



PRELIMINARY AGENDA AS OF 4 SEPTEMBER 2019

Important: This preliminary agenda is subject to changes. It is strongly recommended to check back regularly.

ORGANIZED BY



WEDNESDAY, 04 SEPTEMBER 2019		THURSDAY, 05 SEPTEMBER 2019			FRIDAY, 06 SEPTEMBER 2019				
Conference Day 1		Conference Day 2			Conference Day 3				
8:30 – 09:30	FOYER	9:00 – 11:00	CB 1	CB 2	PLAZA TERRACE 3	09:00 – 11:00	CB 1	CB 2	PLAZA TERRACE
	Registration Process		SESSION 5A: Indian RE Integration	SESSION 5B: RE Policy Issues	SESSION 5C: Forecasting 1		SESSION 9A: Offshore Wind Power	SESSION 9B: Distribution Grid Planning	SESSION 9C: Forecasting 2
			COFFEE BREAK (15 MIN)				COFFEE BREAK (15MIN)		
09:30 – 12:00	CRYSTAL BALLROOM 1+2	11:15 – 13:00	CB 1	CB 2	PLAZA TERRACE 3	11:15 – 13:00	CB 1	CB 2	PLAZA TERRACE
	SESSION 1: Grid Integration of RE – Challenges, Roadmap and Progress		SESSION 6A: Indian Scenarios	SESSION 6B: Storage Issues 1	SESSION 6C: Electro Mobility 1		SESSION 10A: Grid Studies 1	SESSION 10B: Hybrid Power Systems	SESSION 10C: Electro Mobility 2
	TEA / COFFEE SERVED IN THE ROOM DURING THE SESSION		LUNCH 13:00 – 13:45				LUNCH 13:00 – 13:45		
12:00 – 13:40	CRYSTAL BALLROOM 1+2	13:45 – 15:55	CB 1	CB 2	PLAZA TERRACE 3	13:45 – 15:45	CB 1	CB 2	PLAZA TERRACE
	SESSION 2: Session on Policy, Market and Regulatory Interventions - TBC		SESSION 7A: Ancillary Services	SESSION 7B: Distributed Generation	SESSION 7C: Smart Grids and IT Issues		SESSION 11A: Grid Studies 2	SESSION 11B: Hybrid Power Plants	SESSION 11C: Storage Issues 2
	13:40 – 14:30 LUNCH BREAK		COFFEE BREAK (15MIN)				BREAK (15MIN)		
14:30 – 16:00	CRYSTAL BALLROOM 1+2	16:10 – 18:00	CB 1	CB 2	PLAZA TERRACE 3	16:00 – 17:30	CRYSTAL BALLROOM 1+2		
	SESSION 3: Technical Perspective in System Operation: International Experience		SESSION 8A: Coal Power Plants and RE	SESSION 8B: Grid Codes	SESSION 8C: Market Issues		SESSION 12: Closing Session – Panel Discussion		
	16:00 – 16:15 TEA / COFFEE BREAK		BREAK (15MIN)						
16:15–17:30	CRYSTAL BALLROOM 1+2	18:15–19:30	PLAZA TERRACE 3						
	SESSION 4: Discussion Session / Day's Roundup		Dialogue on Gender Equity						
		19:30	CONFERENCE DINNER						

WEDNESDAY, 04 SEPTEMBER 2019

08:30 – 09:30 Registration process

09:30 – 12:00	SESSION 1: GRID INTEGRATION OF RE – CHALLENGES, ROADMAP AND PROGRESS
> Moderator	Michael Satin (USAID, USA)
09:30 – 09:35	Welcome to the delegates
09:35 – 10:05	Presentations
	<ul style="list-style-type: none">• 09:35-09:50 – Theme Presentation – Context Setting on International Experience Thomas Ackermann (CEO, Energynautics, Germany)• 09:50-10:05 – Context Setting on Indian Experience S R Narasimhan. (Director, POSOCO., India)• 10:05-10:15: Address by Edgar D. Kagan (Chargé d'affaires of the U.S. Embassy, India)• 10:15-10:25: Address by Dr. Jasper Wieck (Chargé d'affaires of the German Embassy, Germany)• 10:25-10:35: Address of Jan Thompson OBE (Deputy High Commissioner to India, United Kingdom)• 10:35-10:55: Inaugural Address by the Honourable Power Minister* TBC• 10:55-11:00: Vote of Thanks by Michael Satin, USAID• 11:00-12:00: Panel Discussion on RE Grid Integration related Challenges for India and Progress so Far Moderator – Winfried Damm (Cluster Coordinator, IGEN, GIZ, India)<ul style="list-style-type: none">• Anand Kumar (Secretary, MNRE, India)*• K. V. S. Baba (CMD, POSOCO, India)• Mahendra Jain (Additional Chief Secretary, Energy Department, Karnataka, India)• Vikram Kapoor (CMD, TANGEDCO, India)• Mohit Bhargava (ED Renewables, NTPC, India)• Sandesh Kumar Sharma (Member Planning CEA, India)• Thomas Ackermann (Energynautics, Germany)
	* to be confirmed

12:00 – 13:40	SESSION 2: POLICY, MARKET AND REGULATORY INTERVENTIONS
> Session Chair	S K Chatterjee (Chief Regulatory Affairs, CERC, India)
12:00 – 13:40	Presentations (25 min. each)
	<ul style="list-style-type: none">• Grid integration of Variable Generation – Best Practices from International Experience Hannele Holttinen (IEA Wind Task 25 Recognis, Finland)• Policy and Regulatory Pathways for RE integration: UK Perspective Sukhinder Lalli (Ofgem, United Kingdom)• Futures and Derivatives Market and Role of FERC Jeremy Larrieu (FERC, USA)• Market Monitoring and Enforcement Practices Donna Melinda Sauter (FERC, USA)

13:40 – 14:30 Lunch Break

14:30 – 16:00 **SESSION 3: TECHNICAL PERSPECTIVE IN SYSTEM OPERATION: INTERNATIONAL EXPERIENCE**

> **Session Chair** **S K Soonee (Advisor, POSOCO, India)**

14:30 – 16:00 **Presentations (25 min. each)**

- **Challenges and Solutions for System Operations with High Share of RE**
Marcus Merkel (Eurelectric, Germany)
- **Challenges and Solutions for System Operations with high Share of RE: Experience from U.K.**
Robert Hull (Riverswan Energy Advisory, United Kingdom)
- **Technical Perspective in System Operation: US Perspective**
Guillermo Bautista (Director CAISO, USA)

16:00 – 16:15 **Tea/Coffee Break**

16:15 – 17:30 **SESSION 4: PANEL DISCUSSION**

> **Moderator** **Jagan Shah (Senior Infrastructure Advisor DFID, India)**

- **Presentation: Planning Power Systems with High Levels of Renewable Energy – Case Studies for India in 2030 and Beyond (25 min)**
David Palchak (NREL, USA)
- **Discussion Session: Planning for Indian Power Systems with High levels of Renewable Energy by 2030 and Beyond (45 min)**
 - **Ghanshyam Prasad** (Ministry of Power, India)
 - **S K Chatterjee** (Chief Regulatory Affairs, CERC, India)
 - **S.K. Soonee** (Advisor, POSOCO, India)
 - **David Palchak** (NREL, USA)
 - **Saurabh Kumar** (Managing Director, EESL, India)
- **Day's Roundup and Schedule for Day 2 (5 min)**
Thomas Ackermann (Energynautics, Germany)

THURSDAY, 05 SEPTEMBER 2019

09:00 – 11:00	SESSION 5A: INDIAN RE INTEGRATION EXPERIENCE
> Session Chair	Kirit Parikh (Chairman IRADe, India)
09:00 – 10:40	Presentations (20 min. each)
	<ul style="list-style-type: none">• Use of Meteogram and Radar Imagery for Grid Operation: An Indian Experience P. K. Agarwal, D. Kumar, A. Kumar, P. Khandelwal, S. K. Kanaujiya (Power System Operation Corporation, India) (Submission-ID: REIndia19_26)• SLDC – Gujarat Experiences on Existing RE Integration B. M. Shah, K. K. Sharma, V. K. Virparia (State Load Dispatch Centre, Gujarat Energy Transmission Corporation, India) (Submission-ID: REIndia19_30)• Implementation of Automatic Generation Control at Hydro Power Plants in Southern India C. R. Atla, N. Ramappa (Power Research & Development Consultants, India), S. K. Singh (Deloitte Touche Tohmatsu India, India), Pradeep M (Karnataka Power Corporation, India) (Submission-ID: REIndia19_123)• Assessment of Ramp-Capability and Reserve Margin Requirement for the State of Tamil Nadu with High RE Penetration for Year 2022 P. Sunil, A. Samui, S. Dwivedi, A. Unni, R. Segal (GE Energy Consulting, India) (Submission-ID: REIndia19_33)• Formulation of Performance of Inverters for Solar Photovoltaic Power Plants – Indian Case Study A. Harish (Amrita School of Engineering, India), A. Ramanan (GIZ, India), P. K. Das, G. Giridhar, K. Balaraman (National Institute of Wind Energy (NIWE), India) (Submission-ID: REIndia19_132)
10:40 – 11:00	Discussions

09:00 – 11:00	SESSION 5B: RE POLICY ISSUES
> Session Chairs	Anoop Singh (IIT Kanpur, India) / Sukhinder Lalli (Ofgem, United Kingdom)
09:00 – 10:40	Presentations (20 min. each)
	<ul style="list-style-type: none">• The Status of Power System Transformation 2019: Power System Flexibility Z. Hungerford (International Energy Agency, France) (Submission-ID: REIndia19_12)• REC Mechanism in India: Market Analysis, Lessons Learned and Way Forward K. V. S. Baba, P. K. Agarwal, S. K. Soonee, M. Garg, S. K. Verma, K. C. Saini (Power System Operation Corporation (POSOCO), India) (Submission-ID: REIndia19_58)• Development of Mechanisms to Incentivize Inter-State Exchange of Renewable Energy K. K. Gupta, A. Dave, R. Sharma, S. Patnaik (Greening the Grid, India Renewable Integration and Sustainable Energy Initiative Under Greening the Grid (GTG – RISE), India) (Submission-ID: REIndia19_57)• ‘Utility Driven Solar Roof Top (“SRT”) Programme’ for Domestic Households in Andhra Pradesh: An Innovative Programme for the Last Mile Common Man P. B. Avula, A. Thakker, U. K. Alamuru, Shanil N A (KPMG India, India) (Submission-ID: REIndia19_80)• Development of Solar Parks in India: The Way Forward R. Shyam Meena, D. Nigam, A. S Parira, S. Kr Gupta (Ministry of New & Renewable Energy (MNRE), India) (Submission-ID: REIndia19_157)
10:40 – 11:00	Discussions

09:00 – 11:00	SESSION 5C: FORECASTING 1
> Session Chairs	K. Balaraman (Director General, NIWE, India) / Hans-Peter Waldl (Managing Partner, Overspeed, Germany)
09:00 – 10:40	Presentations (20 min. each)
	<ul style="list-style-type: none"> • Wind Forecasting Techniques using ANN S. P. Bhagat (Ministry of New and Renewable Energy, India) (Submission-ID: REIndia19_56) • Integrated Regional Solar PV Forecasting by Hybrid Method: Case Study of an Indian State A. Ramanan (GIZ, India), N. Kumar, C. Alice Abraham, A. Roy, B. Kumar (NIWE, India), E. Barykina, H.-P. Waldl, F. Dierich (Overspeed, Germany), I. Mitra (GIZ, India), K. Ramanathan, P. K. Das, B. Kannan (NIWE, India) (Submission-ID: REIndia19_88) • Western Regional Renewable Energy Management Center – System Architecture, Handling of Challenges Related to RE Forecasting, Scheduling & Integration into Grid and Way Ahead K. Rasane (Siemens, India) (Submission-ID: REIndia19_38) • Optimized Wind and Solar Power Forecasts for India H.-P. I. Waldl (Overspeed, Germany), D. Heinemann (University of Oldenburg, Germany), K. Balaraman, G. Giridhar (NIWE, India) (Submission-ID: REIndia19_77) • Day Ahead Solar PV Power Forecasting Based on a Combination of Statistical and Physical Modelling Utilizing NWP Data for Solar Parks in India A. Roy (NIWE, India), A. Ramanan (GIZ, India), B. Kumar, N. Kumaar, C. Alice Abraham (NIWE, India), A. Hammer (University of Oldenburg, Germany), E. Barykina (Overspeed, Germany), D. Heinemann (University of Oldenburg, Germany), H.-P. Waldl (Overspeed, Germany), I. Mitra (GIZ, India), P. K. Das, K. Ramanathan, B. Kannan (NIWE, India) (Submission-ID: REIndia19_91)
10:40 – 11:00	Discussions
	<ul style="list-style-type: none"> • NIWE's Forecasting Activities (10 min) & Lessons Learnt from the Session K. Balaraman (NIWE, India)

11:00 – 11:15 Tea/Coffee Break

11:15 – 13:00	SESSION 6A: INDIAN SCENARIOS
> Session Chairs	Vijay Menghani (Chief Engineer, Renewable Technology and Integration, India) / David Palchak (NREL, USA)
11:15 – 12:35	Presentations (20 min. each)
	<ul style="list-style-type: none"> • Market Design: India's Path to a Low Cost, Low Carbon Electricity System: Taking the Next Steps to Decarbonised Power Udetanshu, S. Khurana, B. Pierpont, D. Nelson (Climate Policy Initiative, India) (Submission-ID: REIndia19_107) • Techno-economic Assessment of Deep Defossilisation Pathways for the Entire Energy Sector for India A. Gulagi, M. Ram, C. Breyer (Lappeenranta University of Technology, Finland) (Submission-ID: REIndia19_20) • Using DSM from Air Conditioners with Cool Thermal Energy Storage to Increase the Wholesale Market Value of Solar PV Electricity – 2040 Scenarios for India A. M. Ershad (Potsdam Institute for Climate Impact Research, Germany Technical University of Berlin, Germany), R. Pietzcker, G. Luderer (Potsdam Institute for Climate Impact Research, Germany) (Submission-ID: REIndia19_65) • The Impact of Policy Decisions on the Indian Electricity System in 2040 – A Model-Based Analysis B. Tom (EA Energy Analyses, Denmark) (Submission-ID: REIndia19_106)
12:35 – 13:00	Discussions

11:15 – 13:00	SESSION 6B: STORAGE ISSUES 1
> Session Chairs	S.K. Soonee (Advisor, POSOCO India) / Priya Sreedharan (Senior Technical Adviser, Clean Energy and Environment Office, USAID, India)
11:15 – 12:35	Presentations (20 min. each)
	<ul style="list-style-type: none"> • Evaluating Battery Storage in High Renewable Energy Scenarios for India R. Deshmukh (University of California Santa Barbara, USA) A. Mileva (Blue Marble Analytics, USA), A. Gambhir, S. Dukkupati, S. Dixit, (Prayas Energy Group, India) (Submission-ID: REIndia19_102) • A Review: Diagnosis and Classification of Faults in Electric Vehicle for Energy Storage and Electric Motor System M. Pathak (Aditya Silver Oak Institute of Technology, India), V. Shah (Sardar Vallabhbhai Patel National Institute of Technology, India), D. Kalola (Electropower Consultancy, India), J. Modi (Aditya Silver Oak Institute of Technology, India) (Submission-ID: REIndia19_28) • Storage - Issues, Challenges and Way Forward for India Rupam Raja (Fluence, India) • Study of Different Use Cases of the Grid Connected Battery Energy Storage System in India Mahesh. M, D.V. Bhaskar, T.N. Reddy, Ram Krishan, Jisha.R.K, Satish Kumar Singh (Renewable Integration and Sustainable Energy Initiative Under Greening the Grid (GTG-RISE), India) (Submission-ID: REIndia19_140) • Battery Energy Storage: Unlocking Potential in India V. S. Suhag, P. K. Singh (ICF Consulting India., India) (Submission-ID: REIndia19_68)
12:35 – 13:00	Discussions

11:15 – 13:00	SESSION 6C: ELECTRO MOBILITY 1
> Session Chairs	Ghanshyam Prasad (Ministry of Power, India) / Sajid Mubashir (Chairman of BIS Committee on E-Mobility Charging Infrastructure, DST, India)
11:15 – 12:35	Presentations (20 min. each)
	<ul style="list-style-type: none"> • Integration Strategy for Electric Vehicles by Distribution Companies V. Kaushik (Southern California Edison, USA) • Framework for Evaluating Grid Readiness for Integrating Electric Vehicles and Utility Scale Storage in India S. Ghosh, A. K. Jain, R. Bryce, M. Emmanuel, A. Latif, A. Nagarajan, D. Palchak, J. Cochran, S. Akar, T. Remo (NREL, USA), A. R. Ranjan, N. Nagpal (BSES Rajdhani Power, India) (Submission-ID: REIndia19_47/45) • Impact Assessment of Large Scale Integration of Electric Vehicle Charging Infrastructure on Distribution System C. R. Atla, S. Muhiuddeen, S. Narayana, Hemanth M (Power Research & Development Consultants, India), R. Bagdia (pManifold Business Solutions, India), S. Mishra, J. Gaebler, I. Mitra (GIZ, India), D. Sharma (BSES Yamuna Power, India) (Submission-ID: REIndia19_59) • Electric Vehicle as a Flexible Load R. Sharan, V. Singhal (Central Electricity Authority New Delhi, India) (Submission-ID: REIndia19_34)
12:35 – 13:00	Discussions

13:00 – 13:45 Lunch Break

13:45 – 15:55	SESSION 7A: ANCILLARY SERVICES
> Session Chairs	S. C. Saxena (POSOCO, India) / Christian Hewicker (Head Market Modelling, DNV GL, Germany)
13:45 – 15:45	Presentations (20 min. each)
	<ul style="list-style-type: none"> • Ancillary Services Products and Practices in CAISO G. Bautista (Director CAISO, USA) • Flexible Solar Power: Unlocking Solar’s Full Potential M. Morjaria (First Solar, USA) (Submission-ID: REIndia19_108) • Market for Tertiary Response in the Indian Market: Highlighting the Dynamics of Short Term Market for Tertiary Reserve T. Hansda (Calcutta University, India) (Submission-ID: REIndia19_39) • Controlling Power Generation and Ancillary Services from Wind and Solar in India T. Ackermann, E. Tröster, (Energynautics, Germany), U. Focken (energy & meteo systems, Germany), S. Garud (The Energy and Resources Institute, India), C. Nabe (Navigant Energy Germany, Germany), M. Kaur (GIZ, India) (Submission-ID: REIndia19_21) • Enabling Fast Response Ancillary Services Using Pumped Storage Hydro Power Project A. Sant (Savitribai Phule Pune University, India), N. Thakare (Idam Infrastructure Advisory, India) (Submission-ID: REIndia19_51) • Provision of Control Reserves for Facilitating Large-Scale RE Integration in Southern Region Grid States A. K. Mishra, M. Arappil (DNV GL Energy Advisory, India Garrad Hassan India, India), C. Hewicker (DNV GL, Germany), S. K. Sharma (GIZ, India) (Submission-ID: REIndia19_130)
15:45 – 15:55	Discussions

13:45 – 15:55	SESSION 7B: DISTRIBUTED GENERATION
> Session Chairs	Abhishek Ranjan (AVP, System Operation, BSES Rajdhani Power, India) / Martin Braun (Head of Distributed System Operation, Fraunhofer IEE, Germany)
14:00 – 15:35	Presentations (20 min. each)
	<ul style="list-style-type: none"> • Introduction: Integration of Distributed Generation (15 min.) M. Braun (Fraunhofer IEE, Germany) • Impact of Large Penetration of Distributed Energy Resources on Protection Schemes and Voltage Regulation of Conventional Distribution Network N. Nagpal, P. M. Kargeti, S. Wadhwa, A. Ranjan (BSES Rajdhani Power, India) (Submission-ID: REIndia19_83) • Increasing Renewable Energy Hosting Capacity using a Distribution STATCOM R. Rainville, J. Managoli, N. Reddy (AMSC, USA) (Submission-ID: REIndia19_128) • P2P Trading Using DERs: A Holistic View of Global Practices and Pioneering Efforts in India S. Malik, S. Vyas, A. Datta (The Energy and Resources Institute, India), A. Ahl (Tokyo Institute of Technology, Japan) (Submission-ID: REIndia19_149) • Framework to Assess the Economic Impact of Grid Integration of Rooftop Solar on Indian Discoms A. Tyagi, S. Saji, N. Kuldeep (Council on Energy Environment and Water, India) (Submission-ID: REIndia19_147)
15:35 – 15:55	Discussions

13:45 – 15:55	SESSION 7C: SMART GRID AND IT ISSUES
> Session Chairs	P.K. Aggarwal (POSOCO, India) / Sebastian Lehnhoff (Member of Executive Board, OFFIS, Germany)
13:45 – 15:05	Presentations (20 min. each)
	<ul style="list-style-type: none"> • Input Presentation: ICT-based RE-Integration and -Testing (15 min) S. Lehnhoff (OFFIS, Germany) • Uses of Block Chain Technology in Redesigning Power Market for High Level of Renewable Energy in India S. P. Bhagat (Ministry of New and Renewable Energy, India) (Submission-ID: REIndia19_55) • Power-to-Gas in a Virtual Power Plant: Possibilities and Challenges A. Radwanska, M. Fuhrmann, F. Jedamzik (Next Kraftwerke, Germany) (Submission-ID: REIndia19_8) • The Smart Grid Architecture Model (SGAM) – A Complex Model for a Complex Topic E. Tröster (Energynautics, Germany)
15:05 – 15:55	Discussions

15:55 – 16:10 Tea/Coffee Break

16:10 – 18:00	SESSION 8A: COAL POWER PLANTS AND RE
> Session Chair	Prakash Tiwari (Director Operations, NTPC, India) / Stephen Storm (Electric Power Research Institute, USA)
16:10 – 17:40	Presentations (15 min. each)
	<ul style="list-style-type: none"> • Flexible Operations for a Changing World – Vision for a Flexible Future S. Storm (Electric Power Research Institute, USA) • Flexibilization of Conventional Power Plants – The Indian Experience A. K. Sinha (Renewable Integration and Sustainable Energy Initiative Under Greening the Grid (GTG-RISE), India) (Submission-ID: REIndia19_122) • Using Conventional Coal Fired Plants for Large Scale Integration of Wind & Solar C. Mohanty, M. Kendhe, S. Duggal (GE Power India Limited, India) (Submission-ID: REIndia19_42) • Preparing Baseload Units for Flexible Operation N. Kumar (Intertek, USA) (Submission-ID: REIndia19_135) • Flexibilization of Coal Plants: A Study on Flexibilization Requirements to Manage Renewables Integration in Andhra Pradesh D.Waters (Uniper Kraftwerke, Germany), M. Majumdar, R. Pepalla, A. Rajagopalan (KPMG India, India) (Submission-ID: REIndia19_79) • Incentivizing Flexibility in System Operations and Recovering the Cost of Flexibility N. Kumar, T. Kelly, D. Agan (Intertek, USA) (Submission-ID: REIndia19_146)
17:40 – 18:00	Discussions

16:10 – 18:00 **SESSION 8B: GRID CODES**
 > Session Chairs **S C Shrivastava (CERC, India) / Thomas Ackermann (Energynautics, Germany)**

16:10 – 17:50 **Presentations (20 min. each)**

- **Experience in Certification According to the Indian Wind Turbine and German Grid Connection Certification Scheme**
S. Chatterjee, G. Bröring (DEWI-OCC Offshore and Certification Centre, Germany), F. Santjer, J. Dirksen, S. Tentzerakis (UL International, Germany), Nivedh BS (UL India, India) (Submission-ID: REIndia19_10)
- **Testing and Certification Procedure for Distributed Power Generating Units According to the New CEA Regulation for Grid Connectivity in India**
Nivedh BS (UL India, India), S. Tentzerakis, F. Santjer, J. Dirksen, (UL International, Germany), G. Bröring, S. Chatterjee, P. Pasakawee (DEWI-OCC Offshore and Certification Centre, Germany) (Submission-ID: REIndia19_19)
- **Testing Procedure and Compliance of Power Generating Units and Plants per Indian Grid Code**
A. Kunjumon (DNV GL, India), T. Wehrend, T. Gehlhaar (DNV GL, Germany) (Submission-ID: REIndia19_138)
- **Optimal PMU Placement for Performance Monitoring of Renewable Power Plants**
S. Maity, Z. H. Rather (Indian Institute of Technology Bombay, India) (Submission-ID: REIndia19_52)
- **Performance of Test Bench Testing for the Evaluation of Grid Compliance of Wind and Solar Generating Units**
S. Tentzerakis, F. Santjer, J. Dirksen, M. Critchfield (UL International, Germany), Nivedh BS (UL India, India), G. Bröring (DEWI-OCC Offshore and Certification Centre, Germany) (Submission-ID: REIndia19_25)

17:50 – 18:00 **Discussions**

16:10 – 18:00 **SESSION 8C: MARKET ISSUES**
 > Session Chairs **S.R. Narasimhan (POSOCO, India) / Guillermo Bautista (Director CAISO, USA)**

16:10 – 17:30 **Presentations (20 min. each)**

- **Electricity Markets of the Future**
Anish De (KPMG in India, India) (Submission-ID: REIndia19_78)
- **Flexing India's Energy System through Market Mechanisms: Recipe to Achieve a Least Cost, Low Carbon Electricity Market Twice Today's Size**
T. Buckley, V. Garg, (Institute for Energy Economics and Financial Analysis [IEEFA], USA) (Submission-ID: REIndia19_124)
- **Regional Energy Market Integration in South Asia with a Focus on vRE: A Planning Perspective**
S. Dwivedi, R. Segal, A. K. Unni (GE Energy Consulting, India) (Submission-ID: REIndia19_86)
- **Renewable Energy Integration in India: Challenges, Solutions and Transactive Energy Market Proposition**
A. Jain, **A. Narula** (Accenture Consulting, India) (Submission-ID: REIndia19_44)

17:30 – 18:00 **Discussions**

18:15 – 19:15 **ROUND TABLE - DIALOGUE ON GENDER EQUITY CHALLENGES AND OPPORTUNITIES ACROSS THE POWER SECTOR**
 > Moderator **Michael Satin (Director, Clean Energy & Environment Office, USAID/India)**

Shalini Sarin, Board Chair Signify Foundation, NL and ISA Global Taskforce for Foundations, UN Independent Director Linde, India; Automotive Axles Ltd. and Meritor HVS, India Strategic Advisor – Human Resources, BoP and CSR
Kathleen O' Dell, Principal (Partner)/ Deloitte U.S.
Markus Wypior, Deputy Cluster Coordinator-IGEN, GIZ
Debolina Chakravarty, Research Director at Spencer Stuart, India
Minaxi Garg, HOD (Renewables, Corporate Planning & Contracts & IMS), POSOCO

19:30 **DINNER (CRYSTAL BALL ROOM)**

09:00 – 11:00	SESSION 9A: OFFSHORE WIND POWER
> Session Chair	Prof. T S Bhatti (Emeritus Professor, IIT Delhi, India)
09:00 – 10:40	Presentations (20 min. each)
	<ul style="list-style-type: none"> • Functional Requirements for Blackstart and Power System Restoration from Wind Power Plants A. Jain, J. N. Sakamuri, K. Das, Ö. Göksu, N. A. Cutululis (DTU – Technical University of Denmark, Denmark) (Submission-ID: REIndia19_72) • Voltage Induced Frequency Instability in Power Systems with HVDC Connected Offshore Wind Power Plants J. N. Sakamuri (DTU – Technical University of Denmark, Denmark), Z. H. Rather (Indian Institute of Technology Bombay, India) Ö. Göksu, N. A. Cutululis (DTU – Technical University of Denmark, Denmark) (Submission-ID: REIndia19_133) • LVRT Induced Frequency Stability in Offshore Wind Power System M. M. Kabsha, Z. H. Rather (Indian Institute of Technology Bombay, India) (Submission-ID: REIndia19_73) • StEnSea: Stored Energy in the Sea B. Ernst, M. Puchta, C. Dick, F. Thalemann, J. Bard (Fraunhofer IEE, Germany) (Submission-ID: REIndia19_109)
10:40 – 11:00	Discussions

09:00 – 11:00	SESSION 9B: DISTRIBUTION GRID PLANNING
> Session Chairs	Vivek Goel (Chief Engineer, Distribution Planning and Technology, CEA, India) / Martin Braun (Head of Distributed System Operation, Fraunhofer IEE, Germany)
09:00 – 10:20	Presentations (20 min. each)
	<ul style="list-style-type: none"> • Distribution Systems Planning and Analysis Framework for Indian Feeders A. K. Jain, R. Bryce, D. Palchak, S. Ghosh, A. Latif, M. Emmanuel, A. Nagarajan, D. Palchak, J. Cochran (NREL, USA) (Submission-ID: REIndia19_46) • Evaluating the Application of BESS for Peak Load Management of a Distribution Transformer N. Rodrigues, R. Krishan, A. K. Sharma, S. Vyas, S. Thakare, A. Datta (The Energy and Resources Institute, India) (Submission-ID: REIndia19_145) • Impact of Renewable Energy Availability on Load Serving Entity's Sale Price and Procurement Decisions S. Chawda, P. Mathuria, R. Bhakar (Malaviya National Institute of Technology Jaipur, India) (Submission-ID: REIndia19_117) • Corporate Purchasing Agreements and their Effect on Stimulating Markets for Variable Renewable Energy S. Sekar (USAID - VLEEP Program, Vietnam by Deloitte Consulting, USA) (Submission-ID: REIndia19_13)
10:20 – 11:00	Discussions

09:00 – 11:00	SESSION 9C: FORECASTING 2
> Session Chairs	Abhijit Abhyankar (IIT Delhi, India) / Bernhard Ernst (Manager Grid Planning and Operation, Fraunhofer IEE, Germany)
09:00 – 10:30	Presentations (15 min. each)
	<ul style="list-style-type: none"> • Validation and Bias Correction Techniques to Improve Numerical Weather Prediction Wind Speed Data A. G. Rangaraj, Krithika V, Y. Srinath, K. Boopathi, N. Sheelarani (National Institute of Wind Energy (NIWE)), S. Kumar (National Centre for Medium Range Weather Forecasting, India), K. Balaraman (National Institute of Wind Energy, India), (Submission-ID: REIndia19_54) • A Comparative Study of Short-Term Wind Speed Forecasting Models A. Vijayvargia (Malaviya National Institute of Technology Jaipur, India), K. C. Sharma (Banasthali Vidyapith, India), R. Bhakar (Malaviya National Institute of Technology Jaipur, India) (Submission-ID: REIndia19_98) • Impact of Soiling on Energy Yield of Solar PV Power Plant and Developing Soiling Correction Factor for Solar PV Power Forecasting Sahana. L (TERI School of Advanced Studies, India), N. Kumar GM (National Institute of Wind Energy, India), H. P. Waldl (Overspeed, Germany), P. K. Das, K. Ramanathan, B. Kannan (National Institute of Wind Energy, India), I. Mitra (GIZ, India) (Submission-ID: REIndia19_76) • Indian Forecasting Experience and Issues A. Kumar (Kreate Energy, India) • Improving Grid Integration of Renewable Energies: A Success Story Based on Combinational PV Power Forecasts C. Kurz (meteocontrol - Energy and Weather Services, Germany) (Submission-ID: REIndia19_6) • Study of Impact of Forecasting Methods on Reliability of Renewable Energy Sources S. Hasan, H. J. Bahirat (Indian Institute of Technology Bombay, India) (Submission-ID: REIndia19_48)
10:30 – 11:00	Discussions

11:00 – 11:15 Tea/Coffee Break

11:15 – 13:00	SESSION 10A: GRID STUDIES 1
> Session Chairs	S R Narasimhan (POSOCO, India) / Eckeard Tröster (CEO, Energynautics, Germany)
11:15 – 12:35	Presentations (20 min. each)
	<ul style="list-style-type: none"> • Reactive Power Control Strategies for Solar Inverters to Increase the Penetration Level of RE in Power Grid R. Krishan, S. K. Singh, S. Patnaik, S. Verma (GTG-RISE [Renewable Integration and Sustainable Energy Initiative Under Greening the Grid], India) (Submission-ID: REIndia19_141) • Synchrophasor Technology: Addressing Integration of Renewable with Synchronous Grid by Real Time Monitoring through WAMS D. N. Shah, D. P. Parmar (Gujarat Energy Transmission Corporation, India) (Submission-ID: REIndia19_29) • Impact of Short-Circuit Ratio on Grid Integration of Wind Farms – A New Zealand Perspective R. D. Goud, R. Rayudu (Victoria University of Wellington, New Zealand), V. Mantha (UK Power Networks, United Kingdom), C. P. Moore (University of Canterbury, New Zealand) (Submission-ID: REIndia19_134) • Integration of Technologies - Power Flow Controllers & Dynamic Line Ratings for RE Penetration J. Bisht, M. B. Paladugu (Sterlite Power Transmission, India) (Submission-ID: REIndia19_156)
12:35 – 13:00	Discussions

11:15 – 13:00	SESSION 10B: HYBRID POWER SYSTEMS
> Session Chair	Shailesh K Mishra (Director Power System, SECI, India) / Hannele Holttinen (IEA Wind Task 25 Recognis, Finland)
11:15 – 12:15	Presentations (20 min. each)
	<ul style="list-style-type: none"> • Status of Hybrid Power Systems – Summary of Hybrid Power System Workshop T. Ackermann (Energynautics, Germany) • Energy Management in a Hybrid Power System R. Saiju, A. Kroggel (University of Applied Sciences Flensburg, Germany), A. Harewood (Europa-Universität Flensburg, Germany), N. Wiese (University of Applied Sciences Flensburg, Germany) (Submission-ID: REIndia19_62) • Modelling of Standalone Photovoltaic-Wind-Battery Hybrid Systems Using Physics-Based Battery Models M. P. Bonkile, V. Ramadesigan (Indian Institute of Technology Bombay, India) (Submission-ID: REIndia19_143)
12:15 – 13:00	Discussions

11:15 – 13:00	SESSION 10C: ELECTRO MOBILITY 2
> Session Chair	Dhiraj Kumar Srivastava (Director Transmission, Ministry of Power, India) / Vibhu Kaushik (Southern California Edison, USA)
11:15 – 12:35	Presentations (20 min. each)
	<ul style="list-style-type: none"> • Introduction: Integration of Electromobility M. Braun (Fraunhofer IEE, Germany) • Intra-City EV Charging Optimization Based on Vehicle Usage Pattern and Traffic Congestion Analysis A. U. Ghodke, P. Singh, A. Rattan, R. Maurya (ICF Consulting India, India) (Submission-ID: REIndia19_96) • Coordinated V2G Scheduling of EV Aggregator with Rooftop Solar Charging Park S. Sharma, P. Jain (Malaviya National Institute of Technology Jaipur, India) (Submission-ID: REIndia19_64) • A Case Study on Potential Impact of Electric Vehicle Charging for an Electricity Distribution Utility in India B. Tyagi, C. Sasidharan, S. Das (Alliance for an Energy Efficient Economy, India) (Submission-ID: REIndia19_125)
12:35 – 13:00	Discussions

13:00 – 13:45 Lunch Break

13:45 – 15:45	SESSION 11A: GRID STUDIES 2
> Session Chairs	Zakir Rather (Assistant Professor, Indian Institute of Technology Bombay, India) / Ramesh Rayudu (Associate Professor, Victoria University of Wellington, New Zealand)
13:45 – 15:05	Presentations (20 min. each)
	<ul style="list-style-type: none"> • Detailed Deep Dive on Capacity Expansion Results for India States A. Rose (NREL, USA) • Addressing Issues in Renewal Integration by Using Spare Generators as Synchronous Condenser D. K. Chaturvedi (NTPC, India) (Submission-ID: REIndia19_17) • Initial Insights from Modelling the MSEDCL Power System for 2029-30: A Production Cost Simulation Exercise S. Dukkipati, S. Dixit, A. Gambhir, A. Chitnis (Prayas Energy Group, India) (Submission-ID: REIndia19_105) • Utilization of STATCOM Systems at Wind Farms to Meet Reactive Current Injection Requirements during Faults T. Freiberg, B. Donmez, J. Managoli (AMSC, USA) (Submission-ID: REIndia19_127)
15:05 – 15:45	Discussions

13:45 – 15:45	SESSION 11B: HYBRID POWER PLANTS
> Session Chairs	Marcus Merkel (Eurelectric, Germany)
13:45 – 15:05	Presentations (20 min. each)
	<ul style="list-style-type: none"> • Grid Loss Protection for Solar-Wind Hybrid Based Utility Interactive Inverter J. Kumar K, S. Kumar R (Central Power Research Institute, India) (Submission-ID: REIndia19_14) • Hydrokinetic-Solar Hybrid Floating Renewable Energy Generation System to Explore Hydro and Solar Power Potential Worldwide B. Bhardwaj, N. Bhardwaj (MACLEC Technical Project Laboratory (P), India) (Submission-ID: REIndia19_18) • Impact of PV Systems and Battery Storage in Hybrid Power Systems with Grid Connection T. Adefarati, P. S. Kopa (University of Pretoria, South Africa), R. C. Bansal (University of Sharjah, United Arab Emirates), H. D. Mathur, D. Kumar Mishra (BITS Pilani, India) (Submission-ID: REIndia19_112) • Value Assessment of Energy Storage in Hybrid Renewable Projects R. Deshpande, R. Segal, A. K. Unni, P. Deb (GE Energy Consulting, India) (Submission-ID: REIndia19_89)
15:05 – 15:45	Discussions

13:45 – 15:45	SESSION 11C: STORAGE ISSUES 2
> Session Chair	Ashvini Kumar (Senior Director RE, TERI, India) / Vibhu Kaushik (Southern California Edison, USA)
13:45 – 15:05	Presentations (20 min. each)
	<ul style="list-style-type: none"> • Introduction V. Kaushik (Southern California Edison, USA) • Assessment of Energy Storage Potential for System Inertia and Primary Frequency Response P. Kushwaha (Malaviya National Institute of Technology Jaipur, India), V. Prakash (Banasthali Vidyapith, India), R. Bhakar, U. R. Yaragatti, A. Jain, Y. Sumanth (Malaviya National Institute of Technology Jaipur, India), (Submission-ID: REIndia19_66) • Business Models for Utility-Scale Energy Storage in India N. Mehta, S. S. Lepcha (Sterlite Power, India) (Submission-ID: REIndia19_136) • Flexible Ramp Product Provision from Grid-Connected Energy Storage Systems S. Yamujala, A. Jain (Malaviya National Institute of Technology Jaipur, India), P. Das (Center for Study of Science, Technology and Policy, India), R. Bhakar, J. Mathur P. Kushwaha (Malaviya National Institute of Technology Jaipur, India) (Submission-ID: REIndia19_84)
15:05 – 15:45	Discussions

15:45 – 16:00 Break

16:00 – 17:30	SESSION 12: CLOSING SESSION – PANEL DISCUSSION
16:00 – 17:00	Round Table
	<ul style="list-style-type: none"> • Round Table – Moderators: S.K Soonee, Advisor, POSOCO & S.K. Chatterjee, Chief-Regulatory Affairs, CERC Theme: Required Changes in Indian Power Market Design to Accommodate High Volumes of VRE Vibhu Kaushik (Southern California Edison, USA), Jeremy Larrieu (FERC, USA), Donna Melinda Sauter (FERC; USA), Guillermo Bautista (CAISO, USA)
17:00 – 17:30	Closing Remarks
	<p>Markus Wypior (Deputy Cluster Coordinator, IGEN, GIZ, India) S. K. Soonee (POSOCO, India) Keith Simmons (Mission Director, USAID/India) Anna French (Deputy Head- DFID India) *TBC</p>

POSTER PRESENTATIONS

- **PRESPL Pioneering the Indian Bio-Energy Sector with Innovative Refinement-Oriented Biomass Supply Chain Management for Enhancing Multi-Spectrum Benefits with Sustainable Development & Growth**
R. Dev, S. Malhan (Punjab Renewable Energy Systems Private Limited (PRESPL), India) (Submission-ID: REIndia19_9)
- **Performance of Solar Organic Rankine Cycle**
S. K. Shukla, T. Singh (Indian Institute of Technology (BHU), India) (Submission-ID: REIndia19_11)
- **Improved Fault Detection, Classification and Protection with Maximum Power Point Tracking (MPPT) Technique**
J. Modi, M. Pathak (Aditya Silver Oak Institute of Technology, India) (Submission-ID: REIndia19_27)
- **A Techno-Economic MILP Optimization of Multiple Offshore Wind Concessions**
S. Hardy, K. Van Brusselen, (CG Holdings Belgium NV, Belgium), D. Van Hertem, H. Ergun (KU Leuven, Belgium) (Submission-ID: REIndia19_35)
- **Electricity Vending in Rural India to Reduce Transmission and Distribution Losses.**
A. Goel (UPES, India) (Submission-ID: REIndia19_63)
- **Energy Storage System to Facilitate High RE Penetration: A Techno-Economic Benefit Analysis**
A. Jain, Y. Sumanth (Malaviya National Institute of Technology Jaipur, India), P. Das (Center for Study of Science Technology and Policy Noida, India | Malaviya National Institute of Technology Jaipur, India), R. Bhakar, J. Mathur, P. Kushwaha (Malaviya National Institute of Technology Jaipur, India) (Submission-ID: REIndia19_75)
- **Impact of Randomness of Wind Direction and Turbine Failure on Reliability Performance of Offshore Wind Farm**
A. P. Nath, Z. H. Rather (Indian Institute of Technology Bombay, India) (Submission-ID: REIndia19_81)
- **Stochastic Security Constrained Economic Dispatch for PFR Adequacy under Uncertain Wind Generation**
V. Prakash (Banasthali Vidyapith, India), P. Kushwaha (Malaviya National Institute of Technology Jaipur, India), K. C. Sharma (Banasthali Vidyapith, India), R. Bhakar, H. Tiwari (Malaviya National Institute of Technology Jaipur, India) (Submission-ID: REIndia19_87)
- **Study and Design of 10 kW_p Roof Top Solar PV System Special Reference to Suncity Jodhpur (Rajasthan)**
A. Mathur, V. Prakash (Banasthali Vidyapith, India) (Submission-ID: REIndia19_101)
- **Impact of Imbalance Price Mechanism on Bidding Strategy of Wind Power Producers**
S. Gupta, K. C. Sharma, V. Prakash (Banasthali Vidyapith, India), R. Bhakar (Malaviya National Institute of Technology Jaipur, India) (Submission-ID: REIndia19_103)
- **Isolated Microgrid for Rural Electrification**
T. Adefarati, E. M. Mohlatlola (University of Pretoria, South Africa), R. C. Bansal (University of Sharjah, United Arab Emirates), H. D. Mathur, D. Kumar (BITS Pilani, India) (Submission-ID: REIndia19_113)
- **Electricity Scheduling for Residential Prosumers with Demand Response**
F. Teotia, P. Mathuria, R. Bhakar (Malaviya National Institute of Technology Jaipur, India) (Submission-ID: REIndia19_115)
- **Making Grid Future Ready for RE Generation**
D. K. Saxena (Avaada Power, India) (Submission-ID: REIndia19_116)
- **Need of Solar Energy in Indian Climate Load to Balance Energy Ecosystem**
N. S. Manna (Calcutta University, India), B. K. Choudhury (Indian Institute of Social Welfare & Business Management (IISWBM), India) (Submission-ID: REIndia19_118)
- **Analyzing Trade-Offs in Short Term Power Sector Operations Under Minimum Offtake Guarantee Constraints in India**
P. Kumar, T. Mishra, R. Banerjee (Indian Institute of Technology Bombay, India) (Submission-ID: REIndia19_151)