Finance Corporation (IFC) in collaboration with the SDA-Odisha and the Indian Banks' Association (IBA) organized the "Training Workshop for Financial Institutions on Energy Efficiency Financing" on the 25<sup>th</sup> and 26<sup>th</sup> April 2018 in Bhubaneswar. The workshop was attended by **35 participants from 18 different banks/NBFCs**, represented mostly by credit officers, risk officers, and/or project appraisal officers.

During the workshop, to assess the awareness of participants on Energy Efficiency (EE) technology and EE financing, a detailed questionnaire on EE technology assessment was prepared. The questionnaire was shared with participants before the start of the technical session. Based on the information shared by the participants a summary of the technology assessment is given below:

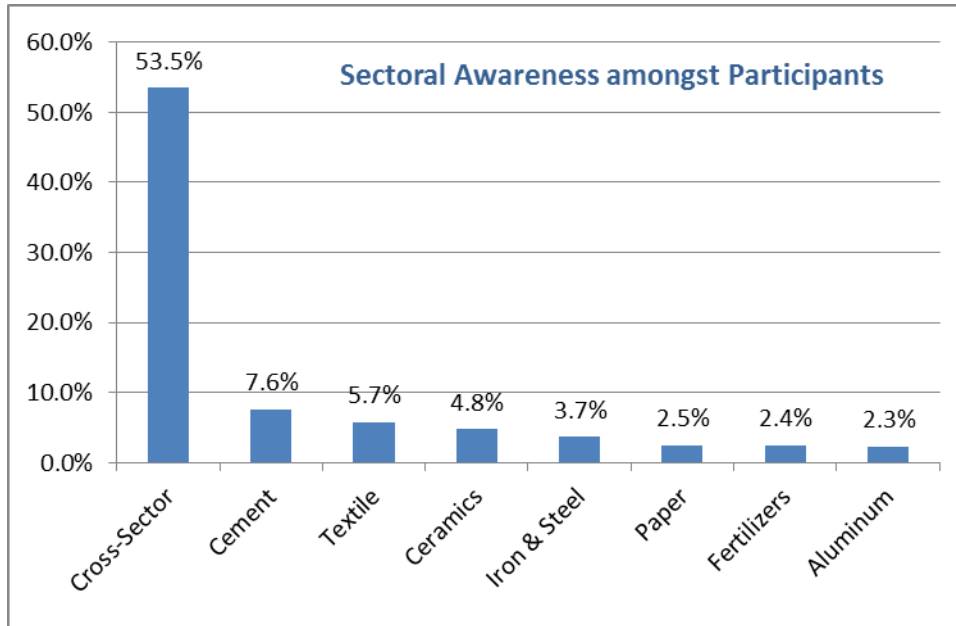
#### Awareness of EE technology

According to the assessment, about 91% of the participants were aware of EE technologies, which is very substantial.



#### Participant's awareness about EE technologies across sectors

Around 53 % of participants were aware of EE technologies like EE lighting, EE air-conditioning system etc., which were cross sectoral. Apart from cross sectoral technologies, participants were aware of EE technologies in Cement sector followed by Textile and Ceramics sector.



#### Top 10 Technologies that the participants were aware of

The below table provides the details of top 10 EE technologies which participants were aware of. Most of EE technologies which participants were aware of where cross sectoral in nature followed by cement and Iron & Steel.

Sector	Technology	AWARE
Cross-Sector	Energy Efficient Lighting - LED	30
Cross-Sector	Energy Efficient Air conditioning system (Star rated ACs)	29
Cross-Sector	Energy Efficient pumps, fans, blowers and compressors	23
Cross-Sector	Variable frequency drive for pumps, fans, blowers and compressors	16
Cross-Sector	Energy Efficient Motors	14
Cross-Sector	Energy Efficient Boilers	13
Cross-Sector	Energy Efficient Furnaces	6
Cement	Use of waste fuels	6
Iron & Steel	Use of Coke oven gas (COG)	5
Cement	Replacement to High-efficiency roller mills	5

### EE technologies approached for financing

According to the assessment, about 23 % of the participants were approached for financing EE technologies.

#### Top 6 EE Technologies that the participants were approached for financing

The below table provides the details of top 6 EE technologies that the participants were approached for financing. Most of EE technologies approached for financing were aware of cross sectoral in nature.

Sector	Technology	APPROACHED
Cross-Sector	Energy Efficient Lighting - LED	5
Cross-Sector	Energy Efficient Air conditioning system (Star rated ACs)	3
Cross-Sector	Energy Efficient Motors	3
Cross-Sector	Energy Efficient pumps, fans, blowers and compressors	2
Cross-Sector	Energy Efficient Boilers	2
Cross-Sector	Energy Efficient Furnaces	2

### EE technologies which were financed

According to the assessment, about 20 % of the participants had financed EE technologies.

#### Top 6 EE Technologies which were financed

The below table provides the details of top 6 EE technologies which were financed. Most of EE technologies which was financed were of cross sectoral in nature.

Sector	Technology	FINANCED
Cross-Sector	Energy Efficient Lighting - LED	4
Cross-Sector	Energy Efficient Air conditioning system (Star rated ACs)	3
Cross-Sector	Energy Efficient Motors	3
Cross-Sector	Energy Efficient pumps, fans, blowers and compressors	2
Cross-Sector	Energy Efficient Boilers	2
Cross-Sector	Energy Efficient Furnaces	2

### Awareness of EE technologies – Detailed list

Sector	Technology	AWARE
Cross-Sector	Energy Efficient Lighting - LED	30
Cross-Sector	Energy Efficient Air conditioning system (Star rated ACs)	29
Cross-Sector	Energy Efficient pumps, fans, blowers and compressors	23
Cross-Sector	Variable frequency drive for pumps, fans, blowers and compressors	16
Cross-Sector	Energy Efficient Motors	14
Cross-Sector	Energy Efficient Boilers	13
Cement	Use of waste fuels	6
Cross-Sector	Energy Efficient Furnaces	6
Cement	Replacement to High-efficiency roller mills	5
Iron & Steel	Use of Coke oven gas (COG)	5
Cement	Use of Energy management and process control	3
Cement	Heat recovery for power generation	3
Ceramics	Improvement in Kiln Insulation	3
Textile	Automatic steam control valves in Desizing, Dyeing and Finishing	3
Cement	Conversion to modern grate cooler	2
Cement	Use of Improved grinding media (ball mills)	2
Iron & Steel	Recovery of BOF gas and sensible heat	2
Iron & Steel	Use of Oxy- fuel burners/lancing	2
Iron & Steel	Slag heat recovery	2
Textile	Install VFD for Autoconor Suction Motor and operate at	2
Textile	lower suction pressure	2
Textile	Installation of EE motor in Ring frame	2
Textile	Installation of VFD on Autoconer machine	2
Textile	Install VFD for water Circulating Pumps of Jet Dyeing Machine	2
Textile	Heat Insulation of high temp/high pressure dyeing machines.	2
Textile	Conversion of thermic fluid heating system to direct gas firing system in Stenters and	2
Textile	Introduce mechanical De-watering or Contact Drying before Stenter	2
Aluminum	Reduction in Stub to Carbon voltage drop	1
Aluminum	Reduction in Pot voltage	1
Aluminum	Implementation of slotted anode in pots	1
Aluminum	Reduction of compressed air consumption.	1
Aluminum	Reduction of dead pot voltage and crossover voltage.	1
Aluminum	Optimization of Compressor running.	1
Aluminum	Online addition of pots into circuit by fuse blown technology.	1
Aluminum	Reduction of the Specific Energy consumption of Wire Rod Mill.	1
Cement	Kiln combustion system improvements	1
Cement	Long dry kiln conversion to multi-stage pre-heater kiln	1
Cement	Use of High efficiency classifiers	1
Ceramics	Installation of Recuperator in Tunnel Kiln	1
Ceramics	Use of Hot Air of Cooling Zone of Tunnel Kiln	1

... contd.



Sector	Technology	AWARE
Fertilizers	Use of Additional Heat Recovery In Reformer Convection Zone – Installing	1
Fertilizers	Installation of Pre-reformer	1
Fertilizers	Purge gas Recovery	1
Fertilizers	Conversion of Converter from Axial to Axial Radial S-50 and S-300 Converters	1
Fertilizers	Installation of Pre-concentrator Before Vacuum Concentration section.	1
Fertilizers	Use Of Advance Process Control	1
Iron & Steel	Heat recovery from sintering and sinter cooler	1
Iron & Steel	Recovery of blast furnace gas	1
Iron & Steel	Use of Top gas recycling	1
Iron & Steel	Improvement of process monitoring and control	1
Iron & Steel	Use of adjustable speed drives (ASDs)	1
Iron & Steel	Utilization of Continuous annealing	1
Iron & Steel	Top-pressure recovery turbines (TRT)	1
Paper	Replace pneumatic chip conveyors with belt conveyors	1
Paper	Heat recovery from bleach plant effluents	1
Paper	Lime kiln oxygen enrichment	1
Paper	Heat recovery from de-inking plant	1
Paper	Utilization of Continuous re-pulping	1
Paper	Use of Black liquor solids Concentration	1
Paper	Air impingement drying	1
Textile	Use of steam coil instead of direct steam heating in batch dyeing machine (Winch & Ji)	1

### EE Technologies approached for Financing – Detailed List

Sector	Technology	APPROACHED
Cross-Sector	Energy Efficient Lighting - LED	5
Cross-Sector	Energy Efficient Air conditioning system (Star rated ACs)	3
Cross-Sector	Energy Efficient Motors	3
Cross-Sector	Energy Efficient pumps, fans, blowers and compressors	2
Cross-Sector	Energy Efficient Boilers	2
Cross-Sector	Energy Efficient Furnaces	2
Cross-Sector	Variable frequency drive for pumps, fans, blowers and compressors	1
Iron & Steel	Recovery of BOF gas and sensible heat	1
Textile	Install VFD for Autoconor Suction Motor and operate at	1
Textile	lower suction pressure	1
Textile	Installation of EE motor in Ring frame	1
Textile	Installation of VFD on Autoconer machine	1
Textile	Install VFD for water Circulating Pumps of Jet Dyeing Machine	1
Aluminum	Reduction of the Specific Energy consumption of Wire Rod Mill.	1
Ceramics	Improvement in Kiln Insulation	1
Ceramics	Installation of Recuperator in Tunnel Kiln	1
Ceramics	Use of Hot Air of Cooling Zone of Tunnel Kiln	1

### EE Technologies Financed – Detailed list

Sector	Technology	FINANCED
Cross-Sector	Energy Efficient Lighting - LED	4
Cross-Sector	Energy Efficient Air conditioning system (Star rated ACs)	3
Cross-Sector	Energy Efficient Motors	3
Cross-Sector	Energy Efficient pumps, fans, blowers and compressors	2
Cross-Sector	Energy Efficient Boilers	2
Cross-Sector	Energy Efficient Furnaces	2
Cross-Sector	Variable frequency drive for pumps, fans, blowers and compressors	1
Iron & Steel	Recovery of BOF gas and sensible heat	1
Textile	Install VFD for Autoconor Suction Motor and operate at	1
Textile	lower suction pressure	1
Textile	Installation of EE motor in Ring frame	1
Textile	Installation of VFD on Autoconer machine	1
Textile	Install VFD for water Circulating Pumps of Jet Dyeing Machine	1
Aluminum	Reduction of the Specific Energy consumption of Wire Rod Mill.	1
Ceramics	Improvement in Kiln Insulation	1
Ceramics	Installation of Recuperator in Tunnel Kiln	1
Ceramics	Use of Hot Air of Cooling Zone of Tunnel Kiln	1

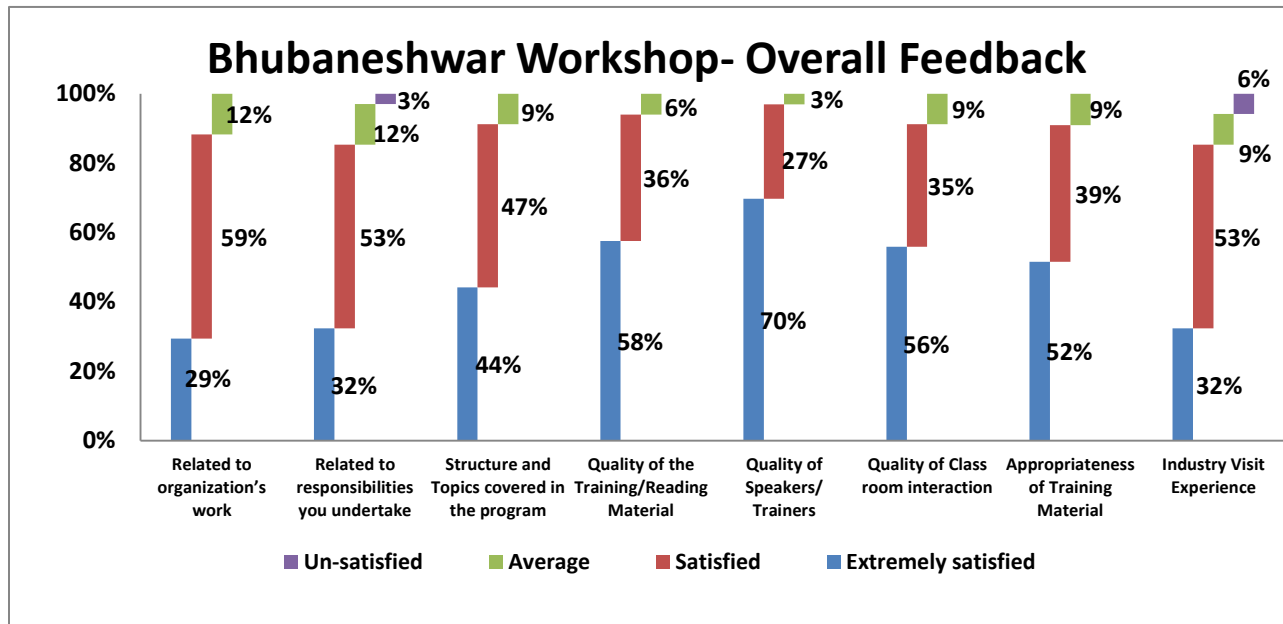
## ANNEX B – Bhubaneswar Workshop – Feedback Evaluation

The workshop in Bhubaneswar was attended by 35 participants from 17 different banks/NBFCs, mostly represented by credit officers, risk officers, and/or project appraisal officers.

The summary of the overall feedback of the workshop provided by the participants is given below:

- ⇒ 88% of the participants rated the program high<sup>1</sup> on “Relevance of workshop to the organization”
- ⇒ 85% of the participants rated the program high on “Relevance of workshop to their work within the organization”
- ⇒ 91% of the participants rated the program high on “Structure of topics covered in the workshop”
- ⇒ 94% of the participants rated the program high on “Quality of training and reading materials”
- ⇒ 97% of the participants rated the program high on “Quality of Speakers/Trainers”
- ⇒ 91% of the participants rated the program high on “Quality of classroom interaction”
- ⇒ 91% of the participants rated the program high on “Appropriateness of training material”
- ⇒ 85% of the participants rated high on “Industry Visit”

A summary chart of the above parameters are presented below

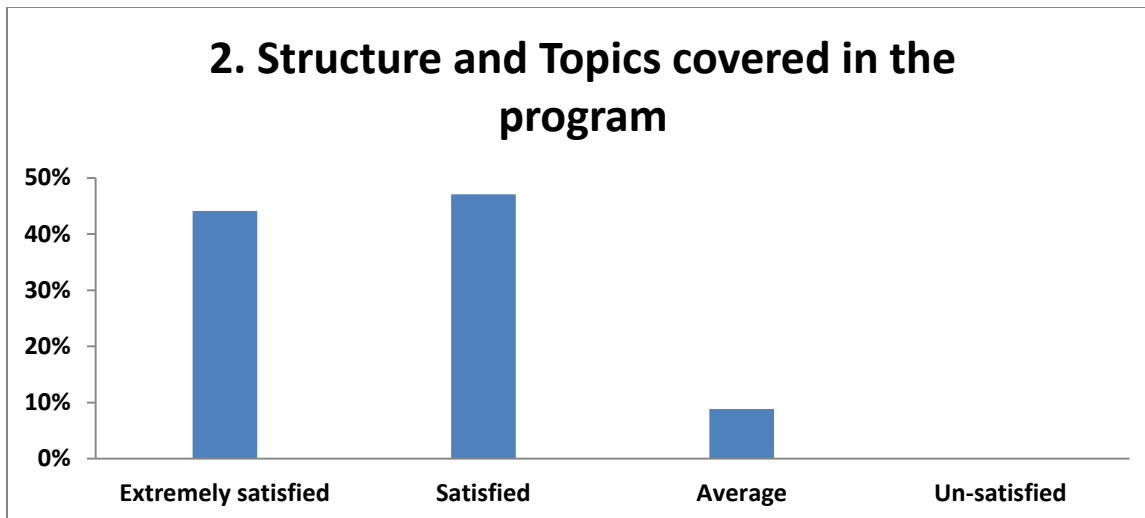
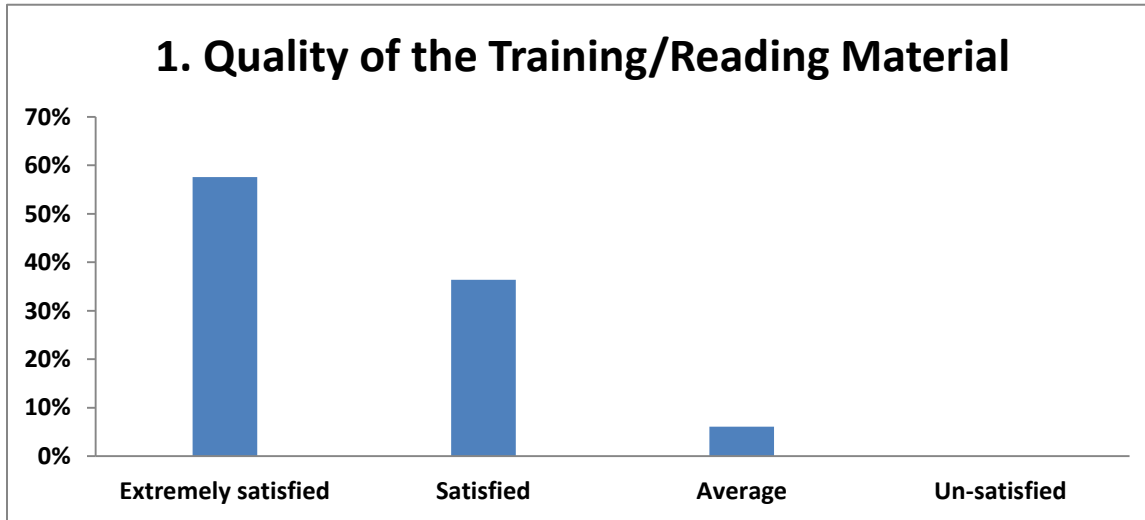


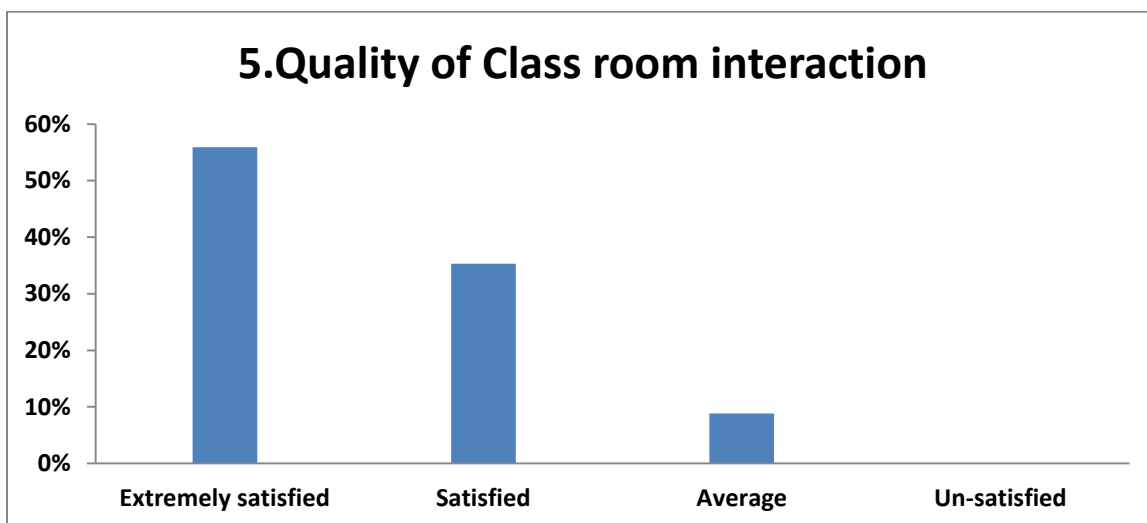
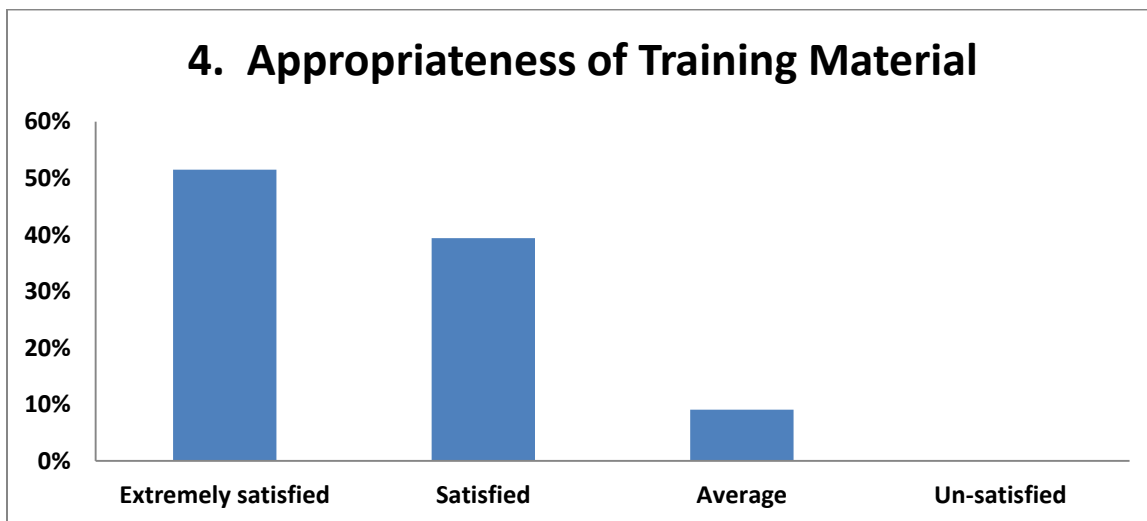
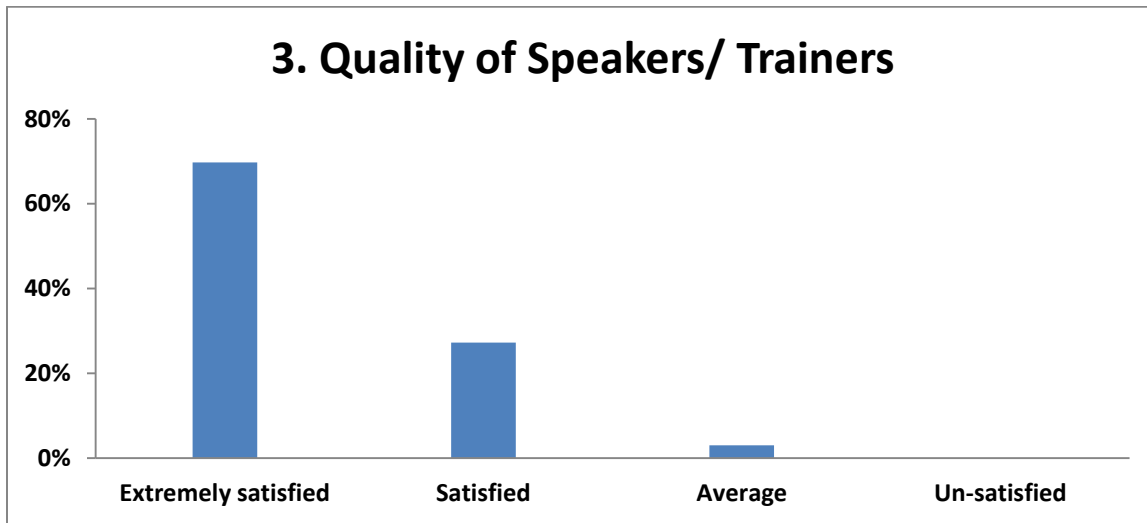
The analysis of the Bhubaneswar workshop is presented below:

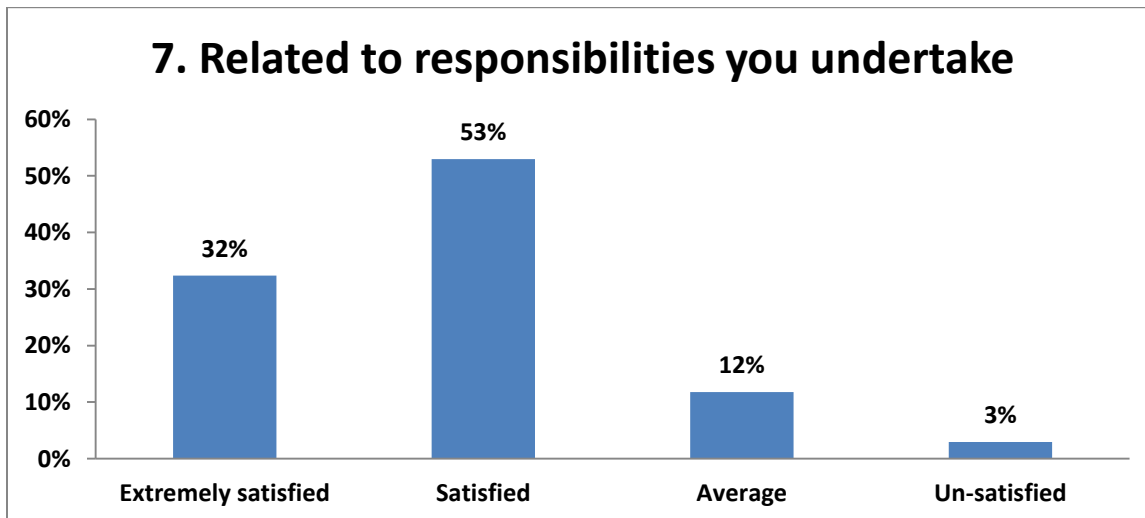
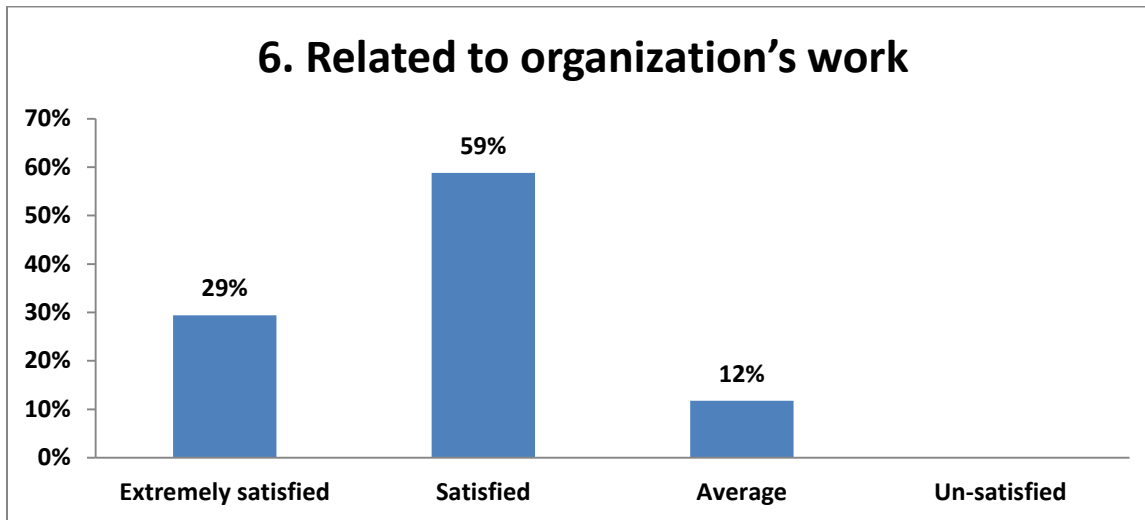
A summary chart of the above parameters are presented below

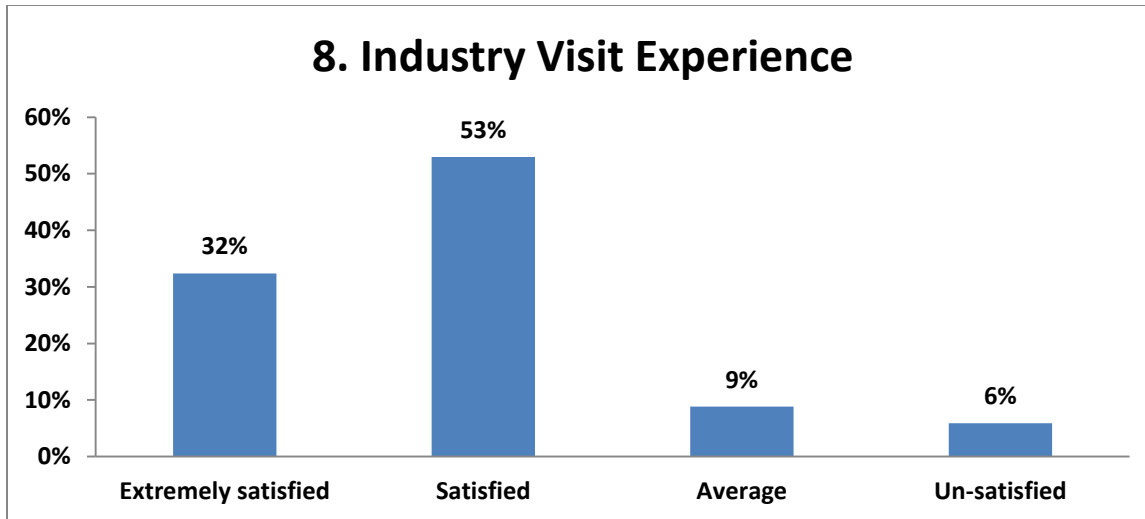
<sup>1</sup> Either “extremely satisfied” or “satisfied”

## Analysis of the Bhubaneswar Workshop







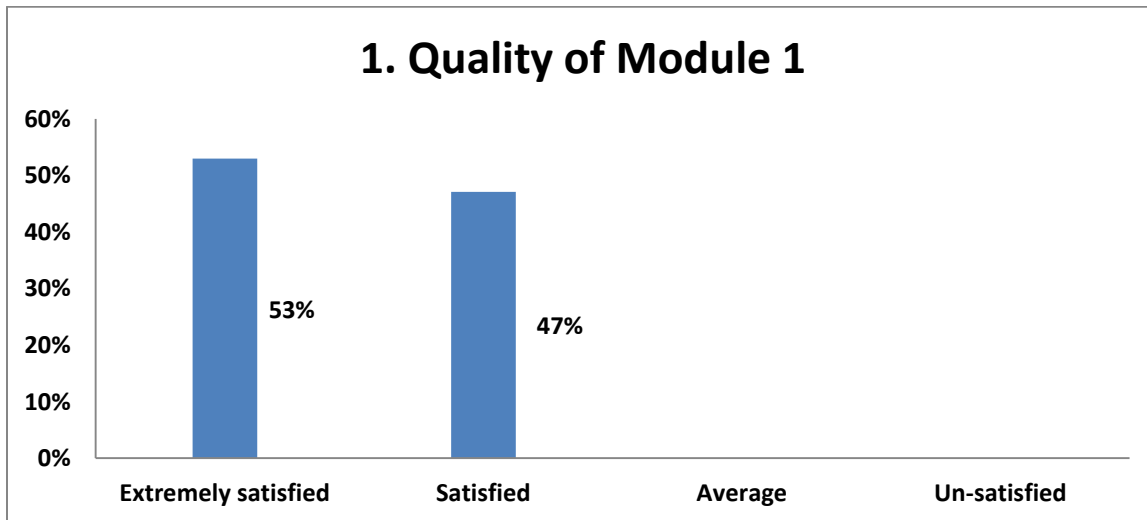
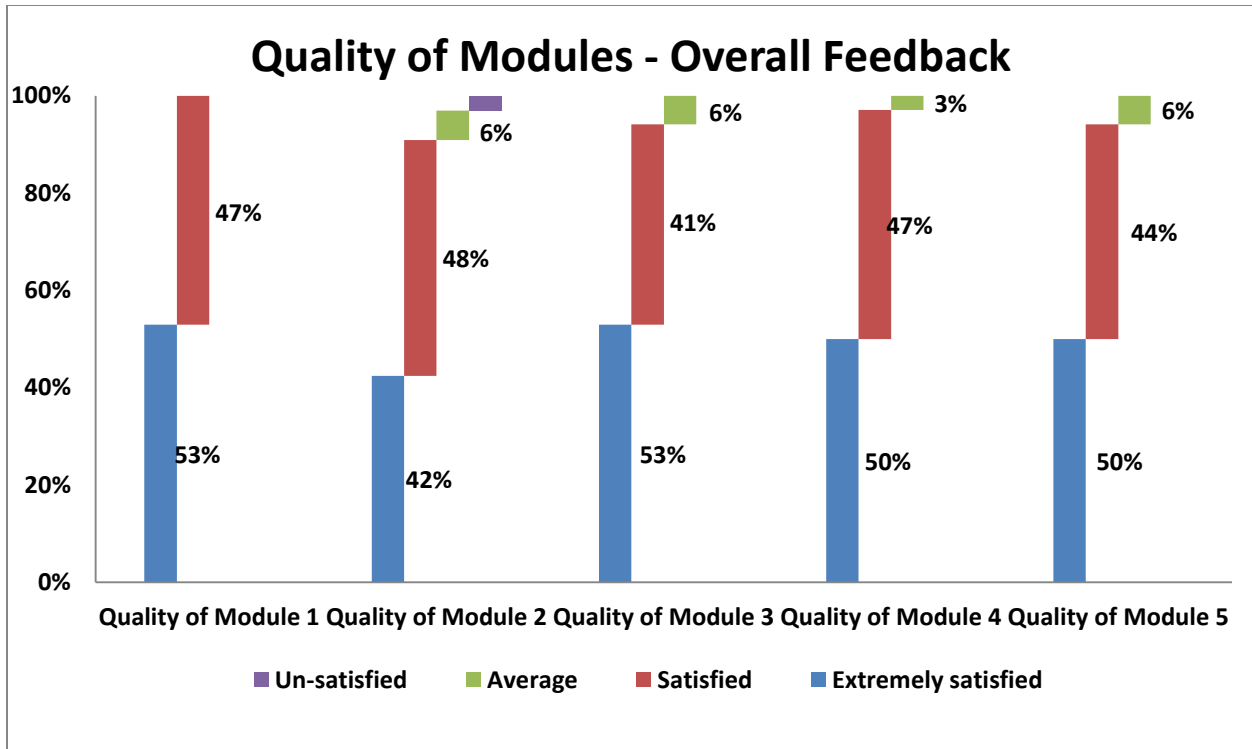


The workshop was imparted through 5 module sessions, covering –

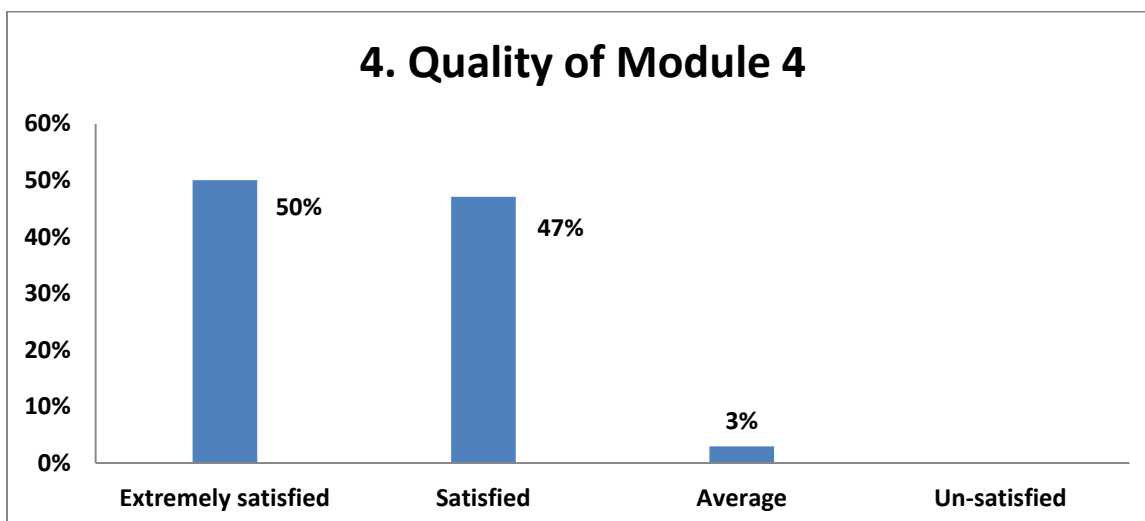
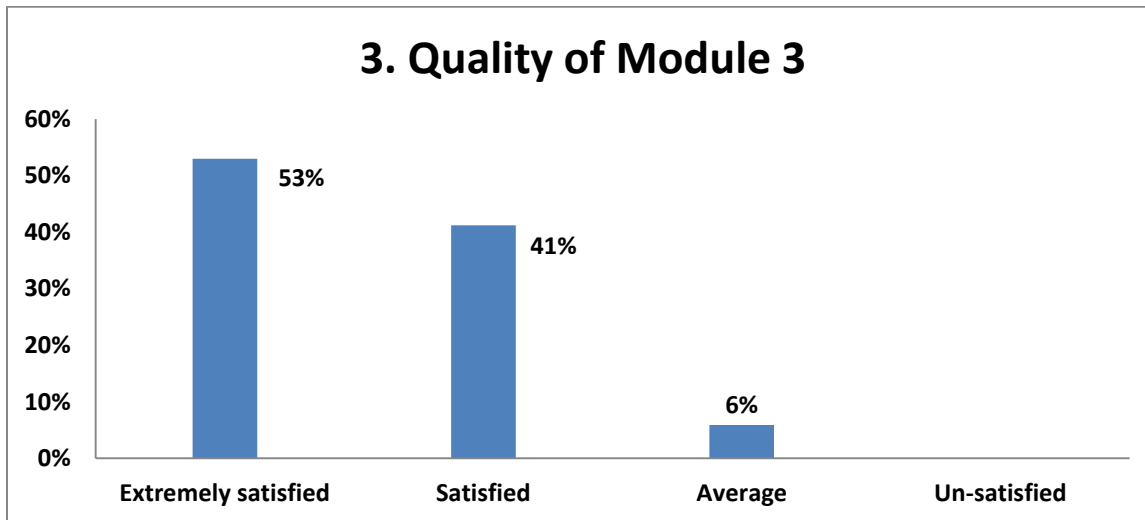
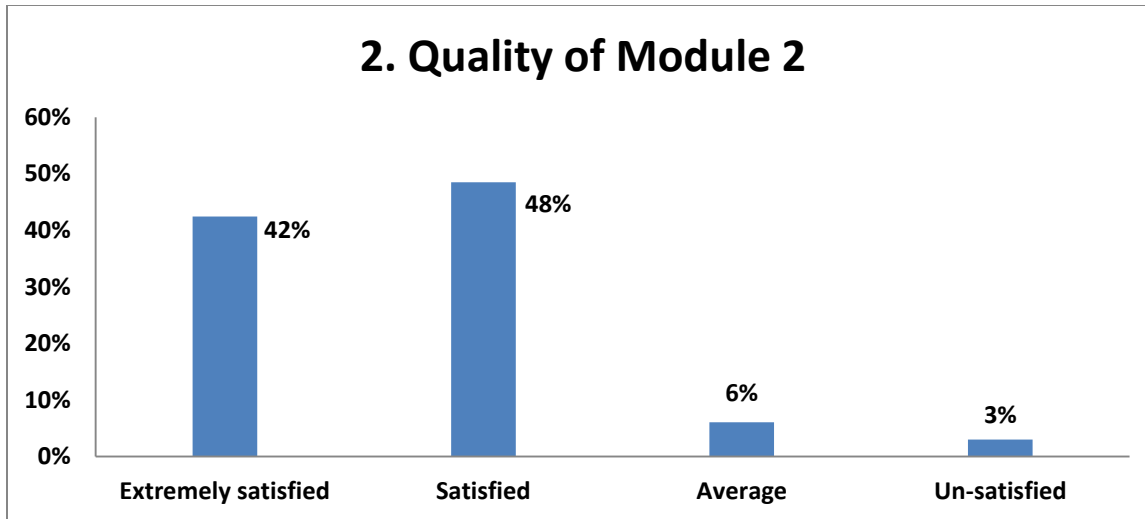
1. Energy Efficiency Financing – Market Opportunity
2. Introduction to ESCO and Business Models
3. Technical Appraisal of Projects
4. Financial Appraisal of Projects and
5. Introduction to Measurement & Verification

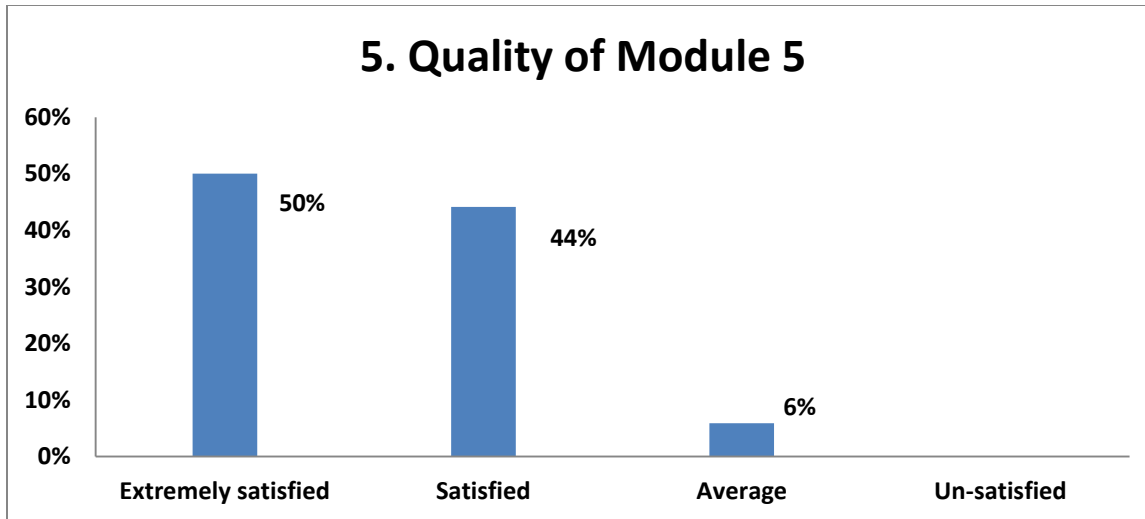
Apart from the 5 sessions, the participants were also involved and presented with case studies, activity session, technology assessment and quiz. The participants also visited an industry where EE interventions have been carried out

The summary chart of the feedback provided by the participants on all the training sessions delivered by the trainers / speakers is given below:









#### WHAT THE PARTICIPANTS LIKED THE MOST ABOUT THE WORKSHOP

- Workshop familiarized new financing ideas and energy efficiency interventions
- Successful in creating the awareness about the untapped investment opportunities on energy efficiency
- Interactive session about financing and appraising of EE projects were appreciated
- Participants appreciated the discussions on live case studies which was thought provoking
- Presentation on ESCO and the business models was very enlightening
- Quality of the trainers was outstanding and were well versed with the concept
- Industry visit was appreciated by many participants as it was a great learning experience.
- Workshop was well structured and each session were well arranged in sequence

#### WHAT THE PARTICIPANTS SUGGESTED FOR FURTHER IMPROVEMENT IN THE WORKSHOP

- Demonstrating financial appraisal of the EE projects through more practical examples was suggested by participants.
- Technical appraisal session should be for a longer duration as participants wanted to understand the viability of EE project.

### Annex C – Bhubaneswar Workshop – Participants

SL. No	Name	Designation	Organization	Email ID	Mobile No
1.	Mr. Pravir Kumar Roy	Chief Manager, Zonal Office, Bhubaneswar	Allahabad Bank	<a href="mailto:capkroy@gmail.com">capkroy@gmail.com</a> , <a href="mailto:zo.bhubaneswar@allahabadbank.in">zo.bhubaneswar@allahabadbank.in</a>	9556412390 / 9556411910
2.	Mr. K S S N Sarma	Manager	Andhra Bank	<a href="mailto:sampathsarma@gmail.com">sampathsarma@gmail.com</a>	9030601103
3.	Mr. Partha Sarathi	Manager	Andhra Bank	<a href="mailto:bm0048@andhrabank.co.in">bm0048@andhrabank.co.in</a>	9861321432
4.	Mr. Atish Kumar Pattnaik		Axis Bank	<a href="mailto:atish.pattnaik@axisbank.com">atish.pattnaik@axisbank.com</a>	7894408067
5.	Mr. Amit Kumar	MMG / S-III	Bank of Baroda	<a href="mailto:gobind@bankofbaroda.com">gobind@bankofbaroda.com</a>	
6.	Mr. Satish Kumar Barik	MMG / S-II	Bank of Baroda	<a href="mailto:bhuban@bankofbaroda.com">bhuban@bankofbaroda.com</a>	9178858552
7.	Ms. Jyotsna Rani Sahoo	BBSR SMECC	Bank of India	<a href="mailto:jyotshna.sahoo@bankofindia.co.in">jyotshna.sahoo@bankofindia.co.in</a>	9090143589
8.	Ms. Madhumita Patra	Chandaka Industrial Compliance Branch	Bank of India	<a href="mailto:madhumitapatra0203@gmail.com">madhumitapatra0203@gmail.com</a>	9776511047
9.	Smt. Bandana Barik	Officer, Advances Section, Bhubaneswar Circle Office	Canara Bank	<a href="mailto:bandanabarik@canarabank.com">bandanabarik@canarabank.com</a>	7077266464
10.	Smt. Madhusmita Pani	Manager, Advances Section, Bhubaneswar Circle Office	Canara Bank	<a href="mailto:madhusmitapani@canarabank.com">madhusmitapani@canarabank.com</a>	9437890073
11.	Sri Pratiraj Majhi	Senior Manager, Bhubaneswar Mid Corporate Branch	Canara Bank	<a href="mailto:pratirajmajhi@canarabank.com">pratirajmajhi@canarabank.com</a>	8456973286
12.	Sri Sarat Chandra Mishra	Senior Manager, Mancheswar, SME Branch	Canara Bank	<a href="mailto:saratmishra@canarabank.com">saratmishra@canarabank.com</a>	9937471887
13.	Mr. Abhishek Kumar		Corporation Bank	<a href="mailto:abhishek_kr62@yahoo.co.in">abhishek_kr62@yahoo.co.in</a>	9748243989
14.	Mr. Durgaprasad Das		Corporation Bank	<a href="mailto:dpdas@corpbank.co.in">dpdas@corpbank.co.in</a>	8763788327

SL. No	Name	Designation	Organization	Email ID	Mobile No
15.	Mr.Sandip Das	Manager	HDFC Bank	<a href="mailto:sandip.das@hdfcbank.com">sandip.das@hdfcbank.com</a>	9337166955
16.	Mr. Dibakar Satapathy	Zonal Infrastructure Head	ICICI Bank	<a href="mailto:dibakar.satapathy@icicibank.co.in">dibakar.satapathy@icicibank.co.in</a>	7752006116
17.	Mr. Ajit Kumar	Manager Marketing	Indian Bank	<a href="mailto:ajotsoni06@gmail.com">ajotsoni06@gmail.com</a>	9999447781
18.	Mr. Tapas Kumar Mishra	Senior Manager	Indian Bank	<a href="mailto:tapas.mishra@indianbank.co.in">tapas.mishra@indianbank.co.in</a>	8249837711
19.	Sri K.R.Reddy	Sr. Manager	Oriental Bank of Commerce	<a href="mailto:korri1975@gmial.com">korri1975@gmial.com</a>	9176870540
20.	Sri Pratap Parida	Sr. Manager	Oriental Bank of Commerce	<a href="mailto:pkparida37@gmail.com">pkparida37@gmail.com</a>	9438838303
21.	Sri Sisir Mishra	Officer	Oriental Bank of Commerce		9501702429
22.	Mr. Sudarshan Nath		Punjab National Bank	<a href="mailto:sudarshannath@yahoo.co.in">sudarshannath@yahoo.co.in</a>	9560250367
23.	Mr. Gaurav Kumar Verma	Assistant Manager	South Indian Bank	<a href="mailto:gauravverma@sib.co.in">gauravverma@sib.co.in</a>	8595107858
24.	Mr. Gini Zacharias	Chief Manager	State Bank of India	<a href="mailto:gini.zacharias@sbi.co.in">gini.zacharias@sbi.co.in</a>	7738639440 / 9819459598
25.	Ms. Gauri Manjrekar	Credit Policy & Procedures Department	State Bank of India	<a href="mailto:gauri.manjrekar@sbi.co.in">gauri.manjrekar@sbi.co.in</a>	9967661739
26.	Sri Bijan Kumar Tripathy	Risk Manager	State Bank of India	<a href="mailto:bijan.t@sbi.co.in">bijan.t@sbi.co.in</a>	9439536371
27.	Sri Kamal Lochan Sarangi	RMSE	State Bank of India	<a href="mailto:kl.saranghi@sbi.co.in">kl.saranghi@sbi.co.in</a>	9937114426
28.	Sri Subhrajit Sahoo	RMSE	State Bank of India	<a href="mailto:subhrajit.s@sbi.co.in">subhrajit.s@sbi.co.in</a>	9437793303
29.	Mr. Satya Narayana Hota	Asst. Manager	Syndicate Bank	<a href="mailto:satyenhota@gmail.com">satyenhota@gmail.com</a>	9437130873
30.	Mr. Suresh Kumar Mohanty	Chief Manager	Syndicate Bank	<a href="mailto:skmohanty.mgr@syndicatebank.co.in">skmohanty.mgr@syndicatebank.co.in</a>	9437579527

SL. No	Name	Designation	Organization	Email ID	Mobile No
31.	Mrs. Atiyatul Qadir	Manager	UCO Bank		
32.	Mr. Anup Kumar	Manager	Union Bank	<a href="mailto:anup.kumar@unionbankofindia.com">anup.kumar@unionbankofindia.com</a>	9572421888
33.	Mr. Anil Kumar Das	Assistant Manager, Bhubaneswar Branch	United Bank of India	anil745506@gmail.com, bmbbs@unitedbank.co.in	7735340830
34.	Mr. Padmanav Tripathy	Manager, RO Bhubaneswar	United Bank of India		9437282735
35.	Mr. Santosh Kumar Dash	Chief Manager and Faculty Member of STC Bhubaneswar	United bank Of India	<a href="mailto:santosh842@gmail.com">santosh842@gmail.com</a>	9804888242

## Annex D – Bhubaneswar Workshop – List of Speakers and Dignitaries

SL. No	Name	Designation	Organization	Email ID	Mobile No
1.	Mr. Gautam Bhattacharya	General Manager	SBI		
2.	Mr. D C Sahoo,	Engineer – in – Chief- Elecy – cum – PCEI	SDA Odisha, Dept of Energy		
3.	Mr. Sriraj Mishra,	Chief Engineer	State Designated Agency		
4.	Ms. Vineeta Kanwal	Joint Director	BEE	vkanwal@beenet.in	
5.	Mr. Hari Govindarajan	Consultant	World Bank Group (WBG)	hgovindarajan@ifc.org	
6.	Mr. K P Phillip	Assistant General Manager	IREDA	kpphillip@ireda.in	
7.	Mr. Pradipta Kumar Panigrahi	CEO	G-ON Energy Controls	ceo@gonenergy.in	
8.	Mr. Sunil Agrawal	Vice President	TATA Cleantech Capital Ltd.	sunil.agrawal@tatacapital.com	
9.	Mr. P. K. Das	Executive Engineer	Odisha SDM		
10.	Mr. Lalit Sikaria,	Asst. GM,	CARE Ratings	Lalit.sikaria@careratings.com	
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# Training Workshops for Financial Institutions on Energy Efficiency (EE) Financing in India



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