Deep Dive Workshop
Friday, 21 June 2019, 9:00 a.m. – 5:30 p.m.
Multifunction Hall 2

Next-gen Utilities for a Smart Energy Future

Point of Contact:
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Background

Most of the economies in South and Southeast Asia region are now witnessing a paradigm shift in the power distribution sector, which is being driven by increased viability of distributed renewable energy (RE) sources, plans for proliferation of new electricity loads like electric vehicles (EVs) and increasing consumer centricity of utilities driven by enablement of two-way power flows. Incorporating these transformations not only have operational and financial implications but also require structural changes in order to sustain the transition. Nations across the region have identified distribution grid upgrades and automation as key solutions and are committing themselves in implementing these initiatives at a national-scale through both operational and structural measures.

Some of the identified and currently implemented measures across the region include:

- Large scale roll-out of Advanced Metering Infrastructure and focus on implementation of smart infrastructure
- Schemes and programs for enabling financial and operation turnaround of utilities.
- Liberalization of electricity retail markets and mechanisms for increasing private sector participation in electricity distribution
- Programs and incentives for accelerating implementation of DERs and grid-connected RE

While few of the utilities across the region have advanced in their grid modernization maturity curve, most are still in the early stages of their transition towards a clean and smart energy future and are seeking viable and innovative solutions to accelerate on this path. Therefore, in this context, planning and implementation experiences from different parts of the world (both developed and developing nations) could provide a great learning opportunity for utilities across the Asian region to develop and implement new, holistic approaches to manage the electrical grid of the future and deliver cleaner, reliable, quality an affordable electricity for all.
Objective

This DDW will provide participants, particularly those from developing countries, an opportunity to gain insights on:

1) Distribution reform options for ensuring sector viability in the new energy paradigm including experience sharing
2) Innovations and best practices for transforming utility to smart grids in areas of technology selection, business models and consumer engagement and participation schemes
3) Opportunities and models for scaling-up rooftop PV solutions
4) Power market design options and role of associated institutions

This would enable policy makers, utilities and participants to learn from the experiences of both developed and developing economies for efficient and viable operation of the power sector which is centric to customer needs. It will also foster regional cooperation, support networking and build business opportunities in the area of smart power distribution.

Agenda

8:30-9:00 Registration
9:00-9:40 Inaugural Session
  Welcome Address – Mr. Michael Satin, Director-Clean Energy & Environment Office, USAID
  9:00-9:05 Special Remarks- Dr. Priyantha Wijayatunga, Director, South Asia Energy Division, ADB
  9:05-9:15 Special Remarks – Mr. Alastair Totty, Deputy Head of Mission at British Embassy, Manila
  9:15-9:25 Key Note Address – Ms. Gloria D. Steele, Acting Assistant Administrator, USAID
  9:25-9:35 Vote of Thanks- Mr. Michael Satin, Director-Clean Energy & Environment Office, USAID

9:40-11:10 Session 1: Distribution reforms in the changing utility paradigm
  Chair: Mr. Jiwan Acharya, Principal Energy Specialist, South Asia Energy Division, ADB
  (session moderated by Chair)

Session Brief: A number of initiatives related to financial turnaround schemes, strengthening of electricity network, private participation models in distribution companies, etc. are being undertaken by different countries for improving the operational and financial performance of the electricity distribution companies. At the same time, utilities today are significantly influenced by the new and emerging trends (rapid urbanization, demographical changes, climate change and geo-political changes, and emergency of digital technologies) that are significantly altering their business models and operations. As utilities move ahead to address their legacy issues, there is need to complement structural and operational reforms with strategic interventions that enable utilities to respond to the new age challenges, and opportunities in a considered manner.

The speakers in this session will focus on the following aspects:
- Mega trends influencing the power distribution sector, and impact that such trends are having on the utility business models and operations
Experience of utilities in dealing with legacy issues i.e. financial and operational improvement, and dovetailing response to challenges that the new environment poses

Country experiences related to energy transitions, implementing structural and operational reforms, and private sector participation issues,

9:40-9:50 Distribution reforms - Context setting (Mr. Vikas Gaba, Partner, KPMG in India)
9:50-10:00 Distribution sector reform programs of India (Mr. Vishal Kapoor, Director-Distribution, Ministry of Power, India)
10:00-10:10 Distribution sector reforms in Nepal (Mr. Bodha Raj Dhakal, Project Manager, Nepal Electricity Authority)
10:10-10:20 Future of distribution utility in energy transition (Ms. Kavita Sinha, Regional Director for South and East Asia, European Climate Foundation)
10:30-10:40 Private sector participation in electricity distribution in Philippines (Ms. Meliesa L. Robante, Institutional Services Department Manager, DASURECO)
10:40-10:50 Electricity retail competition – Lessons and experience of UK (Mr. Mark Mills, Principal Legal Adviser, Ofgem)
10:50-11:10 Q&A, Discussion

11:10-11:20 Tea Break

11:20-12:30 Session 2: Smart infrastructure for efficiency and customer centric operation
Chair: Mr. Vishal Kapoor, Director-Distribution, Ministry of Power, Govt. of India (session moderated by Chair)

Session Brief: In order to sustain and support the structural changes in the new energy paradigm, a transition to ICT enabled smarter grid becomes critical. A smart energy system would help deliver electricity more effectively and efficiently than the systems of today by enabling real time grid visibility and control and empowering consumers with greater control and choices.

The speakers in this session will discuss on their experience (challenges, learnings, benefits) in deploying smart technologies for enabling operational, financial and social benefits, including integration of new electricity loads. The discussion would also focus on potential business models for accelerating investments in smart grid technologies, considering the current constraints on resource and financial capability. Specifically, session would include experience sharing on:

- Smart grid business models and technologies – key use cases and tools for informed investments
- Digital initiatives to enhance customer experience and participation
- Serving new electric loads – Business models for smart EV Charging infrastructure (including G2V and V2G interactions)
- Frameworks for institutional strengthening and skill up-gradation in a smart energy future
Session 3: Power market design and role of associated institutes  
Chair: Mr. Anish De, Partner, KPMG in India (session moderated by Chair)

**Session Brief:** Efficiently designed Power Markets can serve as an alternative mechanism for supporting both existing capacities and creating new pipelines of capacity. However, the current market mechanisms in most emerging economies of Asia, need to evolve beyond the reliance on just bilateral and Day-Ahead Market (DAM) for effective market operations. In this regard, Real Time Markets (RTM) and Ancillary Services (AS) can play a significant role in improving reliability and control, particularly in view of increasing share of intermittent and variable RE. However, even if the technical abilities exist to implement more advanced market designs, the current readiness of the utilities and their operating realities limit the possibilities of a rapid transition to deep markets in a short period. Hence, the operational practices and role of the utilities and associated institutes need to be re-designed/evaluated for improving efficiencies and enabling their active participation efficiencies in wholesale markets.

Session participants would thus discuss on their experience in implementing real time market design, RE forecasting and scheduling models, CFDs, Capacity Markets, balancing and ancillary services, etc. Specifically, session would include experience sharing on:

- Real time markets design
- RE forecasting and scheduling
- Feed-in tariffs with contracts for difference\(^7\)
- Capacity agreements (within a capacity market)\(^8\)
- Balancing and ancillary services
- Role of associated institutes

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\(^7\) Long-term contracts which provide revenue certainty to investors in low-carbon generation such as renewables, nuclear etc.

\(^8\) Payments for reliable capacity to be available when needed, helping to ensure security of supply.
UK’s experience in design of wholesale energy markets (Mr. Mark Mills, Principal Legal Adviser, Ofgem)

Power markets – India experience and new developments (Mr. Pankaj Batra, Project Director, IRADe)

Practices in new electricity market design to address the 21st century challenges- Lessons from Nordic Power Market (Mr. Hans-Arild Bredesen, CEO, Nord Pool Consulting AS)

Q&A, Discussion

**Tea Break**

15:00-15:30

**Session 4: The future of rooftop PV: Prospects for self-consumption and peer-to-peer energy trading**

**Chair:** Mr. Abhishek Ranjan, Additional Vice President and Head of Renewables, DSM & EE and Energy Analytics, BSES Rajdhani Power Limited (session moderated by Chair)

Session Brief: The rapid decline in costs of solar and wind power, energy storage and more broadly smart grid technology is set to facilitate the growth of Distributed PV (DPV) solution around electricity networks. However, proliferation of distributed PV poses unique challenges to utilities, who often fear loss of revenue - which could possibly be a barrier to deployment. But despite the potential revenue impacts, DPV can provide a significant business opportunity for utilities.

The speakers in this session will discuss on their experience in deployment of DPV and approaches that allow utilities to participate in the rooftop PV revolution. Additionally, they will be drawing from experiences in Bangladesh, Thailand, Malaysia, and the Philippines. Specifically, the session would include experience sharing on:

- Innovative utility business models for the future of rooftop PV
- Net metering for self-consumption
- Retail electricity rates and DPV compensation mechanisms
- Peer-to-peer energy trading
- Costs and benefits of distributed solar from various stakeholder perspectives

15:30-15:40

**Setting the scene:** Emerging distributed generation trends, opportunities, & challenges (Ms. Jaquelin Cochran, Grid Systems Group Manager, NREL)

15:40-15:45

**Setting the scene:** Rooftop PV challenges and opportunities for the South and Southeast Asia (Ms. Supawan Saelim, Renewable Energy Policy Specialist, USAID Clean Power Asia)

15:45-15:55

**Sharing country experience from Bangladesh:** Rooftop PV—experience and learnings from Bangladesh (Ms. Salima Jahan, Joint Secretary, Government of Bangladesh)

15:55-16:05

**Sharing country experience from the Philippines:** The net metering program in the Philippines (Ms. Aileen Dalanon, Team Lead, Tariff Management under Regulatory Management Office, MERALCO)

16:05-16:15

**Sharing country experience from Thailand:** Peer-to-peer energy exchange via blockchain pilot in Thailand—a utility’s perspective (Mr. Kirapat Jiamset, Governor, Metropolitan Electric Authority (MEA), Thailand)

16:15-16:25

**Sharing country experience from Malaysia:** The transition towards a Net-energy metering program and a new roadmap towards Peer-to-peer energy trading (Dr. Wei-nee Chen, Chief Corporate Officer, Sustainable Energy Development Authority (SEDA), Malaysia)
Discussions and Q&A about challenges and opportunities for the future rooftop PV in ASEAN (moderated by panel chair)

### About the Organizers

1. **USAID** leads international development and humanitarian efforts to save lives, reduce poverty, strengthen democratic governance and help people progress beyond assistance. USAID carries out U.S. foreign policy by promoting broad-scale human progress at the same time it expands stable, free societies, creates markets and trade partners for the United States, and fosters good will abroad. USAID works in over 100 countries to:
   - Promote Global Health
   - Support Global Stability
   - Provide Humanitarian Assistance
   - Catalyze Innovation and Partnership
   - Empower Women and Girls

2. **DFID** leads the UK’s work to end extreme poverty. We are tackling the global challenges of our time including poverty and disease, mass migration, insecurity and conflict. DFID’s work is building a safer, healthier, more prosperous world for people in developing countries and in the UK too. DFID’s priorities include:
   - Strengthening global peace, security and governance
   - Strengthening resilience and response to crisis
   - Promoting global prosperity
   - Tackling extreme poverty and helping the world’s most vulnerable
   - Delivering value for money

3. **ADB** in partnership with member governments, independent specialists and other financial institutions is focused on delivering projects in developing member countries that create economic and development impact. As a multilateral development finance institution, ADB provides loans; technical assistance; and grants. To achieve the vision, ADB focuses on seven operational priority areas.
   - Addressing remaining poverty and reducing inequality
   - Accelerating progress in gender equality
   - Tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability
   - Making cities more livable
   - Promoting rural development and food security
   - Strengthening governance and institutional capacity
   - Fostering regional cooperation and integration
Inaugural Session

**Michael Satin**  
Director of the Clean Energy and Environment Office, USAID/India

Michael Satin is the Director of the Clean Energy and Environment Office in USAID/India. Mr. Satin joined the Foreign Service in 2005 and is trained as an ecologist at San Francisco State University and applied economist at the University of West Virginia. A tennis player and bird watcher, Mr. Satin is married to FSO, Marietou Satin and has a six year old son. He speaks French and Wolof, served in Nigeria, Afghanistan, Thailand, Guinea and Bangladesh, arrived in India in 2016 and was a Peace Corps Volunteer in Senegal.

**Priyantha D C Wijayatunga**  
Director, South Asia Energy Division, ADB

Priyantha D C Wijayatunga holds a degree in Electrical Engineering from the University of Moratuwa Sri Lanka and a Doctorate in Power Economics from Imperial College London where he was a Beit Scientific Research Fellow. He joined the Asian Development Bank in 2008 and he is currently the Director, South Asia Energy Division. He has contributed extensively in energy sector policy and regulatory activities over 25 years and has co-authored over 75 publications. He was the founder Director General of the Public Utilities Commission of Sri Lanka and a key contributor to the Sri Lanka Electricity Act 2009 and Sri Lanka Sustainable Energy Authority Act 2007. He was a lead author of the Sri Lanka Energy Policies and Strategies. He was also a Senior Professor of Electrical Engineering and the Chairman of South Asia Forum for Infrastructure Regulation. He is a Member of Institute of Engineering Technology (IET), London, a Chartered Electrical Engineer and a Fellow of the Institution of Engineers Sri Lanka. Also he is a Senior Member of the Institution of Electrical and Electronic Engineers (IEEE), US.

**Alastair Totty**  
Deputy Head Of Mission, British Embassy, Manila

Mr. Alastair Totty is the Deputy Head of Mission at the British Embassy in Manila. Prior to this role, he was Deputy Head of Counter-Terrorism Department and Deputy Head of Climate Change & Energy Department. In the past he was also the First Secretary of Middle East & Europe, UKMis (TD) and First Secretary, Climate/Energy Security, Washington.
Gloria D. Steele
Acting Assistant Administrator, USAID

A career member of the U.S. Senior Executive Service, Gloria D. Steele was the USAID Mission Director for the Philippines and the Pacific Islands prior to her appointment as Senior Deputy Assistant Administrator for the Bureau for Asia.

Prior to being posted in Manila, Ms. Steele served as the Senior Deputy Assistant Administrator for the Bureau for Global Health. She assumed this position in January 2005, overseeing an average annual health program budget of $1.5 billion and a staff of 240. From 2001-2004, she served as Senior Deputy Assistant Administrator for the Bureau for Europe and Eurasia. She also worked for seven years in the Bureau for Africa as an agricultural economist, and seven years in the Bureau for Science and Technology overseeing applied research on key rural development issues such as land tenure, access to agricultural credit, food security and natural resource management. Ms. Steele served one year in the Bureau for Policy and Program Coordination, where she led the development of the first food security policy.

Earlier in her career, Ms. Steele served as a Management Consultant to the Philippines’ Secretary of Agriculture, and taught Business Economics at Letran Graduate School for Business in Manila.

Ms. Steele received a Master’s degree in Agricultural Economics from Kansas State University, and a Bachelor’s degree in Business Administration from Maryknoll College in the Philippines. Her awards include a Presidential Meritorious Executive Award in 2007, Presidential Distinguished Executive Awards in 2008 and 2018, and the Order of Sikatuna award from the President of the Philippines in 2015.

Session 1: Distribution reforms in the changing utility paradigm

Jiwan Acharya
Principal Energy Specialist, ADB

Jiwan Acharya is working in Energy Division of South Asia Department of Asian Development Bank (ADB), currently in ADB’s India Resident Mission, as Principal Energy Specialist. He currently focuses on developing and implementing energy efficiency, renewable energy and other broader energy sector projects in India and Nepal. Prior to that, he was with Energy Sector Group Secretariat in the Sustainable Development and Climate Change Department of ADB since 1 October 2006 as Senior Energy Specialist. He is a key member of ADB’s Energy Sector Group and Climate Change Team and was responsible for overseeing ADB’s several key initiatives including Energy for All, and Low Carbon Technology Transfer, among others. Mr. Acharya served as ADB’s focal point for Clean Technical Fund (CTF) and Scaling Up Renewable Energy for Low Income Countries (SREP) under the Climate Investment Funds (CIF) as well as Sustainable Energy for All Initiative (SE4All).

Prior to joining ADB, Mr. Acharya was Senior Research Officer in Winrock International in Kathmandu, Nepal covering climate change, carbon financing, energy access and broader clean energy areas.

Mr. Acharya, who is a Nepalese national, has a Master of Arts in Economics, Master of Science in Energy Systems and Management and a Bachelor of Science in Electrical Engineering.
Vikas Gaba  
Partner, KPMG in India

Vikas Gaba is the Partner, Power & Utilities, KPMG in India. He has over 14 years of experience working across South Asia region with leading donor agencies and public sector institutes in designing power markets and policy & regulatory reforms. His expertise includes renewable energy, policy & regulatory reforms, energy efficiency, smart grid, corporate planning & governance processes, institutional capacity development and people management as part of larger reform initiatives.

He has experience managing several large power sector programmes and is currently leading the Power Sector Reforms Programme and Smart Grid programme with DFID and USAID respectively in India. Prior to joining KPMG, he worked as an Associate Director in AF - Mercados – EMI. He has done his Master’s in Business Economics and Bachelors in Mechanical Engineering.

Vishal Kapoor  
Director (Distribution), Ministry of Power, Government of India

Vishal Kapoor presently holds the office of Director (Distribution) in Ministry of Power, Government of India. Vishal brings with him a multi-sectoral field experience in managing diversity in workforce, policy design and implementation, sectoral reforms, and grassroot level operations in the Infrastructure Sector in India.

He holds a Graduate degree in Public Administration from the Lee Kuan Yew School of Public Policy, National University of Singapore. He is also a Chartered Engineer and a Fellow of Institution of Mechanical Engineers (UK).

As the Director dealing with Distribution Sector functions in the Ministry of power of the Government of India, he manages flagship Distribution reforms programs of the government such as Integrated Power Development Scheme, Ujwal DISCOM assurance Yojana (UDAY) as well as Distribution Sector reforms. He also coordinates the reforms in the electricity sector for “ease of doing business”, as well as for “ease of living” of Indian electricity consumers. His efforts have resulted in India gaining a rank of 24 in the “Getting electricity” rankings in the World Banks “Ease of doing business Rankings”.

Prior to his engagements in the Energy Sector, Vishal has had a diverse experience in the Railway transportation sector ranging from Operations & Maintenance of Trains, as well as in design of Railway freight cars.

Bodha Raj Dhakal  
Project Manager, Nepal Electricity Authority

Mr. Bodha Raj Dhakal is the Project Manager in Nepal Electricity Authority, the vertically integrated national power utility of Nepal.

Mr. Dhakal has over two decades of professional experiences. He has been engaged in planning of rural electrification and distribution system, study, project preparation, feasibility study, determination of financing model and execution of those projects as a project manager. The main objectives of the project are energy access to all, sufficiency and quality of power developing into Smartgrid.

He is also responsible for Energy Efficient Initiatives, involved in standardization and labeling, CFL and LED Implementation, and worked as project Manager for Design and implementation of a nation-wide Energy efficient CFL program as a
part of a Demand Side Management (DSM) program aimed at reducing the evening system peak demand.

In the past, he led a project team that consisted of PPP expert and legal advisory team in respect of a consultancy assignment funded by the Asian Development Bank to develop proposals for the facilitation of investment in Electricity Distribution through Private-Public Partnership models, focusing on Distribution Franchisee Model.

He has also worked in a team to develop methodology for Community-Based Rural Electrification. It has been proved to be a very successful model to accelerate the pace of electrification in Nepal.

He is an engineering graduate from Delhi College of Engineering, Delhi and Masters of Business Administration from Kathmandu University, School of Management.

Mr. Dhakal has participated and presented country paper in many meetings, discussions and seminars with focus on energy and PPP organized by many international organization and institutions like IEA, IRENA, UNECE, KDI, ADB, and Crown Agents etc.

Kavita Sinha
Regional Director for Southeast & East Asia, International Forum for Energy, European Climate Foundation

Kavita Sinha is the regional director for South and East Asia for International Forum for Energy, an ECF initiative. In her current role, she leads grant-making strategies that enable corporates, utilities, civil society, financial institutions, and governments in Southeast and East Asia to transition to clean and low-carbon energy system.

In her previous role, she worked with an American multinational firm that provides smart city, smart grid, and internet-of-things solutions, where she led strategic partnership, business development, and sales in key markets of Asia. In the past she held leadership positions with international development agencies and consulting firms on clean energy, climate change as well as co-founded entrepreneurial ventures on clean technology.

Kavita has authored articles on policy, regulation and technology on regulatory, policy and investment aspects of clean energy and smart technology. She is a coach and mentor with Private Financial Advisory Network, and also mentors entrepreneurs, start-ups and private voluntary organizations on leadership, strategy, scale-up and governance aspects.

She has a honours degree in Chemical Engineering from a leading engineering school in India and an MBA from Rutgers Business School, USA.
Natalia Kulichenko-Lotz,
Lead Energy Specialist, Energy and Extractive Global Practice, World Bank

Natalia Kulichenko-Lotz is a Lead Energy Specialist in the Energy and Extractive Global Practice at the World Bank. Her work addresses energy sector policy dialogue and sector reform, energy access, power generation, transmission and distribution networks, as well as advanced energy technologies, including concentrating solar power and carbon capture and storage, and related policy and project development. She holds a Ph.D. in Chemical Engineering, M.Sc. in Electrical Engineering, and MBA with specialization in international finance. Her technical expertise relates to energy policy and power generation technologies including thermal and renewable energy power generation, carbon capture and storage, and energy efficiency programs.

Dr. Kulichenko-Lotz leads the WB energy sector portfolio in Nigeria, which includes implementation of several projects as well as development of new activities, focusing on power sector reform and distribution sector recovery programs. Prior to her position in Nigeria, Dr. Kulichenko led the WB energy program in Burundi and Tanzania, including the development of a pipeline of investment projects, sector policy dialogue and engagement of the private sector into financing energy sector projects in the country.

During her career, Dr. Kulichenko-Lotz developed and managed programs in South Africa, Botswana and Mexico, where she led teams of specialists to develop pilot CO2 capture and storage projects. Currently, Dr. Kulichenko manages the World Bank Trust Fund on Capacity Building for Carbon Capture and Storage, and provides oversight of activities, financed by the subject trust fund. She also provided technical supervision of work programs of various WB Trust Funds, which finance activities related to increase energy access, reform and improve management of electric utilities, develop energy policies and deploy modern energy technologies.

Prior to joining WB, Dr. Kulichenko-Lotz worked in several U.S. government and international organizations including the U.S. Department of Energy, U.S. Environmental Protection Agency, U.S. Agency for International Development, Asian Development Bank, Pacific Gas and Electric Utility as well as other private companies and electric utilities. Her assignments focused on planning of generation capacity development, and a variety of energy sector projects including thermal and renewable power generation (such as Integrated Gasification Combined Cycle, pulverized coal combustion and combined cycle natural gas, thermal solar power, and hydro power plants) and advanced energy storage systems. A geographic range of her work includes Northern America, Southern and Eastern Africa, the Maghreb countries, Eastern and Central Europe, Central Asia, and South and East Asia.

Meliesa L. Robante
Institutional Services Department Manager, Dasureco

Meliesa L. Robante has been associated with DASURECO, Inc. for more than 10 years and is currently the Institutional Services Department Manager. She is greatly and selflessly involved and committed to fulfilling the Cooperative's mission of alleviating the quality of life of people through the Rural Electrification and Development Programs (REPD).

DASURECO is a leading Electric Cooperative in the Philippines with non-stock, not-for-profit, service-oriented model of a Distribution Service Utility.
Mark Mills  
Principal Legal Adviser and Solicitor, Ofgem

Mark Mills is a Principal Legal Adviser and Solicitor with Ofgem, the regulator for the gas and electricity markets in Great Britain. He has a diverse practice and advises across a broad range of Ofgem’s work in relation to the retail and wholesale markets. This includes competition law, in relation to which he was seconded to the UK’s Competition and Markets Authority, and other enforcement matters, as well as general public law and commercial judicial review. Mark trained at an international law firm, spending time in London and Brussels. Mark is a graduate of the University of Essex (LLB Law) and Cambridge University (LL.M Commercial Law). Mark contributed to a recent publication, The Guide to Energy Market Manipulation, as the author of the chapter on enforcement activities in the European Union.

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Dr. Kulichenko-Lotz leads the WB energy sector portfolio in Nigeria, which includes implementation of several projects as well as development of new activities, focusing on power sector reform and distribution sector recovery programs. Prior to her position in Nigeria, Dr. Kulichenko led the WB energy program in Burundi and Tanzania, including the development of a pipeline of investment projects, sector policy dialogue and engagement of the private sector into financing energy sector projects in the country.

During her career, Dr. Kulichenko-Lotz developed and managed programs in South Africa, Botswana and Mexico, where she led teams of specialists to develop pilot CO2 capture and storage projects. Currently, Dr. Kulichenko manages the World Bank Trust Fund on Capacity Building for Carbon Capture and Storage, and provides oversight of activities, financed by the subject trust fund. She also provided technical supervision of work programs of various WB Trust Funds, which finance activities related to increase energy access, reform
and improve management of electric utilities, develop energy policies and deploy modern energy technologies.

Prior to joining WB, Dr. Kulichenko-Lotz worked in several U.S. government and international organizations including the U.S. Department of Energy, U.S. Environmental Protection Agency, U.S. Agency for International Development, Asian Development Bank, Pacific Gas and Electric Utility as well as other private companies and electric utilities. Her assignments focused on planning of generation capacity development, and a variety of energy sector projects including thermal and renewable power generation (such as Integrated Gasification Combined Cycle, pulverized coal combustion and combined cycle natural gas, thermal solar power, and hydro power plants) and advanced energy storage systems. A geographic range of her work includes Northern America, Southern and Eastern Africa, the Maghreb countries, Eastern and Central Europe, Central Asia, and South and East Asia.

Meliesa L. Robante
Institutional Services Department Manager, Dasureco

Meliesa L. Robante has been associated with DASURECO, Inc. for more than 10 years and is currently the Institutional Services Department Manager. She is greatly and selflessly involved and committed to fulfilling the Cooperative's mission of alleviating the quality of life of people through the Rural Electrification and Development Programs (REPD).

DASURECO is a leading Electric Cooperative in the Philippines with non-stock, not-for-profit, service-oriented model of a Distribution Service Utility.
Mark Mills
Principal Legal Adviser and Solicitor, Ofgem

Mark Mills is a Principal Legal Adviser and Solicitor with Ofgem, the regulator for the gas and electricity markets in Great Britain. He has a diverse practice and advises across a broad range of Ofgem’s work in relation to the retail and wholesale markets. This includes competition law, in relation to which he was seconded to the UK’s Competition and Markets Authority, and other enforcement matters, as well as general public law and commercial judicial review. Mark trained at an international law firm, spending time in London and Brussels. Mark is a graduate of the University of Essex (LL.B Law) and Cambridge University (LL.M Commercial Law). Mark contributed to a recent publication, The Guide to Energy Market Manipulation, as the author of the chapter on enforcement activities in the European Union.

Session 2: Smart infrastructure for efficiency and customer centric operation

Vishal Kapoor
Director (Distribution), Ministry of Power, Government of India

Vishal Kapoor presently holds the office of Director (Distribution) in Ministry of Power, Government of India. Vishal brings with him a multi-sectoral field experience in managing diversity in workforce, policy design and implementation, sectoral reforms, and grassroot level operations in the Infrastructure Sector in India.

He holds a Graduate degree in Public Administration from the Lee Kuan Yew School of Public Policy, National University of Singapore. He is also a Chartered Engineer and a Fellow of Institution of Mechanical Engineers (UK).

As the Director dealing with Distribution Sector functions in the Ministry of power of the Government of India, he manages flagship Distribution reforms programs of the government such as Integrated Power Development Scheme, Ujwal DISCOM assurance Yojana (UDAY) as well as Distribution Sector reforms. He also coordinates the reforms in the electricity sector for “ease of doing business”, as well as for “ease of living” of Indian electricity consumers. His efforts have resulted in India gaining a rank of 24 in the “Getting electricity” rankings in the World Banks “Ease of doing business Rankings”.

Prior to his engagements in the Energy Sector, Vishal has had a diverse experience in the Railway transportation sector ranging from Operations & Maintenance of Trains, as well as in design of Railway freight cars.

Apurva Chaturvedi
Senior Clean Energy Specialist, USAID/India

Apurva Chaturvedi is a clean energy professional currently working as Senior Clean Energy Specialist in the Clean Energy and Environment Office in USAID/India. She has over 12 years of experience in clean energy and climate change sector. She has designed and managed several clean energy programs at USAID.

Her area of expertise is strategy formulation and program design & management. She is currently leading the smart grids, distribution reforms and energy efficiency portfolio of USAID’s clean energy program in India. Prior to USAID she worked for British Council, British High Commission, as Project Manager-Climate Change for four years. She has done her Masters in Microbiology with specialization in Environment microbiology and a Post Graduate Diploma in Intellectual Property Rights.
Natalia Kulichenko-Lotz,
Lead Energy Specialist, Energy and Extractive Global Practice, World Bank

Natalia Kulichenko-Lotz is a Lead Energy Specialist in the Energy and Extractive Global Practice at the World Bank. Her work addresses energy sector policy dialogue and sector reform, energy access, power generation, transmission and distribution networks, as well as advanced energy technologies, including concentrating solar power and carbon capture and storage, and related policy and project development. She holds a Ph.D. in Chemical Engineering, M.Sc. in Electrical Engineering, and MBA with specialization in international finance. Her technical expertise relates to energy policy and power generation technologies including thermal and renewable energy power generation, carbon capture and storage, and energy efficiency programs.

Dr. Kulichenko-Lotz leads the WB energy sector portfolio in Nigeria, which includes implementation of several projects as well as development of new activities, focusing on power sector reform and distribution sector recovery programs. Prior to her position in Nigeria, Dr. Kulichenko led the WB energy program in Burundi and Tanzania, including the development of a pipeline of investment projects, sector policy dialogue and engagement of the private sector into financing energy sector projects in the country.

During her career, Dr. Kulichenko-Lotz developed and managed programs in South Africa, Botswana and Mexico, where she led teams of specialists to develop pilot CO2 capture and storage projects. Currently, Dr. Kulichenko manages the World Bank Trust Fund on Capacity Building for Carbon Capture and Storage, and provides oversight of activities, financed by the subject trust fund. She also provided technical supervision of work programs of various WB Trust Funds, which finance activities related to increase energy access, reform and improve management of electric utilities, develop energy policies and deploy modern energy technologies.

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Hendrik Tiesinga
Chief Strategy Officer, New Energy Nexus

Hendrik is the Chief Strategy Officer at New Energy Nexus, an international organization that supports clean energy entrepreneurs with funds, accelerators and networks. Started in California, Nexus has programs in India, China, East Africa and South East Asia. Hendrik has spearheaded the international expansion of New Energy Nexus and its transformation into a global organization.

Prior to that Hendrik edited Labcraft, How Social Labs Create Change through Innovation and Collaboration, collaboratively written by eight innovation labs from around the world. He was also a co-founder of the Finance Innovation Lab in London, convened in 2008 by WWF-UK and the Institute of Chartered Accountants. Hendrik was a doctoral candidate at the Warwick Business School
in the UK and a visiting scholar at UC Berkeley where he researched the impact and practices of innovation labs addressing complex societal challenges.

Hendrik was a founding partner of Natural Innovation an innovation consultancy based in Europe. He has designed and facilitated complex multi-stakeholder projects across Europe, North America, Africa and Asia, working with a variety of organizations ranging from grassroots social entrepreneurs and artists to multilateral government and large financial institutions.

He holds an MA in Politics & Philosophy from the University of Amsterdam and a MA in Management from the Warwick Business School.

**Aanchal Kumar**  
Environment Officer Energy Efficiency Services Limited (EESL)

Aanchal Kumar is an officer at Energy Efficiency Services Limited (EESL) and a Future Energy Leader at the Word Energy Council. She has over 8 years of experience in the field of sustainability and energy efficiency. She has been a pivotal member in the implementation of the globally-lauded Unnat Jyoti by Affordable LEDs for All (UJALA) programme. She has also worked on research studies in the field of clean energy in collaboration with the World Resource Institute (WRI), UNFCCC, World Bank, Lawrence Berkeley National Laboratory (LBNL) and AEEE. As part of her international experience, she has worked on due diligence studies across energy storage and charging infrastructure for e-mobility.

She is currently working on setting up Public Electric charging infrastructure across India in collaboration with various ministries and stakeholders across the government for setting guidelines for operationalising public charging facilities by developing scalable and impactful business models.

She has completed her Masters in Economics with a specialization in Environment from the TERI School of Advanced Studies and is passionate about achieving more with less resources.

**Eloise Burnett**  
Manager, Carbon Trust

Eloise is South East Asia Manager Based at Carbon Trust’s Singapore office, she programme manages the UK Government’s recently launched ASEAN Low Carbon Energy Programme working across the region to drive energy efficiency and green finance.

At Carbon Trust in London, Eloise delivered the UK Government’s Energy Technology List for 2 years, gaining valuable experience on how to build, maintain and improve a national energy efficiency incentive scheme. Working on the ETL gave Eloise a broad understanding on the application of energy efficient technology and systems thinking. She managed and lead specific technology, market and innovation reviews of heat recovery and industrial energy efficiency. She was also programme manager for the offshore wind team working with governments, wind farm developers and regulators to increase the evidence base and reduce the risk of offshore wind projects. Additionally, Eloise was a technology manager for the Offshore Wind Accelerator (OWA), Carbon Trust’s flagship £1.4m a-year research, development and innovation programme. In the OWA, she managed multiple research projects with external technology experts that were aimed at further reducing the cost of wind energy and renewables.

Eloise had been working on programme delivery in the sustainability field for 8 years. She began her career focussing on the sustainable, energy efficient refurbishment of buildings, through the internationally renowned BREEAM
energy efficiency accreditation scheme. She was Educated at the University of Edinburgh.

Session 3: Power market design and role of associated institutes

Anish De
Partner, National Head - Energy & Natural Resources, KPMG in India

Anish De is an Energy and Natural Resources (ENR) expert currently working as the Partner, Head of Strategy & Operations and Sector Leader, ENR for KPMG in India. He has over two decades of all-encompassing experience in ENR space and has worked in more than 10 countries with various public & private sector entities, governments and multi-lateral donor/funding agencies. He has led and managed multiple large projects spanning electricity generation & distribution, energy trading & pricing, renewable energy & grid integration, smart grid, energy efficiency and energy access among others.

His expertise includes program management, investment strategy, sector reform and restructuring, sectoral policy and regulatory framework, power markets design, commercial and financial advisory, designing corporate strategies – turnaround plans, institutional strengthening and capacity building. He has also played an active role in policy formulation front and has contributed to the development of the National Electricity Policy, Tariff Policy and the Competitive Bidding Framework for the power sector in India. Prior to joining KPMG, he was the Chief Executive of Asian Operations of AF - Mercados – EMI. He has done his Masters in Management and Bachelors in Mechanical Engineering.

Joanne Dixon
Senior Transactions Advisor, MRC Consultants & Transactions Advisers

Joanne Dixon is a power markets and transactions advisor with 20 years of experience working in the sustainable development of the energy sector in emerging markets worldwide. With MRC Consultants and Transactions Advisers (Spain) she provides services in Electricity Sector Development, Transactions, Privatization Bid Advisory, Market Assessment, Institutional Restructuring, and Capacity Building on multilateral and privately funded projects. She was previously a partner with Mercados EMI (Spain), and began her career with the Energy Group of the Institute of International Education (IIE). She was also a Peace Corps volunteer in Senegal. Joanne holds a Master Degree in the Technical & Economic Management of the Power Sector from the University of Comillas (Spain), and an Global Executive MBA from IESE Business School (Spain). She lives in Madrid, Spain.

Mark Mills
Principal Legal Adviser and Solicitor, Ofgem

Mark Mills is a Principal Legal Adviser and Solicitor with Ofgem, the regulator for the gas and electricity markets in Great Britain. He has a diverse practice and advises across a broad range of Ofgem’s work in relation to the retail and wholesale markets. This includes competition law, in relation to which he was seconded to the UK’s Competition and Markets Authority, and other enforcement matters, as well as general public law and commercial judicial review. Mark trained at an international law firm, spending time in London and Brussels. Mark is a graduate of the University of Essex (LL.B Law) and Cambridge University (LL.M Commercial Law). Mark contributed to a recent publication, The Guide to Energy Market Manipulation, as the author of the chapter on enforcement activities in the European Union.
**Pankaj Batra**  
Project Director, IRADe

Shri Pankaj Batra is currently working as project director, IRADe. Prior to this, he was Chairperson of the Central Electricity Authority, India responsible for overall development of the Indian power system including Hydro, Thermal and Renewable Power as well as the Transmission & Distribution System of the country. He was also the Member (Planning) and ex-officio Additional Secretary to the Government of India and oversaw various policy and planning functions, including Electric Power Survey Report on long term demand forecasting, National Electricity Plan on generation planning, coal and gas supply to power stations, renewable sources of energy, etc.


**Hans-Arild Bredesen**  
CEO, Nord Pool Consulting; Member of The Board, NodesMarket

Hans-Arild has extensive international experience from designing and implementing various power market design and trading arrangements since 1992 where he initially was involved in developing the first market systems at Nord Pool.

Hans-Arild has been involved in developing new product offerings in a continuous evolving electricity markets worldwide. He has investigated international markets and had key roles in the development of strategies and detailed rules for Trading, Scheduling, and Settlement systems for regulators, power exchanges and system operators in more than 20 countries/regions worldwide. His main focus is the creation of new national and regional power markets for various clients around the world.

Hans-Arild is the CEO of Nord Pool Consulting, the consulting company of Nord Pool. He is also board member of NODES, the newly established European marketplace for trading local flexibility.

**Abhishek Ranjan**  
Additional Vice President and Head of Renewables, DSM & EE and Energy Analytics, BRPL

Abhishek Ranjan is the Additional Vice President and Head of Renewables, DSM & EE and Energy Analytics at BSES Rajdhani Power (BRPL) Limited, New Delhi. Abhishek has about two decades of experience in Power and Information Technology sectors in India. He started his career with Infosys Technologies Limited, an IT company based in India, where he worked on development of enterprise applications for a major US utility and a technology MNC. Abhishek Ranjan is currently leading a team in the areas of Energy Efficiency & Demand Side Management, Renewable Integration and Rooftop Solar, grid level Energy Storage solutions, EV charging infrastructure, Power scheduling & demand forecasting and Energy Analytics at BRPL. BRPL serves over 2.5 Million consumers over an area of 750 sq. Km in Southern and Western parts of national capital Territory of Delhi, India.

**Session 4: The future of rooftop PV: Prospects for self-consumption and peer-to-peer energy trading**
Jaquelin Cochran  
Grid Systems Group Manager, NREL

Jaquelin Cochran, Ph.D., is manager of the Grid Systems Group at the National Renewable Energy Laboratory. Dr. Cochran analyzes best practices to integrate renewable and distributed energy resources to the electric grid. She recently co-led a renewable energy grid integration study of India and is currently leading the City of Los Angeles 100% Renewable Energy Study. Before joining NREL, Dr. Cochran was an Assistant Professor of Natural Resource Management with KIMEP University in Almaty, Kazakhstan. She also served as a Peace Corps Volunteer for two years with the Polish Foundation for Energy Efficiency (FEWE) in Krakow. She holds a Ph.D. and M.A. from the Energy & Resources Group at the University of California at Berkeley.

Supawan Saelim  
Renewable Energy Policy Specialist, USAID Clean Power Asia

Dr. Supawan Saelim is currently a Renewable Energy Policy Specialist for USAID Clean Power Asia program, which encourages power sector investments in environmentally-friendly, grid-connected renewable energy sources. Dr. Saelim has focused primarily on activities to provide technical assistance to Lao PDR, Thailand, Vietnam, and the Philippines related to renewable energy auctions and the impact of distributed PV policies on key stakeholders. Prior to joining USAID Clean Power Asia, she gained research experience with international organizations on energy and climate mitigation policies, and has several years of experience at PwC Thailand assisting the public and private sector on feasibility studies, valuation, and high-level market analysis. Dr. Saelim holds a Ph.D. in Economics from the National Institute of Development Administration, Thailand and an M.Sc. in Project Analysis, Finance and Investment from the University of York, United Kingdom.

Salima Jahan  
Joint Secretary, Government of Bangladesh

Ms. Salima Jahan, Joint Secretary to the government of Bangladesh, has been working since March 2016 as the Member (Renewable Energy) of Sustainable and Renewable Energy Development Authority (SREDA) under Power Division, Ministry of Power, Energy and Mineral Resources of the People’s Republic of Bangladesh. In addition, she is the Project Director of a project titled “Households Energy platform Program in Bangladesh”.

Prior to joining SREDA, She worked for a number of Ministries/Divisions at policy formulation level. Also, She has a long experience as a trainer in two apex training institutes in the field of law and public administration. She participated in various trainings, seminars and workshops both in home & abroad. Ms. Salima Jahan visited around 20 countries.

She Loves to visit new places. Study is her passion. She finds enormous pleasure in sharing thoughts and ideas with people. To build up a cozy corner in the lap of nature for female orphans is her dream.
**Aileen Dalanon**  
Team Lead, Tariff Management under Regulatory Management Office, MERALCO, Philippines

Aileen Dalanon leads the Core Business and Emerging Technologies Tariff Management Team which designs tariffs for MERALCO’s core business of electricity distribution. She monitors and advocates for policies that ensure stability and fairness of electricity tariffs, as MERALCO continues to support the technological advancements in the industry. In recent years, with the influx of new energy sources and technologies, she took on the role of monitoring business models and tariff polices on renewable energy and energy efficiency, smart grid technologies, microgrids and energy storage. She has received several trainings from the Renewables Academy (RENAC) in Berlin specifically on Renewables Grid Integration and Green Finance. Before joining the Tariff Management Group of the Manila Electric Company or MERALCO, Aileen was part of the company’s Utility Economics Division. MERALCO is the largest electricity distribution company in the Philippines servicing Metro Manila and its surrounding provinces.

**Kirapat Jiamset**  
Governor, Metropolitan Electric Authority (MEA), Thailand

Kirapat Jiamset is an Electrical Engineer who has a long experiences in power distribution. He joined Metropolitan Electricity Authority (MEA) since graduated from Prince of Songkla University. His working profile ranging from engineering and technical support thru installation and maintenance of distribution network, cover both overhead and underground cable system. His experiences not only limit to technical field but also in charge of customer services which is directly contact with end users.

**Wei-Nee Chen**  
Chief Corporate Officer, Sustainable Energy Development Authority Malaysia

Dr. Wei-Nee Chen was appointed as Chief Corporate Officer of SEDA on 1st October 2011. She was the Acting Chief Executive Officer (CEO) of SEDA from 2nd August 2018 until 8th January 2019. Dr. Weinee Chen holds a Bachelor Degree in Computer Science from the University of Canterbury, Christchurch, New Zealand, a Master of Business Administration from Universiti Tun Abdul Razak, and a Doctor of Business Administration from Universiti Kebangsaan Malaysia. Previously, she served as a Technical Advisor for the Malaysia Building Integrated Photovoltaic (MBIPV) Project, and currently is the Malaysian representative for Task 1 (Strategic PV Analysis & Outreach) of the International Energy Agency Photovoltaic Power Systems Programme (IEA PVPS).