India Smart Grid Forum

CREDENTIALS AND ACHIEVEMENTS
About ISGF

A Public Private Partnership initiative of Ministry of Power, Government of India established in 2011 and registered as a Not-for-Profit Society

Responsible for accelerated development of smart grid technologies in the Indian power sector with development of global standards, technology selection, training and capacity building

200+ members comprising of ministries, utilities, technology providers, academia and research

Evolved as a Think-Tank of global repute on Smart Grids and Smart Cities

8 Working Groups: Grid Modernization & Smart Cities; IoT, Smart Metering, AI & Analytics; Digital Architecture and Cyber Security; Policy, Regulations and Business Models; Renewables & Microgrids; Flexibility & Electric Mobility; Smart Gas; Smart Water
Key Objectives of ISGF

- Policy advocacy, standards development, training and capacity building for utilities.
- Knowledge dissemination on emerging technologies and best practices through case studies, reports, white papers, bi-lateral and multi-lateral workshops, technical seminars etc.
- Support Utilities and Regulators for Grid Modernization and Smart Grid Roadmaps and Regulations.
- Platform for exchange of ideas and information to support development of use case scenarios for India.
- Conduct feasibility studies on new technologies and assist in pilot deployments in India.
Key Expertise of ISGF

### Domains of Expertise
- Smart Grid
- Renewables and Microgrid
- E-Mobility
- Energy Storage
- Smart Metering
- Smart Cities
- Cyber Security
- Smart Water and Gas

### Functional Expertise
- Policy Advocacy
- Development of Standards
- Roadmaps
- Rollout Strategies and Plans
- Feasibility Report & DPR
- RFP Preparation & Evaluation
- Research & Studies
- Training & Capacity Building
- International Delegations to Smart Grid Events and Bilateral Workshops
Key Achievements and Activities
A. Work with Government and other Entities

1. Formulation of Smart Grid Vision and Roadmap for India issued by Ministry of Power in Aug 2013
2. Knowledge Partner with NITI Aayog for the India Energy Security Scenario 2047 Version-1 & 2
4. Worked with MNRE on Energy Storage and Renewable Energy Integration Programs
5. Worked with Department of Telecommunications for (i) Rollout of IPv6 for Power Sector, (ii) M2M Communications Roadmap, (iii) Release of 7 MHz of license free spectrum for M2M Communications
6. Worked with National Critical Information Infrastructure Protection Centre (NCIIPC) on Framework for Cyber Security Preparedness Assessment of Electric Utilities; and assessed 7 Utilities
8. Worked with FOR on formulation of Model Smart Grid Regulations issued in 2015
9. Worked with BIS on (1) Smart Meter Standards (IS:16444 – 2015 and IS:15958 Part-2 in 2016); (ii) EVSE Standards (IS:17017 series) – still in progress
10. Work closely with International agencies such as IEC, IEEE, Wi-SUN Alliance, ISGAN, GSGF, G3-PLC Alliance, Energy Blockchain Consortium (EBC) and Energy Web Foundation (EWF)
11. Launched IEC - IEEE World Smart Energy Coordination Workshop series: 4 editions held
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<tr>
<td>1.</td>
<td>Assistance to WBTC for Establishment of Charging Infrastructure for Electric Buses in Kolkata - 2019</td>
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<td>2.</td>
<td>Planning Electric Vehicle Charging Infrastructure in Bangalore City - ongoing</td>
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<td>3.</td>
<td>Study on Infrastructure and Enabling Environment for Road Electric Transport in SAARC Member States - 2018</td>
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<td>4.</td>
<td>Roadmap for Implementation of Smart Grid-Concepts, Practices and Technologies in SAARC Region - 2018</td>
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<td>5.</td>
<td>Smart Grid Roadmap for PT.PLN Indonesia (World’s second largest electric utility) - ongoing</td>
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<td>6.</td>
<td>Designing of Time of use Electricity Tariff in the State of Gujarat - ongoing</td>
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<td>8.</td>
<td>Implementation Plan for Electrification of Public Transportation in Kolkata - 2017</td>
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<td>9.</td>
<td>Smart Grid Roadmap for Bangalore Electricity Supply Company - 2019</td>
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<td>10.</td>
<td>Feasibility Study for Introduction of Electric Vehicles in the Sundarbans Landscape - 2018</td>
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<td>12.</td>
<td>Preparation of EOI and RFP for WBTC for Procurement of Electric Buses under FAME 2 Scheme - 2019</td>
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C. Research Reports & White Papers

1. AMI Rollout Strategy and Cost Benefit Analysis for India
2. Leveraging Smart Grid Assets for Building Smarter Cities At Marginal Cost
3. Electric Vehicle Charging Stations Business Models for India
4. Electric Bus Revolution of Shenzhen City in China
5. Global Energy Interconnection (GEI)
6. Interconnection of Regional Grids in Asia
7. Electric Vehicle Policies and Electricity Tariff for EV Charging in India
8. Leveraging Social Media by Electric Utilities for Effective Customer Engagement
9. Blockchain - A revolutionary and highly disruptive Technology for Future Energy Transactions
10. Policy Framework for Electric Rickshaws in Delhi

And many more....
D. Knowledge Dissemination

**India Smart Grid Knowledge Portal (www.indiasmartgrid.org)**
- Covers latest news on Smart Grids and related topics from around the globe
- ISGF Reports, Presentations, Whitepapers
- One of the most popular portals on smart grids

**ISGF Smart Grid Bulletin**
- Monthly Newsletter with 2000 printed copies and 55,000+ e-copies
- Delivers key achievements and latest news on Smart Grids and related topics from around the globe
- Information about all trainings, workshops and all other events

**Webinars**
- Webinars on latest technologies like Blockchain, Analytics, AI, Machine Learning etc. and case studies on smart grid projects from around the world
D. Knowledge Dissemination – contd.

India Smart Utility Week (www.isuw.in) – since 2015: held in March

- International Conference and Exhibition on Smart Grids and Smart Cities
- Knowledge sharing platform for Policy Makers and Regulators, Utilities, Technology Providers, Academia and Research, Entrepreneurs and Technology Enthusiasts
- Best practices and show case next generation technologies and products

Distribution Utility Meet (www.dumindia.in) – since 2017: held in November

- DUM is the unified voice of the DISCOM community to influence policy and regulations for grid modernization
- DUM provides an effective platform to DISCOMs to leverage each other's experiences and resources for successful nationwide smart grid roll outs
E. Training Programs

ISGF conducts following training programs at regular intervals:

1. Smart Grid Foundation Course: 3 Days Classroom + 2 Days Site Visits
2. Smart Grid Bootcamp: 1 Day
3. Cyber Security for Power Systems: 2 Days
4. Advanced Metering Infrastructure: 2 Days
5. E-Mobility and Charging Infrastructure: 2 Days
6. Certificate Course in Smart Grids: 10 Weeks
F. International Projects and Collaborations

**New Energy and Industrial Technology Development (NEDO)**

- Collaborated with NEDO for arranging a grant of INR 134 crore for undertaking the Smart Grid Pilot Project at Panipat
- ISGF has also done a Study of Smart Grid Market Scenario in India for NEDO and recommended new demonstration projects on Energy Storage, Grid Interactive Buildings with RTPV, ESS and VGI

**United States Trade and Development Agency (USTDA)**

- Worked with USTDA for arranging a grant for advisory services for design and implementation of Smart Grid Test Bench at Central Power Research Institute (CPRI), Bangalore
- Worked for another project of USTDA for technology demonstration programs

**SAARC Energy Center**

- Study for Development of Roadmap for Implementation of Smart Grid-Concepts, Practices and Technologies in SAARC Region (8 countries)
- Study on Infrastructure and Enabling Environment for Road Electric Transport in SAARC Member States
F. International Projects and Collaborations (Contd..)

Smart Grid Foundation Course for ASEAN Delegates

- ISGF organised the Smart Grid Foundation Course for ASEAN Delegates with a grant from ASEAN Secretariat from 01st to 05th October 2018 in New Delhi India.
- 17 delegates attended from 8 countries - Indonesia, Brunei, Singapore, Cambodia, Vietnam, Malaysia, Laos PDR and Thailand

Roundtable on Interconnection of Regional Grids in Asia

- A roundtable session was conducted on the topic “Interconnection of Regional Grids in Asia: ASEAN-SAARC/BIMSTEC-GCC Grids” on 15th March 2019 in New Delhi; held again in March 2020
- The roundtable was attended by key stakeholders from GCC, SAARC/BIMSTEC and ASEAN regions
F. International Projects and Collaborations (Contd..)

Secretariat to Global Smart Grid Federation (GSGF)

- GSGF is a global stakeholder organization committed to create smarter, cleaner electrical systems around the world. GSGF comprised of national smart grid organizations, leading utilities, academia and think tanks from 5 continents
- ISGF is a founding member of GSGF
- President ISGF is Chairman of GSGF since 2016

India Chapter to Energy Blockchain Consortium (EBC)

Energy Web Foundation (EWF) appointed Executive Director, ISGF, as EWF Ambassador
G. Bi-lateral Workshops and International Events

BI-LATERAL WORKSHOPS:
1. India - EU Smart Grid Workshops: 9 editions held since 2015
2. India – Canada Smart Grid Workshops: 2 editions held
3. India – Sweden Smart Grid Workshops: 4 editions held
4. India - USA Smart Grid Workshops: 6 editions held
5. India- France Smart Grid Workshops: 3 editions held; next scheduled in March 2020

INTERNATIONAL EVENTS:
1. European Utility Week: Since 2014
2. DistribuTECH, USA: Since 2014
4. Innovation for Cool Earth Forum (ICEF), Japan: Since 2014
5. Istanbul International Smart Grid Congress: Since 2015
6. Korea Smart Grid Week: Since 2013
7. Asian Clean Energy Forum (ACEF) by ADB – Since 2012
ISGF Membership

- ISGF members are from the ministries, government institutions, regulatory bodies, utilities, industry, non-profit organizations, educational and research entities and students from renowned institutions. Following are the Membership Categories:
## Prestigious Partners and Collaborations

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<th>Indian Collaborations</th>
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<td>Bureau of Indian Standards</td>
<td>Global Smart Grid Federation (GSGF) and ISGAN</td>
<td>IITs, Aligarh Muslim University, VJTI,</td>
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<td>Ministry of New and Renewable Energy</td>
<td>Central Electricity Authority, CPRI</td>
<td>UGBC and Green Business Certification Inc. (GBCI)</td>
<td>India Energy Storage Alliance (IESA)</td>
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<tr>
<td>Department of Telecommunications</td>
<td>NITI Aayog</td>
<td>IEEE, IEC EPRI, EEI, OCA</td>
<td>Shakti Sustainable Energy Foundation, MacArthur Foundation</td>
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<td>Ministry of Urban Development</td>
<td>NCIIPC</td>
<td>Open ADR Alliance, Wi-SUN Alliance, G3-PLC Alliance, GEIDCO</td>
<td>CII, FICCI, PHDCC, ICC</td>
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<tr>
<td>Dept of Science and Technology</td>
<td>Electricity Regulatory Commissions</td>
<td>World Bank, Asian Development Bank, NEDO, ASEAN Centre for Energy</td>
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<td>Dept of Heavy Industries</td>
<td>Smart City Municipal Commissions</td>
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Thank You