



India SMART UTILITY Week 2023

28 February - 04 March 2023 | New Delhi

www.isuw.in

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



CONFERENCE AGENDA

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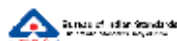
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SUMMARY OF THEMATIC SESSIONS				
Theme	Session Name	Date	Time	Venue
THEME-A: INDIA@100 in 2047 - NET ZERO POWER SECTOR	Session-1: Vision for a Net Zero Power Sector	01 March 2023	14:00 ~ 16:00	Crystal-1
	Session-2: Evolving Architecture of the Net Zero Power Sector	01 March 2023	16:00 ~ 18:00	Crystal-1
	Session-3: Climate Proofing of Future Grids and Advanced Materials for Extreme Weather Events	02 March 2023	10:00 ~ 11:30	Crystal-1
THEME-B: INDIA@100 in 2047 - NET ZERO TRANSPORT SECTOR	Session-1: Vision for a Net Zero Transport Sector in India	02 March 2023	10:00 ~ 11:30	Crystal-2
	Session-2: 50K Electric Bus Program	02 March 2023	11:30 ~ 13:30	Crystal-2
	Session-3: Evolving Trends in Electric Mobility - Green Mobility, Grid Integrated Vehicles (GIV), Autonomous Ground Vehicles (AGV)	03 March 2023	10:00 ~ 11:30	Crystal-1
THEME-C: TECHNOLOGICAL PATHWAYS TO NET ZERO POWER SECTOR	Session-1: 250 million Smart Meter Rollout - Progress and Challenges	02 March 2023	14:00 ~ 18:00	Crystal-2
	Session-2: Digitalization of Utilities, Digital Twins and Digitalization Roadmaps	03 March 2023	10:00 ~ 11:30	Crystal-2
	Session-3: Power System Flexibility - Strategy and Solutions	03 March 2023	11:30 ~ 13:30	Crystal-2
THEME-D: TECHNOLOGICAL PATHWAYS TO NET ZERO TRANSPORT SECTOR	Session -1: Electric Highways, Wireless Charging, Charging Infrastructure for Flying Machines	03 March 2023	11:30 ~ 13:00	Crystal-1
	Session-2: MW-scale Charging Systems for EVs, Trucks and Buses, Boats, Planes and Mining Machinery	03 March 2023	14:30 ~ 16:00	Crystal-2
THEME-E: CROSS CUTTING THEMES	Session-1: Regulations for the Net Zero Power System	01 March 2023	16:00 ~ 18:00	Crystal-2
	Session-2: Customer Experience	01 March 2023	14:00 ~ 16:00	Crystal-2
	Session-3: AI, ML, Robotics and Generative AI for Utilities	02 March 2023	14:00 ~ 15:30	Crystal-1
	Session-4: Blockchain, Web 3.0 and Metaverse for Utilities	02 March 2023	16:00 ~ 17:30	Crystal-1
	Session-5: Energy Positive Buildings and Campuses	02 March 2023	10:30 ~ 12:00	Regency-3
	Session-6: Carbon Markets	03 March 2023	14:00 ~ 16:00	Crystal-1
	Session-7: Policies and Regulations to Promote Digital Management of Distributed Solar PV	02 March 2023	10:30 ~ 13:30	Regency-5

SUMMARY OF MASTER CLASSES and WORKSHOPS

Session Name	Date	Time	Venue
Introductory Course on Transformer Models and Generative Artificial Intelligence Tools	28 February 2023	10:30 ~ 13:30	Regency 1&2
OCPP Technical Workshop and Training	28 February 2023	14:00 ~ 17:30	Regency-1&2
Energy Transition to Net Zero Power System – Strategies and Pathways	28 February 2023	10:30 ~ 17:00	Regency-3
IEC-IEEE Smart Energy Standardization Coordination Workshop	28 February 2023	10:30 ~ 13:30	Regency-5
9th US - India Smart Grid Workshop	01 March 2023	14:30 ~ 17:30	Regency-3
Smart Communications for Smart Utilities and Smart Cities	01 March 2023	14:00 ~ 17:00	Regency- 3
Special Session on Hydrogen Mission	01 March 2023	14:00 ~ 17:30	Regency-1&2
Special Plenary 1- India @100 in 2047: Vision for Net Zero Energy and Transport Sectors and Circular Economy for a Net Zero India in 2070	01 March 2023	18:30 ~ 20:00	Crystal-1&2
District Cooling System (DCS)	02 March 2023	11:30 ~ 13:30	Crystal-1
12th EU - India Smart Grid Workshop	02 March 2023	10:30 ~ 13:30	Regency 1&2
2nd Germany - India Smart Grid Workshop	02 March 2023	14:30 ~ 17:30	Regency-1&2
Energy Positive Buildings and Campuses	02 March 2023	10:30 ~ 12:00	Regency-3
Unmanned Aircraft Systems (UAS) and Drones (Delivery and Passenger Drones)	02 March 2023	12:00 ~ 13:30	Regency-3
Cross-border Electricity Trade in the South Asian Region	02 March 2023	14:00 ~ 17:30	Regency-3
Policies and Regulations to Promote Digital Management of Rooftop PV	02 March 2023	10:30 ~ 13:30	Regency-5
Smart Water Distribution	02 March 2023	14:00 ~ 17:30	Regency-5
Special Plenary 2 - Architecture and Energy Systems for Colonizing the Moon and the Mars	02 March 2023	18:00 ~ 20:00	Crystal-1 & 2
Special Session on Power of Media in Promotion of Green Energy and Energy Transition to Net Zero	03 March 2023	16:00 ~ 17:30	Crystal-2
Roundtable on Interconnection of Regional Grids in Asia: GCC Grid – South Asia Grid – ASEAN Grid	03 March 2023	14:00 ~ 17:30	Regency-1
LIFE and Relevance of Gender	03 March 2023	10:30 ~ 12:30	Regency-5
Presentation of Select Technical Papers	03 March 2023	10:00 ~ 17:30	Regency-3
Smart City Gas Distribution	03 March 2023	14:00~17:00	Regency-5

CONFERENCE AGENDA SUMMARY

EVENT DAY-1: 28 FEBRUARY 2023 (TUESDAY) SPECIAL WORKSHOPS AND MASTER CLASSES

Regency 1&2	
10:30 ~ 17:30	Introductory Course on Transformers and Generative AI Tools : OpenAI GPT-3, ChatGPT and AI Tools for <i>Text 2 Text (T2T)</i> , <i>Audio 2 Text (A2T)</i> , <i>Text 2 Audio (T2A)</i> , <i>Text 2 Image (T2I)</i> , <i>Image 2 Text (I2T)</i> , <i>Text 2 Video (T2V)</i> , <i>Text 2 Motion (T2M)</i> , <i>Text 2 Code (T2C)</i> , <i>Brain 2 Text (B2T)</i> , <i>Audio 2 Audio (A2A)</i> etc.
Regency 3	
10:30 ~ 17:00	Master Class on Energy Transition Strategies and Pathways to Net Zero (Course Certified by IEEE)
Regency 5	
10:30 ~ 13:30	IEC-IEEE Smart Energy Standardization Coordination Workshop (In collaboration with BIS, IEC and IEEE)
14:00 ~ 17:30	OCP Technical Workshop and Training (In Collaboration with Open Charge Alliance)

Detailed Agenda of Master Classes and Special Workshops at Appendix

EVENT DAY-2: 01 MARCH 2023 (WEDNESDAY)

INAUGURATION OF ISUW 2023 CONFERENCE AND EXHIBITION

India 10:00 to 12:30

LUNCH BREAK + TOUR OF ISUW 2023 EXHIBITION

India 12:30 ~ 14:00

CONFERENCE THEMATIC SESSIONS

14:00 ~ 16:00	THEME-A: Session-1: Vision for a Net Zero Power Sector (Session Partner - Hitachi Energy)
14:00 ~ 16:00	THEME-E: Session-2: Customer Experience in The Digital Age
16:00 ~ 18:00	THEME-E: Session-1: Regulations for the Net Zero Power System
16:00 ~ 18:00	THEME-A: Session-2: Evolving Architecture of the Net Zero Power Sector

SPECIAL PLENARIES AND WORKSHOPS

14:00 ~ 17:00	Smart Communications for Smart Utilities and Smart Cities (In Collaboration with DOT, TEC and TSDSI)
14:00 ~ 17:30	HYDROGEN MISSION (Lead by NITI Aayog & MNRE)
14:30 ~ 17:00	9 th US - India Smart Grid Workshop (In Collaboration with US DOC and USIBC)
18:30 ~ 19:30	SPECIAL PLENARY 1: India @100 in 2047 - Vision for Net Zero Energy and Transition Sectors and Circular Economy for a Net Zero India in 2070
19:30 ~ 20:00	Memento Distribution to Partners of ISUW 2023

ISUW - WELCOME RECEPTION AND DINNER

In Collaboration with JBM Group

India 20:00 ~ 23:00

EVENT DAY-3: 02 MARCH 2023 (THURSDAY)

CONFERENCE THEMATIC SESSIONS

10:00 ~ 11:30	THEME-A: Session-3: Climate Proofing of Future Grids and Advanced Materials for Extreme Weather Events
10:00 ~ 11:30	THEME-B: Session-1: Vision for a Net Zero Transport Sector in India
10:30 ~ 12:00	Theme E: Session-7: Policies and Regulations to Promote Digital Management of Distributed Solar PV In Collaboration with IEA)
11:30 ~ 13:30	THEME-B: Session-2: 50K Electric Bus Program
12:00 ~ 14:00	Theme-E: Session-5: Energy Positive Buildings and Campuses (In Collaboration with GBCI)
14:00 ~ 15:30	THEME-E: Session-3: AI, ML, Robotics and Generative AI Tools for Utilities
14:00 ~ 18:00	THEME-C: Session-1: 250 million Smart Meter Rollout - Progress and Challenges
16:00 ~ 17:30	THEME-E: Session-4: Blockchain, Web 3.0 and Metaverse for Utilities

SPECIAL PLENARIES AND WORKSHOPS

10:30 ~ 13:30	12th EU-India Smart Grid Workshop-Part A: Smart Solutions for Renewables Integration - Session 1- BRIDGE Projects; Session 2 - Curtain Raiser of the Smart Grid Observatory; Session 3 - Flexibility Through Smart Grids
10:30 ~ 13:30	District Cooling System (DCS) (In Collaboration with BEE, APUEA, and GIZ)
12:00 ~ 13:30	Unmanned Aircraft Systems (UAS) and Drones (Delivery and Passenger)
14:00 ~ 17:30	Cross-Border Electricity Trade in the South Asian Region (Invite only Session by EU)
14:00 ~ 17:30	Smart Water Distribution (In Collaboration with CBIP)
14:30 ~ 17:30	2 nd Germany - India Smart Grid Workshop (In Collaboration with GIZ)
18:00 ~ 20:00	SPECIAL PLENARY-2: Architecture and Energy Systems for Colonizing the Moon and the Mars

LUNCH BREAK + TOUR OF ISUW 2023 EXHIBITION

India 13:00 ~ 14:00

EVENT DAY-4: 03 MARCH 2023 (FRIDAY)

CONFERENCE THEMATIC SESSIONS

10:00 ~ 11:30	THEME-B: Session-3: Evolving Trends in Electric Mobility - Green Mobility, Grid Integrated Vehicles (GIV), Autonomous Ground Vehicles (AGV)
10:00 ~ 11:30	THEME-C: Session-2: Digitalization of Utilities, Digital Twins and Digitalization Roadmaps
14:00 ~ 16:00	Theme-E: Session-6: Carbon Markets (in Collaboration with IEX)
11:30 ~ 13:00	THEME-D: Session-1: Electric Highways
11:30 ~ 13:30	THEME-C: Session-3: Power System Flexibility – Strategy and Solutions
14:30 ~ 16:00	THEME-D: Session-2: MW-scale Charging Systems for EVs, Trucks and Buses, Boats, Planes and Mining Machinery

SPECIAL PLENARIES AND WORKSHOPS

10:00 ~ 17:30	Presentation of Technical Papers - 28 Selected Papers
10:30 ~ 13:00	Special Session on LiFE and Relevance of Gender (In Collaboration with USAID and SAWIE)
14:00 ~ 17:00	Smart City Gas Distribution (In Collaboration with NGS)
14:00 ~ 17:30	Interconnection of Regional Grids in Asia – South Asia Grid, GCC Grid, ASEAN Grid (In Collaboration with EU, USAID)
16:00 ~ 17:30	Special Session on Power of Media in Promotion of Green Energy and Energy Transition to Net Zero

LUNCH BREAK + TOUR OF ISUW 2023 EXHIBITION

India 13:00 ~ 14:00

VALEDICTORY FUNCTION OF ISUW 2023 & ISGF INNOVATION AWARDS CEREMONY AND GALA DINNER

Crystal 1&2 India 18:30 ~ 23:00
In Collaboration with NEDO, Japan

**EVENT DAY 5: 04 MARCH 2023 (SATURDAY)
TECHNICAL AND CULTURAL TOURS****TECHNICAL TOURS**

Tour-1	NRLDC+REMC+TPDDL LAB + 10 MW BESS
Tour-2	800 kV HVDC STATION IN AGRA + TAJ MAHAL

CULTURAL TOURS

Tour-3	TAJ MAHAL + AGRA
Tour-4	DELHI

Tours 1 & 2 are part of ISUW Package (Entry fee for Taj Mahal not included)
Tours 3 & 4 can be arranged any day of the event and to be paid directly to the authorized Tour Operator



**India
SMART UTILITY
Week 2023**

28 February - 04 March 2023

The Lalit Hotel, New Delhi

ORGANIZER



ISGF
India Smart Grid Forum

ISUW 2023
9th Edition of
India Smart Utility Week
An International Conference
& Exhibition on
Smart Energy & Smart Mobility
www.isuw.in

28 February 2023 Tuesday	01 March 2023 Wednesday	02 March 2023 Thursday	03 March 2023 Friday	04 March 2023 Saturday
Special Workshops & Master Classes	Conference & Exhibition	Conference & Exhibition	Conference & Exhibition	Technical Tours, Demonstrations & Cultural Tours

● ISGF INNOVATION AWARDS : 03 MARCH 2023 ●

ISUW 2023

DETAILED AGENDA

EVENT DAY 2

01 MARCH 2023 (WEDNESDAY)

POWERED BY



INAUGURATION OF ISUW 2023 CONFERENCE AND EXHIBITION

01 March 2023 (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. **Eddie Widiono**, Former President PT PLN and Founder-Chairman, PJCI, Indonesia: *Decarbonization Initiatives in Indonesia*
5. **Mohammed Al Ta'ani**, Secretary General, Arab Renewable Energy Commission: *Decarbonization initiatives in the Middle East (5 min)*
6. **Abel Tella**, Director General, Association of Power Utilities of Africa: *Decarbonization initiatives in Africa (5 min)*
7. **Helvio Neves Guerra**, Director, Brazilian Electricity Regulatory Agency (ANEEL): *Decarbonization initiatives in Latin America (5 min)*
8. **Robert Denda**, Global CEO, gridsperise
9. **Ravi Seethapathy**, Chairman – Biosirus; and WG Chair, India Smart Grid Forum and GSEF Ambassador Americas: *Decarbonization initiatives in North America (5 min)*
10. **Luciano Martini**, Chair-Executive Committee, (ISGAN) *Decarbonization initiatives in ISGAN Member States (5 min)*
11. **SN Sahai**, Director General, Power Foundation of India & Former Secretary, Ministry of Power*
12. **Alok Kumar**, Secretary, Ministry of Power*
13. **Tarun Kapur**, Advisor to PMO*
14. **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-1

VISION FOR A NET ZERO POWER SECTOR

(SESSION PARTNER-HITACHI ENERGY)

Venue & Time

Venue	Crystal-1
Time	India 14:00 – 16:00

Session Background

Several countries have set the target of NET ZERO between 2045 and 2070. The globally accepted pathways to Net Zero is to electrify almost all sectors and human activities to the extent possible and decarbonize the power systems; and fuel substitution in hard-to-abate industries and sectors by substituting fossil fuels with green hydrogen. For this strategy to be successful, the power systems in each of those countries should be Net Zero by 15-20 years before the country's Net Zero targets. This places the onus on countries to aim for Net Zero power systems during the next decade (2030 to 2040) which is a very tall but not unattainable task.

The session will present and discuss the bouquet of technological pathways and solutions for power systems to move towards Net Zero.

Discussion Points

1. Massive Scaling-up and Usage of Renewable Distributed Energy Resources (DER)
2. Efficient Grid Operations with increasing DERs
3. Routes to Enhance the Flexibility of the Grid
4. Digital Tools and Cyber Security for the Emerging Green Grids

Chair Ghanshyam Prasad, Chairman, CEA

Moderator Richard Schomberg, President, RJSenergy, EDF Fellow; and IEC Ambassador for Smart Energy

Theme Presentation and Keynote Gerhard Salge, Global CTO of Hitachi Energy on "*Technologies for enabling and managing complex and sustainable future power systems*"

Speakers

1. Hemant Verma, Chairperson, Chattisgarh State Electricity Regulatory Commission*
2. Vivek Dewangan, CMD, REC*
3. Bhaskar Sawant, Principal Secretary-Energy, Govt. of Rajasthan*
4. Dinesh Dayanand Jagdale, Joint Secretary, MNRE*
5. Ganesh Srinivasan, CEO, Tata Power-Delhi Distribution Ltd
6. Gaurav Bhatiani, Director Energy & Environment, RTI
7. Akilur Rahman, CTO – India, Hitachi Energy

Q&A

Key Takeaways by Moderator

Session Coordinator: Anand Singh | +91 99252 18036 | anand@indiasmartgrid.org

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 behaviour 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. **Vida Rozite**, Policy Analyst and Project Manager - Digital Demand Driven Electricity Networks Initiative, International Energy Agency
9. **Mukesh Dadnich**, Head-Business Development, Sustainability and Clean Technology, BSES Yamuna Power Limited
10. **Amitabh Singh**, 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 2: 01 MARCH 2023 (WEDNESDAY)
THEME-E: SESSION-2
CUSTOMER EXPERIENCE IN THE DIGITAL AGE
Venue & Time

Venue	Crystal-2
Time	India 14:00 ~ 16:00

Session Background

In the digital age, customers have come to expect seamless and personalized experiences when interacting with companies, including utilities. To meet these expectations, utilities are turning to new tools and solutions to enhance the customer experience. One popular approach is the use of digital self-service portals which allow customers to access their account information, pay their bills, and report outages or other issues online. This not only makes it more convenient for customers but also reduces the workload for utility companies, who no longer have to attend as many phone calls and in-person visits. Another trend is the use of advanced analytics and artificial intelligence (AI) to better understand customer needs and preferences. By analyzing data on customer behavior and interactions, utilities can identify patterns and trends, and use this information to tailor their services and communications to better meet the needs of their customers.

Smart meters deployed by utilities are generating accurate digital data of electricity, gas and water consumption from which analytical tools could create customized dashboards that customers also can access to monitor their consumption data in real-time; as well as allow utilities to better predict and manage demand. Utilities are also investing in chatbots, which can provide customers with quick, automated responses to common questions and issues. This can help reduce the workload in call centers and improve the overall customer experience. Utilities are also using virtual and augmented reality to provide customers with a more immersive and interactive experience. For example, utilities can use virtual reality to simulate energy-efficient home upgrades, allowing customers to see the potential savings before making any investments. Overall, utilities are using a variety of digital tools and technologies to enhance the customer experience, making it more convenient, personalized and interactive than ever before.

Environmentally responsible customers are increasingly adopting energy efficiency measures as well as options to buy green electricity. In the recent past, Government of India has issued a host of rules and regulations to ensure their rights and enhance customer delight.

Discussion Points

1. Digital Tools and Solutions for Enhancing Customer Experience
2. Customer Rights Rules 2021
3. Green Energy Open Access Rules 2022
4. Measures to Improve CAIDI and CAIFI

Chair	Kapil Mohan , Additional Chief Secretary – Energy, Karnataka
Moderator	Anant Venkateswaran , Advisor, ISGF and Hitachi Energy
Speakers	<ol style="list-style-type: none"> 1. Satyendra Pandey, Member, Gujarat Electricity Regulatory Commission* 2. Anil Dhingra, Managing Director, Kanpur Electricity Supply Company Ltd* 3. Elad Shaviv, Director-Business Development, Israel Electricity Corporation 4. Manoj Salvi, CEO, Tata Power Ajmer Distribution Ltd 5. Sourajit Ghosh, Director - IT, UPPCL* 6. PK Singh, DDG – Security Assurance, DoT* 7. Anjali Vishwakarma, Executive Engineer, MPPKVCL 8. Divyesh Kr Sharma, Sr Associate Director-Energy & Utilities, RTI India 9. Akilur Rahman, CTO – India, Hitachi Energy 10. George Hunt, Chief Strategy Officer (CSO), SEW 11. Sabyasachi Roy, Director-Operations, WBSEDCL* 12. Neeraj Ahuja, Director-Operations & Projects, DHBVNL* 13. Sabyasachi Pattanaik, Director, Regulatory Affairs & Market Development, Oracle India
	Q&A

Key Takeaways by Moderator

Session Coordinator: Aashima Seth | +91 98717 52530 | aashima@indiasmartgrid.org

EVENT DAY 2: 01 MARCH 2023 (WEDNESDAY)
THEME-E: SESSION-1
REGULATIONS FOR THE NET ZERO POWER SYSTEM

Venue & Time

Venue	Crystal-2
Time	India 16:00 ~ 18:00

Session Background

India has set an ambitious target of Net Zero by 2070. Electrification being the core strategy towards Net Zero, the power sector should achieve Net Zero before 2050. Towards this goal, Government of India has also set a target of 500 GW of renewable energy by 2030. As the share of renewable energy resources connected to the grid increases, the operational philosophy of the power system also changes. New control and communication systems as well as digital technologies are becoming essential to manage the evolving "green grid". Ministry of Power and Central Electricity Regulatory Commission (CERC) have issued several policies and regulations to support this energy transition. In India, Realtime Market for electricity was introduced in June 2020, Green Term Ahead Market (GTAM) was launched in August 2020 and Green Day Ahead Market (GDAM) was introduced in October 2021. In January 2022, CERC issued Ancillary Services Regulations; and in June 2022, Ministry of Power issued Green Energy Open Access Rules empowering customers with 100 kW or more power demand to avail open access to procure green electricity from any sources on the grid.

In the present era of power systems with larger share of renewable energy which are intermittent, larger grids are better to manage owing to a greater number of generation resources and diversity in loads and weather conditions in a wider geography. Hence, transnational grids and cross border electricity trading is being actively promoted around the globe.

Discussion Points:

1. Regulatory support for adoption of new technologies and business models to increase flexible resources on the grid
2. Regulations supporting emerging models for clean electricity procurement in the context of inclusive energy transitions
3. Regulations supporting investments for infrastructure upgrades, business continuity and customer demands
4. Promotion of Peer-to-Peer (P2P) trading of "green" electricity and charging of electric vehicles with "green" electrons
5. Regulations for cross border trading of electricity and regional power exchanges

Chair	PK Pujari , Former Chairperson, CERC and Former Secretary, Ministry of Power
Moderator	Rahul Tongia , Senior Fellow, CSEP
Theme Presentation	<i>Accelerating Decarbonisation Through Regulatory Innovation: Emerging Models for Clean Electricity Procurement in the Context of Inclusive Energy Transitions</i> by Enrique Gutierrez , Project Lead – Regulatory Energy Transition Accelerator , International Energy Agency
Speakers	<ol style="list-style-type: none"> 1. RP Singh, Chairman, UP Electricity Regulatory Commission 2. SPS Parihar, Chairman, MPERC* 3. Christopher Villarreal, President, PluggedIn Strategies, USA 4. Jean-Michael Glachant, Director, Florence School of Regulation 5. RN Sen, Former Chairman, WBERC 6. Kumar Sanjay Krishna, Chairman, Assam Regulatory Commission* 7. Nikunja Bihari Dhal, Principal Secretary -Department of Energy, Govt. of Odisha* 8. Mukesh Khullar, Member, MERC* 9. Ajay Kapoor, Chief Legal, Regulatory and Advocacy, Tata Power Company Ltd 10. Gaurav Moda, Partner EY
	Q&A

Key Takeaways by Moderator

Session Coordinator: Nitin Sharma | +91 9034160319 | Nitin@indiasmartgrid.org



9th US - INDIA SMART GRID WORKSHOP
01 MARCH 2022 (Wed) | 14:30 ~ 17:00 | Venue: Regency – 5
In Partnership with US Commercial Service and USIBC

BACKGROUND

USA has been a longstanding partner of India for the power systems development. United States Agency for International Development (USAID) and United States Trade Development Agency (USTDA) and several research laboratories under the US Department of Energy (DoE) have been actively involved in the Indian power sector for several decades and have funded several studies and demonstration projects. ISGF has been collaborating with United States Department of Commerce (DOC), USAID and USTDA in arranging trade missions and exchange of delegations. Since 2014, ISGF in collaboration with DOC has been taking delegations from India to DistribuTECH event in USA. Also, ISGF in partnership with DOC, USAID and USTDA has been conducting US-India Smart Grid Workshops since 2015 as part of the India Smart Utility Week. During DistribuTECH we have been conducting a half-day US-India Smart Grid Roundtable every year in which large and small technology companies from the USA present their solutions to the Indian Delegation and several of them have been invited by Indian utilities to undertake pilot projects in India. The deliberations and exchange of ideas between stakeholders from both countries in these workshops and roundtables have richly contributed to shape the energy cooperation programs and projects between USA and India

The 9th Edition of the US-India Smart Grid Workshop being organized as part of ISUW 2023, will discuss on following topics:

1. Digitalization and Innovative Technologies for Utilities and Industry

AGENDA

14:30 ~ 15:00	<p>OPENING SESSION</p> <p>Welcome Address:</p> <ul style="list-style-type: none"> • Reena Suri, Executive Director, ISGF • Durra Elmaki, Commercial Officer, US Department of Commerce <p>Keynote Address:</p> <ul style="list-style-type: none"> • Veena Reddy, Mission Director, Minister Counsellor for International Development, USAID* • Alexander Slater, Managing Director, USIBC, India* • Jonathan Heimer, Minister Counsellor for Commercial Affairs, U.S. Commercial Service* • Piyush Singh, Joint Secretary, Ministry of Power*
15:00 ~ 17:00	<p>Session: Digitalization and Innovative Technologies for Utilities and Industry</p> <p>Digitalization and the use of innovative technologies enable utilities and industry to plan and implement energy transition, and increase sustainable resource use in energy, water, mobility and other sectors. They also help strengthen flexibility, predictability, productivity, reliability, safety, and security for consistent performance across the value chain in times of geo-political uncertainty, supply chain disruption, environmental changes, and evolving market requirements.</p> <p>What are the challenges, opportunities, and best practices? What policy and regulatory interventions are needed to increase adoption? Ultimately, how will digitalization and innovative technologies benefit the end-user or consumer?</p> <p>Moderator: Girish Ghatikar, Energy Leader, Digital Innovation and Emerging Technologies, General Motors (GM) and WG Chair, ISGF</p> <p>Session Speakers:</p> <ol style="list-style-type: none"> 1. Ganesh Das, Chief Collaboration and Innovation, Tata Power 2. Sham Chaudhuri, Sales Director - Analytics, Decision Intelligence Solution & Assessment Services, Xylem 3. Jayant Amresh, Business Manager – Grid Solutions, Black & Veatch 4. Nishita Parte, Digital CoE Leader, Veolia 5. Jitendra Nalwaya, Vice President-BSES Yamuna Power Ltd, Delhi* 6. Suvendra Kumar Senapati, L&T PTD 7. Charmaine Ng, Director of Asia Pacific Digital Policy Governance, Schneider Electric* 8. Sandip Sinha, Country Manager, Trilliant* 9. Prithvi Pal Singh, Director, Purvanchal Vidyut Vitran Nigam Limited* 10. KK Verma, Director-Operation, Jharkhand Bijli Vitran Nigam Limited* 11. Richard M Rossow, Senior Advisor and Wadhvani Chair in India-US Policy Studies, CSIS* <p>Q&A</p>
17:00 ~ 17:30	<p>Key Takeaways by Moderator</p>

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

SMART COMMUNICATIONS FOR SMART UTILITIES AND SMART CITIES

01 MARCH 2023 (WEDNESDAY) | 14:00 ~ 17:00 (IST) | Regency - 3

In collaboration with DOT, TEC and TSDSI



संचार मंत्रालय
MINISTRY OF
COMMUNICATIONS



Session Background

Reliable communication system is the backbone of efficient and trouble-free operations and management of utility systems. A typical utility today is using multiple communication systems for different operations. For example, leased bandwidth is used for enterprise IT systems; and utility's own fibre network (or dedicated leased lines) is used for network automation systems; while yet other communication systems are used for smart metering and other utility applications. This scenario is difficult to manage and scale up; and also complex to establish and maintain interoperability between different systems connected on different communication networks with different data rates and latency. The emerging trend amongst forward looking utilities is to build own wireless network for captive use.

India has commenced rollout of 5G networks which can unleash new economic opportunities and societal benefits giving it the potential for being a transformational force for Indian society. It can help the country leapfrog the traditional barriers to development as well as advance the 'Digital India' vision. It is estimated that the cumulative economic impact of 5G on India can reach one trillion USD by 2035.

ISGF has been advocating for allocation of spectrum to utilities and other critical sectors to build their own private 5G networks for captive use rather than leasing from Telecom operators which is not only costly but also may not match with the Telcos rollout plans and utilities requirements. Government of India approved private 5G networks in June 2022 which is a landmark decision. A 5G private network, allows the use of 5G technologies to create a dedicated network with unified connectivity, optimised services and a secure means of communication with in a specific area. This will help utilities to integrate all their systems in single unified communication system which drastically improve the performance while reducing the total cost of ownership.

This session will also discuss important initiatives being taken by TSDSI towards onem2m for utilities and smart cities as well as cloud interoperability in the context of utilities.

Discussion Points

1. 5G Network and Enabling Technologies
2. Private 5G Networks - Case Studies
3. Onem2m for utilities and smart cities
4. Cloud Interoperability
5. Key Recommendations

AGENDA

14:00 ~ 14:15	Welcome Address: ISGF/TSDSI Special Address: Mahesh Shulka, Member-Technology, DOT*
14:15 ~ 15:45	Session -1: 5G Private Networks for Utilities and Smart Cities Chair: Sushil Kumar, DDG (IoT) – TEC, DOT Moderator: Alex Vikas, ADG, DOT Speakers: <ol style="list-style-type: none"> 1. Andres Carvallo, Texas State University-On Video 2. Phil Beecher, Chair, Wi-SUN Alliance 3. Vivek Goel, Chief Engineer, CEA* 4. Jani Vehkalahti, CTO, Wirepas-On Video 5. Atul Bali, Director, NSGM* 6. Sanjeev Rana, HoD-Communication Technology and Architecture, Tata Power Delhi Distribution Ltd 7. Yogendra V Patwardhan, Associate Sales Director, Hitachi Energy 8. Chetan Vaidya, Vice President, Tejas Networks* Q&A
15:45 ~ 17:15	Session-2: Enabling Digital Technologies for Smart Utilities and Smart Cities Chair: Ashok Kumar, DDG – NTIPRIT, DOT* Moderator: TSDSI

	Speakers: <ol style="list-style-type: none"> 1. Pradeep Hirsave, Reliance Jio 2. Bhushan Sethi, Vodafone Idea 3. Brejesh Lall, IIT-Delhi 4. Kishore Narang, Founder, Narnix Technolabs* Q&A
17:15 ~ 17:30	Key Takeaways by Chairs and Closing Remarks

Session Coordinator: Bindoo Srivastava| Mobile: +91 98738 40817| Email: bindoo@tsdsi.in

Ankita Adhikari | 8745016525

EVENT DAY 2: 01 MARCH 2023 (WEDNESDAY)
SPECIAL SESSION ON HYDROGEN MISSION
14:00 ~ 17:30 IST | Venue: Regency 1&2

Lead by Ministry of New and Renewable Energy and NITI Aayog



Session Background

India has recently announced the formation of a National Green Hydrogen Mission with the objective to provide a comprehensive action plan for establishing a Green Hydrogen ecosystem and catalyzing a systemic response to the opportunities and challenges of this sunrise sector. Green Hydrogen, produced using renewable energy, can enable utilization of domestically abundant renewable energy resources across regions, seasons, and sectors, feeding multiple usage streams, either as a fuel or as an industrial feedstock. Hydrogen fueled long-haul automobiles and marine vessels can enable decarbonization of the mobility sector. As the global consensus towards Net Zero gathers momentum, the demand for Green Hydrogen and its derivatives is set to rise. The asymmetries in expected demand and production capabilities for Green Hydrogen, in different countries and regions, are likely to result in international trade of Green Hydrogen and its derivatives like Green Ammonia and Green Methanol. This presents a unique opportunity for India to capitalize on its abundant renewable energy and land resources and the growing global demand for Green Hydrogen, to become a leading producer and exporter of Green Hydrogen and its derivatives.

Government of India wish to implement the Green Hydrogen Mission in a comprehensive and integrated approach through various Central and State Government agencies. While the Ministry of New and Renewable Energy will be responsible for the overall coordination for implementation of the Mission, several other line ministries and departments are assigned specific roles and targets for achievement of Mission objectives.

The overarching objective of the Mission is to make India the Global Hub for production, usage and export of Green Hydrogen and its derivatives; and has set a target to build capabilities to produce at least 5 million metric ton (MMT) of Green Hydrogen per annum by 2030, with potential to reach 10 MMT per annum with growth of export markets. The Mission will support replacement of fossil fuels and fossil fuel-based feedstocks with renewable fuels and feedstocks based on Green Hydrogen. This will include replacement of Hydrogen produced from fossil fuel sources with Green Hydrogen in ammonia production and petroleum refining, blending Green Hydrogen in City Gas Distribution systems, production of steel with Green Hydrogen, and use of Green Hydrogen-derived synthetic fuels (including Green Ammonia, Green Methanol, etc.) to replace fossil fuels in various sectors including mobility, manufacturing, shipping, and aviation. The Mission also aims to make India a leader in technology and manufacturing of electrolyzers and other enabling technologies for Green Hydrogen.

Currently, the global commercial electrolyser manufacturing capacity is estimated to be only about 2-4 GW/annum. During the past 3 years, various national governments and industrial organizations have announced deployment goals totaling to over 200 GW electrolyser capacity by 2030. With this, the global electrolyser manufacturing capacity is set to grow rapidly. However, to limit dependency on imports and ensure supply chain resilience in the sector, it is critical to develop a robust domestic electrolyser manufacturing ecosystem in India. The Mission proposes interventions to boost domestic manufacturing to ensure production of electrolyzers in India at significantly lower costs.

Phase I (2023 to 2026) of the Mission will focus on creating demand while enabling adequate supply by increasing the domestic electrolyser manufacturing capacity. In order to ensure Make in India from the inception stage, a bouquet of incentives aimed at indigenization of the value chain and increasing Green Hydrogen production and uptake will be developed. Phase II (2027 to 2030) of the Mission targets to make Green Hydrogen to be competitive with fossil fuel-based hydrogen and become viable alternative in refinery and fertilizer sectors by the beginning of the second phase, allowing for accelerated growth in production.

The Mission is expected to lead to economy-wide benefits through decarbonization of industrial, mobility and energy sectors; reduction in dependence on imported fossil fuels; development of indigenous manufacturing capabilities; creation of employment opportunities across the value chain; and development of cutting-edge technologies and innovation ecosystem in the country. The production capacity targeted by 2030 is likely to leverage over Rs 8 trillion in total investments and create over 600,000 new jobs; and abate 50 MMT per annum of CO₂ emissions.

Discussion Points

- Mission Objectives and Strategies
- Mission Structure and Roadmap
- Enabling Policy Framework
- Roles and Responsibilities of Various Actors
- Demand Creation Initiatives
- Governance Framework and Compliance Monitoring
- Strategic Interventions for Green Hydrogen Transition (SIGHT)
- Incentives under SIGHT
- Pilot Projects – Green Steel, Transport, Shipping
- Green Hydrogen Hubs
- Regulations, Codes and Standards
- Research and Development

<ul style="list-style-type: none"> ▪ Skill Development ▪ Financial Outlay 	
14:00 ~ 15:30 Outlay Session 1: Green Hydrogen Mission - Objectives, Framework, Governance, Incentives and Financial	
Chair	KR Jyothilal, Additional Chief Secretary - Energy, Government of Kerala (on Video)
Moderator	Ajay Yadav, Joint Secretary, MNRE*
Speakers	<ol style="list-style-type: none"> 1. Suman Sharma, Managing Director, Solar Energy Corporation of India (SECI)* 2. Chandra Prakash Tiwari, Head-Technology & Process Engineering (Generation), Tata Power Company Ltd 3. Kapil Maheshwari, President-Renewable Energy and Green Hydrogen, Reliance Industries* 4. Nina Fenton, Head of Regional Representation for South Asia, European Investment Bank*
	Q&A
15:30 ~ 17:00 Creation Session 2: Strategy Interventions, Technology and Skill Development, Pilot Projects and Demand	
Chair	Bhupinder Singh Bhalla, Secretary, MNRE*
Moderator	Rajnath Ram, Adviser - Energy, NITI Aayog
Speakers	<ol style="list-style-type: none"> 1. Pramod Kumar Tiwari, Director General, BIS* 2. Derek M Shah, Senior VP and Head, Green Mfg & Development, L&T Energy 3. Christopher Hebling, Director- Hydrogen Technologies, Fraunhofer Institute for Solar Energy Systems ISE* 4. Sumant Sinha, Chairman and CEO, ReNew Power* 5. Roeland Baan, CEO, Topsoe* 6. Vineet Mittal, Chairperson, Avaada Group* 7. Davide Cirelli, CEO, Snam Energy India* 8. Rajat Seksaria, Chief Executive Officer, ACME Group* 9. Anil Kumar Chalamalasetty, Chief Executive and Managing Director, Greenko* 10. DMR Panda, General Manager (Hydrogen), NTPC*
	Q&A
17:00 ~ 17:30 Key Takeaways by Moderators	

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

*Confirmation Awaited

MINISTERIAL SESSION

India @100 in 2047 - Vision for Net Zero Energy and Transport Sectors and Circular Economy for a Net Zero India in 2070

01 Mar 2023 (Wed) | 18:30 ~ 19:30 IST

Venue: Crystal 1&2, Lalit Hotel, New Delhi

SESSION BACKGROUND

Many countries have declared their net zero targets, which means they aim to reduce their greenhouse gas emissions to a level that is balanced by the removal of greenhouse gases from the atmosphere. This is done to help combat climate change and limit global warming to well below 1.5 degrees Celsius above pre-industrial levels, as outlined in the Paris Agreement and subsequent Conference of Parties (COP) meetings. Net zero targets are important because they provide a clear and measurable goal for countries to formulate focused programs and projects. They also signal to businesses and investors that the country is serious about reducing emissions and transitioning to a low-carbon economy. Achieving net zero targets will require significant changes in the way we produce and consume energy, as well as changes in transportation, industry, and land use. Countries will also need to invest in new technologies and infrastructure to support these changes. The globally accepted strategy towards decarbonization is electrification of industries, transport and almost all human activities including agriculture to the extent possible; and decarbonize the electricity sector through non-fossil based power generation resources. Hence for a country to be Net Zero in the target year, the power sector in the country should achieve Net Zero a decade or more prior to that target year.

India has done very well in renewable energy development in recent years; and is has already achieved the targets for 2030 under Paris Agreement eight years in advance - that is 40 percent of power generation capacity from non-fossil resources. India has now set a new target of 500 GW of renewable energy by 2030. The government of India has implemented a number of policies and initiatives to promote the power generation from renewable energy and also the consumption of green energy through enabling regulations. India has also launched a green hydrogen mission and ventured in to offshore wind power generation projects.

A circular economy is an economic system in which resources are used, reused, and recycled in a closed loop, rather than being extracted, used, and discarded as waste. This approach aims to reduce the environmental impact of economic activity and create more sustainable and resilient communities. The latest trends in the circular economy include focus on designing products and systems that are easy to repair, reuse, and recycle. This is known as "design for circularity" and is a key principle of the circular economy. The use of digital technologies and blockchain to track and manage the flow of resources is also becoming increasingly popular in the circular economy. Additionally, there is a growing interest in circular business models, such as sharing and rental models, that can help to extend the life of products and reduce the need for new resource extraction. Another trend is the shift from linear economy models to circular economy models in various sectors such as agriculture, construction, and manufacturing. Overall, the circular economy is gaining traction as a way to create more sustainable and resilient communities and reduce the environmental impact of economic activity which is critical for achieving Net Zero.

This Ministerial Plenary Session will examine and debate the Net Zero Target of India in comparison with other leading nations as well as brainstorm on the policies and programs at central and various Indian states to achieve a Net Zero Power Sector in India by 2047, the hundredth anniversary of India's independence.

DRAFT AGENDA

Chair	RK Singh, Minister of Power and New and Renewable Energy, Govt of India*
Moderator	Navroz K Dubash, Professor, Centre for Policy Research*
Theme Presentations	Parameshwar Iyer, Former CEO, NITI Aayog*
Speakers	<ol style="list-style-type: none"> 1. Nandita Gorlosa, Minister of Power, Assam 2. Mika Lintilä, Minister of Economic Affairs of Finland* 3. Arvind Kumar Sharma, Energy Minister, Uttar Pradesh* 4. Janab Akhruzzamam, Energy Minister, West Bengal* 5. V Senthilbalaji, Energy Minister, Tamil Nadu* 6. Agnes Pannier-Runacher, Minister for Energy Transition, France* 7. V Sunil Kumar, Energy Minister, Govt. of Karnataka*
	Q&A

Key Takeaways by Moderator

Session Coordinator(s): Yashika Maheshwari, yashika@indiasmartgrid.org, +919999080666 and Aashima, aashima@indiasmartgrid.org, 9871752530

19:30 ~ 20:00 | Memento Distribution to Partners of ISUW 2023

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In Collaboration with JBM

India 20:30 ~ 23:00



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 The Lalit Hotel, New Delhi

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ISGF INNOVATION AWARDS : 03 MARCH 2023

ISUW 2023

DETAILED AGENDA

CONFERENCE DAY 2

02 MARCH 2023 (THURSDAY)

POWERED BY



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 (on Video)
2. **Heru Purnomo**, Expert of Distribution System, PT PLN, 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. **AK Mishra**, Executive Director-GA&C and IT+ERP, Power Grid Corporation of India Limited
8. **Arindam Maitra**, AVP of Grid Modernization at L&T Power Transmission & Distribution (PT&D), USA
9. **Faizan Khan**, Founder & CEO, Tensor Dynamics Private Limited

Q&A
Key Takeaways by Moderator

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EVENT DAY 3: 02 MARCH 2023 (THURSDAY)
THEME-C: SESSION-1
250 MILLION SMART METER ROLLOUT – PROGRESS AND CHALLENGES

In collaboration with



Venue & Time	
Venue	Crystal-2
Time	India 14:00 ~ 18:00
Session Background <p>With formal launch of RDSS program in 2021, India has embarked on an ambitious journey to install smart meters for 250 million+ electricity customers nation-wide in next 4-5 years. RFPs for appointment of Advanced Metering Infrastructure Services Providers (AMISP) for about 150 million meters have already been issued and are under various stages of finalization; and RFPs for the rest 100 million are expected in the following months. The manufacturing and installation of 250 million smart meters and its integration with utility's billing system and other IT applications is a herculean task. The smart metering program under RDSS is being executed through a services model by paying monthly fee per meter for ten years to the AMISP, a business model that was originally proposed by ISGF in a 2017 white paper. REC and PFC are two nodal agencies for managing the RDSS program with state utilities. REC has empanelled 30+ AMISPs, the majority of them are infrastructure companies with no prior experience in smart metering. AMISPs who will invest and setup the smart metering system and maintain it for ten years also require reliable partners/OEMs who will support them for ten years. Payment security mechanisms and sanctity of contracts is another cause of concern with many state utilities. This session will bring together key stakeholders to brainstorm the issues challenging them.</p> Discussion Points <ol style="list-style-type: none"> 1. AMI Rollout – Challenges with ongoing RFPs and Procurement Process 2. Communication Technology Issues 3. New Technologies and Approaches for Large AMI Rollouts 4. Smart Meter Operations Centre (SMOC) 5. Smart Meter Data Analytics and Advanced Applications 6. Cyber Security for the AMI System 	
14:00 ~ 16:30	Session 1: AMI Rollout under RDSS Program
Chair	Ravinder Singh Dhillon, CMD, PFC Ltd
Moderator	Rene Boeringer, CEO, Cuculus
Speakers	<ol style="list-style-type: none"> 1. Naresh Sardana, Member, Haryana Electricity Regulatory Commission* 2. Sanjeev Hans, Principal Secretary-Power, Govt. of Bihar* 3. Anil Rawal, Managing Director and Chief Executive Officer, IntelliSmart Infrastructure 4. Nabli Sahri, VP and Business Development Director, Sagercom; and Board Member, G3-Alliance 5. Yogesh Kumar, Director- Commercial, MVVNL 6. Phil Beecher, President and CEO, Wi-SUN Alliance 7. Abhijit Grewal, Marketing Director, Silicon Lab 8. Avner Matmor, Founder, President and CEO, Yitran 9. Sunil Singhvi, Chief Executive Officer - Energy SBU, Secure Meters Ltd 10. Vivek Chandra, General Manager & Head-IT, MPPKVCL*
16:30 ~ 18:00	Session 2: AMI-Advanced Applications
Chair	Saurav Shah, Executive Director, PFC Ltd*
Moderator	Deepthi V Dutt, Head - Strategic Initiatives - Public Sector, AWS
Speakers	<ol style="list-style-type: none"> 1. Rakesh Kumar, Managing Director, Assam Power Distribution Company Limited 2. Manoj Khare, Managing Director, Chhattisgarh State Power Distribution Company Ltd* 3. Vineeta Agarwal, Sr. General Manager, Power Grid Corporation of India Ltd 4. Cedric Lavenau, Research Engineer at EDF and Chair of G3-Alliance Technical Working Group 5. Vijay Panpalia, AVP- Product Engineering, SEW 6. Ajay Kumar Sharma, Senior Vice President, BSES Rajdhani Power Limited 7. Yogesh Valunjkar, CEO, KGreens 8. Paresh Patel, CEO and President, System Level Solutions 9. Subrata Das, Head of Oracle Energy and Water, India 10. Ramana Rao Elchuri, VP, Sales & Business Development, Cyanconnode 11. SH Parekh, Chief Engineer (Projects), MGVL* 12. SKP Singh, Director-Project, North Bihar Power Distribution Company Ltd* 13. Ashish Sahay, Country Manager and Sales Director, Wirepas
Key Takeaways by Moderator	
Session Coordinator: Bala K +91 8121276498 bala.k@indiasmartgrid.org	

EVENT DAY 3: 02 MARCH 2023 (THURSDAY)
THEME-B: SESSION-1
VISION FOR A NET ZERO TRANSPORT SECTOR IN INDIA
Venue & Time

Venue	Crystal-2
Time	India 10:00 ~ 11:30

Session Background

India has been an early mover in the electrification of public transportation. Way back in 2013, Government of India launched the Electric Mobility Mission Plan with the ambitious target of 5-7 million electric vehicles (EV) by 2020. The FAME I scheme launched in 2016-17 allotted electric buses, cars and 3-wheelers to 11 cities. Though FAME II commenced with a large capital outlay and targets for 5500+ electric buses and 2500+ public charging stations, the program took twists and turns owing to the pandemic and is now focused on rollout of 50,000 electric buses. The baby steps in electric mobility that India has taken in the past ten years has created significant capacity in the country in all areas of electric mobility – domestic manufacturing of electric 2-Wheelers, 3-Wheelers, Cars, Buses and Charging Equipment; installation and operation of charging stations; development of Indian Standards and testing schema for charging equipment; battery pack assembly etc. An entire ecosystem around electric mobility is ready for faster growth.

Leveraging the good work already done in the sector by various stakeholders, it is time for setting higher goals towards decarbonization of the transport sector. Need to advocate for policies and regulations to ban production, sale of ICE based vehicles in a phased manner; ban on registration of ICE vehicles in metro cities, state capitals and tourist cities; creation of EV only pockets/zones/roads; programs for all new taxis and 3-Wheelers in major cities to be electric and phasing out the existing taxis and 3-Wheelers in a time-bound manner; innovative design of new developments in cities to promote walk-to-work culture; promotion of electric highways; sustainable business models for EV charging services; promotion of charging of EVs with green electricity; promotion of green hydrogen in long-haul truck traffic etc

Discussion Points

1. Vision and Roadmap for a Net Zero Transport Sector in India
2. Redesign of Cities to Optimize Daily Commute of People
3. Policy and Regulatory Interventions to Scaleup Electric Mobility – 100% EVs by 2047?
4. Phasing out of Production and Sale of ICE Vehicles in a Phased Manner
5. EV Only Zones in Cities
6. Sustainable Business Models for EV Charging Services
7. Charging of EVs with Green Electricity
8. Emission Offset Mandates for Fleet Operators

Chair	Alka Upadhyaya , Secretary, Ministry of Road Transport*
Moderator	Girish Ghatikar , Energy Leader, Digital Innovation and Emerging Technologies, General Motors (GM) and WG Chair, ISGF
Speakers	<ol style="list-style-type: none"> 1. Kunal Kumar, Joint Secretary, MoHUA* 2. Abhay Bakre, DG, Bureau of Energy Efficiency* 3. Colin McKerracher, Senior Analyst, Smart Technologies, Bloomberg New Energy Finance* 4. Suresh Jain, Professor, IIT-Tirupati and IIT-Delhi 5. Vivek Sen, Associate Director, Climate Policy Initiative 6. Jayant Kumar, Global Vice President, L&T PT&D Digital Solutions 7. Laurent Schmitt, Head-Utility and European Developments, dcbel -On Video 8. Anand Singh, Assistant General Manager, ISGF
	Q&A

Key Takeaways by Moderator

Session Coordinator: Nitin Sharma | +91 9034160319 | Nitin@indiasmartgrid.org

EVENT DAY 3: 02 MARCH 2023 (THURSDAY)
THEME-B: SESSION-2
50K ELECTRIC BUS PROGRAM
Venue & Time

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

Session Background

In order to meet the emission reduction targets set by the Government of India, electrification of transport sector is a key priority area for which several initiatives have been launched, particularly in the public transportation domain. About 400 electric buses were allotted to different cities under FAME I program during 2018-2019 which was a good starting point for transport corporations to build basic capacity for operation and maintenance of electric buses. Under the revamped FAME II program, Government of India plan to rollout 50,000 electric buses on fast track and appointed Convergence Energy Services Limited (CESL) to be the nodal agency for demand aggregation and procurement of electric buses. The buses will be operational for nearly 5718 million kilometers over a period of twelve years, in the process, helping save 1842 million liters of fossil fuel; and reduction of 4.62 million tonnes of CO₂e from tailpipe emissions. CESL has already finalized contracts for 5450 electric buses for five cities – Bengaluru, Delhi, Hyderabad, Kolkata and Surat. The process of procurement, financing, creation of appropriate charging infrastructure, deployment of buses and its operation and maintenance poses huge challenges and financial risks. This session will discuss the progress and key challenges in rollout of 50,000 electric buses in next five years.

Discussion Points

1. 50K Electric Bus Program – Progress and Challenges
2. Domestic Manufacturing Capacity and Functional Adequacy of Electric Buses
3. Charging Infrastructure in Bus Depots
4. Electric Bus OEMs v/s Bus Operators

Chair Ashish Kundra, Principal Secretary, Transport, Government of NCT

Moderator Kulwant Singh, Advisor, Bus World Foundation

Theme Presentation T Surya Kiran, Executive Director, ASRTU

Speakers

1. Biju Prabhakar, Principal Secretary, Transport, Kerala*
2. Rajanveer Singh Kapoor, MD, WBTC*
3. Prasanna Patwardhan, President, BOCI
4. Nishant Arya, Vice Chairman, JBM
5. Nagasatyam, Director, PMI Electro Mobility Solutions Pvt Ltd
6. JJ Gandhi, Chief Engineer (Tech), PGVCL*
7. Virendra Goyal, Chief -BD, EV Charging, Tata Power Company Ltd
8. Akash Passey, President, Bus Division & E-Mobility, VE Commercial Vehicles*
9. Roshan Toshniwal, Association Director, and Head of Centre for Future Mobility, OMI Foundation
10. Prashant Kolekar, Electrical Engineer, PMPML Pune
11. K Siva Prasada Reddy, Director-Project, Southern Power Distribution Company of Andhra Pradesh Limited*

Q&A

Key Takeaways by Moderator

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

EVENT DAY 3: 02 MARCH 2023 (THURSDAY)
THEME-E: SESSION-3
AI, ML, ROBOTICS AND GENERATIVE AI TOOLS FOR UTILITIES
Venue & Time

Venue	Crystal-1
Time	India 14:00 ~ 15:30

Session Background

Emerging and disruptive technologies like Artificial Intelligence (AI), Machine Learning, Robotics and Generative AI Tools will radically revolutionize the utility (electricity, water and gas) operations and smart city management in the coming days. Drones and robots could play crucial roles in various infrastructure and services in city management including utility operations. These new technologies and tools could make the operations more efficient, faster, reliable, safe and economical.

The new cutting-edge technologies are being leveraged to optimize operations, improve customer experiences, and increase efficiency and sustainability. The integration of AI, ML, and Robotics into the utility sector offers significant benefits, such as the ability to automate routine tasks, streamline operations, and reduce costs. The use of Generative AI tools in particular, offers the potential to generate new ideas, products, and solutions that would not have been possible otherwise.

However, the implementation of these technologies also raises important ethical, legal, and regulatory considerations. The use of AI and robotics, for example, raises questions about job displacement, privacy, and accountability. This session aims to explore the opportunities and challenges of AI, ML, Robotics, and the fast-emerging Generative AI Tools in the utility industry. The discussion will focus on the potential benefits of these technologies, as well as the ethical, legal, and regulatory considerations that need to be addressed.

Discussion Points:

1. Potential of AI, ML, Robotics, and Generative AI Tools in the Utility Industry
2. Automating Operations with AI, ML, and Robotics
3. Improving Customer Experiences with AI and ML
4. Increasing Efficiency and Sustainability with AI, ML, and Robotics
5. Ethical, Legal, and Regulatory Considerations for Implementing AI and Robotics in the Utility Sector
6. The Future of the Utility Industry with AI, ML, Robotics and Generative AI

Chair	Piyush Singh , Joint Secretary, Distribution, Ministry of Power *
Moderator	ISGF
Theme Presentation	Amit Kumar Pandey , Chief Robotics & AI Officer, RoviAl, France – on Video
Speakers	<ol style="list-style-type: none"> 1. Luciano Martini, Chair-Executive Committee, ISGAN 2. AK Ambasht, Member, Delhi Electricity Regulatory Commission* 3. Sanjay Prasad, Chief Information Officer, CESC Limited 4. Pritam Muppuri, Business Development Manager, Public Sector, Amazon Internet Services Pvt Ltd 5. HP Kothari, Director-Technical, GUVNL* 6. Sumit Gupta, CEO, AssetPlus 7. Pranav Raikote, AI Researcher, Plexflo 8. Sandeep Kumar, Director-Technical, Himachal Pradesh State Electricity Board* 9. Kshitij Bathla, Scientist-C, LITD, Bureau of Indian Standards* 10. Thomas Lacroix, CTO, Cosmo Tech* 11. Nitin Tanwar, Founder and CEO, Climate Connect Digital 12. Akash Sondhi, I-Hub Foundation for COBOTICS, IIT-Delhi

Key Takeaways by Moderator

Session Coordinator: Anand Singh | +91 99252 18036 | anand@indiasmartgrid.org

EVENT DAY 3: 02 MARCH 2023 (THURSDAY)

THEME-E: SESSION-4

BLOCKCHAIN, WEB 3.0, METAVERSE FOR UTILITIES

Venue & Time

Venue	Crystal-1
Time	India 16:00 ~ 17:30

Session Background

Blockchain technology has the potential to revolutionize the power industry and unleash an energy revolution both in India and around the world. The distributed ledger technology can provide cybersecurity, process optimization, and hyperconnected services while enhancing trust and accountability.

Web 3.0, with its focus on decentralized protocols such as blockchain, offers a new paradigm for the utility industry. The metaverse, a network of 3D technologies, is also gaining traction as a means to enhance customer experience and explore new business models.

In order to fully realize the potential of blockchain in the power industry, it is necessary to address the challenges posed by the technology, including regulatory and governance considerations. A regulatory sandbox mechanism may be necessary for level playing fields for all stakeholders and ensure the development and implementation of new applications within a secure framework.

This session aims to explore the opportunities and challenges of Blockchain, Web 3.0, and Metaverse in the power industry, with a focus on their applications in India and around the globe. The discussion will also delve into the potential for an energy revolution and the role of regulatory interventions in promoting the adoption of these technologies in the utility sector.

Discussion Points

1. The Potential of Blockchain in the Power Industry
2. Regulatory Considerations for Adopting Blockchain in the Energy Sector
3. The Role of Web3.0 and Metaverse in the Energy Revolution
4. Implementing Blockchain Pilot Projects in the Power Industry
5. Enhancing Customer Engagement with Blockchain and 3D Technologies
6. The Future of the Power Industry with Blockchain, Web3.0, and Metaverse

16:00 ~ 16:10 **Chair: MAKP Singh**, Member, CEA

16:10 ~ 17:20 **Moderator: Reena Suri**, Executive Director, ISGF

Speakers:

1. **Santosh K Mishra**, Partner, PWC
2. **Jemma Green**, Founder and CEO, Powerledger
3. **Ana Trbovich**, Co-founder, Grid Singularity and Energy Web Foundation
4. **Sombuddha Chaudhary**, Head-D&IT, Tata Power Delhi Distribution Ltd
5. **Harsh Sethi**, Building @YeppAR*
6. **Hemalatha Bhaskar**, Blockchain Business Development Lead - Public Sector India AWS
7. **Krishnan Sunderajan**, Founder and CTO, TRY LOKA
8. **Arti Garg**, HoD-IT Applications Delivery, Tata Power Delhi Distribution Ltd
9. **Tanay Pratap**, Founder and CEO, Invact Metaversity*
10. **Rrahul Sethi**, Founder & Metaverse Coach, Metaverse911

Q&A

17:20 ~ 17:30: **Key Takeaways by Moderator**

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

DISTRICT COOLING SYSTEM (DCS)

In Collaboration with BEE, GIZ and APUEA

02 MARCH 2023 (Thursday) | 11:30 ~ 13:30 IST | Venue – Crystal 1

Session Background

The summer temperature has been on the rise constantly all across India during the past 3 decades. Soon the maximum summer temperature will exceed 50°C in Northern India making it extremely difficult for people without access to cooling. There is an urgent need for an innovative solution that would help to avoid the summer heat from taking its toll on people. District Cooling System (DCS) is an alternative route to address the space cooling challenge effectively. DCS has the ability to use alternative and renewable energy sources, resulting in more than 50% reduction in power consumption. District energy systems are being successfully implemented in many parts of the world and has evolved as a matured technology. In the Indian context, the district cooling system (DCS) presents an opportunity to address the space cooling challenge effectively; and provide cooling as a service against monthly fee much like electricity, water and gas.

Bureau of Energy Efficiency (BEE) in India has constituted a Technical Committee comprising of stakeholders from different domains in 2021; and this Technical Committee has developed District Cooling Guidelines to serve as an information handbook for different categories of stakeholders involved in DCS project. Besides, 10 projects have been identified to study feasibility of DCS implementation. These projects are in various stages of progress.

DCS could help the electricity grid in multiple ways. The electricity load on the grid from a DCS would be 35-40% lesser compared to each building having its own air-conditioning systems. DCS are built with insulated storage tanks that can store chilled water at 4 degrees Celsius. This thermal storage can offer additional peak load reduction to the electric grid; and load management during hours of surplus generation on the grid. This could enhance the flexibility of the electric grid and help integration of distributed renewable energy resources.

There is an accelerated focus on District Energy Systems across the globe to enable energy transition as it serves as an integrated energy system for cities and communities. This session through triple sector participation i.e. Government, Businesses and Civil Society Organizations is aimed to promote knowledge exchange and fast track adoption of DCS in India.

Discussion Points

- Regional Outlook on DCS in the Asia Pacific region
- APAC National Climate Targets and Cooling Plans / District Cooling as a Solution to Increase Energy Efficiency and Reduce GHG-impact from HFCs
- Learnings from other Countries / District Energy from a European Perspective
- Draft District Cooling Guidelines by BEE, India
- Challenges and Way Forward for DCS Rollout in India
- Adoption of Cooling as a Service in India
- Policy Interventions Needed and Business Models for DCS in India
- DCS as a Thermal Storage for Enhancing the Flexibility of the Electric Grid
- Waste to Cooling

11:30 ~ 12:00

Inaugural Session

Welcome Address: Reji Kumar Pillai, President, ISGF

Special Address: Anneli Stutz, Project Officer - District Cooling, GIZ

Inaugural Address: Abhay Bakre, DG, BEE*

12:00 ~ 12:45

Session 1: Regional Outlook of DCS and Knowledge Exchange for APAC National Climate Targets and Cooling Plans for inclusion of District Energy Systems and Emerging Technologies

Chair and Moderator: Arijit Sengupta, Director, BEE

Speakers:

1. **Elloi Piel**, Director - Market Intelligence, Euroheat & Power - On Video
2. **Soumya Garnaik**, Regional Lead, Energy Efficiency-Asia, Global Green Growth Institute
3. **Vikram Murthy**, National Chair-Environment Protection and Safety, ISHRAE
4. **Olivier Racle**, Head of District Heating & Cooling, Engie*
5. **Aseem Goyal**, Sr. Manager – Business Development, India, Tabreed
6. **Rahul Agnihotri**, Advisor, Clean Cooling Solutions and Building Energy Efficiency, UN Environment Programme - On Video

Q&A

12:45 ~ 13:30

Session 2: Policy Interventions and Financing needs to Scaleup DCS in India and Way Forward

Chair: Vishal Kapoor, CEO, EESL*

Moderator: Mikael Jakobsson, President, APUEA

Speakers:

1. **Dhwani Sanjay Shah**, Associate Investment Officer, IFC
2. **Rahul Kapoor**, Director (Smart Cities-I), MOHUA*

	<ol style="list-style-type: none"> 3. Bhaskar Natarajan, Director Programme, AEEE 4. Peter Lundberg, Executive Director, APUEA 5. Tarun Katiyar, CEO, Tata Power Trading Company Ltd 6. Aarti Nain, NIUA Advisor, UNEP India Urban Cooling Program, UNEP 7. Bhupinder Godara, Professor, Practice, Mechanical Engineering, IIT Delhi* <p>Q&A</p>
	Key Takeaways and Next Steps by Moderators

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

EVENT DAY 3: 02 MARCH 2023 (THURSDAY)
12TH EU - INDIA SMART GRID WORKSHOP

In collaboration with European Union



SMART SOLUTIONS FOR RENEWABLES INTEGRATION

Session 1- BRIDGE Projects

Session 2 - Curtain Raiser Smart Grid Observatory

Venue & Time

Venue	Regency 1&2
Time	India 10:30 ~ 13:30

Session Background

ISGF and DG ENERGY office of the European Union launched EU-India Smart Grid Workshop series in 2015 and have held 11 workshops till 2022. Since 2018 a Regulatory Track was added in this workshop series in collaboration with Florence School of Regulation (FSR). The EU-India High-Level Platform on Smart Grids, chaired by Florence School of Regulation-FSR Global with the support of ISGF and Comillas University was established in 2020 under the EU-India Clean Energy and Climate Partnership (CECP) to support faster replication and roll out of smart grids in India. The platform through its first year of activity aimed at identifying smart grid projects to be considered as use cases from Europe and India to facilitate knowledge sharing between experts drawn from industry, academia, utilities and policymakers.

Europe has implemented several successful projects at scale for grid integration of renewable energy sources (RES) in different EU member states in the recent past; and many of these projects are relevant in the Indian context. India has about 150 GW of RES in its generation capacity mix which is expected to be 500 GW by 2030. IEA estimates Indian power system to have up to $\pm 85\%$ flexibility by 2040 which is a tall task to meet. Several of the projects executed under the BRIDGE program of the EU have successfully demonstrated and deployed flexibility solutions such as energy storage systems (ESS), virtual power plants (VPP), smart microgrids, grid integration of electric vehicles and other behind the meter resources at grid scale which are very relevant for the Indian power sector.

EU – INDIA Smart Grid Projects

This edition of the EU-India workshop will present and discuss the some of the select successful smart grid projects executed in Europe under the BRIDGE program as well as the offshore wind energy projects. European Union (EU) and India have been working on a common agenda of clean energy and energy security. The partnership between the two regions has matured from workshops to collaborative smart grid projects in India. This started with first project – “Electricx” awarded to Tata Power Delhi Distribution Limited (one of the distribution utilities in Delhi capital region) and Enedis, France in the year 2019. The project aimed at assessing the role of local distributed energy resources in increasing the consumption of renewable energy and improving the resilience of the energy system. The project was commissioned in March 2022. Further, a call for collaborative projects jointly funded by EU and India was issued in the year 2020 under Horizon 2020 program and subsequently two projects were awarded in 2021: E-Land Projects with BSES Yamuna Limited (one of the distribution utilities in Delhi capital region), in partnership with Smart Innovation Norway; and with Enedis. The Energy Community and Social Innovations being encouraged for new stakeholders to invest in the energy sector. This encompasses electricity generation, consumption, and various electricity sharing mechanisms. End-users, municipalities, and SMEs can participate actively in the development of renewable energy projects as well as the deployment of new energy services, flexibility services, or energy sharing schemes that are socially innovative. An Energy Community's fundamental feature is that it brings together players participating in a localized energy project or actors with a shared field of interest who are engaged on a wider scope.

Why a ‘Smart Grid Observatory’ for India?

The EU-India High-Level Platform on Smart Grids, with inputs from 30 key senior experts from the Indian and the European power sector identified and analysed select smart grid use cases both in the European and Indian context by conducting cost-benefit analysis and scalability and replicability analysis. The outcome yielded in a handbook on replication and implementing smart grid solutions in India. As a follow up, the high-level platform intend to initiate the development of a ‘Smart Grid Observatory’ for India.

As new technologies and solutions are being implemented in the energy sector, it is important for us to learn from the experiences, and check how they can be implemented effectively across India. In order to do that, we must first collate data, analyse it using robust methodologies and then share that knowledge with relevant stakeholders for quicker uptake of smart grid solutions. The observatory needs to be setup as an independent platform, in collaboration with multiple stakeholders and the function of such an observatory would include data analytics, research frameworks and analysis and institutional engagements.

Discussion Points

1. Launching the Smart Grid Observatory
2. Innovative smart grid projects and experience sharing
3. How to establish fruitful collaboration projects between India and the EU

<p>4. Policy and Regulatory Challenges for Flexibility Solutions 5. Addressing the Next Steps in the Green Energy Transition of India 6. Introduction to Select Projects under BRIDGE Program Relevant in the Indian Context 7. Innovation and Business Models and in Flexibility Solutions 8. Regulatory Challenges for Flexibility Solutions</p>	
<p>10:30 ~ 11:00</p>	<p>Inaugural Session Welcome Address: Reji Pillai, President, ISGF Inaugural Address: TBC</p>
<p>11:00 ~ 11:30</p>	<p>Session 1: Curtain Raiser of Smart Grid Observatory</p> <p>Welcome Address: Jean-Michel Glachant, Principal Advisor FSR Global Florence School of Regulation Opening Remarks: Matthieu Craye, International Relations Officer, DG ENER, European Commission Presenting the Smart Grid Observatory for India: Swetha Ravi Kumar, Head of FSR Global, Florence School of Regulation Open discussion with the audience The Way Forward: Matthieu Craye, International Relations Officer, DG ENER, European Commission</p>
<p>11:30 ~ 12:15</p>	<p>Session-2: EU – India Smart Grid Demonstration Projects</p> <p>Chair and Moderator: Thomas N. Mikkelsen, BRIDGE - Head of Joint Communication Task Force</p> <p>Topics: 1. ELAND and iElectrix Projects - What did we learn and how to continue the collaboration</p> <p>Speakers: ELAND Project: Beatrice Petrovich, University of St.Gallen ELAND Project: Sunil Sharma, BSES Yamuna Power Ltd iElectrix Project: Pierre-Jacques le Quellec, Enedis iElectrix Project: Ganesh Das, Chief - Collaboration & Innovation, Tata Power Company Ltd</p> <p>2. The Role of Local Energy Systems SUSTENANCE Project: Zakir Hussain Rather, IIT-Bombay</p> <p>3. Combining Energy Vectors Re-Empowered Project: Nikos Hatzigiorgi The Road to a Green Energy Transformation in India: Ramit Debnath, Cambridge University</p>
<p>12:15 ~ 13:20</p>	<p>Session-3: Flexibility Through Smart Grids</p> <p>Chair: Suman Sharma, MD, Solar Energy Corporation of India Limited* Moderator: Swetha Ravi Kumar, Head of FSR Global, Florence School of Regulation</p> <p>Panel on Potential Avenues for India</p> <ol style="list-style-type: none"> 1. State of Play in the EU: Patrick Clerens, European Association for Storage of Energy (EASE) 2. State of Play in India: <ol style="list-style-type: none"> a. Ravi Kadam, CERC b. Hemant Jain, Chief Engineer-Renewable Project Monitoring, CEA* 3. Challenges in Integration and Uptake: Ganesh Das, Chief - Collaboration & Innovation, Tata Power 4. ACSIS Project – Learnings So Far: Ishant Purohit, IFC 5. StREin Project – Focus and Pipeline: GIZ (tbc)
<p>13:20 ~ 13:30</p>	<p>Key Takeaways and Next Steps Edwin Koekkoek, First Counsellor Energy and Climate Delegation of EU to India</p>

Session Coordinator: Anand Singh | +91 99252 18036 | anand@indiasmartgrid.org

2ND GERMANY - INDIA SMART GRID WORKSHOP
02 MARCH 2023 (Thursday) | 14:30 ~ 17:30 (IST) | Venue: Regency-1&2

Lead by



Session Background

Germany has been a pioneer in the energy transition where several ground-breaking initiatives were launched. One of these initiatives was under the umbrella of Indo – German Energy Programme being implemented in India, titled **"Energy transition with Indian DISCOMs"**. It is being implemented by GIZ on behalf of the Federal Ministry of Economic Cooperation and Development (BMZ) in Germany. The programme supports Ministry of Power in India in building up a broad-based, technically and economically efficient, socially and ecologically sustainable energy supply by supporting the DISCOMs. One central element is improving the technical and organisational skills of selected DISCOMs in data analysis and data processing, and in the operation and maintenance of distribution networks. The aim is to upscale successful measures to national level. The learning experiences gained are to be incorporated into the nationally applicable regulations and will flow into a roadmap for developing national capacity.

Discussion Points

- Enabling Digitalization of Indian DISCOMs
- Integrating IT and OT Systems to Derive Business Benefits
- Understanding Interoperability
- Facilitating AMI Interoperability in India

AGENDA

14:30 ~ 14:40	Welcome Address: Sunil Kumar Sharma, Project Manager, GIZ
14:40 ~ 15:00	Keynote Speech: Rahul Dwivedi, CEO-RECPDCL and ED-REC Ltd*
15:00 ~ 15:20	Facilitating AMI interoperability in India: Anurag Johri, Managing Director, Lead-Utilities, Accenture
15:20 ~ 15:50	Power of Advanced Analytics Solutions in AMI systems: Gautam Kumar, CTO, Intellismart
15:50 ~ 16:00	Break
16:00 ~ 16:15	Roadmap for Digitalization and IT-OT Integration for Indian DISCOMs: Anurag Johri, Managing Director, Lead-Utilities, Accenture
16:15 ~ 16:30	Emerging Use Cases for IT-OT Enablement in Smart Grid Infrastructure: Jasbir Kumar, Nodal Officer, UHBVN
16:30 ~ 17:30	Panel Discussion Moderator: Winfried Damm, Head of Indo-German Energy Programme, GIZ Panelists: <ol style="list-style-type: none"> 1. Vivek Goel, Chief Engineer- Distribution Planning and Technology Division, CEA 2. Sharanbir Bal, Associate Vice President, Accenture 3. AK Jagetiya, Director-Technical, Ajmer Vidyut Vitran Nigam Ltd* 4. Gautam Kumar, CTO, Intellismart 5. Ganesh Das, Chief - Collaboration & Innovation, Tata Power Company Ltd 6. Jasbir Kumar, Nodal Officer, UHBVN 7. BM Sharma, Director Technical, DHBVN* 8. DS Khatri, General Manager-HR, UPPCL* 9. RS Rathore, Sr Vice President, Business Development AMI, Genus Power infrastructure Ltd Q&A

Session Coordinator: Nitin Sharma | +91 9034160319 | Nitin@indiasmartgrid.org

THEME-E: SESSION-5
ENERGY POSITIVE BUILDINGS AND CAMPUSES
02 MARCH 2023 (Thursday) | 10:30 ~ 12:00 | Regency-3

IN COLLABORATION WITH GBCI



SESSION BACKGROUND

Globally, about 40% of the energy consumed is inside buildings; and the cooling, heating, water pumping and the lighting systems and a host of appliances used inside the buildings have not been energy efficient. The average energy consumption in existing buildings is well above 200 kWh/SqM/Year. Today's technology can bring down this as low as 50 kWh/SqM/Year at marginally higher cost of construction. However, most architects and builders still design the buildings glossy and attractive rather than energy efficient. This need to be addressed through strict regulations and building codes.

Buildings with rooftop solar PV (RTPV) can generate electricity in the premises; with battery energy storage systems (BESS), the buildings can store electricity generated in the premises or bought from the grid during off-peak hours at lower cost; and electric vehicles (EV) with vehicle to grid (V2G) or vehicle to building (V2B) functionalities can store electricity during surplus generation hours and pump back the energy to the building or to the grid during peak hours. The new buildings can be designed and built as a smart microgrids that have the capability to island from the main grid during peak hours and run the essential functions inside the buildings from the energy generated or stored inside the buildings - grid interactive and energy positive buildings.

District Cooling Systems (DCS) with thermal energy storage systems can significantly reduce energy consumption for cooling as well as provide the functionality to island from the grids during peak hours and still cool the buildings with chilled water stored in the thermal storage tanks. Similarly, with declining cost of BESS, the standby power arrangements in buildings can be BESS rather than the traditional DG sets. The BESS in the buildings connected to the electricity distribution grid could help integrate the DERs as well. The decarbonization of buildings is critical in achieving every country's NDC targets. This session aims to look at examples of grid interactive, energy positive buildings and analyze how this is supported through policies and availability of technologies at affordable cost.

Discussion Points:

- State of Play of Energy Positive Buildings – Global and Indian Scenarios
- Technologies Supporting Energy Positive Buildings – Solar PV, BESS, EVs with V2B/V2G, DCS, Smart Appliances etc
- Building Codes Mandating Energy Consumption Limits
- Sustainable Business Models for Retrofitting Existing Buildings as Energy Positive Buildings
- Mandatory Carbon Offset Targets for Different Categories of Buildings

AGENDA

10.30 ~ 10.45	Welcome & Theme setting by ISGF & GBCI
11:45 ~ 11.45	Panel Discussion and Presentations
Chair	Kunal Kumar , Joint Secretary, MoHUA*
Moderator	Mili Majumdar , Managing Director, GBCI
Speakers	<ol style="list-style-type: none"> 1. Tanmay Tathagat, Director, EDS Global, (Executing Net-Zero / Grid Interactive Buildings & Campuses) 2. Rashi Gupta, Founder and CEO, Vision Mechatronics Pvt Ltd 3. Jayant Kumar, Global Vice President, L&T PT&D Digital Solutions 4. Aun Abdullah, Head ESG, Lodha Group 5. Venkat Garimella, Vice President, Schnieder Electric-India* 6. Vikram Murthy, National Chair-Environment Protection and Safety, ISHRAE 7. Mike Barker, Microgrid Expert* (On Video) 8. Amit Jain, Head-ESCO, Tata Power Trading Company Ltd 9. OD Naidu, Senior Principal Engineer - R&D, Hitachi Energy
Key Takeaways by Moderator	Q&A

Session Coordinator: Ankita Adhikari | 8745016525

EVENT DAY 4: 03 MARCH 2023 (FRIDAY)
UNMANNED AIRCRAFT SYSTEMS (UAS) AND DRONES
(DELIVERY AND PASSENGER DRONES)

Venue & Time

Venue	Regency- 3
Time	India 12:00 ~ 14:00

Session Background

Unmanned Aircraft Systems (UAS), also known as drones, have become a rapidly growing industry in recent years, with their use expanding across various industries such as delivery, agriculture, and surveying. The COVID-19 pandemic has accelerated the trend contactless delivery options. One of the key challenges for the drone industry is their integration into the national airspace system. Governments around the world are working to establish regulations and standards that balance the benefits of drones with the need for public safety and privacy. This includes issues such as flight paths, altitude restrictions, and data privacy. Delivery services using drones are becoming increasingly popular, with companies such as Amazon and UPS exploring the feasibility of drone delivery. This has the potential to revolutionize the delivery industry, reducing delivery time and costs. In addition to delivery services, there is growing interest in the use of passenger drones for urban air mobility which has the potential to transform the way people travel in cities, providing a faster and more efficient mode of transportation. However, there are also concerns about the safety, regulation, and infrastructure needed for passenger drones to become a reality. Use of Unmanned Aircraft Systems and Drones continues to evolve and expand, bringing with it both opportunities and challenges.

As the drone technologies continue to evolve and mature, the demand for reliable and efficient battery charging and navigation systems is becoming increasingly important. In this event, we will explore the latest developments in UAS and Drone battery charging and navigation systems through two interactive sessions:

Session 1: Battery Charging Systems for UAS

This session will focus on the latest advancements in UAS and Drone battery charging systems. We will examine the latest technologies and trends in battery charging, including wireless charging, fast charging, and smart charging systems. We will also discuss the challenges of battery charging for UAS and Drones, including battery life, capacity, and safety concerns.

Session 2: Navigation Systems

In this session, we will focus on the latest developments in UAS and Drone navigation systems; and examine the latest technologies and trends in navigation, including GPS, visual navigation, and obstacle avoidance systems. The session will also discuss the challenges of navigation for UAS and Drones, including regulatory compliance and safety concerns.

Overall, this event will provide an opportunity for attendees to learn about the latest advancements in UAS and Drone battery charging and navigation systems and connect with leading experts in the field. Attendees will gain a deeper understanding of the challenges and opportunities in this rapidly evolving field and learn about the latest tools and techniques for designing and implementing advanced UAS and Drone systems.

Discussion Points

- State of Play of Delivery Drones – Global and Indian Perspectives
- State of Play of Passenger Drones - Global and Indian Perspectives
- Latest advancements in UAS and Drone battery charging systems, including wireless charging, fast charging, and smart charging systems
- Battery life, capacity, and safety concerns and how these affect the design of UAS and Drone battery charging systems
- The importance of efficient and reliable battery charging systems in maximizing the flight time and range of UAS and Drones
- The impact of battery charging systems on the overall cost and performance of UAS and Drone systems
- The role of regulations and safety standards in the design and deployment of UAS and Drone battery charging systems
- Latest developments in UAS and Drone navigation systems, including GPS, visual navigation, and obstacle avoidance systems
- The challenges of navigating UAS and Drones in complex and changing environments, including urban areas and adverse weather conditions
- Regulatory compliance and safety concerns related to UAS and Drone navigation systems, including the need for reliable and accurate navigation in challenging environments
- The role of artificial intelligence and machine learning in improving the accuracy and reliability of UAS and Drone navigation systems
- The impact of navigation systems on the overall cost and performance of UAS and Drone systems.

12:00 ~ 13:00

Session 1: State of Play of Drones – Global and India

Chair: Sanjeev Kumar, Chairman, Airports Authority of India (AAI)*

Speakers:

1. **Amber Dubey**, Former Joint Secretary, Civil Aviation*

	<ol style="list-style-type: none"> 2. Pattada Kallappa, Director, Boeing India Engineering and Technology Centre* 3. Smit Shah, President, Drone Federation of India 4. AP Gangadharan, ED-Asset Management, Power Grid Corporation of India Ltd <p>Q&A</p>
13:00 ~ 13:50	<p>Session 2: Navigation Systems and Battery Charging for Drones</p> <p>Chair: Satya Chakravarty, CTO, ePlane Company and Professor, IIT-Chennai*</p> <p>Speakers</p> <ol style="list-style-type: none"> 1. Amit Ganjoo, Founder and CEO, ANRA Technologies* 2. Rajkumar Sharma, President, All India Centre for Robotics and Automation* 3. Yogesh R Iyer, Founder and CEO, VINATA Aeromobility 4. Ajit V Matte, Lead System Engineer, Air Traffic Management, Boeing India* 5. OD Naidu, Senior Principal Engineer - R&D, Hitachi Energy <p>Q&A</p>
13:50 ~ 14:00	<p>Key Takeaways and Next Steps by Session Chairs</p>

Session Coordinator: Shashi Balaji | +917376788918 | shashi@indiasmartgrid.org

EVENT DAY 4: 02 MARCH 2023 (THURSDAY)
Cross-Border Electricity Trade in the South Asian Region
In collaboration with the EU
14:00 ~ 17:30 IST | Venue: Regency -3



Session Background

Currently, RE technologies and services are transforming the electricity sector, creating a need for interconnected transmission lines between countries enabling flexible trade flows. Cross-border trade through interconnected transmission lines between countries has the potential to harness distant RE resources. As a result, the various challenges associated with RESs, such as their intermittent nature and variability in load and generation, etc., can be overcome. Other spill-over benefits of inter-connected cross-border trade include cost-efficient renewables expansion, promoting peace between trading countries and regional economic growth through local industry and job creation. Cross Border Trade in electricity is a vital component of the common internal electricity market in the EU. Regional cooperation on cross-border trade in electricity in the south Asia region (SAR) presents similar benefits to those in the EU. Cross-border trade will promote domestic investment, cost-effective expansion of RE resources and better reliability and supply availability. It has been estimated that the potential gain from expanding regional electricity trade in the SAR is 9 billion rupees a year. However, cross-border trade in electricity encompassing several countries in the SAR has yet to progress for various reasons. These include inadequate inter-regional institutions, marketing platforms and transnational network planning, and non-uniform sectoral reforms. The session will focus on examining the need of the hour in the SAR region to facilitate cross border electricity trade and role of the EU in sharing its own experiences and in supporting SAR.

14.00-14.05	Welcome Address: Edwin Koekkoek, First Counsellor Energy and Climate, Delegation of EU to India
14.05 – 14.10	Inaugural Address: Ajay Tewari, Additional Secretary, Ministry of Power, India*
14.10 – 14.15	Opening Remarks: Matthieu Craye, International Relations Officer, DG ENER, European Commission
14.15 – 14.20	Session Briefing: Swetha Ravi Kumar, Head of FSR Global, Florence School of Regulation
14.20 -15.00	<p>Session 1: Seamless Cross Border Electricity Trade (CBET)</p> <p>Panel Discussion Which Governance Model and What Regional Institutional Framework for an Interconnected Power System in SAR?</p> <p>Moderator: Swetha Ravi Kumar, Head of FSR Global, Florence School of Regulation</p> <ul style="list-style-type: none"> Models of Regional Markets - Design vs Discovery Jean-Michel Glachant, Principal Advisor, FSR Global Existing SAR Cooperation Frameworks - Potential and Limitations: Rudendra Tandon, Additional Secretary, Ministry of External Affairs* Regional Market Development in BBIN - The Journey So Far V K Agarwal, Senior Advisor, SAREP Bi-Lateral and Multi-Lateral Cooperation to Enhance Inter-Connections and Electricity Trade Isabelle Gerkens, Head Regulation & Market, Elia Grid International
15.00- 15.30	Q&A with Discussants
15.30 -15.45	Tea Break
15.45 -16.25	<p>Session 2: Network Expansion, Planning and Energy Trade</p> <p>Panel Discussion How to have a coordinated network expansion plan and how to fund it? What to harmonise across the network? What are our market options?</p> <p>Moderator: Swetha Ravi Kumar, Head of FSR Global, Florence School of Regulation</p> <ul style="list-style-type: none"> Network Development and Projects of Common Interest - the EU example Alberto Pototschnig, Deputy Director, Florence School of Regulation Regional Network Planning SK Soonee, Former CEO Grid India

	<ul style="list-style-type: none"> Standard Markets Products Rohit Bajaj, Head Business Development, Regulatory Affairs & Strategy, IEX Non-Standard Market Products Kapil Dev, Managing Director, New Age Markets in Electricity
16.25 -16.55	Q&A with Discussants
16.55 -17.00	Closing Remarks: Matthieu Craye , International Relations Officer, DG ENER, European Commission

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

THEME-E: SESSION-7
POLICIES AND REGULATIONS TO PROMOTE
DIGITAL MANAGEMENT OF ROOFTOP PV

02 MARCH 2023 (THURSDAY) | India 10:30 ~ 13:30 | Venue: Regency - 5

Joint Event with International Energy Agency



SESSION BACKGROUND

Solar PV is central to clean energy transitions across the globe. By the end of 2020, installed global PV capacity, of which more than 40% is distributed, saved more than 860 million tonnes of CO₂ and it is estimated that the gigatonne (Gt) threshold was reached in 2021.

The solar rooftop PV (RTPV) sector also plays a crucial role in achieving India's ambitious renewable energy targets. The Government of India has a target to install 40 GW of solar rooftop PV. At the end of 2022, the installed capacity was around 8 GW.

Rapid cost reductions in the past decade have brought levelised generation costs below variable retail electricity prices in most countries. As a result, RTPV systems in homes, commercial buildings and industry have seen a remarkable boom in recent years, creating significant changes in power systems, especially at the local level. A rapid rise in the ability of consumers to generate their own electricity presents new opportunities and challenges for system operators, electricity providers and policy makers, notably around the need to match the timing and location of RTPV production with customers' electricity consumption.

If unmanaged, large shares of RTPV can create challenges including overvoltage and cascading disconnections in case of grid instability, net demand forecast uncertainty, or difficulties in planning and operating the grid. Modern, digitalised grids can bring solutions to many of these problems.

Digital tools can help ensure systems efficiency through optimal siting and placement of distributed PV systems and help reduce curtailment. Digital technologies can support the effective management of distributed solar power production at scale by providing visibility to system operators, including through online registries and platforms. They can also help pre-empt problems on the grid and improve maintenance, thereby avoiding faults and extending asset lifetimes by allowing to monitor, manage and control RTPV output in real-time, supporting power system security and reliability and the provision of demand side flexibility.

Smart inverters, for example, allow to monitor and control generation from RTPV systems to maintain grid stability, thanks to bidirectional communication. These, coupled with online registries, can help system operators analyse real time data and include RTPV generation in forecasting, integrated energy planning, scheduling and dispatching procedures.

More broadly, digital tools can enable innovative business models, such as the creation of peer-to-peer (P2P) platforms, where producers and consumers can trade electricity, empowering individuals and communities to take active control over their energy-generating assets. They can also allow to integrate other distributed energy resources, such as electric vehicles, which, through smart charging, can be coordinated to modulate the charge and to send power into the grid when not in use (vehicle-to-grid) to support the grid during peak demand periods.

By deploying appropriate policies, processes and digital tools, integration of RTPV can accelerate the clean energy transition, improve systems efficiency and enhance electricity security.

This side event will bring together leading international and Indian experts and practitioners to share experiences and lessons learned that could be of relevance to accelerate the digital integration of RTPV in India and in other countries seeing rapid deployment of distributed solar PV.

The IEA gratefully acknowledges the Italian Ministry of the Environment and Energy Security for their support to this event as part of their contributions to IEA's Digital Demand Driven Electricity Networks (3DEN) Initiative on power system modernisation and digitalisation, and to the Clean Energy Transitions Programme.

Discussion Points:



1. State of the art and international best practices on digital management of distributed PV systems and their relevance for India
2. Enabling regulation for adoption of new technologies to improve visibility, management and control of distributed PV systems
3. Potential approaches and interventions to support reliable, sustainable and efficient power systems

AGENDA

Welcome	Welcome: Reji Kumar Pillai , President, India Smart Grid Forum
Opening Remarks	Lalit Borah , Joint Secretary, Ministry of New and Renewable Energy *

Theme Presentation	<p><i>Policies and Regulations to support Reliable, Sustainable and Efficient Power Systems: the case of Digital Management of Distributed PV</i></p> <p>Vida Rozite, Policy Analyst and Project Manager - Digital Demand Driven Electricity Networks Initiative, International Energy Agency and;</p> <p>Alvaro Lopez- Peña, International Consultant on Clean Energy Transitions</p>	
Chair	Manu Srivastava , Principal Secretary, Government of Madhya Pradesh*	
Moderator	Astha Gupta , Lead India Analyst and Coordinator, International Energy Agency	
Moderated Roundtable	<p>Indian Speakers</p> <ol style="list-style-type: none"> Satyendra Pandey, Member, Gujarat Electricity Regulatory Commission* HM Manjunatha, Member, KERC* SS Barpanda, Director – Market Operations, Grid Controller of India AK Rajput, Member, Power System, Central Electricity Authority, India* Manoj Kumar Upadhyay, Deputy Advisor, Niti Aayog* Rahul Chandra, Head of Gridspertise India SC Saxena, Executive Director, Grid Controller of India Limited SK Chatterjee, Joint Chief (Regulatory Affairs) Dy Chief-Regulatory Affairs, CERC Deepak Krishnan, Associate Director, WRI-India BB Mehta, Director (SLDC), Odisha Power Transmission Corporation Ltd Pankaj Khurana, International Solar Alliance Atul Bali, Director, NSGM NPMU* Vinay Rustagi, MD, Bridge to India Neha Agarwal, Member Secretary-ETD 46, Bureau of Indian Standards* Shivani Sharma, Principal Technical Consultant, Power Consulting, Hitachi Energy* Himanshu Khurana, Director Regulation Tariff, RERC* Sunil Kumar Sharma, DGM-Sustainability and Cleantech, BYPL* Shivaram Bikkina, Chief-Rooftop and C&I, Tata Power Renewable Energy Ltd Bhalchandra Gawai, Executive Engineer, MSEDCL* Tirthankar Mandal, Head, Energy Policy, WRI India* <p>Q&A</p>	<p>International Speakers</p> <ol style="list-style-type: none"> Helvio Neves Guerra, Director, Brazilian Electricity Regulatory Agency (ANEEL) Davi Rabelo Viana Leite, Regulation Specialist, Brazilian Electricity Regulatory Agency (ANEEL) Aurélio Calheiros de Melo Júnior, Deputy Head of the International Advisory, Brazilian Electricity Regulatory Agency (ANEEL) Jaiane Batista Alves Padilha, Brazilian Electricity Regulatory Agency (ANEEL) Jean-Michel Glachant, Principal Advisor FSR Global-Florence School of Regulation Murali Baggu, Laboratory Program Manager - Grid Integration Energy Systems Integration NREL Alvaro Lopez- Peña, International Consultant on Clean Energy Transitions Luciano Martini, Executive Committee Chair, ISGAN Chris Martell, Managing Director of GSES and Task Manager of Photovoltaic Power Systems (PVPS) Programme, Task 18 on Off-Grid and Edge-of-Grid Photovoltaic Systems Vida Rozite, Policy Analyst and Project Manager - Digital Demand Driven Electricity Networks Initiative, International Energy Agency
Key Takeaways by Moderator		

Session Coordinator: Nitin Sharma | Mobile: +91 9034160319 | Email: nitin@indiasmartgrid.org

SMART WATER DISTRIBUTION	
02 MARCH 2023 (THURSDAY) 14:00 ~ 17:30 (IST) Venue: Regency 5	
IN COLLABORATION WITH CENTRAL BOARD OF IRRIGATION & POWER AND EVERYTHING ABOUT WATER	
 	
SESSION BACKGROUND	
<p>Government of India has taken groundbreaking initiatives by launching a country-wide ground survey to check the implementation of Har Ghar Jal Scheme in all states and to ensure the drinking quality water being provided through the newly installed tap connections to all households in the country. In continuation to this Bihar, administration has installed sensor-based 'Internet of Things' (IoT) devices in 30 districts to ensure an uninterrupted drinking water supply. The National Mission for Clean Ganga (NMCG) is planning to provide treated sewage water to power plants along the Ganga River to benefit the local community. The technological and commercial advancement in the water sector will help provide quality water and will ensure a circular economy in the country.</p> <p>Discussion Points</p> <ul style="list-style-type: none"> • Har Ghar Jal Scheme – Challenges and Progress • Delivery of water with adequate water quality standard under Har Ghar Jal Scheme • National Mission for Clean Ganga – new initiative to provide treated sewage water to power plants • Deployment of IoT tools for improving the efficiency of drinking water supply network 	
AGENDA	
14:00~14:30	<p>Inaugural Session</p> <p>Welcome Address: AK Dinkar, Secretary, CBIP</p> <p>Keynote Address: G Asok Kumar, DG, National Mission for Clean Ganga*</p>
14:30~15:45	<p>Session-1: National Mission for Clean Ganga (NMCG)</p> <ul style="list-style-type: none"> a) Monetization of Developments under NMCG b) Building Circular Economy around NMCG Initiatives c) Progress and Challenges of NMCG Projects <p>Chair: S K Haldar, Former Chairman, Central Water Commission*</p> <p>Moderator: Sourav Daspatnaik, Managing Director, Swach Environment Private Limited</p> <p>Speakers:</p> <ul style="list-style-type: none"> • DP Mathuria, Executive Director, Technical, NMCG • Rajnish Chopra, Global Head, VA Tech, Wabagh Ltd • Kamal Verma, Chief Executive Officer - Water Business Group, Triveni Engineering & Industries Ltd.
15:45~16:45	<p>Session 2: Monitoring of Water Standard / Service Delivery Under Har Ghar Jal Scheme</p> <ul style="list-style-type: none"> a) Framework to Ensure Quality of Drinking Water and Availability and Service Delivery b) Data Collection Exercise Conducted by Water Works Departments in Different States c) Progress of Har Ghar Jal Scheme <p>Chair: Thara D. Additional Secretary, Ministry of Housing and Urban Affairs*</p> <p>Moderator: Ajay Pradhan, President & CEO, C2S2</p> <p>Speakers:</p> <ul style="list-style-type: none"> • Amit Kumar Singh, Managing Director, UP Jal Nigam* • Prashant Gargava, Member Secretary, Central Pollution Board* • Pradeep Singh, Director (JJM-IV) Department of Drinking Water and Sanitation, Ministry of Jal Shakti, Government of India • A K Gupta, Regional Director, Regional Centre for Urban & Environmental Studies Lucknow (RCUES)
16:45~17:15	<p>Session 3: Deployment of Internet of Things (IoT) Solutions to Manage Drinking Water Supply</p> <ul style="list-style-type: none"> • Deployment of IoT Solutions to Monitor and Manage Drinking Water Supply • Technologies to Ensure Uninterrupted Drinking Water Supply in Rural Areas • Bihar Case Study <p>Chair: Atul Narayan Valdiya, Director, CSIR-NEERI, Nagpur*</p> <p>Moderator: Praveen Bhargava, Advisor, Nangloi Water Supply*</p> <p>Speakers:</p> <ul style="list-style-type: none"> • Sanjay Kumar Agarwal, Secretary, Bihar Water Department* • Baban Kumar, Sr. Principal Scientist, Materials Science and Sensor Applications (MSSA)* • Ramana Rao Elchuri, VP, Sales & Business Development, CyanConnode
17:15~17:30	<p>Key Takeaways and Next Steps</p>

Session Coordinator: Aashima Seth | 9871752530 | aashima@indiasmartgrid.org

EVENT DAY 3: 02 MARCH 2023 (THURSDAY)

SPECIAL PLENARY 2

ARCHITECTURE AND ENERGY SYSTEMS FOR COLONIZING THE MOON AND THE MARS

Venue & Time

Venue	Crystal-1
Time	India 18:00 ~ 20:00

Session Background

The session on Architecture and Energy Systems for Colonizing the Moon and the Mars explores the technical and practical aspects of creating sustainable and habitable environments for human colonization on these celestial bodies. The session delves into the challenges of designing and constructing habitats, transportation systems, and infrastructure to withstand extreme environmental conditions and support long-term human habitation. In addition, the session focuses on the energy systems required to power these colonies, including renewable sources such as solar and wind power, and the use of advanced technologies such as nuclear reactors. The session brings together experts in space science and energy systems engineering to discuss the latest innovations and developments in these areas, and to explore the potential for human colonization beyond Earth.

Discussion Points:

1. Sustainable habitats: Designing habitats that can withstand extreme conditions and use local resources
2. Interplanetary transportation: Challenges and technologies for transporting humans and materials between Earth, the Moon, and Mars
3. Energy systems: Requirements for powering off-world colonies and designing renewable and nuclear energy systems
4. Life support systems: Providing essential resources such as air, water, and food for human habitation.
5. Waste management: Developing systems for managing waste and recycling resources in a closed-loop environment
6. Communication systems: Establishing reliable communication systems between Earth and off-world colonies
7. Economic considerations: Assessing the economic feasibility of establishing and maintaining off-world colonies
8. Ethical considerations: Addressing ethical issues related to the colonization of other planets, such as environmental impact and indigenous rights

Chair and Moderator

Reji Pillai, President, ISGF

Speakers

1. **Samer El Sayary**, Architect and Researcher on Outer Space Architecture
2. **Michael Potter**, Founder, Geeks Without Frontiers and Senior Fellow, International Institute of Space Commerce
3. **Madhu Thangavel**, Professor, University of Southern California

Q&A

Key Takeaways

Session Coordinator: Parul | +91 981078505 | parul@indiasmartgrid.org



28 February - 04 March 2023

The Lalit Hotel, New Delhi

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India Smart Grid Forum

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ISUW 2023

DETAILED AGENDA

CONFERENCE DAY 3

03 MARCH 2023 (FRIDAY)

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EVENT DAY 4: 03 MARCH 2023 (FRIDAY)
THEME-B: SESSION-3
EVOLVING TRENDS IN ELECTRIC MOBILITY - GREEN MOBILITY, GRID INTEGRATED VEHICLES (GIV), AUTONOMOUS GROUND VEHICLES (AGV)
Venue & Time

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

Session Background

Electric Mobility has graduated from the era of "*range anxiety*" to the era of "*charge-time trauma*". The new generation of electric vehicles have larger and better batteries that can be charged in 15-30 minutes (4C or 2C) and significantly improved life cycle. EV drivers don't like to plug on their EVs in the charging stations and hang around there for several hours. For fast charging the EVs require high power chargers – welcome to the era of MW charging systems. Creation of high-power charging infrastructure across the country is a massive opportunity for charging station developers, manufacturers and technology providers, software firms, EV OEMs as well as power distribution utilities. Since EVs will have considerable impact on the grid when connected for charging, proper planning is required for strengthening the distribution grid to support the charging infrastructure.

Wireless charging of EVs is now being commercialized and soon vehicles could be charged while moving or being driven as well. Vehicle to grid (V2G) technologies also have matured and several new EV models being launched have V2G functionalities. V2G can be of two types - on vehicle AC V2G and off vehicle DC V2G; and both require chargers configured with grid integration software, smart charging controller and two-way communication option for exploiting its full potential. In addition, vehicle to building (V2B) or vehicle to home (V2H) functionalities can also provide flexibility to the grid by providing power to the building or home from the stationary electric vehicle batteries at the time of peak demand. This will open up new potential for distribution utilities in managing the load by aggregating large number of EVs as virtual power plants (VPPs). Although many of the activities like peak shaving, load levelling etc can be achieved through smart charging (V1G), V2G will help EVs to act as generation source and claim additional financial benefits by providing ancillary services to the grid and participating in the power market transactions –era of grid integrated vehicles (GIVs).

The Green Energy Open Access Rules issued by Ministry of Power in 2022 has opened up the possibility of public charging stations to contract green electricity from RE developers and offer to EVs for charging with green electricity – the era of true clean mobility! Autonomous Ground Vehicles (AGV) running on fixed routes is gaining momentum and expected to grow fast. All these developments will significantly contribute to decarbonization of the transport sector.

Discussion Points:

1. Emerging Trends in Electric Mobility
2. V1G and V2G - Technology Evolution and Present Status
3. Market Mechanism for V2G - Aggregator Model, Ancillary Services, Cost and Incentives
4. Regulations and Standards – EVSE Standards in India, Charging Infra Guidelines
5. Business Models for Public Charging Stations and Battery Swapping Stations
6. Wireless Charging of EVs - Technology Evolution and Present Status
7. Impacts of EV Charging on Distribution Grid and Distribution Grid Strengthening
8. Uniform Norms for Electricity Connections to Public Charging Stations

Chair	BN Sharma , Chairman, Rajasthan Electricity Regulatory Commission*
Moderator	Ravi Seethapathy , Chairman, Biosirus and WG Chair, ISGF
Speakers	<ol style="list-style-type: none"> 1. Sajid Mubashir, Scientist-G, DST 2. Ted Smith, President and COO, Nuvve (On Video)* 3. Lonneke Driessen-Mutters, Executive Director, Open Charge Alliance 4. George Hunt, Chief Strategy Officer (CSO), SEW 5. Rodney McGee, Chief Engineer, University of Delaware 6. Tom Okada, CTO, WiTricity (On Video)* 7. Ritwik Anand, Member Secretary, ETD-51, Bureau of Indian Standards* 8. Arindam Maitra, AVP of Grid Modernization at L&T Power Transmission & Distribution (PT&D) 9. Suddhasatta Kundu, Sr Manager, Energy & Utilities, RTI 10. Brian Grunkemeyer, Founder and CEO, Flex Charging* 11. Reshma Mathew, Chief Engineer-Planning, Electricity Department, Goa* 12. Swapnil Gosavi, Head of Business Strategy and Ecosystem Management, Tata Motors Ltd*
	Q&A

Key Takeaways by Moderator

Session Coordinator: Anand Singh | +91 99252 18036 | anand@indiasmartgrid.org

EVENT DAY 4: 03 MARCH 2023 (FRIDAY)
THEME-C: SESSION-2
DIGITALIZATION OF UTILITIES, DIGITAL TWINS AND DIGITALIZATION ROADMAPS
Venue & Time

Venue	Crystal-2
Time	India 10:00 – 11:30

Session Background

Digitalization means using digital technologies to fundamentally change how utilities develop and operate the electricity network to deliver an economic and efficient service for customers; whereas digitization is the process of collecting information about the electricity grid using sensors and control equipment – collecting some information for the first time and converting analogue information into digital data that can be processed by computers for digitalization.

Digitalization of utilities facilitates integration of Distributed Energy Resources (DER) and electric vehicles to achieve emission reduction/NDC targets. Digital Utilities can optimize asset and operations with advanced analytics supported by AI and ML solutions leading to: Granular estimation of demand to avoid excess generation capacities; Visibility of power flows in real-time to avoid overloading and excess capacities; Defer costly system upgrades through efficient management of existing resources; Engaging customers through digital platforms for innovative programs. Digital Utilities can balance demand and supply in real-time through Demand Response, ToU and other programs. Digital Utilities can increase Power System Flexibility – Energy Storage Systems (ESS), Smart Microgrids, EV Integration, Virtual Power Plants (VPP). Digital data and digitalized solutions help the utilities understand where a generator or transformer is best placed on the network or how to integrate an EV charger.

Digitalization has been gaining momentum in India, with a focus on improving the efficiency, reliability, and sustainability of essential services such as electricity, water, and gas. Digital solutions such as smart metering and advanced analytics are being deployed to better manage and monitor consumption and usage. Digital Twins, on the other hand, are virtual representations of physical assets such as power plants, water treatment facilities, and distribution networks. The digital twins enable utilities to simulate and analyze the performance of their assets, improving their understanding of the assets and allowing for proactive maintenance and optimization.

Digitalization of electric utilities in India assumes high priority in view of the ongoing 250 million smart meter rollout under the RDSS program. A well-defined digitalization roadmap is crucial for guiding the investments and decision-making necessary for the successful integration of technology. The development and implementation of a comprehensive digitalization roadmap can help utilities in India to effectively leverage technology to achieve their goals and remain competitive in an increasingly digital landscape.

Discussion Points:

1. Objectives and Benefits of Digitalization: SINGLE SOURCE of the TRUTH for the DATA that provide greater detail for ALL stakeholders
2. Digitalization Strategy - aligned with the Business Strategy, Innovation Strategy, Digital Strategy and IT Strategy
3. Digitalization Roadmap: Data Visibility, Infrastructure and Asset Visibility, IT-OT Integration and Operational Optimization, Open Markets and Agile Regulations
4. Building Blocks of Digital Utility: Data Catalogues, Single Registration Platforms, Digital Systems Map
5. Benefits and Applications of Digital Twins in the Utility Sector
6. Best Practices and Case Studies from other Countries
7. The Role of Government and Regulators in promoting and enabling digitalization in the utility sector
8. Potential for Collaboration and Partnerships between Utilities, Technology Providers and Other Stakeholders to Drive Digital Transformation in the Utility Industry.

Chair	Ajay Tewari , Additional Secretary, Ministry of Power*
Moderator	Richard Schomberg , IEC Ambassador and Chairman, IEC Smart Energy Systems Committee and Vice President-EDF
Theme Presentation	Prakash Suvarna , Southern California Edison*
Speakers	<ol style="list-style-type: none"> 1. Pankaj Kumar, Managing Director, UPPCL* 2. Vineet Sikka, CEO, BSES Rajdhani Power Ltd* 3. Elad Shaviv, Director-Business Development, Israel Electricity Company 4. S Samanta, Chief-D&IT (T&D), Tata Power Company Ltd 5. Anand Subramanian, Regional Vice President - Middle East and Africa, SEW 6. Rajesh Kumar Goel, Director-Projects, UHBVN* 7. Sunil Kumar Singh, PAC Region Business Head-Digital Energy Solution, L&T 8. MS Shanthakumar, Technology Manager - HVDC & FACTS in India, Hitachi Energy 9. Sainath Bandhakavi, Sr. Specialist Solutions Architect - Power & Utilities, AWS 10. Sanjay Prasad, Chief Information Officer, CESC Limited 11. Jagdish Chitre, CEO, KIGG Systems India Pvt Ltd
	Q&A

Key Takeaways by Moderator

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

EVENT DAY 4: 03 MARCH 2023 (FRIDAY)
**THEME-D: SESSION-1
ELECTRIC HIGHWAYS**
Venue & Time

Venue	Crystal-1
Time	India 11:30 ~ 13:00

Session Background

India has more than 2.8 million trucks that run over 100 billion kilo-meters (km) per year. While they comprise only about 2% of the vehicles on the road, the trucks are responsible for about 40% of emissions and fuel consumption from road transport sector. For India to achieve Net Zero emissions by 2070, the share of electric trucks in the overall freight movement should be 79% by 2070. From this perspectives, electrification of goods movement by trucks assumes high priority. Ministry of Road Transport and Highways (MORTH) has already come up with the idea of developing E-Highways powered by solar energy to achieve clean and green surface transport, and provide world-class facilities to E-Highway users. MORTH has decided to convert 12 expressways into E-Highways in a cost-effective manner to avoid massive infrastructure augmentation expenditure. The electric trucks can run on the E-Highways at a speed of 120 kmph and will bring down the logistics cost by 70 percent. This will allow to bring about a new generation of hyper-local services, from e-commerce and last-mile delivery to smart mobility and autonomous solutions as well as promote green transportation.

Creation of appropriate charging infrastructure along the highways would also support inter-city operation of electric buses; and also promote electric mobility. The electric highway system should consist of a network of charging stations that are placed along the highway, allowing a range of EVs can be provided fast charge in a matter of minutes. The implementation of electric highways is a collaborative effort between governments, private companies, and EV manufacturers. Governments play a crucial role in providing funding for the development and installation of the charging infrastructure, while private companies are responsible for the maintenance and operation of the electric highways. EV manufacturers are also involved in the development of the technology and the integration of the charging system into their vehicles. Hence, the success of E-Highways will depend on the willingness of governments, private companies, and EV manufacturers to collaborate and invest in the development and implementation of the technology.

Discussion Points

- State of Play of Electric Highways – Global and India
- Design of Electric Highway Systems
- Collaboration between Government Agencies, Freight and Bus Operators, EV OEMs, Charger OEMs, Electric Utilities, Charging Station Operators
- Challenges in the Implementation of electric highways – Land, Power Connections, Costs and Technological Barriers
- Case Studies of Electric Highways in Different Countries

Chair **Mahmood Ahmed**, Additional Secretary, MORTH*

Moderator **ISGF**

Speakers

1. **Nilesh Kane**, Chief- Mumbai Distribution, Tata Power Company Ltd
2. **Anand Singh**, Assistant General Manager, ISGF
3. **KK Srinath**, Deputy General Manager, BESCOM
4. **N Mohan**, CEO, EV Cell, Transport Department, Govt of NCT, Delhi
5. **Sandeep Bangia**, Chief Operating Officer- Electric Mobility Jio-bp
6. **Alycia Glide**, Vice President, Calstart*
7. **Nikhil Ummat**, Vice President, Delhivery*
8. **R Sreedevi**, Executive Engineer, Innovation Group-Renewable Energy & Energy Savings, KSEBL

Q&A

Key Takeaways by Moderator

Session Coordinator: Anand Singh | +91 99252 18036 | anand@indiasmartgrid.org

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 $\pm 85\%$ 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
 - o Demand Response
 - o Energy Storage Systems (ESS) – Pumped Storage Hydro Plants, Batteries, Thermal and Other Storage Technologies
 - o Electric Vehicle Integration with Vehicle-to-Grid (V2G) Functionalities
 - o 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 |

EVENT DAY 4: 03 MARCH 2023 (FRIDAY)
THEME-D: SESSION-2
**MW-SCALE CHARGING SYSTEMS FOR EVs, TRUCKS AND BUSES, BOATS, PLANES
AND MINING MACHINERY**
Venue & Time

Venue	Crystal-2
Time	India 14:30 ~ 16:00

Session Background

Electric Mobility has graduated from the era of “*range anxiety*” to the era of “*charge-time trauma*”. The new generation of electric vehicles have larger and better batteries that can be charged in 15-30 minutes (4C or 2C) and significantly improved life cycle. EV drivers don't like to plug on their EVs in the charging stations and hang around there for several hours. For fast charging the EVs require high power chargers – welcome to the era of MW charging systems. Creation of high-power charging infrastructure across the country is a massive opportunity for charging station developers, manufacturers and technology providers, software firms, EV OEMs as well as power distribution utilities. Since EVs will have considerable impact on the grid when connected for charging, proper planning is required for strengthening the distribution grid to support the charging infrastructure.

In 2019, CHAdeMO Association and China Electricity Institute formed the joint venture ChaoJi to build high power charging systems. ChaoJi is developing a 900 kW (1500 V x 600 Amps) charger which was prototyped in 2021. CharIN Association is developing MW-scale chargers. Their target is to build 3.75 MW charger (1250 Volts x 3000 Amps) by 2025. There are several other groups and companies are building MW-scale charging systems. Hitachi Energy has been tasked with the development of an 8MW charger (4 outlets of 2MW each) to charge large mining machinery and boats/ferries. The EV charging arena is going to be very different in the coming days with super-fast MW-scale chargers. This is going to create huge problems for the electricity distribution companies. They need to create capacity in the substations and distribution network to provide such MW-scale connections. This calls for close coordination between electric utilities and EV fleets and charging station operators.

Discussion Points

1. State of Play of MW Charging Systems (MCS)
2. Power Connection Challenges for MCS
3. Liquid Cooled Cables
4. Evolving Standards for MW charging systems – SAE J3271 MCS, SAE AIR 7357, IEC 8005-4, IEEE P2030.13, ISO 5474 series, UL 2252/2231/2202, IEC 61851-23-3, IEC TS 63379, ISO 15118-20
5. BESS for MCS

Chair	AK Jain , Chair of ETD-51, BIS
Moderator	Sajid Mubashir , Scientist-G, DST

Speakers	<ol style="list-style-type: none"> 1. Tim Rose, Managing Director, Rema Group 2. Gerhard Gamperl, Director, Corporate Strategy, Verbund AG, Austria – On Video 3. Max Goeldi, Vice President and Market Manager HPC, Huber Suhner 4. Makoto Dave Yoshida, Secretary General, CHAdeMO* 5. Theodore Bohn, Principal Electrical Engineer, Argonne National Laboratory* 6. Rajendra Singh, Clemson University* 7. Akash Passey, President, Bus Division & E-Mobility, VE Commercial Vehicles* 8. Jim Andriotis, Cavotec* 9. Kevin George Miller, Director, Charge Point* 10. Sandeep Kumar, Director-Technical, Himachal Pradesh State Electricity Board Ltd* 11. Giridharan P, Applications Manager, Hitachi Energy 12. Jai Prakash Singh, Business Head E- Mobility, Ador Digatron Pvt.Ltd 13. NEFTON Consortium 14. CharIN
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Q&A
Key Takeaways by Moderator

Session Coordinator: Anand Singh | +91 99252 18036 | anand@indiasmartgrid.org

EVENT DAY 4: 03 MARCH 2023 (FRIDAY)
**Special Session on
POWER OF MEDIA IN PROMOTION OF GREEN ENERGY AND
ENERGY TRANSITION TO NET ZERO**
Venue & Time

Venue	Crystal-2
Time	India 16:00 ~ 17:30

Session Background

The transition to clean energy and net-zero emissions is one of the most pressing issues of our time. As the world faces the urgent need to reduce greenhouse gas emissions and combat climate change, the role of media in promoting green energy and the transition to net-zero has never been more critical.

India is in the forefront of the energy transition and has declared the Net Zero target by 2070. For the country to achieve Net Zero by 2070, it is essential that the power sector in India should achieve Net Zero by 2050 or even earlier. India is well poised to achieve this target and is the only major economy in the world that has already achieved the renewable energy (RE) targets for 2030 under the Paris Agreement eight years ahead of target! At COP26, India has voluntarily committed a new target of 500GW RE by 2030. Ministry of Power, Ministry of New and Renewable Energy, NITI Aayog, Central Electricity Regulatory Commission (CERC), several state Governments and State Electricity Regulatory Commissions have issued ground breaking policies and regulations for promoting renewable energy in the country such as Realtime Market launched in June 2020, Green Term Ahead Market (GTAM) launched in August 2020, Green Day Ahead Market (GDAM) launched in October 2021, Ancillary Services Regulations issued in January 2022; and the Green Energy Open Access Rules issued in June 2022. Similarly, several ground breaking initiatives have been taken by Govt and state governments in promotion of electric mobility.

For past 6 years in a row, India has added more renewable energy capacity. The cost of solar and wind energy in India is one of the lowest in the world and also is lower than power from the new coal plants. Now it is also possible to buy Green Electricity at the same cost or lower than regular grid power for charging the electric vehicles or powering the homes, offices and factories. While governments, regulators and project developers are immensely contributing towards growth of renewable energy, public awareness about these issues and some of the key achievements require better visibility and coverage.


Today, media (print, television and digital) plays an important role in spreading the knowledge about the latest technologies and initiatives of the Government. Media coverage influences the public's perception and interest in the sector. Editors covering the energy sector are playing an important role in creating awareness on Renewable Energy and Electric Mobility. Media has to play active role in promoting the achievements and the goals that India is pursuing and also motivate the public for using green energy.

It is imperative that media platforms have mechanisms in place that ensures necessary support and promotion to all the latest initiatives of the government. This special session at ISUW 2023 is being organized to discuss the role of media in promoting green energy and energy transition to Net Zero. Overall, this event will provide an opportunity for attendees to learn about the latest trends and approaches in clean energy and climate change, and connect with leading experts in the field. Attendees will gain a deeper understanding of the key role that media can play in promoting green energy and the transition to net-zero, and learn about the latest tools and techniques for creating impactful media content. The session will examine the latest trends in media coverage of clean energy and climate change, and discuss the impact of media on public perception, policy-making, and investment decisions. We will also discuss the challenges of media coverage of clean energy and climate change, including the need for accurate and reliable information, and the role of media in promoting transparency and accountability. The session will examine successful case studies from around the world, and discuss how media can play a key role in inspiring change, driving innovation, and creating public awareness.

Discussion Points

1. The importance of media in shaping public opinion and awareness of the need for a transition to clean energy and net-zero emissions
2. The challenges of promoting green energy and the transition to net-zero in media, including the need to engage a diverse audience and address different cultural and social contexts
3. The role of media in holding governments and companies accountable for their actions related to clean energy and climate change
4. The impact of media coverage on investment decisions related to clean energy technologies
5. The challenges of accurate and reliable media coverage of clean energy and climate change, including the need for scientific accuracy and fact-checking
6. The potential for media to drive innovation and inspire new solutions for clean energy and net-zero emissions
7. The use of storytelling and multimedia approaches to promote green energy and the transition to net-zero in media
8. The role of social media and online platforms in creating awareness and engagement related to clean energy and climate change
9. The importance of engaging diverse audiences and addressing cultural and social contexts in media coverage of clean energy and climate change
10. The potential for partnerships between media outlets, businesses, and advocacy organizations to promote clean energy and the transition to net-zero

Chair	Utpal Bhaskar , Bureau Chief, Mint*
Moderator	Siddharth Singh , Chief (Corporate Affairs, Communications, Facility Management, Security and Health Services), Tata Power Delhi Distribution Ltd
Discussants	<ol style="list-style-type: none"> 1. Swati Khandelwal, Executive Editor, Zee Business* 2. Isha Garg, Assistant Director, Press Information Bureau * 3. Sarita C Singh, Bloomberg* 4. Sudheer Pal Singh, ET Energy World* 5. Alisha Sachdev, Assistant Editor, Mint* 6. Manish Pant, Business Today* 7. Jayanta Roy Chowdhuri, Bureau Chief - Kolkata, Press Trust of India* 8. Agnese Cecchini, Editorial Director, Gruppo Italienergia* 9. Girish Chandra Prasad, Senior Editor, Live Mint* <p>Q&A</p>
Key Takeaways by Chair	
Session Coordinator: Shashi Bala +91 73767 88918 shashi@indiasmartgrid.org	

THEME-E: SESSION-6 CARBON MARKETS	
03 MARCH 2023 (FRIDAY) 14:00 ~ 16:00 (IST) Crystal-1	
In Collaboration with Indian Energy Exchange (IEX)	
	
SESSION BACKGROUND	
<p>A growing number of countries and of sub-national jurisdictions are leveraging carbon markets to implement their Nationally Determined Contributions (NDCs) under the Paris Agreement. Carbon markets help mobilize resources and reduce costs to give countries and companies the space to smooth their transition to low-carbon economies and enterprises. It is estimated that trading in carbon credits could reduce the cost of implementing NDCs by more than half – by as much as USD 250 billion by 2030. The key to successful reduction of global GHG emissions through carbon markets could be digital infrastructure that keeps verified data secure and ensures that reductions are accurately accounted and tracked. The digital infrastructure comprises Monitoring, Reporting and Verification (MRV) systems with GHG emissions and emission reductions data linked to national or international Registries.</p> <p>Recognizing the emerging need to share the experiences on implementation of emissions trading systems to date, and to further promote emissions trading as a cost-effective climate policy tool policymakers, academics and other stakeholders will reflect upon recent developments in carbon markets around the globe and discuss future perspectives of carbon market cooperation.</p> <p>Discussion Points</p> <ol style="list-style-type: none"> 1. State of Play of Carbon Markets in Europe, America and Asia 2. Roadmap for the Carbon Market in India 3. Blockchain and AI Tools for MRV and ESG Reporting 4. Emerging Business Opportunities in Carbon Markets 5. Reskilling and Upskilling for Green Jobs 	
AGENDA	
Chair	SN Sahai, Director General, Power Foundation of India & Former Secretary, Ministry of Power *
Moderator	ISGF
Speakers	<ol style="list-style-type: none"> 1. Stefano De Clara, Head, Secretariat, International Carbon Action Partnership (ICAP)* 2. Sara Laerke Meltotte, Head, Technology, UNEP, Copenhagen Climate Centre* 3. VK Srivastava, Member, Uttar Pradesh Electricity Regulatory Commission* 4. Rajib K Mishra, CMD, PTC India Ltd 5. Indranil Chatterjee, VP, IEX 6. Shruti Singh, Regional Director, Climate Strategies, South Pole* 7. Tarun Katiyar, CEO, Tata Power Trading Company Ltd 8. Madison Savilow, Chief of Staff, Carbon Upcycling* 9. Manoj Kumar Singh, Founder, Net Zero Think 10. Gaurav Bhatiani, Director Energy & Environment, RTI 11. Divya Sharma, Executive Director-India, The Climate Group* 12. Vladislav Berezovsky, Director-Business Development, Carbon Zero* 13. Mohua Mukherjee, Senior Research Fellow-Oxford Institute for Energy Studies and ISGF Advisor*
Q&A	
Key Takeaways by Moderator	

Session Coordinator: Anand Singh | Mobile: 99252 18036 | Email: anand@indiasmartgrid.org

ROUNDTABLE ON INTERCONNECTION OF REGIONAL GRIDS INASIA: GCC GRID – SOUTH ASIA GRID – ASEAN GRID

In Partnership with USAID and European Union

03 MARCH 2023 (FRIDAY) | 14:00 ~ 17.30 IST | Venue: Regency - 1, Lalit Hotel

ROUNDTABLE BACKGROUND

Electricity grids were an important technological invention. They marked an advance that helped humanity think beyond its self-drawn boundaries of community and enabled countries to partner together to develop integrated electricity grids. Today, in the various regions around the globe, approximately twenty regional electricity grid integration initiatives are at various stages of development and market integration. International experience has proven that interconnection of smaller power systems to form a large power pool or regional grid is beneficial to all users in terms of efficiency, economy, reliability, and resilience.

21st century is Asian century as the region will have dominant economic and political role of global, regional and sub regional implications. Asia is one of the most vulnerable regions to adverse climate change events. Sub region of South Asia alone is home to the one-fourth of the world's population, experiences extreme weather conditions. Climate change is expected to affect lives globally and endanger critical infrastructure, including energy. The increase in climate-related incidents emphasizes the urgent need for building sustainable and resilient energy infrastructure. Economic losses from drought, floods and landslides have rocketed in Asia. In 2021 alone, weather and water-related hazards caused total damage of US\$ 35.6 billion, affecting nearly 50 million people, according to a new report from the World Meteorological Organization.

Volatility and instability in global energy markets increased the vulnerabilities of South Asian countries in their endeavors to provide reliable and affordable energy. On the other hand, South Asian countries are endowed with enormous clean energy resources. Countries along the Himalayan belt have a combined hydro resource potential of 350 GW, of which only 18 percent has been tapped. The region also has tremendous solar and wind potential. Energy cooperation, specifically cross-border electricity trade (CBET), will support optimal utilization of clean energy resources in the region, lowering the cost of power and reducing GHG emissions. As the green hydrogen economy evolves, surplus hydropower and solar and wind potential in countries can be tapped by green hydrogen electrolyzers in high green hydrogen demand countries.

A large, interconnected grid across a subregion, region, or continent can bring far-away resources to the load center and exploit diversity of peak hours and time zones, among other factors. The relevance of interconnected regional grids has gained attention due to the increasing share of variable renewable energy resources in the grids. Integration of intermittent renewable resources (such as wind and solar) is efficiently handled in a larger balancing area that offers better forecasting of generation. Interconnected grids could also offer the opportunity to replace a country's own costly generation by relatively cheaper imported power. Even in power deficit and surplus scenarios, due to demand profile diversity, opportunities of mutually beneficial energy trade exist. These variations are not only due to difference in time zones, but also due to seasonal differences in each interconnected country. An interconnected Asian grid spanning from the western end of the Gulf region (GCC – Gulf Cooperation Council) to the eastern parts of Southeast Asia (ASEAN) grid will allow for leveraging the 5-hour time zone difference with regard to solar power generation and utilization. As solar generation diminishes and evening peak starts in ASEAN region, solar generation will be at its peak in the GCC region. Later when evening peak load increases in western parts of India and GCC region, the base load plants in ASEAN grid could support. Also, the morning peak in Southeast Asia can be supported by base load plants in the SAARC/BIMSTEC region. This manner of interconnected operations helps not only in integration of renewables, but also efficient operation of base load plants across the Asian region.

ISGF had mooted the idea of interconnection of Regional Grids in Asia (GCC Grid, South Asia/BIMSTEC Grid and ASEAN Grid) in 2018; and organized the first Roundtable on Interconnection of Regional Grids in Asia in March 2019 as part of India Smart Utility Week 2019. This Roundtable was attended by key stakeholders from all 3 regions including GCC Interconnection Authority (GCCIA), BIMSTEC Secretariat and several ASEAN countries. The participants of the Roundtable unanimously welcomed the idea and identified following 2 interconnections in the first phase:

1. Oman-India undersea HVDC Link
2. India-Myanmar-Thailand Overhead Line

USAID, with its focus on advancing regional energy market integration and enhancing regional energy cooperation, seeks to facilitate regional grid interconnections in the Asia Pacific region. India is providing leadership for integration of regional grid at the highest level. The idea of One Sun One World One Grid (OSOWOG) initiative has been put forth by the Hon'ble Prime Minister of India Shri Narendra Modi, at the First Assembly of the ISA in October 2018. The initiative aims at connecting energy supply across borders. Vision behind the OSOWOG initiative is the mantra that "the sun never sets". The OSOWOG initiative aims to connect different regional grids through a common grid that will be used to transfer renewable energy power and, thus, realize the potential of renewable energy sources, especially solar energy.

Under ISA's leadership, OSOWOG is taking shape; and the need for multi-country transmission interconnection and integration of regional electricity markets will take place across the globe. Trans-regional power interconnections are long term, irreversible, investment-intensive, and require a conducive and friendly ecosystem/ environment for investors. This also requires certain level of harmonization of policy, regulatory and legal frameworks, and development of regional power market structure for economical operation of interconnected grids.

One of the most important areas of development for interconnecting regional grid shall be developing successful business models for developing and financing of cross-border electricity transmission interconnections which shall facilitate achieving OSOWOG and other such energy cooperation initiatives which shall contribute towards reducing the carbon emission and enable clean energy transition.

European Union is currently in the process of undertaking a scoping study to design a new program to support regional integration of grid in South Asia. Both USAID and European Union along with stakeholders from the three regions (viz. GCCIA, BIMSTEC, ASEAN) participated in the successive Roundtables organized by ISGF in 2020, 2021 (virtual) and 2022 (virtual).

In the above context, ISGF, USAID and European Union is organizing a high-level Roundtable on "Interconnection of Regional Grids in Asia – cross border electricity trade across Regions" as part of ISUW 2023.

Objectives

The main objectives of the Roundtable on Interconnection of Regional Grids in Asia – cross border electricity trade across regions include:

1. *Presenting the transmission interconnection opportunities that exist in the BIMSTEC/SAARC, ASEAN, GCC region and the opportunities and challenges for interconnecting regional grids*
2. *Status of Interconnection of grids among ASEAN, SAARC/BIMSTEC, ASEAN and GCC regions and transmission links being explored by OSOWOG initiative*
3. *Role of regional Institutions/forums in power system integration inside a region and facilitating trans regional interconnection.*
4. *Perspectives on certain level of required harmonization in policy, regulatory and legal frameworks, and development of regional power market structure for economical operation of interconnected grids*
5. *Successful business model for developing and financing of cross-border electricity transmission interconnections and creating an investor friendly environment*
6. *Regional learning of transitioning from bilateral to trilateral, multilateral cross border electricity trade in the BIMSTEC/SAARC, ASEAN, GCC region*
7. *Different regional power market model for regional grid integration*
8. *Developing awareness and facilitate building consensus among regional stakeholders regarding different types of innovative business models for developing and financing cross border transmission interconnections*
9. *Providing a platform for exchange of practitioners' experience of benefiting from regional interconnected grids*

ROUNDTABLE AGENDA

14:00 ~ 14:30	<p>Inaugural Session</p> <p>Welcome Address: Reji Kumar Pillai, President, India Smart Grid Forum (ISGF)</p> <p>Opening Keynotes:</p> <ol style="list-style-type: none"> 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	<p>Session-1: Envisioning Trans-Regional Energy Connectivity between the South Asia Region, Southeast Asia Region and Gulf Region - Prospects and Opportunities</p> <p>Chair: Mohammad Afzal, Joint Secretary -Transmission, Ministry of Power</p> <p>Theme Presentation: Rajiv Ratna Panda, Power Market Specialist, SAREP</p> <p>Discussants:</p> <ol style="list-style-type: none"> 1. Tenzin Lekphell, Secretary-General, BIMSTEC Secretariat 2. Ashok Pal, Deputy COO, Central Transmission Utility of India Ltd. 3. Durga Nanda Bariyail, Senior Director, Transmission Directorate, 4. Nepal Electricity Authority (NEA), Nepal 5. Panjab Khurana, Program Specialist, ISA 6. Rohan Seneviratne, General Manager, Ceylon Electricity Board 7. (CEB), Sri Lanka 8. Sonam Tobjey, CEO, Bhutan Power Corporation, Royal Government of Bhutan 9. Abdur Rashid Khan, Project Director (Chief Engineer), Power Grid Company of Bangladesh (PGCB), Bangladesh

16:00 ~ 17:15	<p>Session-2: Development of Power Market for Regional and InterRegional Power Trade</p> <p>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</p> <p>Discussants:</p> <ol style="list-style-type: none"> 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 7. Ahmed Ali, Director General, Energy, Ministry of Environment, Climate Change and Technology, Republic of Maldives
17:15 ~ 17:30	<p>Key Takeaways and Next Steps by Namrata Mukherjee, Deputy Chief of Party (Trade & Investments), SAREP</p>

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References:

1. <https://www.nbr.org/publication/transforming-regional-electricity-markets-in-south-and-southeast-asia-for-a-greener-and-more-sustainable-future/>
2. <https://powerline.net.in/2022/12/06/deepening-climate-protection-and-facilitating-cross-border-electricity-trade-in-south-asia-sowing-the-seeds-for-a-regional-parliamentary-forum/>
3. https://reliefweb.int/attachments/c2d2ffe1-8294-4cb4-a405-e614e3bf412d/1303_State_of_the_Climate_in_Asia_2021_en.pdf
<https://www.downtoearth.org.in/blog/renewable-energy/improvising-power-trade-in-south-asia-can-ease-renewable-energy-access-in-the-region-86944>
4. <https://sarepenergy.net/wp-content/uploads/2022/12/presentation-09march.pdf>
<https://www.downtoearth.org.in/blog/renewable-energy/how-south-asia-s-massive-renewable-energy-potential-can-boost-green-hydrogen-production87307>
5. <https://www.nbr.org/publication/transforming-regional-electricity-markets-in-south-and-southeast-asia-for-a-greener-and-more-sustainable-future/>
6. <https://sari-energy.org/wp-content/uploads/2020/06/Session-summary-Roundtable-on-Interconnection-of-Regional-Grids-in-Asia.pdf>

LiFE and Relevance of Gender
03 March 2023 (Friday) | 10:30 ~ 12:30 IST | Venue: Regency - 5

In collaboration with USAID SAREP

SESSION BACKGROUND

Lifestyle for Environment (LiFE) is an India-led global mass movement to nudge individual and community action to protect and preserve the environment. Mission LiFE was launched by the Prime Minister of India, Shri Narendra Modi, on June 5, 2022, World Environment Day. LiFE aims to mobilize at least 1 billion people – both Indians and others – to take environmental action between 2022 and 2027. By 2028, the movement aims to make at least 80% of all Indian villages and urban local bodies (ULB) environment friendly.

According to the United Nations Environment Programme (UNEP), if one out of eight billion people adopts environment-friendly behaviors daily, global carbon emissions could drop up to 20 percent. The LiFE program envisions three core shifts in our collective approach towards sustainability – change in demand (phase 1), change in supply (phase 2), and policy change (phase 3).

Women would be central to advancing the goals of the LiFE. This session on LiFE and the relevance of gender will examine how these actions can be oriented towards gender inclusion goals, such as the greater representation of women in decision-making in the energy sector.

Discussion Points:

- What is the relevance of gender mainstreaming in achieving LiFE goals?
- What are the challenges and opportunities for women to support LiFE?
- What role do policymakers and key decision-makers foresee for women in the clean energy transition in India?
- How can development partners support greater participation of women in decision-making?
- What kind of interventions are needed at the design stage of a program to make them more gender inclusive across all levels?
- Upskilling and Reskilling for new jobs

AGENDA



10:30 - 11:00	Welcome Remarks: Reena Suri , Executive Director, ISGF Setting the Context – LiFE: Rakesh K Goyal COP SAREP Opening Remarks – USAID Representative - TBD
11:00 - 11:15	Presentation on Why Women Role is Critical in LiFE (in Clean Energy Transition) by Farah Ahmed , WS1-Lead SAREP
11:15 - 12:20	Session on LiFE and the Relevance of Gender Moderator: Vaishali Nigam , SAWIE Chairperson Speakers: <ol style="list-style-type: none"> 1. Tripta Thakur, Director General, NPTI 2. Prachi Kaul, Director - India, Indo-Canadian Institute* 3. Vida Rozite, Policy Analyst and Project Manager, International Energy Agency 4. Deepali Khanna, Vice President – Asia, The Rockefeller Foundation 5. Manashwi Banerjee, Head-Communications, India and South Asia, Hitachi Energy 6. Deepthi V Dutt, Head - Strategic Initiatives - Public Sector, AWS 7. Shalini Sarin, Co-Chair SAWIE 8. Ritu Gupta, Financial Controller, Tata Power Delhi Distribution Ltd 9. Wendy Werner, Country Head – India, IFC 10. Gauri Jauhar, IHS Markit 11. Cheistha Kochar, Senior Advisor, Niti Aayog 12. Krithika PR, Manager (Energy) RTI International India email pkritika@rti.org Q&A
12:20 - 12:30	Concluding Remarks and Vote of Thanks: ISGF

Session Coordinator: Aashima | Mobile: +91 9871752530 | Email: Aashima@indiasmartgrid.org

SELECT TECHNICAL PAPERS CONFERENCE DAY 4: 03 March 2023 (Friday) 10:00 ~ 17:30 Regency 3					
Serial Number	Theme	Paper Title	Lead Author	Organization	Presentation Time
Chair: Sameer Chowdhuri, Former CIO, Power Grid Corporation of India					12:35 - 12:40
1	Cyber Security for the Digitalized Grids	A Framework for VAPT services in Digital Substations	Amulya	GRIDSentry Pvt Ltd	10:05 - 10:20
2	Disruptive Innovations for Utilities	Situational Awareness of Grid using Wide Area Monitoring and Analytics based on WAMS-GETCO Project	Mukesh Gulabsinh Gadhi	SLDC GETCO Gujarat	10:20 - 10:35
3		Monitoring of Remote SS through Robotics, Augmented Reality and Artificial Intelligence	Ravi Sahu	TATA Power Co Ltd	10:35 - 10:50
4		RDS (Rural Digital Substation)	Ganesh Murlidhar Mane	TP Western Odisha Distribution Limited	10:50 - 11:05
5		Drone based surveillance of Overhead LT Network	Anjan Mitra	CESC LTD.	11:05 - 11:20
6		AI-based predictive maintenance implementation in wind Turbine Based on SCADA Data	S. Majid Rezaee		11:20 - 11:35
7		Power Demand/Load Forecasting Using Artificial intelligent and Machine learning for power utilities	Akshat Kulkarni	SCOPE T&M Pvt Ltd	11:35 - 11:50
8		Wearable Devices	M.L. Sachdeva	CEA	11:50 - 12:05
9		Centralized & Decentralized Approach for Safe, Reliable Power Supply using IT-OT	Chintamani Chitnis	TP Central Odisha Distribution (TPCODL)	12:05 - 12:20
10	Smart Grids for Smart Cities	Feasibility Study for Implementing Smart Interactive Street Lighting under Smart City Concept	Manan Pathak	Aditya Silver Oak Institute of Technology, Silver Oak University	12:20 - 12:35
Chair: N Murugesan, Former Director General - CPRI and Advisor – ISGF					10:00 - 10:05
11	Electric Mobility	Design And Development of Grid-Tied Off-Board Intelligent Charging Station	Brijesh Singh	KIET Group of Institution	12:40 - 12:55
12		Framework and Govt. policy for retrofitting existing petrol / diesel vehicles ~ a case study	Srinivasa Murthy Lolla	Bio Electrical & Energy Systems	12:55 - 13:10
13	Foundational Blocks for Smart Grids	Solar Powered Smart Switching Multilevel Inverter for Smart Grid	Suvetha Poyyamani Sunddararaj	M. Kumarasamy College of Engineering	13:10 - 13:25
14		IElectrix Project – Results and lessons learned from the Indian demonstration in Delhi	Pierre-Jacques Le Quellec	Enedis	13:25 - 13:40
15		Leveraging Data in Power Distribution	Raman Garg	REC Ltd	13:40 - 13:55

16		Communication Solutions for Smart Grids and Smart Cities	Vinit Mishra	E&Y	13:55 - 14:10
17		Foundational Blocks for Smart Grids-ESS Applications and Business Cases	N Ilamaran	NSURE RELIABLE POWER SOLUTIONS PVT LTD	14:10 - 14:25
18		Demand-side flexibility as a demand response mechanism - Review	Robins Anto	IIT Roorkee, Uttarakhand, India	14:25 - 14:40
19	INDIA @ 100 in 2047: Vision for the Indian Power System	Data-driven Cognitive Model for enhancing Sustainability Footprint of Customer-base of Electricity Industry	Surekha Deshmukh	IEEE PES	14:40 - 14:55
Chair: Anjuli Chandra, Former Member, Punjab Electricity Regulatory Commission					14:55 - 15:00
20	New and Emerging Technologies and Trends	Power Quality Monitoring & Analysis for Optimized Quality Power Delivery	Manas Kundu	Asia Power Quality Initiative	15:00 - 15:15
21		Impact of Harmonics on losses and life expectancy of distribution transformers: A Case Study	Ritu	TATA POWER Delhi Distribution Limited	15:15 - 15:30
22		Inhouse Robotic process automation (RPA)	Harsh Raj	Noida Power Company Limited	15:30 - 15:45
23		Smart Energy Communities	Purnima Gupta M	Former Economic Advisor, Central Electricity Authority	15:45 - 16:00
24	Regulations for the Evolving Smart Energy Systems	Regulations to enhance distribution level flexibility for renewable energy integration	Harsha V Rao	Council on Energy, Environment, and Water (CEEW)	16:00 - 16:15
25		Exploring Virtual Power Purchase Agreements (VPPA) for increasing RE penetration in C&I segment of India	Shivali Dwivedi	RTI International	16:15 - 16:30
26	Smart City Gas Distribution	Digital technologies transforming the City Gas Distribution value chain from source to consumer	Diggamber Singh	ABB India Limited	16:30 - 16:45
27	Smart Water	Innovative smart water metering in a multi-utility environment	Rashed Mohamed Mazrooei AI	Abu Dhabi Distribution Company (ADDC)	16:45 - 17:00
28		Smart Solutions for Strengthening Drinking Water Supply Value Chain	Subhajyoti Majumder	Cognizant Technology Solutions Pvt. Ltd.	17:00 - 17:15
Key Takeaways by Session Chairs					17:15-17:30

Session Coordinator: Parul S | 9810878505 | parul@indiasmartgrid.org

SMART CITY GAS DISTRIBUTION 03 MARCH 2023 (THURSDAY) 14:00~17:00 (IST) Venue: Regency 3 IN COLLABORATION WITH NATURAL GAS SOCIETY AND INDIA CGD FORUM	
 	
SESSION BACKGROUND	
<p>India's target is to raise the share of gas in its energy mix to 15% by 2030, a very challenging task. Though the demand will continue to outstrip domestic supply, inadequate evacuation infrastructure could hamper large-scale imports. To give a push to gas market in India, NITI Aayog is planning to give complete marketing and pricing freedom to all-natural gas produced in the country, including nominated gas fields. Petroleum and Natural Gas Regulatory Board (PNGRB) has also brought out amendments in its three regulations that will act as a stepping stone for the implementation of Unified Tariff framework effective from 1st April 2023.</p> <p>Discussion Points</p> <ul style="list-style-type: none"> Pricing freedom on natural gas in India 15% Gas in its Energy Mix by 2030 Three Regulations to Accelerate Natural Gas Infrastructure 	
AGENDA	
14:00~14:30	<p>INAUGURAL SESSION:</p> <p>Welcome Address: DV Shastry, Executive Director, NGS Special Address: AK Jana, CEO, Haryana City Gas Ltd. (ex MD, IGL) Raman Chadha, CEO GAIL Gas Limited*</p>
14:30~15:15	<p>Session-1: PRICING FREEDOM FOR NATURAL GAS IN INDIA</p> <ol style="list-style-type: none"> NITI Aayog's proposal for complete freedom for marketing and pricing of natural gas in India Role of Indian Gas Exchange (IGX) to provide a transparent platform for gas trading in India Kirit Parikh Committee's Recommendations on Floor and Cap Prices for Natural Gas <p>Chair: Kirit Parikh, Chairman, IRADe Moderator: DV Shastry, Executive Director, NGS Speakers:</p> <ul style="list-style-type: none"> Rajesh Mediratta, Chairman and Managing Director, IGX Kapil Jain, Chief Operating Officer, GAIL Gas Gyanendra Sharma, Vice President, Peronet LNG Limited* <p>Kamil Bhullar, Research Officer, Energy, Niti Aayog</p>
15:15~16:00	<p>Session 2: INDIA'S TARGET TO HAVE 15% GAS IN ITS ENERGY MIX BY 2030</p> <ol style="list-style-type: none"> Expansion of national gas grid to about 33,500 km from current 21,715 km Expansion of city gas distribution (CGD) network Setting up of liquefied natural gas terminals Targets of various oil and gas companies to reduce emissions <p>Chair: ASK Sinha, Director, Rajiv Gandhi Institute of Petroleum Technology Moderator: Vipin Chittoda, Senior Consultant, NGS Speakers:</p> <ul style="list-style-type: none"> Rajiv Mathur, Former Executive Director, GAIL Peeyush Tripathi, Senior Vice President Region-2, Adani Gas Limited Rajeev Kumar, Head & Marketing and O&M, IGL <p>Rajpal Gohar, Business Head, SEW</p>
16:00~16:45	<p>Session 3: NEW REGULATIONS TO ACCELERATE NATURAL GAS INFRASTRUCTURE</p> <ol style="list-style-type: none"> Amendment of natural gas pipeline tariff by PNGRB Accelerated development of the natural gas infrastructure Authorization and capacity regulations to usher rapid growth of the natural gas market <p>Chair: A. K Tiwari, Member, PNGRB Moderator: Raman Srivastava, Vice President, Corporate Affairs and Risk Management Speakers:</p> <ul style="list-style-type: none"> Neeraj Pasricha, Vice President, Pipeline Infrastructure Limited Sanjay Shinde, Deputy Managing Director, MGL <p>SC Gupta, Joint Advisor, PNGRB</p>
16:45~17:00	<p>Key Takeaways and Next Steps</p>

Session Coordinator: Aashima Seth | Contact- +91-9871752530 | Email ID: aashima@indiasmartgrid.org

EVENT DAY- 4: 03 MARCH (FRIDAY)

VALEDICTORY FUNCTION OF ISUW 2023 & ISGF INNOVATION AWARDS CEREMONY

Crystal 1 & 2
India 18:30 ~ 20:00

GALA DINNER AND CULTURAL PROGRAMS

Crystal 1 & 2
India 20:00 ~ 23:00

EVENT DAY-5: 04 MARCH (SATURDAY)

TECHNICAL TOURS

Tour-1: NRLDC+REMC+TPDDL LAB + 10 MW BESS
(IST 9:00 to 17:00)

Tour-2: 800 kV HVDC STATION IN AGRA + TAJ MAHAL *
(IST 7:00 to 19:00)

CULTURAL TOURS

Tour-3: TAJ MAHAL + AGRA
(IST 7:00 to 19:00)
Tour- 4: DELHI
(IST 9:00 to 17:00)

APPENDIX

ISUW 2023
DETAILED AGENDA
SPECIAL WORKSHOPS AND
MASTER CLASSES
28 FEBRUARY 2023 (TUESDAY)

POWERED BY



EVENT DAY 1: 28 FEBRUARY 2023 (TUESDAY)
SPECIAL WORKSHOPS AND MASTER CLASSES
Introductory Course on
Transformer Models and Generative Artificial Intelligence Tools

Venue & Time

Venue	Regency 1&2
Time	India 10:30 ~ 17:30

Course Contents

This course will cover the recent developments in the Artificial Intelligence (AI) domain related to natural language processing (NLP) and computer vision which has given rise to Transformer Models that can be pre-trained to process massive data sets. The OpenAI Generative Pretrained Transformer version 3 (GPT-3) released in 2022 is a huge advancement in AI capabilities; and within a short span of few months has given rise to a whole new industry that is developing various applications using these tools. The modules in the course are listed below:

A. TRANSFORMERS

- Introduction to Transformer Models:** Key components of Transformer Models, such as self-attention and multi-head attention, GPT-3 etc.
- Generative AI:** Generative Adversarial Networks (GANs), Variational Autoencoders (VAEs), Autoregressive Models (such as the Transformer-XL)
- Applications of Transformer Models**
- Training and Evaluating Transformer Models:** Pre-processing data, selecting the right model architecture, fine-tuning hyperparameters, techniques for evaluating the performance of transformer models such as perplexity and BLEU scores
- Advanced Topics in Transformer and Generative AI:** Most recent research in transformer and Generative AI, such as the use of transformer models in Reinforcement Learning, Unsupervised Learning etc

B. OpenAI GPT-3 and Chat GPT

- Introduction to OpenAI GPT-3:** Concept of OpenAI GPT-3, its architecture, pre-training process, and key features; various NLP tasks that GPT-3 can perform, such as text generation, language translation, question answering, and text summarization
- Using OpenAI GPT-3:** Practical aspects of using GPT-3, including how to access the API, fine-tune the model for specific tasks, and evaluate its performance
- Introduction to ChatGPT:** Key features of ChatGPT, such as its ability to understand and respond to natural language inputs in a human-like manner
- Building Conversational AI Applications with ChatGPT:** Practical aspects of building Conversational AI Applications with ChatGPT

C. Popular Generative AI Tools - Application-wise

This module will cover various applications of the emerging AI tools and the range of tools available for different applications and its key features; and how to use the following tools:

Text-to-Text (T2T), Audio-to-Text (A2T), Text-to-Audio (T2A), Text-to-Image (T2I), Image-to-Text (I2T), Text-to-Video (T2V), Text-to-Motion (T2M), Text-to-Code (T2C), Brain-to-Text (B2T), Audio-to-Audio (A2A)

D. Robotic Process Automation (RPA)

Introduction to RPA: What is RPA, what are its benefits, Use Cases; UiPath Tool and its Capabilities, Native Integrations
Open AI Implementation with UiPath: How to Connect Open AI with RPA Tools What can be the Use Cases and Future Scopes

10:30 ~ 10:40

Welcome Address: Reji Pillai, President, ISGF

10:40 ~ 12:30

Session – A: Transformers

Session Introduction: Nitin Sharma, ISGF

Tutors: Pranav Raikote, AI Researcher, Plexflo

12:30 ~ 13:30	Session-B: OpenAI GPT-3 and Chat GPT Session Introduction: Sneha Singhania, ISGF Tutors: 1. Hasan Preet Singh Toor , Digital Creator & Software Engineer* 2. Mukesh Kala , Senior RPA Analyst, UiPath MVP
14:30 ~ 15:30	Session-C: Popular Generative AI Tools (Application-wise) Session Introduction: Parul Shribatham, ISGF Tutor: Shubham Bhardwaj, Walking Tree
15:30 ~ 17:00	Session-D: Robotic Process Automation (RPA): Session Introduction: Shashi Bala, ISGF Tutor: Mukesh Kala, Senior RPA Analyst, UiPath MVP
17:00 ~ 17:30	Q&A

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

EVENT DAY 1: 28 FEBRUARY 2023 (TUESDAY)
SPECIAL WORKSHOPS AND MASTER CLASSES
OCPP TECHNICAL WORKSHOP AND TRAINING
In Collaboration with OPEN CHARGE ALLIANCE, Netherlands

Venue & Time

Venue	Regency- 1&2
Time	India 14:00 ~ 17:30

Session Background

Open Charge Point Protocol (OCPP) is an open data standard for communications between EV charging stations and the centralized software platform for real-time EV charging management and operations. A member-based association, Open Charge Alliance (OCA) in Netherlands manages OCPP development and interoperability testing. Over 220 EVSE manufacturers, aggregators, utilities, etc. have integrated their software platforms with OCPP versions 1.6 and 2.0.1. The OCPP has emerged as the industry's de-facto standard for communication between a charging station and a charging station management system and is designed to accommodate any type of charging functions. It has been designed and developed to standardize the communications between an EV charge point and a central system used to operate and manage charge points. The communication standard is open and freely available to switch from the charging network without necessarily replacing all the charging stations. OCPP 1.6 includes smart charging support for load balancing. The most recent version, OCPP 2.0.1, includes support for ISO/IEC 15118 for communications between EV and EVSE. Future version of OCPP is designed to include bi-directional capabilities such as V2G and V2H. The session will introduce e-mobility, OCPP and highlight the features that are contextual to the Indian applications.

Workshop Topics:

1. Electric Mobility Ecosystem and Grid Interoperability
2. Open Charge Point Protocol (OCPP) Standard – Origins, Features, and Development Roadmap
3. OCPP Functions for EV Charging Operations and Authorization and Payment Methods
4. Vehicle-Grid Integration (VGI) Services and Significance of OCPP for Interoperability
5. OCPP and Utility Control – Integration with IEC 62746-10-1, IEC 61850, ISO 15118, IEEE 1547 etc.
6. OCA Activities in the USA and Europe to Improve Uptime or Reliability of EV Chargers
7. OCPP and Bidirectional Power Transfer
8. OCPP and India – Market Adoption, Specific Requirements such as Pre-payment, Reliability, etc.
9. OCPP Testing and Certification Requirements: International Adoption and the new Testing Tool
10. OCPP Testing and Certification, Plugtests in India – Way Forward to Engage with OCA

14:00 ~ 14:10
Inauguration
Welcome Address: ISGF
Tutors

Lonneke Driessen-Mutters, Executive Director, Open Charge Alliance
Girish Ghatikar, Energy Leader, Digital Innovation and Emerging Technologies, General Motors (GM) and WG Chair, ISGF

14:10 ~ 14:40

Session 1: Introduction to Electric Mobility Ecosystem, Grid Interoperability OCPP; OCPP features for EV Charging Operations and Authorization and Payment Methods.

14:40 ~ 15:10

Session 2: EV Ecosystem Integration For Vehicle-Grid Integration (VGI) Services And Significance Of OCPP For Grid Management Functions.

15:10 ~ 15:40

Session 3: OCA Activities in the U.S. and Europe to Improve Uptime of EV Chargers and Services Such as Bi-Directional Power Transfer for Resiliency and Reliability.

15:40 ~ 16:10

Session 4: OCPP Applications in India, Market Adoption, and Contextual Requirements; Testing and Certification Program: and Way Forward.

16:10 ~ 16:20
BREAK
16:20 ~ 17:00
PANEL DISCUSSION ON WAY FORWARD
Chair and Moderator: Sajid Mubashir
Panelist:

1. **Lonneke Driessen-Mutters**, Executive Director, Open Charge Alliance
2. **Sameer Pandita**, Director, BEE*
3. **Anand Deshpande**, Senior Deputy Director, ARAI*
4. **Pamela Tikku**, Chief Business Officer, ICAT-International Centre for Automotive Technology*
5. **Rama Krishna Singh**, Head-EV Business Unit, Tata Power*
6. **Archana Chauhan**, Assistant Manager/ Lead National E-Bus Program, CESL*
7. **Jai Prakash Singh**, Business Head E- Mobility, Ador Digatron Pvt.Ltd*

17:00 ~ 17:30
Key Takeaways and Next Steps by OCA, BEE/BIS

Session Coordinator: Nitin Sharma | +91 9034160319 | Nitin@indiasmartgrid.org

EVENT DAY 1: 28 FEBRUARY 2023 (TUESDAY)
IEEE EDUCATION - ISUW 2023 MASTER CLASS
ENERGY TRANSITION TO NET ZERO POWER SYSTEM – STRATEGIES AND PATHWAYS

Course Certified by IEEE



Venue & Time

Venue	Regency 3
Time	India 10:30 ~ 17:00

Tutorial Background

The aim of this tutorial is to define an outline for the energy transition pathways of power systems to Net Zero so that countries could achieve their Net Zero targets. This Master Class certified by IEEE Education will cover the global and Indian perspectives on choices for energy transition pathways and strategies. The energy transition pathways will be viewed from the prism of enablers like DERs, edge sensors/IoT devices; cyber security and other enabling technologies; and the seamless integration of consumers and prosumers to the evolving future state. The course will pivot to the application of these technologies to the modern utility industry and how this can help in initiating new transformation opportunities or help complete existing initiatives. This Master Class will also seek to bring out the value to all the key stakeholders – Government, the regulators and policy makers, market, utilities and the prosumers as it seeks new business models to monetize new and existing services.

Course Contents

a) Energy Transition to Net Zero – An Overview

The core strategy being followed across the globe for achieving Net Zero is electrification of all sectors of the economy to the extent possible and decarbonize the electricity sector. Hence, the emerging policies and regulations driven by climate change priorities is advocating for Net Zero power systems which is opening up unprecedented opportunities for technological innovations in the power sector. In this section we will review the emerging trends and set the stage to discuss the current state and future state of the energy transition.

b) Key Stakeholders and Their Roles

The key stakeholders in the energy transition are Governments, policy makers, regulators (federal and regional level), utilities, consumer advocates; industries and other sectors moving to electrify their operations (transport, manufacturing, cooling and heating, cooking, agriculture etc.); consumer advocates and other climate activists. The course will discuss the enablers, barriers, support structures and evaluate their impact on the energy transition.

c) Current State – Global and Indian Perspectives

The current state of power systems and the challenges in transforming the existing system to a Net Zero power system will be discussed from the perspectives of generation, transmission, distribution and consumption. Both global and Indian scenarios will be examined.

d) The Future State – Vision and Pathways

The vision for the future state is one that is a smart, dynamic, adaptive; and driven by digitalized systems. The future multi-directional power systems and its architectures will be discussed in this module:

- i) Systems and Services
- ii) Data Flow and Data Models
- iii) Power System Architecture

e) DER's - Dispatching Grid Scale DER's

- i) Defining the components (solar, wind, batteries, EV's etc.) and their characteristics
- ii) Dispatchability

f) Technologies - The Key Enablers

- i) Edge Devices, Smart Sensors (including smart meters), IoT, Drones
- ii) Artificial Intelligence (AI), Machine Learning and new Generative AI Tools
- iii) Web 3.0, Blockchain and Metaverse
- iv) Orchestration (DERMS, DRMS, and Edge Monitoring and Dispatch)

v)	<i>Data – the Most Valuable Asset</i>
vi)	<i>Communications – The Glue</i>
g)	The Consumer/ Prosumer <i>While consumer engagement has been an increasing focus in grid modernization; the energy transition to net zero will be taking it to the next level. This course will discuss things like proactive customer communication, changing role of customers, studying and mapping of consumer behavior, innovative technologies and their role and the value-added services that can be offered in the future state.</i>
h)	Integrating Security and Privacy into the Evolving Net Zero Energy Ecosystem Across the Value Chain <ol style="list-style-type: none"> 1) <i>Securing the Ecosystem - from First Principles</i> 2) <i>Pitfalls of Encryption, Firewalls, Security Updates, and Intrusion Detection</i> 3) <i>Emerging Discipline: Industrial Security Engineering - Powerful New Techniques</i>
i)	Case Studies and Examples <i>Select global case studies relevant in the Indian context will be discussed</i>

Tutors

Anant Venkateswaran, Industry professional, ISGF and Hitachi Energy
Mani Vadari, Founder and President, Modern Grid Solutions
Reji Kumar Pillai, President, ISGF
Rahul Tongia, Senior Fellow, CSEP
Faruk Kazi, Professor-Dean of Research and Development, VJTI, Mumbai
MAKP Singh, Member, CEA
Stefan Tenbohlen, Head of Institute of Energy Transmission and High Voltage Engineering, University of Stuttgart

Key Takeaways

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

Tutors



MAKP Singh
Member
CEA

MAKP Singh, Member (Hydro), CEA and Chief Information Security Officer, Ministry of Power, is an Electrical Engineering Graduate from IIT Kanpur and have a MBA degree from IIT Delhi. Prior to joining Power Sector, he had worked for Schlumberger, Geo Services in Oil Industry and in Automobile leader Maruti Udyog Ltd. He joined Central Electricity Authority in 1992. While in CEA he has worked for 12 years in Regional Power Committee RPC (Northern and Western Grid) earlier known as Regional Electricity Board. He has 3 years' experience of managing Northern Regional load dispatch center as Member Secretary, NRPC, New Delhi & WRPC, Mumbai. In CEA, he had worked in other divisions like Fuel Management, System Planning & Project Appraisal, APDR Cell before proceeding for deputation to NTPC in 2003.



Mani Vadari
Founder and President
Modern Grid Solutions

Mani Vadari is a well-recognized electric industry leader and visionary, with over 30 years of experience delivering business and technical solutions for transmission, distribution, and generation operations, wholesale markets, smart grid, cyber security/threat assessment, and smart cities. Mani has a multi-year track record of delivering value on a wide range of technology and business solutions. As President of Modern Grid Solutions, he leads a team of experts who deliver complex and innovative technology, business, regulatory, and financial solutions to electric utilities, suppliers, regulators, corporate boards, and policymakers worldwide. Mani is also an Affiliate Professor at the University of Washington. Lastly, Mani is a Technical Consultant to the New York State Smart Grid Consortium where he participates on an architecture role in the core REV (Reform the Energy Vision) team.



Anant Venkateswaran
Industry professional
ISGF and Hitachi Energy

An experienced industry professional with over two decades of international experience in business, financial, regulatory/policy, operations and technology aspects of the energy and utility sector, Anant Venkateswaran serves on several technical, standards, advisory and tutorial committees and is a teacher, presenter, panelist, moderator and speaker at international events including Distributech, ISUW, IEEE and CIGRE. Anant has worked with utilities and energy companies across the globe advising them through visioning, strategy, business cases, architectures

and deployment. Working across the globe, he has managed major technology investments and advised clients from visioning to validation. A senior member of the team account able for strategy, trusted advisory/consultative, thought leadership and partnerships, Anant has worked both in the traditional aspects of the grid as well new and emerging areas of AMI, Grid-Edge, Protection and Control, Enterprise Solutions, Big Data, IoT, Cloud Computing and Smart Energy. Anant is successfully conducting ISGF Master class Series since 2017 as part of India Smart Utility Week. Anant is based in Denver, Colorado in the USA.



Reji Kumar Pillai
President, India Smart Grid Forum (ISGF),
Chairman, Global Smart Energy Federation (GSEF)

Reji is the President of India Smart Grid Forum (www.indiasmartgrid.org) since its inception in 2011 and is also the Chairman of Global Smart Energy Federation since November 2016. He an internationally renowned expert with nearly four decades of experience in the electricity sector in diverse functions covering the entire value chain and across continents.



Rahul Tongia
Senior Fellow- CSEP, Founding Advisor-ISGF

Rahul Tongia is a Senior Fellow with Council for Social and Economic Progress in New Delhi, where his work focuses on technology and policy, especially for sustainable development. He leads the Energy, Natural Resources and Sustainability group at CSEP, and is also active in broader issues of technology. Tongia's works pans the entire energy and electricity domains with focuses on supply options including renewable energy (covering finance, grid integration, etc.); smart grids, which use innovative information and communications technology to improve management of the electric utility grid issues of access and quality and broader issues of reforms and regulations including electricity pricing. He is also a non-resident

Senior Fellow at the Brookings Institution and Adjunct Professor at Carnegie Mellon University, and was the founding Technical Advisor for the Government of India's Smart Grid Task Force.



Stefan Tenbohlen
Head of Institute of Energy Transmission and High Voltage Engineering
University of Stuttgart

Stefan Tenbohlen's research is mainly geared towards ensuring a reliable, cost-effective and sustainable supply of energy. This involves work relating to high-voltage technology in the field of insulation strength and diagnostics as well as the modification of the supply of electrical power based on a more widespread use of renewable energies. One particular focus area of his research activity is electromagnetic compatibility (EMC) in connection with energy technology and electronic systems. Stefan studied general electrical engineering at RWTH Aachen and obtained his doctorate in 1997 with a dissertation on the subject of the insulation strength of sulfur hexafluoride. From 1997 to 2004 Stefan worked for ALSTOM Schorch Transformatoren GmbH in Mönchengladbach, where he became head of product and basic development in 1997. In this position he was responsible for developing online monitoring systems for condition diagnosis of power transformers. From 2002 to 2004 he was head of the division for the development, calculation and design of power transformers.

**EVENT DAY 1: 28 FEBRUARY 2023 (TUESDAY)
SPECIAL WORKSHOPS AND MASTER CLASSES
IEC-IEEE SMART ENERGY STANDARDIZATION COORDINATION WORKSHOP (IN
COLLABORATION WITH BIS, ISGF, IEC AND IEEE)**

Venue & Time	
Venue Time	Regency -5 India 10:30 ~ 13:30
Session Background Bureau of Indian Standards (BIS) has agreements in place with IEC and IEEE for adoption and adaptation of IEC and IEEE Standards in India. Grid integration of renewable energy has picked up in last couple of years. Standards related to renewable energy grid integration will play very important role towards grid infrastructure augmentation and its stability. Solar micro grids are also becoming popular which demands standardization of domestic solar inverters with grid synchronization and remote isolation features for consumer to distribution level. This will facilitate proliferation of rooftop solar in a big way. Since 2017, ISGF has been conducting this IEC-IEEE Smart Energy Standardization Coordination Workshop as part of ISUW. This close interactions between the standardization bodies along with subject matter experts from around the world has helped identifying standards relevant for India in the energy transition. This workshop will discuss about the importance and adoption of various IEC and IEEE standards listed below. <ol style="list-style-type: none"> 1. IEEE 1547: 2018 2. IEEE 2030.5 3. IEC 61850 4. IEC 62746-10-1: 2018 5. Wi-SUN 6. OCPP 	
10:30 ~ 11:00	Inaugural Session Welcome Address: Reji Kumar Pillai, President, ISGF Special Address: Richard Schomberg, IEC Ambassador and Chairman, IEC Smart Energy Systems Committee and Vice President-EDF Inaugural Address: Pramod Kumar Tiwari, Director General, BIS*
11:00 ~ 12:00	Session-1: Smart Energy Standards Chair and Moderator: Richard Schomberg, President-RJSenergy, IEC Ambassador, EDF Fellow, and IEC Smart Energy <ol style="list-style-type: none"> 1. Ravindra Desai, IEEE 2. Phil Beecher, President and CEO, Wi-SUN Alliance 3. N Murugesan, Former DG, CPRI and Advisor - ISGF 4. Dinesh Chand Sharma, Director - Standardization, Policy and Regulation, SESI
12:00 ~ 13:00	Session-2: Smart Mobility Standards Moderator: Girish Ghatikar, Energy Leader, Digital Innovation and Emerging Technologies, General Motors (GM) and WG Chair, ISGF <ol style="list-style-type: none"> 1. Lonneke Driessen-Mutters, Executive Director, Open Charge Alliance 2. Ravindra Desai, IEEE 3. Sajid Mubashir, Scientist -G, Department of Science and Technology
13:20 ~ 13:30	Key Takeaways and Next Steps

Session Coordinator: Anand Singh | +91 99252 18036 | anand@indiasmartgrid.org

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