Best Practices Study Tour cum Training

GRID MANAGEMENT, NETWORK MONITORING & LOSS REDUCTIONS

13th - 15th NOVEMBER 2019
Puducherry

Supported by

INTRODUCTION

Government of India has set a target of producing 175 GW of Renewable Energy by 2022 comprising 100 GW from Solar, 60 GW from Wind, 10 GW from Bio-power and 5 GW from Small Hydro Power. The country is progressing as per the policies declared. As on date around 80 GW RE projects have been commissioned in different parts of the country. To reach the targets, the progress noted so far is not sufficient and requires intensive efforts by each state and state departments to achieve the goal. To address intermittency & variability of renewables balancing mechanisms in the form of energy storage would be required in addition to other measure like demand side management, AGC, etc.

There are many types of technologies being deployed for large scale energy storage system viz. Pumped Hydro, Compress Air, Batteries, Flywheel etc. Battery energy storage systems are most promising among them as they are modular, easy to transport & install and responds immediately. They have short gestation period and recent developments have improved their calendar & cycle life significantly making them cost competitive to other technologies.

ANNOUNCEMENT

The Indo-German Energy Forum (IGEF) and the Central Board of Irrigation and Power (CBIP) has taken a joint initiative of organizing a special Study Tour-cum-Training and Capacity Building Programme on Grid Management, Network Monitoring & Loss Reductions during 13-15 November 2019 at Puducherry. The Study tour will be beneficial for the participants to enhance their knowledge on Grid Management and SCADA and Network monitoring-- its benefit and challenges.

The programme is expected to be attended by the participants drawn from State Transmission Utilities, (STUs), State and Regional Load Dispatch Centers, POWERGRID, POSOCO, State Renewable Energy Departments, State Electricity Regulators and other relevant stakeholders as well as from neighbouring countries like Bangladesh, Nepal and Bhutan etc.

THE PROJECT

Considering potential for deployment of battery energy storage systems for grid in future, it is considered to develop a pilot project on some of the leading technologies for battery energy storage systems including battery management system for proof of concept, application(s), policy advocacy etc. and their suitability in Indian context.

Accordingly, a project on grid connected Battery Energy Storage system in Puducherry substation using different battery technologies was established as per detail below:

Sl. No.	Battery Technology	Energy Rating (kWh)	Power Rating (kW)	Area Covered (sq m)	Cost	Implementation Timeline
1	Advanced Lead Acid	250	500	45	3.07 Cr	October 2015 - April 2017
2	Lithium Iron Phosphate	250	500	30	4.7 Cr	

Above BESS is under operation for two applications:

i. **Frequency Regulation**: BESS charge during periods of High frequency and discharge during Lower Frequency period. This helps the grid to maintain load-generation balance and maintain a constant frequency.

ii. **Energy Time Shift** : To provide support the Grid during peak hours. BESS is charged during off peak hours and discharged during the peak hours at a later part of the day.

Currently the system is being evaluated for:

- Different control strategies
- Ramping capabilities
- Assessment of losses according to battery technology & type of application

- Operational experience
- Comparison of different battery technology in identical grid conditions & commands

After Successful completion of commissioning and field trial the following has been achieved:

- Experience for successful implementation of large-scale battery energy storage system
- Understanding for commercial feasibility of battery energy storage
- Case study in Indian context for large scale installation of energy storage system in India by providing feedbacks to regulators, grid operators, utilities etc.

Collaborative approach on analyzing techno-economic benefits of multiple use cases with the national and international expertise for enhanced outcomes and aid in the development of a scalable roadmap for policy makers and regulators.

Development of control logics for the following applications shall be done:

- Dynamic frequency regulation
- Voltage/reactive power support
- Load following
- Peak shaving
- Renewable energy capacity firming
- Renewable energy time shift
- Integrated applications- A combination of two or more of the above applications.

OBJECTIVE OF STUDY TOUR

The objectives of the three-day study tour scheduled from the 13 to 15 November 2019 are to:

- Provide the STUs and other stakeholders an opportunity to share their experiences / Success stories and also learn from the experiences of other STUs
- Discuss the important issues faced by the EPC contractors of Grid management, Network monitoring, and Loss reduction on the working level.
- Discuss the regulatory and financial mechanisms required to provide fillip to Network monitoring, and Loss reduction on the working level.
- Discuss the challenges of data sharing by RE generators, Grid connectivity codes, Implementation of forecasting and ancillary service regulations
- Provide a platform to showcase the latest technologies
- Create a network of professionals working in the “integration of renewable energy in the Grid” domain

TOPICS FOR PRESENTATION

1. User Experience about SCADA/EMS application in grid management including issues and challenges
2. Role of PMU applications in Grid Management in a large interconnected grid with large scale renewables
3. Demand and Renewable generation forecasting and scheduling : current practices & Regulation
4. Role of weather monitoring in Grid management
5. Reactive power management with large scale RE generation and its role in loss reduction
6. Impacts of EV charging infrastructure in the DISCOM

(In addition to the above any other relevant topics are acceptable)

PROGRAMME SCHEDULE

Date : Wednesday 13th November 2019 **Venue : HOTEL ACCORD PUDUCHERRY**, No-1, Thilagar Nagar, Ellaipillaichavady, Puducherry-605 009 **Contact No** : 0413-2299000 / 9655686600 Email : rmds.pondi@theaccordhotels.com Website : www.theaccordhotels.com	
Time	**Description**
5:00 PM	Registration starts
6:00 – 6:30 PM	Tea & Coffee
6:30 – 7:30 PM	Introductory session
7:30 – 9:00 PM	Networking Dinner
Date : Thursday 14th November 2019 **Venue : Visit to Puducherry SCADA System, Battery Storage and Smart Grid Plant at Puducherry**	
Upto 7:30 AM	Breakfast in the Hotel
7:30 AM	Starting from hotel to Auroville *(Roof Top Solar Centre)
8:00 – 10:00 AM	Auroville & Matri Mandir visit * only permitted time for meditation
10:00 AM	Auroville to POWERGRID (Battery Storage Plant)
10:30 – 12:00 PM	BESS visit at POWERGRID (Tea & Coffee will be served at site)
12:00 PM	Return to Hotel
12:30 – 1:30 PM	Lunch at Hotel
1:30 – 3:30 PM	Visit to SCADA & Smart Grid centre (Tea & Coffee will be served at site)
3:30 – 6:00 PM	Island Beach (Chunamber boat house)
6:00 – 7:30 PM	Solar LED street light visit
7:30 PM	Back to Hotel
8:00 – 9:30 PM	Networking Dinner at Hotel
Date : Friday 15th November 2019 **Venue : HOTEL ACCORD PUDUCHERRY,** No-1, Thilagar Nagar, Ellaipillaichavady, Puducherry-605 009 **Contact No** : 0413-2299000 / 9655686600 Email : rmds.pondi@theaccordhotels.com Website : www.theaccordhotels.com	
Upto 9:00 AM	Breakfast in the Hotel
9:00 – 11:00 AM	Inaugural session of the International Workshop
11:00 – 11:30 AM	Tea break
11:30 – 1:00 PM	Intl.Workshop continued (Presentations by Eminent speakers)
1:00 – 2:00 PM	Lunch
2:00 – 3:00 PM	Intl. Workshop continued (Presentations by Eminent speakers)
3:00 – 3:30 PM	Valedictory session
3:30 – 4:00 PM	Feedback session and Distribution of certificates and wrap up session
4:00 – 5:00 PM	Aurobindo Ashram & Roof Top Solar Plant visit
5:00 – 7:00 PM	Sea beach visit
7:30 PM	Back to hotel and Networking Dinner

Note:

1. Check-out time up to 12 Noon on Saturday (16th Nov. 2019)
2. Seats are very limited and on first come first served basis. All interested participants are requested to confirm well in advance inclusive payments.
3. If any participants are interested to come with spouse kindly intimate us well in advance
4. If any candidate like to stay more days (before 13th November or after 15th November 2019 kindly intimate us and book the venue hotel well in advance
5. Connected Flights are available from Bangalore and Hyderabad to Puducherry and back or from Chennai airport it is well connected by car, share taxi and bus to Puducherry and back.

The delegation package includes:

- Hotels Accommodation on single occupancy basis - 4 star
- Briefing of delegation prior to travel
- Full boarding and lodging for only three nights (13th November afternoon till – 15th November 2019)
- Official tour for all transfers mentioned in the agenda
- Professional guided tours facilities Grid management, Network monitoring, and Loss reduction.
- Technical field visits to SCADA System, Battery Storage and Smart Grid Plant and some nearby tourist's place
- All course materials and background information
- Accompanied by professional coordinators and technical experts

The delegation package DOES NOT include:

- Transfers to and from Chennai Airport to Puducherry hotel and back to Chennai Airport – on the first and last day 13th November and 16th November 2019
- Flights
- Cost for additional nights before 13th November and after 15th November 2019
- Other expenses (e.g. additional meals, private consumption at the hotel, phone calls, laundry service, personal shopping, others etc.)

Important Tourist Places in Puducherry

AUROVILLE

If you have only a few hours and want to just hop in and out, go directly to the Visitors? Centre, known to all. The VC offers you detailed exhibitions and video viewings on the city's aims and activities, a special section on Matri Mandir, and an information centre well-stocked with numerous brochures and handouts on Auroville's educational and cultural activities.

SRI AUROBINDO ASHRAM

Aurobindo Ashram is not a quiet place of retreat but a vibrant centre of life in a modern urban setting. The dynamic character of the community reflects the life-affirming aim of Sri Aurobindo's Yoga. Work as an offering to the Divine is an essential aspect of the Yoga, and all Ashramites do a certain amount of productive work each day in one or another of the Ashram's departments.

PONDICHERRY BEACH

Pondicherry beaches are ideal for sunbathing, swimming or simply strolling on the golden sands. The Union Territory of Pondicherry has a long coastline of 45 km. The virgin beaches of Pondicherry with the golden yellow sand and deep blue sea attracts tourists from all over India. The slopes of the beaches are gentle and safe for bathing and swimming.

PARADISE BEACH

Chunnambar or Paradise Beach is 7 km past Pondicherry, along the Cuddalore Main Road. Located at a point where the Chunnambar River backwaters meet the Bay of Bengal, it has something for everyone. If you're the kind who likes splashing around in the waves, the sea here is not very rough. Not so deep, it's safe for children as well.

CHUNNAMBAR BOAT HOUSE

Facilities for boating are available at the Boat House on the River Chunnambar,8kms from Pondicherry. The backwater and the lush greenery on both sides of chunnambar provide an ideal setting for boating.

REGISTRATION FORM

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13th -15th NOVEMBER 2019, Puducherry

We are proud to offer a complete special delegation package for your participation in the technical workshops study tour to Puducherry. Please complete the following registration form to guarantee participation.

Data of Participant	
Name	
Designation	
Organization	
Address	
Telephone	
Mobile	
E-mail	
Website	
Date of Birth	
Company	Public Ltd. ☐ GoI ☐ Other ☐
Working area of organization	
What are your expectations and special interest in this study tour?	
Package option	
Delegation package ☐ INR 30,000 /- Plus 18% tax (GST) for Indian delegates and ☐ 600 U.S. Dollar plus 18% GST for Foreign delegates Accompanying Person charges @ Rs. INR 12,000 /- Plus 18% tax (GST) in double occupancy basis and should be wife/son/daughter normally residing with the participants	
Payment options	
Cheque / DD in favour of: "**Central Board of Irrigation and Power**" New Delhi Send to : Central Board of Irrigation and Power, Plot No-4, Malcha Marg, Chanakyapuri, New Delhi 110 021	
Or Via Bank Transfer to:	
Account holder name	Central Board of Irrigation and Power
Bank Name	HDFC Bank
Branch & Address	209-214, Kailash Building, K.G. Marg, New Delhi 110001
Saving Bank Account No	00031110004411
Branch/RTG/NEFTIFSC	HDFC 0000003
MICR Code	110240001
Swift Code	HDFCINBBDEL
GST No.	07AAAJC0237F1ZU
Cancellation Policy: Understand that in case I cancel my participation after, 25th October 2019, the entire delegate fees will be non-refundable.	

Any Further Clarifications please feel free to Contact :

Shri B. Dasgupta
Central Board of Irrigation and Power
Plot No-4, Malcha Marg, Chanakyapuri, New Delhi-110 021 M : 9911699689 E-mail : dasgupta@cbip.org

Disclaimer **:** By filling this registration form, you consent to its storage and use by IGEF and CBIP for further communication related to study tour and other important developments in Indo-German Energy scenario.