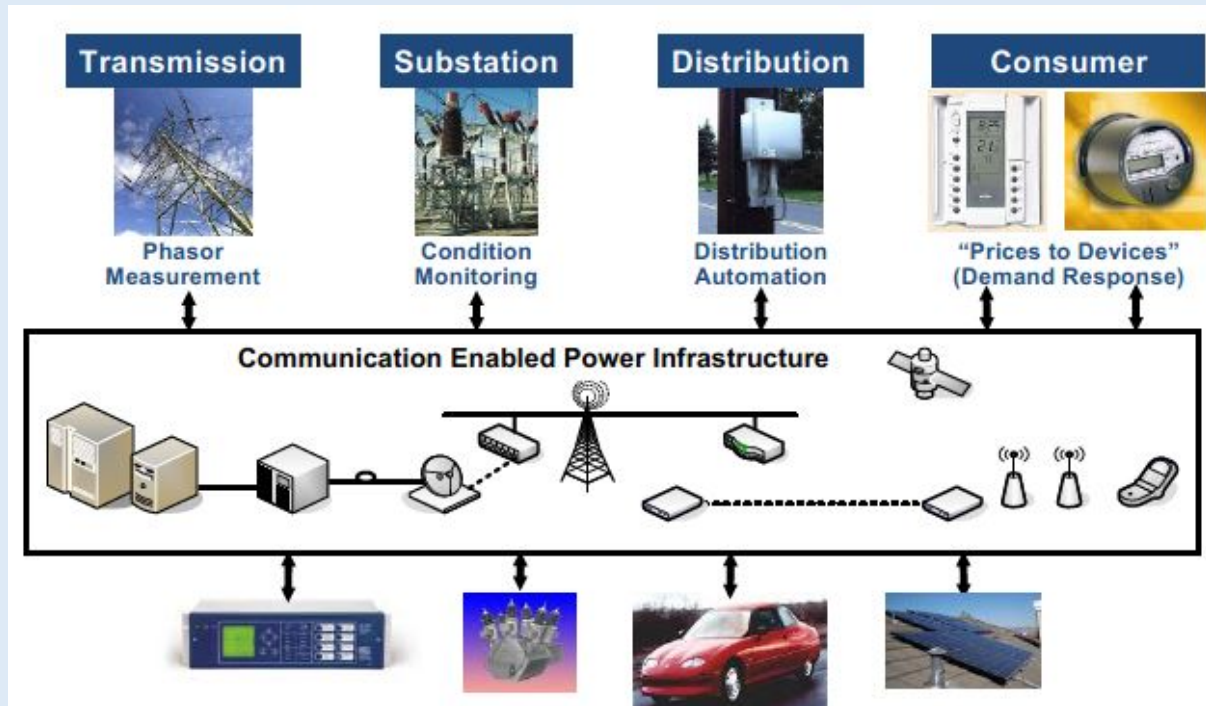


# Two days National Workshop

on  
Battery Energy Storage & Microgrids in India  
15<sup>th</sup> -16<sup>th</sup> March, 2018



Venue – NPTI Faridabad Conference Hall

Organised By

 **NATIONAL POWER TRAINING INSTITUTE**  
A National Apex Body for Training in Power Sector  
Established vide The Gazette of India, July 3, 1993  
**(An ISO 9001:2015 & 14001:2015 Organisation)**  
Ministry of Power, Government of India  
NPTI Complex, Sector - 33, Faridabad - 121 003, Haryana, India  
TeL: 0129 2257131 Fax: 0129 2277412 Website: [www.npti.in](http://www.npti.in)

## About NPTI

National Power Training Institute (NPTI) an ISO 9001 & ISO 14001 organization under Ministry of Power, Govt. of India, is a National Apex body for Training and HRD in Power Sector with its Corporate Office at Faridabad. NPTI is the world's leading integrated power training institute and it is operating on an all India basis through its regionally located Institutes at New Delhi, Nangal, Bengaluru, Neyveli, Durgapur, Guwahati and Nagpur. NPTI is establishing two new institutes at Alappuzha (Kerala) and Shivpuri (MP) which would be operational by 2018. NPTI has more than 50 years of professional expertise in the field of training and HRD in Power sector with industry specific interface.

## About the Workshop

The two day workshop will deliberate on issues regarding battery energy storage its testing, quality analysis & battery management systems and microgrids as mentioned below:

### **Definition of Microgrid Applications, Interfaces, and Services**

### **Performance Optimization Methods and Uncertainty in the Modelling and Design Process**

### **DC Power Distribution Systems, Microgrid Integration & Solar in Microgrid & Rural electrification**

### **Energy Storage System Status in Global & Indian Market**

- Current Energy Storage Systems
- Types and features of energy storage systems (Classification of EES systems, Mechanical storage systems, electrochemical storage systems, Chemical energy storage, Electrical storage systems & Thermal storage systems)

### **Standards & Technical Comparisons**

- Standards for EES
- Technical comparison of EES technologies and On-grid solutions & off-grid solutions

### **Peak Load Management & DSM**

- Benefits of storage and managing peak load
- Demand side management and grid storage

### **Markets for EES**

- Present status of applications
- Utility use (conventional power generation, grid operation & service)
- New trends in applications (Smart Grid, Smart Microgrid, Smart House, Electric vehicles, etc.)

### **Lead acid batteries**

- Basics operating technology and battery performance requirement for different applications
- Different designs of lead acid to meet the performance requirements
- Materials & methods of manufacture of lead acid batteries
- Effect of material used Vs different performance requirements

### **T Q A of Lead acid batteries**

- Understand various manufacturing processes, advantages and shortcomings of these processes
- Basic process of quality assurance
- Key quality control & test points for acceptance or rejection
- Symptoms for trouble and corrective measures

### **Lithium ion batteries**

- Basic chemistry and their comparison related to performance, applications & cost
- Manufacturing advances, Battery components, Equipment & Recycling
- Energy Storage system Design considerations for grid applications

### **T Q A of Lithium ion batteries**

- Safety, Standards, Testing and Certification related to ESS
- Key quality control & test points for acceptance and rejection
- Case studies of Energy storage projects in global scenario

**This two-day workshop will provide participants with knowledge of Microgrids, its architecture, Battery energy storage systems of both lead acid type and Lithium ion type its testing & quality analysis.**

### **Seminar Takeaways for Strategic Remedial Measures & Outcomes**

- Understand the issues in battery management systems in power sector
- Understand Microgrids and its architecture.
- Understand the battery energy storage system.
- Lead acid type and Lithium ion type battery storage.
- Be able to adapt the process for all types of Energy storage.
- Testing & Quality analysis of Various types of batteries and its standards.
- Case studies of Battery Energy Storage Systems in Indian Power Sector.

### **Speakers**

The course contents is to be delivered by sector experts and academicians, supported by insights based on NPTI's years of successful energy training experience and thought leadership. NPTI plans to adopt interactive methodology for this program to ensure knowledge advancement and intellectual progression for the participants.

### **Who should Participate**

Officers of the power sector organizations, GENCO's, DISCOMs, Regulatory commissions, TRANSCOs and all power sector stakeholders.

## Registration Fee

Registration fee of Rs. 9,000/- + 18% GST = Rs. 10,620/- per delegate is required to be paid by demand draft/ECS drawn in favour of “National Power Training Institute” payable at Faridabad.

Account No : 10724879119

IFSC Code : SBIN0003245

Branch : SBI, SARAIKHWAJA, FARIDABAD

## Expert Committee

Prof. (Dr.) Rajendra Kumar Pandey, Director General, NPTI

Mr. J.S.S. Rao, Principal Director

Ms. Manju Mam, Director(MS/IT)

## Organising Committee

Dr. Rohit Verma, Dy. Director

Ph.: - 9891532777

[rohit.npti@gov.in](mailto:rohit.npti@gov.in)

Mr. Mahendra Singh, Asst. Director

Ph.: - 9999670968

[mahendra.npti@gov.in](mailto:mahendra.npti@gov.in)

Dr. J Raja, Asst. Director

Ph.: - 8800124789

[jraja.npti@gov.in](mailto:jraja.npti@gov.in)

All correspondence should be addressed to:

**Director(MS/IT)**

**National Power Training Institute**

NPTI Complex, Sector-33, Faridabad (Haryana)

Pin code – 121003

Fax: 0129-2277412,0129-2270949,0129-2255063

[www.npti.gov.in/](http://www.npti.gov.in/) [www.npti.in](http://www.npti.in)

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