India SMART UTILITY Week 2023

28 February - 04 March 2023 | New Delhi

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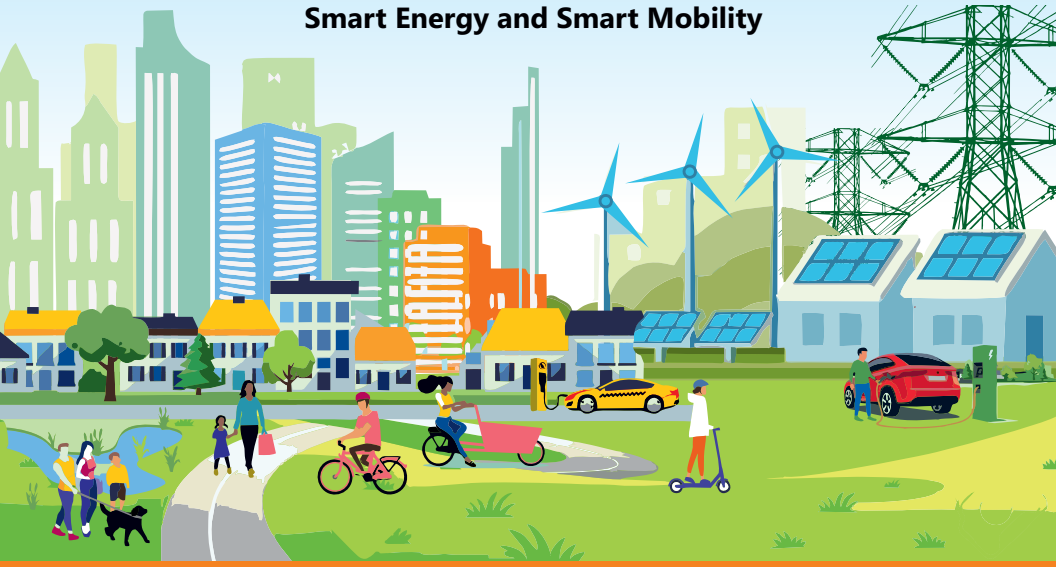
9th International Conference and Exhibition on Smart Energy and Smart Mobility



CONFERENCE AGENDA

Organiser

ISGF
India Smart Grid Forum

Powered By

Hitachi Energy

Supporting Ministries

- Ministry of New & Renewable Energy, Government of India
- नीति आयोग
- Ministry of External Affairs, Government of India
- Ministry of Electronics & Information Technology, Government of India
- Ministry of Jal Shakti, Government of India
- Ministry of Power, Government of India, CENTRAL ELECTRICITY AUTHORITY
- Ministry of Heavy Industries, Government of India
- Ministry of Environment, Forest and Climate Change
- Smart City, Ministry of Housing and Urban Affairs, Government of India

Host Utilities

TATA POWER
TATA POWER-DDL
CESC LIMITED

Co-Host Utilities

BSES Yamuna Power Limited
BSES Rajdhani Power Limited

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INAUGURATION OF ISUW 2023 CONFERENCE AND EXHIBITION

01 March2023 (Wednesday) | 10:00 ~ 12:30 IST
Venue: Crystal 1&2, Lalit Hotel, New Delhi

AGENDA

Lamp Lighting Ceremony

ISGF Video (7 min)

Welcome Address:

Reji Kumar Pillai, President, ISGF and Chairman, Global Smart Energy Federation (GSEF)

Special Keynotes:

1. **N Venu,** Managing Director & CEO, Hitachi Energy*: Decarbonization initiatives within Hitachi (5 min)*
2. **Praveer Sinha,** MD & CEO, Tata Power Company Limited*: Decarbonization initiatives within the Tata Group (5 min)*
3. **Richard Schomberg,** IEC Ambassador and Chairman, IEC Smart Energy Systems Committee and Vice President-EDF*: Decarbonization initiatives in Europe (5 min)*
4. **Mohammed Al Ta'ani,** Secretary General, Arab Renewable Energy Commission*: Decarbonization initiatives in the Middle East (5 min)*
5. **Abel Tella**, Director General, Association of Power Utilities of Africa*: Decarbonization initiatives in Africa (5 min)*
6. **Helvio Neves Guerra**, Director, Brazilian Electricity Regulatory Agency (ANEEL)*: Decarbonization initiatives in Latin America (5 min)*
7. **Ravi Seethapathy,** Chairman – Biosirus; and WG Chair, India Smart Grid Forum and GSEF Ambassador for Americas*: Decarbonization initiatives in North America (5 min)*
8. **Luciano Martini,** Chair-Executive Committee, ISGAN)*: Decarbonization initiatives in ISGAN Member States (5 min)*
9. **SN Sahai,** Director General, Power Foundation of India & Former Secretary, Ministry of Power*
10. **Alok Kumar,** Secretary. Ministry of Power*
11. **Tarun Kapur,** Advisor to PMO*
12. **Suman Bery,** Vice Chairman, NITI Aayog*

Inaugural Address:
RK Singh, Hon'ble Minister of Power and New and Renewable Energy, Govt. of India *

Vote of Thanks: Reena Suri, Executive Director, ISGF

RELEASE OF WHITE PAPERS/REPORTS AND LAUNCH OF NEW INITIATIVES

1. **White Paper on Blockchain Applications for Utilities by Global Smart Energy Federation**
2. **Case Study on Smart Meter by Silicon Lab**

INAUGURATION OF ISUW 2023 EXHIBITION

Session Coordinator: Parul Shribatham | +91 9810878505 | Parul@indiasmartgrid.org

LUNCH BREAK + TOUR OF ISUW 2023 EXHIBITION

India 12:30 ~ 14:00

EVENT DAY 2: 01 MARCH 2023 (WEDNESDAY)
THEME-A: SESSION-2
EVOLVING ARCHITECTURE OF THE NET ZERO POWER SYSTEM

Venue & Time	
Venue	**Crystal-1**
Time	**India 16:00 ~ 18:00**

Session Background

Present architecture of the electric grids is a legacy of the 20th century based on the fundamental concepts of "one-way flow of electricity" and "electricity cannot be stored". Today with distributed energy resources, storage, prosumers and electric vehicles connected to the distribution grid, it needs to be redesigned to support bi-directional energy flows. Both transmission and distribution grids follow the same architecture today; but in the era of distributed RE resources connected to the medium voltage and low voltage grids, the distribution grids require a different architecture. Grid reliability is threatened by increasingly erratic and severe weather events and changing customer behavior of adding renewables and other non-wire alternatives both on grid and behind- the-meter. The recent advances in operational technologies (OT) and information technologies (IT) such as advanced automation systems, smart inverters, cloud computing, mobile computing, artificial intelligence and machine learning tools have the potential for efficient grid management at a lower cost.

The new Grid Architecture will include (1) different system operators controlling different segments of the system; (2) different sources of active/reactive power supply ranging from transmission-located to rooftop solar-based; (3) the ability to dispatch sources of power supply versus 'must take' when available; (4) new cost models for the power whether tariff-based or market-based; and (5) appropriate provisioning of ancillary services to ensure the grid reliability. The new approach is to have two different architectural constructs – a **data bus** and a **control bus**. While the data bus is responsible for carrying all non-operational models of information necessary to drive utility decisions, the control bus is responsible for carrying all operational data and control actions taken at the local level, centralized level, or other levels in between where that exist. The two buses are isolated by one or more security mechanisms ensuring that information transported by either of them or their actions are not compromised.

Discussion Points:

1. Emerging Integrated Grid with DER and Two-Way Power Flows
2. Grid-Edge and Behind-the-Meter Resources and its Management
3. Evolving Grid Architecture with Two Buses
   a. Standardized and Open Interfaces
   b. Standardized Tools and APIs
   c. Standards-based and Standardized Models
   d. Self-registration of Devices, Applications and Systems
   e. Roadmap for New Architecture for the Grid

Chair	**SR Narasimhan,** CMD, Grid Controller of India
Moderator and Theme Presentation	**Mani Vadari,** Founder and President, Modern Grid Solutions
Speakers	**1. Mark F McGranaghan**, EPRI Fellow and VP – Power Delivery and Utilization, Electric Power Research Institute (EPRI)- On Video **2. Ravi Seethapathy,** Chairman- Biosirus & WG Chair-ISGF **3. AK Rajput**, Member, Power System, Central Electricity Authority, India **4. Luciano Martini**, Chair-Executive Committee, ISGAN **5. M Sivalingarajan**, Director- Distribution, Tamil Nadu Electricity Board* **6. Dan Koch,** VP System Operations, Puget Sound Energy* **7. James Walters,** Manager IT/OT and System Operations, Exelon* **8. Abhay Choudhary**, Director- Projects, POWERGRID Corporation of India Limited* **9. Mukesh Dadhich,** Head-Business Development, Sustainability and Clean Technology, BSES Yamuna Power Limited **10. Amitabh Singhal,** Power Systems Expert, L&T PT&D -Digital Solutions **Q&A**

Key Takeaways by Moderator

Session Coordinator: Shashi Bala | +91 73767 88918| shashi@indiasmartgrid.org

EVENT DAY 3: 02 MARCH 2023 (THURSDAY)
THEME-A: SESSION-3
CLIMATE PROOFING OF FUTURE GRIDS AND ADVANCED MATERIALS FOR EXTREME WEATHER EVENTS

Venue & Time

Venue	**Crystal-1**
Time	**India 10:00 ~ 11:30**

Session Background

Weather events are becoming extreme and more frequent. Big cyclones used to occur once in a decade or two; but of late multiple cyclones happening every year. Ambient temperature is rising all around the world and summer temperatures have exceeded 50 degrees Celsius in many countries. Heavy rains, floods and forest fires are also becoming frequent in many geographies.

The electric grid we operate today have equipment and systems designed for the weather conditions that existed in the 20th century. We continue to buy and build new transmission and distribution grids with same old specifications which no longer can withstand the present weather conditions becoming more and more extreme.

There is an urgent need to revisit the design and specifications as well as maintenance practices of the equipment in order to climate proof the electric grid.

Discussion Points

1. Guidelines/Standards for Power Equipment (G, T & D) De-rating Owing to Higher Ambient Temperature
2. Flood and Hurricane Planning/Designs, Operational Limits and Public Safety
3. High Cost of Urban U/G Cable Replacement and Utility Practices in Cable Asset Utilization for Load Growth and EV Charging
4. Fire Safety Policies for MW- scale Batteries in High Ambient Temperatures
5. New Technologies for Managing Real-time Temperature in NMS/ADMS/Digital Twin
6. Management of Earthquakes and Tsunamis
7. Management of Cyber Attacks and Resiliency

Chair	**Sanjay Dubey,** Principal Secretary - Energy, Madhya Pradesh*
Moderator & Theme Presentation	**Ravi Seethapathy**, Chairman – Biosirus; and WG Chair, India Smart Grid Forum
Speakers	1. **Michael Potter**, Founder, Geeks Without Frontiers and Senior Fellow, International Institute of Space Commerce 2. **Eman Prijono Wasito Adi,** Executive Vice President – Development Sulawesi, Maluku, Papua and Nusa Tenggara Region PT PLN (PERSERO), Indonesia* 3. **Stefan Tenbohlen**, Head of Institute, Institute of Energy Transmission and High Voltage Engineering, University of Stuttgart 4. **Rohit Nair,** Director- Engineering Standards, Pacific Corp * 5. **PR Kumar,** Managing Director, Noida Power Company Ltd* 6. **Bhaskar Sarkar**, CEO, TP Northern Odisha Distribution Limited* 7. **Bae, Jung-Hyo,** Principal Researcher/Leader of ESS, KERI* 8. **AK Mishra,** Executive Director-GA&C and IT+ERP, Power Grid Corporation of India Limited 9. **Arindam Maitra,** AVP of Grid Modernization at L&T Power Transmission & Distribution (PT&D), USA 10. **Faizan khan,** Founder & CEO, Tensor Dynamics Private Limited **Q&A**

Key Takeaways by Moderator

Session Coordinator: Bala K | +91 8121276498 | bala.k@indiasmartgrid.org

ROUNDTABLE AGENDA	
14:00 ~ 14:30	**Inaugural Session** **Welcome Address: Reji Kumar Pillai,** President, India Smart Grid Forum(ISGF) **Opening Keynotes:** 1. **Monali Zeya Hazra**, Regional Energy and Clean Energy Specialist, Energy Division of Indo-Pacific Office, USAID, India 2. **Matthieu Craye**, International Relations Officer, DG ENER, European Commission 3. **Mohammad Afzal**, Joint Secretary-Transmission, Ministry of Power 4. **Arun Goyal,** Member, CERC
14:30 ~ 16:00	**Session-1**: ***Envisioning Trans-Regional Energy Connectivity betweenthe South Asia Region, Southeast Asia Region and Gulf Region - Prospects and Opportunities*** **Chair: Mohammad Afzal**, Joint Secretary -Transmission, Ministry of Power **Theme Presentation: Rajiv Ratna Panda**, Power Market Specialist, SAREP **Discussants**: 1. **HE Minister Naif Mohammed Al Abbadi**, Chairman of GCC Board, Minister of Energy Advisor for Electricity Affairs, Ministry ofEnergy, KSA 2. **Tenzin Lekphell**, Secretary-General, BIMSTEC Secretariat 3. **Ashok Pal, Deputy COO,** Central Transmission Utility of India Ltd. 4. **Dirghayu Kumar Shrestha**, Deputy Managing Director, Transmission Directorate, Nepal Electricity Authority (NEA), Nepal 5. **Sonam Tobjey**, CEO, Bhutan Power Corporation, RoyalGovernment of Bhutan 6. **Abdur Rashid Khan**, Project Director (Chief Engineer), Power Grid Company of Bangladesh (PGCB), Bangladesh
16:00 ~ 17:15	**Session-2**: ***Development of Power Market for Regional and InterRegional Power Trade*** **Chair**: **Rajib K Mishra,** CMD, PTC India Ltd **Moderator: Ravi Seethapathy**, Chairman – Biosirus; and WG Chair, India Smart Grid Forum **Theme Presentation**: **Swetha Ravi Kumar,** Head of FSR Global, FlorenceSchool of Regulation **Discussants**: 1. **SS Barpanda,** Director – Market Operations, Grid Controller of India 2. **Subir Sen**, Executive Director, Power Grid Corporation of India Ltd 3. **Nima Tshering**, Interim CEO, Bhutan Electricity Authority 4. **Dilli Bahadur Singh,** Energy Regulatory Commission, Nepal 5. **SN Goyal,** CMD, IEX 6. **Harish Saran**, ED, PTC **Ahmed Ali**, Director General, Energy, Ministry of Environment, Climate Change and Technology, Republic of Maldives
17:15 ~ 17:30	**Key Takeaways and Next Steps by Namrata Mukherjee**, Deputy Chief of Party (Trade & Investments), **SAREP**

ISGF Coordinator: Bala K | Mobile: +91-8121276498 | Email: bala.k@indiasmartgrid.org
SAREP Coordinator: Pramod Thakur | Mobile: +91-97484 19252 | Email: pramod.thakur@ptcindia.com

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EVENT DAY 4: 03 MARCH 2023 (FRIDAY)
THEME-C: SESSION-3
POWER SYSTEM FLEXIBILITY - STRATEGY AND SOLUTIONS

Venue & Time

Venue	**Crystal-2**
Time	**India 11:30 ~ 13:30**

Session Background

Today, with proliferation of renewable energy (RE) resources that are intermittent in nature connected to the grid, the power system operators have neither full control on the generation resources nor on the load at customer end. To manage a power system with unpredictable generation resources and the load at customer premises, it is essential to have control on both generation and load through automated control systems or flexibility in the power systems. To effectively manage large-scale RE, a number of flexibility sources need to be exploited and planned ahead of time. Flexibility has to be harnessed in all sectors of the energy system, from power generation to stronger transmission and distribution systems, storage and more flexible demand.

According to latest IEA projections, Indian power system is set to grow to 823 GW by 2030 and 1584 GW by 2040. Out of 1584 GW, 869 GW is expected to be renewable energy (RE) resources. Considering the larger share of RE in the generation portfolio, IEA estimates ±85% flexibility for the Indian power system by 2040 which will be a huge challenge to manage. The grid modernization being undertaken as part of the RDSS program may be designed to enhance the capability of the grid to support flexibility in both generation and demand. Therefore, strengthening of distribution grid should focus more on grid modernization to build flexibility in the power system which require equipment and systems that are interoperable, and capable of remotely monitoring and controlling. Smart Microgrids and Campuses and Smart Buildings that could island from the main grid during peaks or unexpected drop in generation of RE resources could play significant role in enhancing grid flexibility. Smart Buildings and Campuses with rooftop solar PV and electric vehicles (EV) with vehicle to grid (V2G) capabilities could supply power to the grid during periods of supply-demand gaps on the grid as well as store electricity in the EVs during surplus generation.

Discussion Points:

1. Importance of Power System Flexibility in the Indian Grid
2. Solutions for Power System Flexibility
   - Demand Response
   - Energy Storage Systems (ESS) – Pumped Storage Hydro Plants, Batteries, Thermal and Other Storage Technologies
   - Electric Vehicle Integration with Vehicle-to-Grid (V2G) Functionalities
   - Grid Interactive Buildings and Campuses
3. Flexibility Resources for Different Timescales
4. Behavioral Energy Efficiency Potential
5. Dynamic Power Markets

Chair	**K Shreekant,** Chairman and Managing Director, Power Grid Corporation of India Ltd*
Moderator	**Ravi Seethapathy**, Chairman – Biosirus; and WG Chair, India Smart Grid Forum
Speakers	1. **KVS Baba,** Former CMD, POSOCO 2. **Patrick Clerens,** Secretary General, European Association for Storage of Energy 3. **Dinesh Prasad Gairola**, Member and Acting Chairman, Uttarakhand Electricity Regulatory Commission* 4. **Sreedhar Venkat,** Senior Vice President, BSES Rajdhani Pvt Ltd 5. **BB Mehta,** Director, GRIDCO, Odisha 6. **Jayant Kumar,** Global Vice President, L&T PT&D-Digital Solutions 7. **Shivani Sharma,** Principal Technical Consultant, Power Consulting, Hitachi Energy 8. **KP Verma**, Director-Technical, Jodhpur Vidyut Vitran Nigam Ltd.* 9. **P Devanand,** Chief-PSSC & Tech Services, Tata Power Company Ltd **Q&A**

Key Takeaways by Moderator

Session Coordinator: Ankita Adhikari | 8745016525 |