

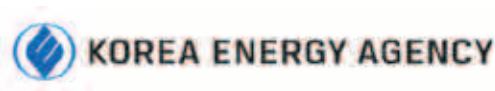


ASIA CLEAN ENERGY FORUM 2016

GEARING UP FOR THE POST-COP21 ERA OF IMPLEMENTATION

SHOWCASING CLEAN ENERGY INNOVATIONS

ORGANIZED BY



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ASIA CLEAN ENERGY FORUM 2016

GEARING UP FOR THE POST-COP21 ERA OF IMPLEMENTATION

SHOWCASING CLEAN ENERGY INNOVATIONS

Manila, Philippines • 6–10 June 2016

ORGANIZED BY



ACEF 2016 Illustrative

Pre-Forum (See Next Page for Details)					
	June 6	June 7		June 8	
	Monday	Tuesday		Wednesday	
9 a.m.–10:30 a.m.	Deep Dive Workshops/ Technical Seminars	Sustainable Energy for All Investor Forum	Deep Dive Workshops/ Technical Seminars	Opening Plenary “Seizing the Challenge of COP21: The New Clean Energy Landscape” (Part 1)	
10:30 a.m.–11 a.m.				Break	
11 a.m.–12:30 p.m.	Deep Dive Workshops/ Technical Seminars	Sustainable Energy for All Investor Forum	Deep Dive Workshops/ Technical Seminars	Opening Plenary “Seizing the Challenge of COP21: The New Clean Energy Landscape” (Part 2)	
12:30 p.m.–2 p.m.				Lunch	
2 p.m.–3:30 p.m.	Deep Dive Workshops/ Technical Seminars	Sustainable Energy for All Investor Forum	Deep Dive Workshops/ Technical Seminars	Session 1: Energy Efficiency in the Post- COP21 World: Meeting the Challenge	Session 2: Outlook for Renewable Energy Development in Asia: Regional and Country and Perspectives
3:30 p.m.–4 p.m.				Session 3: Integrated Resource Planning Revisited: Synergizing Energy Access Solutions in National Plans	Session 4: The Utility of the Future in Asia: What are the Likely Models?
4 p.m.–5:30 p.m.	Deep Dive Workshops/ Technical Seminars	Sustainable Energy for All Investor Forum	Deep Dive Workshops/ Technical Seminars	Knowledge Networking Session	
6 p.m.–8 p.m.				Reception	
					ADB-ILO Policy Dialogue on Skills for Clean Energy Transition

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Schedule

Main Forum

June 9					June 10			
Thursday					Friday			
Plenary Session “From Commitment to Action: Implementing Successful Nationally Determined Contributions (NDCs) in Asia-Pacific”					Session 17: New Models for Investing in Energy Efficiency Projects and Businesses	Session 18: Innovative Business Models: Value Creation from Renewable Energy and Enabling Technologies	Session 19: Adopting Clean Solutions for Cooking and Heating	Session 20: Food, Water, and Energy Nexus: Perspectives from Asia
Break					Break			
Session 5: National Energy Efficiency Standards and Regulation. Building the Enabling and Supporting Environment	Session 6: Scaling up Renewable Energy Deployment: From Grid Integration to Energy Planning	Session 7: Business Models for Access that Spur Innovation	Session 8: Implementation of Nationally Determined Contributions (NDCs): Opportunities and Challenges for the Energy Community		Session 21: Bridging the EE Perception Gap	Session 22: Renewable Energy in the Transport Sector	Session 23: Characterizing Energy Demand for Last Mile Connectivity: New Approaches to Economic and Social Inclusion	Session 24: Transport and Energy: Examples that Work and Directions for the Future
Lunch					Lunch			
Session 9: Cities as Key Decision Makers in Energy Efficiency: What it Takes	Session 10: Renewable Energy Costs: Implications for Policy and Project Development	Session 11: Lessons from Renewable Energy Mini-grids for Energy Access	Session 12: Smart Cities: Perspectives on the Clean Energy Transition	Pacific Department Side Event (from 1:00 pm)	Closing Plenary “What’s Next: Robust Solutions for Asia’s Clean Energy Future”			
Break								
Session 13: Data for Energy Efficiency: Realizing the Promise of Smart Grid and M&V Information Technologies	Session 14: Innovations: Technology, Policy, and Financing Schemes	Lessons from Renewable Energy Mini-grids on Islands	Session 16: What will ASEAN’s Clean Energy Transition Look Like?	Pacific Department Side Event				
Reception								

- Innovations in Energy Efficiency
- Innovations in Renewable Energy
- Increasing Energy Access
- Charting the Future of Clean Energy in Asia

Note: ADB recognizes “Korea” as the Republic of Korea and “Vietnam” as Viet Nam.

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ACEF 2015 PRE-FOCUS

June 6						
Monday						
9 a.m.–10:30 a.m.	Wind Power: Accelerating Deployments in Emerging Wind Markets [ADB Quantum Leap in Wind]	Green Energy Finance Workshop [Renewables Academy (RENAC) and Association of Development Financing Institutions in Asia and the Pacific (ADFIAP)]	Carbon Capture and Storage—Way Forward in Asia [ADB]	Mapping the Future: Energizing Data-Driven Policy Making and Investment in Renewable Power [US Agency for International Development (USAID) and National Renewable Energy Laboratory (NREL)]	Deep Dive Workshop on Minigrids [ADB Energy for All Initiative]	Organizational Greenhouse Gas Reporting Programs in Southeast Asia: Thailand and Philippine Initiatives [USAID Low Emissions Asian Development Program (LEAD) and UNDP Low-Emission Capacity Building Project (LECB)]
10:30 a.m.–11 a.m.						
11 a.m.–12:30 p.m.						
12:30 p.m.–2 p.m.						
2 p.m.–3:30 p.m.				Deep Dive Workshop: How Corporate Demand for Renewable Energy can Support Renewable Energy Markets in Asia [World Resources Institute]	Reaching the Last Mile: Gender and Socially Inclusive Approaches for Energy Access [Energia, Global Alliance for Clean Cookstoves and World Bank]	Powering ASEAN: Can The Nordic Model Work? [ASEAN Studies Center]
3:30 p.m.–4 p.m.						
4 p.m.–5:30 p.m.						

- Innovations in Renewable Energy
- Increasing Energy Access
- Innovations in Energy Efficiency
- Charting the Future of Clean Energy in Asia

ENERGY FORUM 2016

IMPLEMENTATION

Manila, Philippines • 6–10 June 2016



FORUM SCHEDULE

June 7					
Tuesday					
Scaling up Clean Energy: Early Actions to facilitate integration of Variable Renewable Energy into existing power systems [Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), US Agency for International Development (USAID), National Renewable Energy Laboratory (NREL) and Clean Energy Solutions Center]	The Global Energy Efficiency Accelerator Platform: Making Public-Private Partnerships work for Energy Efficiency in Asia [Copenhagen Centre on Energy Efficiency and Energy Efficiency Services Limited (EESL)]	Waste to Energy, Transforming Strategy into Reality [ADB Waste to Energy Working Group]	Sustainable Energy for All Investor Forum [ADB Energy for All Initiative]	Powering the Asian Tiger with Renewables [Renewable Energy Policy Network for the 21st Century (REN21) and the World Wide Fund for Nature (WWF)]	Case Studies in Clean Energy Project Development: Lessons Learned in Southeast Asia [OPIC, U.S. Trade Development Agency, U.S. Treasury, USAID]
					Launch and Introduction of DigiCollect's multi-purpose Online Marketplace for Energy and Infrastructure [ACO Investment/DigiCollect Intelligent Platforms]
				Scaling Clean technologies: What it Really Takes [ADB Asia-Pacific Climate Technology Finance Center and California Clean Energy Fund (CalCEF)]	How the HOMER® Pro Software Can Improve the Design and Development of Clean and Sustainable Energy Projects [Homer Energy]
					Microgrid Energy Storage: Power Systems of the Future [Embassy of Canada in Manila]



Wind Power: Accelerating Deployments in Emerging Wind Markets

Multifunction Hall 1, New Atrium

6 June 2016, Monday, 9 a.m.–5:30 p.m.

Overview

The Quantum Leap in Wind Power Development in Asia and the Pacific (QLW) deep dive workshop will focus on: How can emerging wind markets in Asia and the Pacific accelerate wind power development? The ambitious goals and commitments made in COP 21 will be translated into action in the coming years. Wind power provides the lowest cost clean energy technology, as evidenced by falling PPA prices and falling reverse auction prices for wind energy.

This workshop promises to bring, from around the world, wind power experts, senior government officials, senior utility officials, wind developers and financiers to share experiences, best practices and insights about wind power development. Presenters will discuss barriers, solutions to overcoming barriers and recommendations for changes to policies, tariffs, interconnection, permitting, land acquisition, financing and others. The workshop will share lessons, best practices and recommendations in order to accelerate wind development. All facets of wind project development will be covered: Prospecting, wind resource assessment, siting/engineering, turbine technology, financing, and others.

Schedule

Time	Activity
9 a.m.– 9:35 a.m.	Welcome address <i>Priyantha Wijayatunga</i> , Chair of Asia Clean Energy Forum, ADB Keynote address <i>Varsha Joshi</i> , Joint Secretary, Ministry of New and Renewable Energy, India
9:35 a.m.–10:30 a.m.	Country presentations on wind power development: Status, challenges and opportunities Chair: <i>Anthony Jude</i> , Director Energy, South Asia Department, ADB <ul style="list-style-type: none"> – Mongolia, Angarag, Ministry of Energy – India, Rakesh Goyal, Tetra Tech ES – Indonesia, Ishak Burhani Nasution, PLN – Philippines, Fort Sibayan, Department of Energy – Sri Lanka, Ranjith Pathmasiri, SL Sustainable Energy Authority – Thailand, Iban Vendrell, Mott McDonald – Viet Nam, Mike Ellis, Deloitte Consulting, USAID Viet Nam Low Emissions Energy Program
10:30am.–11:00a.m.	Break

table continued

11 a.m.– 12:30p.m.	<p>Case studies of wind resource assessment.</p> <p>Chair: <i>Upali Daranagama</i>, Former Additional Secretary (Planning), Ministry of Power and Energy, Sri Lanka</p> <ul style="list-style-type: none"> – Mongolia: Bawuudorj, Ministry of Energy – Philippines: Jan Ramos, Philippines Department of Energy – Sri Lanka: Gayan Subasinghe, United Nations Development Programme – Wind Resource Assessment: Key lessons learned, Pramod Jain, QWL & Innovative Wind Energy, Inc. – Global Mapping of Wind Resources, Silvia Martinez Romero, World Bank
12:30– 2:00 p.m.	Lunch
2:00– 3:30 p.m.	<p>Accelerating wind power deployments from Government & Utility perspectives and the impact of COP21. This panel discussion will include representatives from governments, policy makers and utilities.</p> <ul style="list-style-type: none"> – Chair: <i>Mukhtor Khamudkhanov</i>, Principal Energy Specialist, ADB – Experiences of rapid wind development in the Philippines. Mario Marasigan, OIC Assistant Secretary of DOE Philippines – Experiences with wind policies in Indonesia. TBD – Experiences with wind policies in Viet Nam. Mike Ellis, Deloitte Consulting, USAID Viet Nam Low Emissions Energy Program – Experiences with grid integration in Sri Lanka. Kamani Jayasekera, Dy General Manager Transmission and Generation Planning, Ceylon Electricity Board, Sri Lanka – Experiences with grid integration in the Philippines. Vincente Loria, National Grid Corporation of the Philippines – Experiences of utilities in managing wind power: Reserves, transmission and dispatching. Dr Clayton Barrows, NREL
3:30 p.m.–4 p.m.	Break
4 p.m.– 5:30 p.m.	<p>Accelerating wind power deployments from Developer, Manufacturer and Financier perspectives. This panel discussion will include representatives from wind power developers, consulting companies, turbine manufacturers and financiers.</p> <p>Chair: <i>Ashok Bhargava</i>, Director Energy, East Asia Department, ADB</p> <ul style="list-style-type: none"> – Desideratum of developers: Best practices to reduce time and cost. Edgare Kerkwijk, Asia Green Capital – Experiences with wind development in the Philippines: Developer’s perspective. Reman Chua, Energy Development Corporation. – New technologies for emerging wind markets: Turbines for lower wind speed regimes, grid friendliness. TBD, Vestas – Differences in market for wind turbines in developing compared to developed wind markets, Thierry Delmas, Gamesa – Lao PDR’s first wind farm, a 600MW wind energy development—infusing clean energy to a sustainable Asean Grid future, Somboon Lertsuwanaroj, Impact Electrons Siam.



Green Energy Finance Workshop

Auditorium Zone A

6 June 2016, Monday, 9 a.m.–5:30 p.m.

Overview

The Green Banking Initiative, a joint project of Renewables Academy (RENAC) and the Association of Development Financing Institutions in Asia & Pacific (ADFIAP), aims to promote sustainable capacity building measures and to provide support to bankers and investors.

The Green Energy Finance Workshop at ACEF 2016 will be offered within RENAC's Green Banking Project, supported by the German International Climate Initiative (ICI) and the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB). The Green Banking Programme aims at providing participants with specific expertise in renewable energy and energy efficiency technologies, as well as appropriate risk evaluation and mitigation schemes. The development of private sector finance instruments for climate change mitigation will be fostered and the readiness to leverage national credit lines with international climate change mitigation schemes will be increased. Knowledge about existing international climate change mitigation funds and the available access opportunities will be disseminated.

Schedule

Time	Activity and Presenter
9 a.m.–11 a.m.	Introduction to the Assessment and Financing of Photovoltaic (PV) Projects <ul style="list-style-type: none"> – Introduction to the PV - technology – Financing approach – PV yield assessments and technical aspects – Risks and mitigation from the banks 'perspective Presenter: Alexander Boensch, Green Energy Finance Specialist, RENAC
11 a.m.–11:15 a.m.	Coffee Break
11:15 a.m.–1 p.m.	Bankability Assessment -Case Study PV financial modelling <ul style="list-style-type: none"> – Introduction to the case – Model input parameters and structure of cash flow model – Financial assessment using project finance ratios Presenter: Alexander Boensch, Green Energy Finance Specialist, RENAC
1 p.m.–2 p.m.	Lunch Break

2 p.m.–3 p.m.	Introduction to Green Finance and Credit Cycle <ul style="list-style-type: none"> – The Green Finance Framework – Definition of Green Finance – The Green Credit Cycle: Mitigating Environmental Risk – Green Loan Officer vs. Regular Loan Officer – Business Case for Green Finance Presenter: Octavio B. Peralta, Secretary General, ADFIAP
3 p.m.–3:15 p.m.	Coffee Break
3:15 p.m.–5:30 p.m.	Credit Appraisal and Approval: Risk Based Green Lending Framework <ul style="list-style-type: none"> – Risk Evaluation – Environmental Impact Assessment – Credit Analysis and Scoring – Credit Decision and Underwriting Presenter: Arlene S. Orenca, Head of Projects and Programmes, ADFIAP



Carbon Capture and Storage—Way Forward in Asia

Multifunction Hall 3, New Atrium

6 June 2016, Monday, 9 a.m.–5:00 p.m.

Overview

ADB is organizing a one day – Deep Dive workshop as part of Asia Clean Energy Forum on 6th of June, 2016 at Manila. It will be updating participants on status of Carbon Capture and Storage (CCS) progress in Asia and will discuss cross cutting issues related to regulations, finance, monitoring and verification (M&V).

The workshop will be providing a unique opportunity to the participants to “deep dive” and provide insight into: (i) CCS technology, (ii) Policies and Regulation, and (iii) Financing and Business Models. The target audience for the Deep Dive Workshop includes policy makers and practitioners from countries in Asia which have significant potential to implement CCS.

Schedule

Time	Topic	Speaker
8.30 a.m.–9 a.m.	Registration	
9 a.m.–9.45 a.m.	Opening Session	
9 a.m.– 9.10 a.m.	Welcome Remarks and Introduction to the Workshop	<i>Ashok Bhargava</i> Director, East Asia Energy Division ADB, Philippines
9:10 a.m.–9–25 a.m.	Global Update on CCS	<i>Alice Gibson</i> Principal Manager Capacity Development, Global CCS Institute, Australia
9.25 a.m.–9.45 a.m.	Experience from first Large Scale Coal fired CCS Project in the world	<i>Mike Monea</i> President, Carbon Capture and Storage Initiatives, SASK Power Canada
9:45 a.m.–11:15 a.m.	Session 2: Sectors and Countries Session Chaired by <i>Annika Seiler</i> , Finance Specialist (Energy), East Asia Energy Division, ADB	
9:45 a.m.–10 a.m.	CCS Opportunities and Activities in PRC	<i>Lu Xinming</i> Dy. Director General, Department of Climate Change National Development and Reforms Commission PRC (TBC)
10 a.m.–10:15 a.m.	CCS Opportunities and Activities in Indonesia	<i>I Gusti Suarnaya Sidemen</i> Head of Sub Directorate for Engineering and Environmental Safety of Oil and Gas Business, Directorate General of Oil and Gas Government of Indonesia

continued on next page

Time	Topic	Speaker
10:15 a.m.–10:30 a.m.	CCS Activities and Support by Japan	<i>Makoto Akai</i> Board Director, Global CCS Institute National Institute of Advanced Industrial Science and Technology (AIST)
10:30 a.m.–10:45 a.m.	CCS as a GHG mitigation tool for India: Approach and status	Representative Ministry of Power, Government of India (TBC)
10:45 a.m.–11 a.m.	Carbon Capture Project in India	<i>Aniruddha Sharma</i> CEO & Co-Founder, Carbon Clean Solutions Pvt. Ltd., India
11 a.m.–11:15 a.m.	Q&A	
11:15 a.m.– 11:30 a.m.	Coffee/Tea break	
11:30 a.m.–12:45 p.m.	Session 3: Cross-cutting Issues Session Chaired by <i>Pradeep Tharakan</i> , Senior Climate Change Specialist South East Asia Energy Division, ADB	
11:30 a.m.–11:45 a.m.	Risk Assessment	<i>Yuri Raydugin</i> Risk Services & Solutions Inc., Calgary, Canada
11:45 a.m.–12 p.m.	CCS readiness in power plants	<i>Gao Lin</i> CO ₂ Capture Expert, China Academy of Sciences
12 p.m.–12:15 p.m.	CCS demonstration efforts at Shell and views of Shell on CCS development and relevance of CCS for Asia	<i>Wilfried Maas</i> General Manager CCS Demonstration and Deployment at Shell
12:15 p.m.–12:30 p.m.	Carbon Capture and Utilization Project by Jupiter Oxygen Corporation	<i>Shishir Tamotia</i> Advisor, Jupiter Oxygen
12:30 p.m.–12:45 p.m.	Q&A	
12:45 p.m.–1:30 p.m.	Lunch	
1:30 p.m.–3:30 p.m.	Interactive Deep Dive Streams –	
Stream 1 CCS Technology	Stream 2: Policies and Regulations	Stream 3: Financing and Business Models
Chair: <i>Kelly Thambimuthu</i> IEA GHG	Chair: <i>Pradeep Tharakan</i> , Senior Climate Change Specialist, South East Asia Energy Division, ADB	Chair: <i>Annika Seiler</i> Finance Specialist (Energy), East Asia Energy Division, ADB
3:30 p.m.–4 p.m.	Coffee/Tea break	
4 p.m.–4:30 p.m.	Summary of the Deep Dive Workshops	<i>Priyantha Wijayatunga</i> Principal Energy Specialist, Sector Advisory Services, Asian Development Bank, Philippines and Chairpersons of the Deep Dive Streams
4:30 p.m.–5:00 p.m.	Closing Session	<i>Yongping Zhai</i> Senior Advisor, Office of the Director General, Sustainable Development and Climate Change Department, ADB, Philippines



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Mapping the Future: Energizing Data-driven Policy Making and Investment in Renewable Power

Auditorium Zone B

6 June 2016, Monday, 9 a.m.–12:30 p.m.

Overview

This workshop will enable participants to visualize and quantify renewable energy potential in their country/region through the launch of an innovative new geospatial renewable energy analysis tool, “Enterprise GsT” (EGsT). The session aims to support participants in understanding how to apply the EGsT and geospatial analysis to inform policy targets, screen for development areas, and conduct pre-feasibility studies. The session will also facilitate peer learning and collect information on geospatial data analysis needs and interests that could inform future improvements. In addition, presentations will be made by the National Institution for the Transformation of India (NITI) Aayog and the Center for the Study of Science, Technology, and Policy (CSTEP); providing a diverse perspective on geospatial analysis from India’s pre-eminent think-tanks.

Schedule

Time	Activity
9 a.m.	Presentation: Context and Geospatial Toolkit (GsT) Overview <i>Anthony Lopez</i>
9:30 a.m.	Presentation: Launch and Demonstration of the Enterprise GsT (EGsT) <i>Anthony Lopez</i>
10 a.m.	Presentation: Experiences and Lessons Learned in India and Philippines <i>TBD</i>
10:30 a.m.	Guided hands-on training on Practical Application of the Desktop and Enterprise GsT <i>Anthony Lopez and Jessica Katz</i>
12 pm.	Group Discussion on Priority Enhancements <i>Anthony Lopez</i>



Deep Dive Workshop: How Corporate Demand for Green Power Can Support Renewable Energy Markets in Asia

Auditorium Zone C

6 June 2016, Monday, 2 p.m.–5:30 p.m.

Overview

This deep dive workshop is an opportunity to explore how corporate demand for renewable energy and their collective buyer power can be leveraged to help build markets for renewable energy in ASEAN countries and bring benefits to other customer classes.

As leading corporations (some of the largest electricity consumers) around the world have embraced the business case for renewable energy and ambitious climate action, they've found themselves facing high transaction costs when sourcing RE. At the same time, RE project developers are having difficulty securing low cost financing and need good credit off-takers for their power. WRI has worked since the early 2000's through corporate buying groups to support efforts to build renewable energy markets and finance RE projects. With partners, in 2016, this work is coalescing into a global Renewable Energy Buyers Alliance

In the United States and India, this partnership provides a range of market making services, from support on power purchase contracts and a marketplace for companies to meet project developers to direct utility collaboration and regulatory and policy guidance. In 2015, this partnership led to over 3 GW of corporate supported renewable energy contracts in the US and over 200 MW of contracts in India. There is interest in expanding this work to China, Indonesia, and other ASEAN markets.

WRI is conducting a deep dive workshop to explore the feasibility, challenges, and opportunities of establishing this partnership across more Asian countries, with a focus on India, Indonesia and China. This deep dive will explore which issues the partnerships should address and how approaches can be developed to create system benefits beyond the corporate purchasers.

Key Questions to Explore in the Deep Dive:

What can we learn from the experience working with energy users in other markets?

Will this kind of an approach work in the ASEAN region? Why and why not?

What has been tried earlier and what can we build on?

What concerns and challenges will this initiative pose?

Draft Schedule

Time	Activity
2 p.m.	Speakers will share perspectives from corporates, utilities, financiers and regulators across ASEAN countries on the barriers to scaling renewable energy for large buyers, ideas for solutions, and how this partnership could be designed for impact.
3 p.m.	Speakers will share experiences from the US and India on how the existing partnership has been designed, the impacts it has had, and lessons learned for improving the partnership going forward.
4 p.m.	Moderated discussion on how demand from the private sector could best support an energy transition, and issues to consider by region as renewable energy use increases from the largest customers. Where can this partnership be most effective? What goals should the partnership establish?
5 p.m.	Wrap up and next steps



Deep Dive Workshop on Minigrids

Auditorium Zone C

6 June 2015, 9 a.m.–12:30 p.m.

Overview

The session will analyze the various business models employed in Renewable Energy mini-grid pilot projects in ADB's Developing Member Countries which were supported by ADB regional technical assistance on Empowering the Poor through Increasing Access to Energy. It will provide discussions on the challenges encountered, barriers overcome, lessons learned, and the potential for replication and scaling up.

Schedule

9 a.m.–9:10 a.m.	Opening Remarks
9:10 a.m.–9:20 a.m.	ADB's Energy for All Initiative
9:20 a.m.–10:30 a.m.	SESSION 1: Case Studies of Commercial Minigrids Mini-grid projects face several barriers from design to implementation and sustainable operation to replication. This session will feature two successful minigrid projects that were supported by Energy for All. The session will break down the business model of these projects into their component parts and systematically examine unique operational controls and best practices that are central to sustainability and replicability. Moderator: <i>Suman Basnet</i> , ADB Energy for All Speakers: Private-sector led micro-grids in remote and rural Nepal <i>Anjal Niraula</i> , Gham Power Nepal Hybridizing island mini-grids in the Philippines <i>Rene Fajilagutan</i> – Romblon Electric Cooperative
10:30 a.m.–11 a.m.	Networking Break

11 a.m.–12:30 p.m.	SESSION 2: Business Models for Rural Mini-grids
	<p>Mini-grid business models need to be adapted to local markets, consumer behavior and the local regulatory environment. This session will showcase different innovative mini-grid business models that are being implemented in Asia, with the assistance of the Energy for All Program. Panelists will discuss the best practices that were instrumental to their ability to overcome local barriers, and explain the unique elements behind their approach.</p> <p>Moderator: <i>Sagar Gubbi</i>, ADB Energy for All</p> <p>Speakers:</p> <p>DC Swarm Grids – The Micro-Scale Energy Transition <i>Sebastian Groh</i> – ME SOLShare, Bangladesh</p> <p>Myanmar off-grid RE demonstration project - Incentivizing community investment for upgraded energy services <i>Kamalesh Doshi</i> – Nexant, Myanmar</p> <p>Dynamic Pricing based Solar Microgrids – Meeting rural aspirations in India sustainably <i>Rustam Sengupta</i> – Boond, India</p>



Reaching the Last Mile: Gender and Socially Inclusive Approaches for Energy Access

Auditorium Zone D

6 June 2016, 2 p.m.–5:30 p.m.

Overview

Over the last decade, while huge strides have been made in expanding electrification, large sections of population are still left out and rely on biomass for their energy needs, including cooking and light fuel. These are families living in mostly rural, including the remote and hard to access locations. While there have been notable advances in electrification, by contrast, access to clean cooking solutions continues to fall behind. From 2010 to 2012, there was negligible overall progress, with annual growth in access to nonsolid fuels globally falling by 0.1%, well short of the 1.7% target growth rate required to reach universal access by 2030. The International Energy Agency predicts that by 2030, more than 2.7 billion people will still rely on traditional fuels for their energy needs – mainly in Africa and Asia—and over one billion people will still lack access to reliable electricity. 85% of this un-met demand will be from people living in rural areas.

At the same time, a number of organizations and entrepreneurs are demonstrating—often at a relatively small but rising scale that profitable ventures can indeed be built in low-income markets. Local SMEs, social enterprises, NGOs and conglomerates are succeeding in selling modern lighting and cooking devices, off-grid electrification solutions, and, to a smaller degree, grid extension services to the poor. In particular, gender-informed energy access business models have proven to be the most effective approach, especially those that leverage the role of women and their networks in promotion, sale, servicing, and financing of household energy devices.

The objective of this session is to disseminate experiences and strategies that have proven successful in access to modern energy to the last mile consumers, in ways that are responsive to local contexts, build on local capacities and are gender-informed. Specifically, the session will discuss barriers for scaling up last mile distribution approaches that exist across the energy sector, and highlight good practices on rural distribution, consumer and working capital finance, marketing, and promotion.

SCHEDULE

Time	Activity
2 p.m.–2:15p.m.	Introduction to the Deep Dive session Welcome: <i>Soma Dutta</i> , ENERGIA Opening Remarks: <i>Priyantha Wijayatunga</i> , Principal Energy Specialist, Sustainable Development and Climate Change Department
2:15 p.m.–3:30 p.m.	Scaling Energy Access Through On-Grid and Off-Grid Electrification Moderator: <i>Francesco Tornieri</i> , Principal Social Development Specialist (GAD), Office of the Director General, South Asia Department, Asian Development Bank <i>Katarina Uherova Hasbani</i> , Board Member, Alliance for Rural Electrification <i>Karen H. Jacob</i> , Social Safeguards and Social Development Consultant, World Bank <i>Anoja Wickramasinghe</i> , Gender Expert, ADB Project “Improving Gender Inclusive Access to Clean and Renewable Energy in Nepal, Bhutan and Sri Lanka” project (JFPR 9158), Sri Lanka <i>Mewang Gyeltshen</i> , Chief Engineer/Director, Department of Renewable Energy, Ministry of Economic Affairs, Bhutan (TBC)
3:30 p.m.–4:00 p.m.	Coffee Break
4 p.m.–4:15 p.m.	Video – cookstove users/entrepreneurs in Asia
4:15 p.m.–5:30 p.m.	Gender-informed cooking business models for reaching the last mile Moderator: <i>Soma Dutta</i> , Programme Coordinator, ENERGIA, International Network on Gender and Sustainable Energy <i>Asna Towfiq</i> , Bangladesh Market Manager, Global Alliance for Clean Cookstoves <i>Christian Liedtke</i> , Advisor, GIZ <i>Upmanyu Patil</i> , Associate Director-Programs, Swayam Shikshan Prayog, India <i>Sergina Loncle</i> , Communications Manager, Kopernik Solutions, Indonesia
5.30 p.m.–5.35 p.m.	Wrap up and Summary



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LOW EMISSION
CAPACITY BUILDING
PROJECT – PHILIPPINES

Organizational Greenhouse Gas Reporting Programs in Southeast Asia: Thailand and Philippine Initiatives

Auditorium Zone D

6 June 2016, Monday, 9 a.m.–12:30 pm

Overview

This technical seminar will present efforts in the Philippines and Thailand, both underway and completed, to offer organizations a way to report their greenhouse gas (GHG) emissions. Thailand's voluntary organizational GHG reporting program and the ongoing initiative to establish a similar program in the Philippines will be discussed. Also, the functionality of Thailand's online reporting platform shall be demonstrated.

In 2015, the Low Emissions Asian Development (LEAD) program of the U.S. Agency for International Development (USAID) completed the Revised Carbon Footprint for Organizations (CFO) Program in collaboration with the Thailand Greenhouse Gas Management Organization (TGO). The original CFO program was voluntary, and enabled annual facility-level emission reporting with integrated third-party verification. The 2015 update incorporates internationally accepted GHG emissions accounting and reporting standards and permits organizations to report GHG emissions through a TGO-operated online platform. In the Philippines, the Climate Change Commission (CCC) and the United Nations Development Program (UNDP), through the Low-Emission Capacity Building (LECB) Philippine Project, are developing long-term comprehensive climate change strategies with the private sector. Project partners will be encouraged to set corporate-wide GHG reduction goals and inventory their emissions as a business practice to track or measure the same. They are encouraged to develop an inventory protocol which would define how project partners (through industry associations/organizations) inventory and report their GHG emissions. The protocol would neither be a regulatory imposition nor a reporting requirement to any government agency.

Schedule

Time	Activity
9 a.m.–9:15 a.m.	Welcome and Introductions <i>Joshua Forgotson</i>
9:15 a.m.–9:30 a.m.	Overview of organizational GHG reporting programs in Southeast Asia <i>Joshua Forgotson and Francis Benito</i>
9:30 a.m.–10 a.m.	Introduction to voluntary corporate GHG reporting—Generic case: Measuring a carbon footprint under the CFO program <i>Joshua Forgotson</i>
10 a.m.–10:30 a.m.	Demonstrating the functionality of the CFO program's online reporting platform <i>Joshua Forgotson</i>
10:30 a.m.–10:45 a.m.	Verifying a carbon footprint: Introduction to the seven steps of verification <i>Joshua Forgotson</i>
10:45 a.m.–12 p.m.	The Philippine GHG Protocol and Management Program <i>Bonar Laureto</i>
12 p.m.–12:15 p.m.	Q & A
12:15 – 12:30	Closing Remarks <i>Joshua Forgotson</i>



Powering Asean: Can the Nordic Model Work?

Auditorium Zone B

6 June 2016, Monday, 2 p.m.–5:30 p.m.

Overview

Context

ASEAN Energy Ministers adopted connectivity and ASEAN energy market integration (AEMI) as the principal focus of their energy cooperation agreement in 2016–2025. The adoption of AEMI represents a significant paradigm shift, elevating common objectives from coordination of national energy policies, into integration of the ten ASEAN energy markets into a single one within the framework of the ASEAN Economic Community (AEC). Such a paradigm shift opens up new opportunities, whereby a regional ASEAN energy policy could be formulated on the basis of agreed common goals, and new tools could emerge to allow for their implementation throughout the AEC, for the benefit of all ASEAN member states.

A flagship of past ASEAN energy cooperation agreements has been the ASEAN Power Grid (APG), designed to establish connectivity and deliver energy security throughout ASEAN. Much progress has been accomplished, with an APG infrastructure successfully deployed, and several bilateral connections operating. The challenge now is for APG inter-connections to operate on a multinational basis, and to deliver electricity throughout ASEAN. The success of such approach would enhance energy security, expand access to electricity, improve deployment of renewable energy, and optimize the use of clean energy sources throughout the AEC.

The challenge for ASEAN is to adopt an approach that would allow the creation of such an ASEAN multinational electricity market, and that would secure its efficient operation through the APG.

The DDW will be an opportunity to present the ASEAN Power Grid, discuss its rationale, identify its potential benefits, outline its current challenges, and most importantly, brainstorm in an interactive manner on whether the Nordic Electricity Exchange could provide a model for the ASEAN Power Grid to allow better access to clean energy for ASEAN citizens and to share renewable energy more efficiently throughout ASEAN.

Schedule

Time	Activity
2 p.m.–2:30 p.m.	ASEAN Power Grid: Where do we stand and what are the challenges in moving forward in the framework of the ASEAN Economic Community? <i>Dr. Philip Andrews-Speed, Principal Fellow, Energy Studies Institute, National University of Singapore</i>
2:30 p.m.–3:30 p.m.	The Nordic Electricity Exchange: What is it, how does it work, and where was it adopted around the world? <i>Mr. Hans-Arild Bredesen, CEO, Nord Pool Consulting</i>

continued on next page

3:30 p.m.–3:45 p.m.	Coffee
3:45 p.m.–4:45 p.m.	The Nordic Model beyond the Nordics: What have we learned from implementation of the Nordic model for Southern African States and in India? <i>Mr. Hans-Arild Bredesen, CEO, Nord Pool Consulting</i>
4:45 p.m.–5:15 p.m.	Powering ASEAN: Can the Nordic model work for the ASEAN Power Grid? Under which conditions could it deliver success? <i>Dr. Nawal Kamel, AEMI Initiative Director, ASEAN Studies Center, Chulalongkorn University, Thailand</i>
5:15 p.m.–5:30 p.m.	Conclusions and Next Steps



Scaling Up Clean Energy: Early Actions to Facilitate Integration of Variable Renewable Energy into Existing Power Systems

Auditorium Zone D

7 June, 2016, 9 a.m.–5:30 p.m.

Description

The rapid growth of renewable energies, especially variable sources such as solar and wind power, can lead to significant integration challenges for existing power systems in Asia. This Deep Dive Workshop organized by NREL, GIZ, USAID, and the Clean Energy Ministerial will present and discuss actions that can be undertaken by governments and grid operators at an early stage and without excessive financial commitments to provide more operational flexibility to the power system. The workshop will cover topics such as improved forecasting, optimized dispatch and balancing power management, and the utilization of grid services from RE. The role of energy storage in future power systems will also be explored.

Agenda

8:30 a.m.	Registration
	Opening
9 a.m.	Welcome Remarks <i>Mario Sander von Torklus</i> , Executive Director for Austria, Germany, Luxembourg, Turkey and the United Kingdom, ADB <i>Michael Hasper</i> , Deputy Head of Mission, Embassy of the Federal Republic of Germany, Manila <i>N.N.</i> , U.S. Embassy
9:15 a.m.	Workshop objective and outline <i>Michael Vemuri</i> , GIZ
	Session 1: Setting the Scene
9:20 a.m.	“Who Wants to Be a Millionaire? – Grid Integration Edition”, Part I <i>Jen Leisch</i> , USAID
9:25 a.m.	Confronting Myths about vRE Integration <i>Jaquelin Cochran</i> , NREL
9:40 a.m.	Experiences & lessons learned from Germany <i>Christoph Menke</i> , Joint Graduate School of Energy & Environment, KMUTT, Bangkok
9:55 a.m.	Experiences & lessons learned from India <i>Pradeep Jindal</i> , Director, System Planning and Project Appraisal, Central Electricity Authority
10:10 a.m.	Q&A

10:30	Coffee break
	Session 2: Early Actions for the Integration of vRE
11 a.m.	Improved Forecasting <i>Jessica Katz, NREL</i>
11:30 a.m.	Optimized dispatch and balancing power management <i>Frank Seidel, GIZ</i> <i>N.N., German Grid Operator / Distribution Utility</i>
12 p.m.	Utilization of grid services from RE <i>Clayton Barrows, NREL</i>
12:30 p.m.	Lunch
	Session 3: Thematic Group Discussions on Early Actions for the Integration of vRE
2 p.m.	“Who Wants to Be a Millionaire? – Grid Integration Edition” – Part II <i>Jen Leisch, USAID</i>
2:05 p.m.	Introduction to the Thematic Group Discussions , Michael Vemuri, GIZ Participants will join small discussion groups which will cover all three topics presented in session 2 one after the other for 25 min each. Participants can share their experiences and bring up their own country-specific questions to be answered by the respective thematic experts.
2:10 p.m.	Q & A / Discussion round 1
2:40 p.m.	Q & A / Discussion round 2
3:05 p.m.	Q & A / Discussion round 3
3:30 p.m.	Coffee break
	Session 4: Energy Storage—Early Action or Remote Future?
4 p.m.	The role of energy storage for vRE integration <i>Dr. Rahul Walawalkar, Executive Director, Indian Energy Storage Alliance & Vice Chair, Global Energy Storage Alliance</i> <i>Rao Konidena, Principal Advisor, Policy Studies, Midcontinent Independent System Operator (MISO)</i>
4:40 p.m.	Panel discussion: Energy Storage: Early Action or Remote Future? Facilitator: <i>Christoph Menke, Joint Graduate School of Energy & Environment, KMUTT, Bangkok</i>
5:10 p.m.	“Who Wants to Be a Millionaire?—Grid Integration Edition,” Part III <i>Jen Leisch, USAID</i>
5:15 p.m.	Summary of the day <i>Jaquelin Cochran, NREL</i>
5:20 p.m.	Closing Remarks <i>Dr. Bernd-Markus Liss, Director & Principal Advisor, Climate Program Philippines, GIZ</i> <i>N.N., USAID</i>



The Global Energy Efficiency Accelerator Platform: Making Public-Private Partnerships Work for Energy Efficiency in Asia

Auditorium Zone C

7 June 2016, Tuesday, 9 a.m.–5:30 p.m.

Overview

There is widespread interest in committing to energy efficiency, but to achieve the ambitious targets set by international agreements and the targets of initiatives such as Sustainable Energy for All, commitments will have to be converted to real results quickly. For implementation at scale to occur, new partnerships are required between committed government and the private sector service, product and finance providers that can help them deliver.

Co-hosted by EESL and the Copenhagen Centre on Energy Efficiency, the Deep-Dive Workshop intends to explore this issue by looking at energy efficiency partnerships that are working well, and what the roles of different sectoral stakeholders are in helping them deliver. The workshop will communicate the activities of major public-private partnership initiatives active in the region, including Sustainable Energy for All's Global Energy Efficiency Accelerator Platform, and draw on the real experiences and perceived challenges faced by practitioners with the aim of bring new engagement on energy efficiency from interested parties in the Asia-Pacific region.

Schedule

Time	Activity
9 a.m.–10:30 a.m.	Welcome and Introduction to the Workshop <ul style="list-style-type: none"> – Introduction to ADB's Energy Efficiency Activities – Sustainable Energy for All and the Global Energy Efficiency Accelerator Platform – the strategic issues for accelerating energy efficiency – the Copenhagen Centre on Energy Efficiency, Denmark – Energy Efficiency Policies evaluation project of the World Energy Council – ADEME, France
10:30 a.m.–11 a.m.	Break
11 a.m.–12:30 p.m.	Partnerships in Finance – India Focus <ul style="list-style-type: none"> – Case studies on Innovative Financing – Chamundeshwari Electricity Supply Corporation Limited (CESC) and Jharkhand Bijli Vitran Nigam Limited, Government of India – Supporting ESCOs through the Partial Risk Sharing Facility (PRSF) – World Bank
12:30 p.m.–2 p.m.	Lunch

2 p.m.–3:30 p.m.	Partnerships in Policy <ul style="list-style-type: none"> – Appliance Standards and Labelling: the ASEAN-SHINE experience – United States State Department – Efficiency for Access – integrating action towards the Sustainable Development Goals – United States State Department – What do companies need to get more involved in energy efficiency? United for Efficiency and the Appliances and Equipment Accelerator – International Copper Association
3:30 p.m.–4 p.m.	Break
4 p.m.–5:30 p.m.	Making Partnerships Work for Energy Efficiency <ul style="list-style-type: none"> – What private sector support and assistance do cities and municipalities need on energy efficiency? –Asian Development Bank – What private sector support and assistance do provincial and national governments need on energy efficiency? – Asian Development Bank – Best practices and policy support activities at the national level – Energy Conservation Centre Japan – Facilitated discussion



Waste to Energy, Transforming Strategy into Reality

Multifunction Hall 1, New Atrium

7 June 2016, 9 a.m. – 5:30 p.m.

Overview

This interactive workshop will be hosted by ADB and Ricardo Energy & Environment to support Developing Member Countries in understanding the potential for generating clean energy from biomass and solid waste whilst mitigating national carbon emissions through the adoption of a waste management strategy incorporating Waste to Energy.

This one-day event will be a combination of feature presentations, case studies and group discussion. The event will use interactive audience response systems to inform sessions and group discussion. Small group discussions will allow delegates to question the expert speakers, panelists, and exhibitors from around the world to provide you with the insight and information to take effective action.

Schedule

	Welcome and objectives	Speakers
9 a.m.–9:30 a.m.	Introduction to the workshop programme and objectives; introduction to ADB and Ricardo Energy & Environment.	Amy Leung, ADB Adam Read, Ricardo E&E Vijay Padmanabhan, ADB
Session A	The Asian Waste Management Agenda	
9:30 a.m. – 10:30 a.m.	Setting the scene: overview of waste management issues in ADB DMCs to consider the potential strategic role of WtE; outlining the role of ADB to support WtE projects.	Adam Read
Short break (15 minutes)		
Session B	WtE Technology	
10.45 a.m.–11:25 a.m.	Part 1: Utilising landfill gas (40 mins) Overview of the technology and deployment scenarios; case studies of schemes, exploring opportunities and success criteria, as well as challenges, for DMCs; plenary discussion.	Mark Broomfield
11:25 a.m.–12:05 p.m.	Part 2: Biological treatment (40 mins) Overview of alternative technologies and deployment scenarios; case studies of schemes, exploring opportunities and success criteria, as well as challenges, for DMCs; plenary discussion.	Phil White
12:05 p.m.–12:45 p.m.	Part 3: Fuel preparation (40 mins) Overview of this pre-treatment option and deployment scenarios; case studies of schemes, exploring opportunities and success criteria, as well as challenges, for DMCs; plenary discussion.	Phil White

Lunch break (1 hour)		
Session B	WtE Technology (continuation)	
1:45 a.m. – 2:30 p.m.	Part 4: Thermal treatment (45 mins) Overview of alternative technologies and deployment scenarios; case studies of schemes, exploring opportunities and success criteria, as well as challenges, for DMCs; plenary discussion.	Tim Fill
Session C	Drivers for, and Potential Barriers to, the Development of WtE	
WtE solutions can generate concerns and uncertainties regarding potential impacts on the environment, human health, and communities. This session explores the environmental, health and social impacts and advantages of WtE solutions compared to alternative options, including landfill disposal. We review how appropriate regulation, process control and high efficiency processes, including with heat use markets, can enable environmentally and financially viable WtE schemes.		
2:30 p.m.–3:50 p.m.	Part 1: Regulation (20 mins) How an appropriate regulatory environment can ensure environmentally sustainable and publicly acceptable schemes.	Mark Broomfield
	Part 2: Environmental impacts (20 mins) Impartial review of the potential environmental impacts and advantages of WtE schemes and alternative option, including from a life cycle perspective.	Phil White
	Part 3: Health and social impacts (20 mins) Impartial review of the potential environmental impacts and advantages of WtE schemes and alternative option, including from a life cycle perspective.	Mark Broomfield
	Part 4: Revenues and costs (20 mins) Introduction to potential revenue schemes and Capex requirements for WtE schemes.	Phil White
Short break (15 minutes)		
Session D	Thinking Strategically	
Energy security is critical to economic growth, which itself increases waste generation. This session discusses how a DMC can turn waste into a valuable part of a nation’s energy strategy. We will explore how to implement WtE infrastructure, power purchase agreements (PPAs) and the role WtE can play in reducing a nation’s carbon emissions, and how to align waste, carbon and energy policy, and key institutional issues to consider. All key to developing a sustainable economy and environment.		
4:05 p.m.–5:25 p.m.	Part 1: Infrastructure and service delivery and Power Purchase Agreements (20 mins) How to deliver infrastructure. Includes PPP case study. Following parts are strategic and interlinked.	Tim Fill
	Part 2: INDC implementation (20 mins) Next steps following Paris COP. DMC case study on INDC/NAMA.	Tim Fill
	Part 3: Waste, energy and climate change policy (20 mins) Discuss policy objectives and how, if they are aligned, development is joined up and will aid developers trying to span sectors. Includes case study.	Adam Read
	Part 4: Institutional structure & economics of waste management system Discuss route map, strategy, planning, institutional strengthening, understanding the real cost of waste management and capacity building. Includes case study.	Adam Read

Session E	The way forward	Speakers
5:25 p.m. – 5:40 p.m.	Facilitated discussion of main outcomes from the workshop sessions; seeking opinion of delegates regarding their improved understanding of WtE project opportunities, confidence and concerns.	Adam Read, Ricardo
		Ashok Bhargava, ADB
5:40 p.m.	Close	
6:00 p.m.	Gather for networking dinner.	



Sustainable Energy for All Investor Forum

Auditorium Zone A

7 June 2016, 9 a.m.–5:30 p.m

OVERVIEW

Energy access companies in Asia are transitioning from business models that operate under a Retail Model to business models that operate under an Energy Service Model. This year's Sustainable Energy for All Forum will discuss the organizational and environmental factors that make this transition successful. Particular emphasis will be given to enabling technologies and financing products that have been instrumental in case studies in India, Nepal and the Philippines.

Time	Activity
9 a.m.–9:30 a.m.	Welcoming Remarks <i>Yongping Zhai, Senior Advisor, ADB</i> Keynote Address <i>Rachel Kyte, Sustainable Energy for All</i> Sustainable Energy for All Asia Pacific Hub <i>Elmar Elbling, Energy for All, ADB</i>
9:30 a.m.–10:30 a.m.	SESSION 1: De-Risking Energy Access Transactions <p>An annual investment of USD 1.2 billion is required to achieve the 2030 Goals for Energy Access, Renewable Energy and Energy Efficiency. Out of this amount, 65% still remains uncommitted. This session will discuss specific case studies of how the ADB Energy for All Program enabled the Private to participate in the Energy Access Sector and bridge this investment gap.</p> Moderator: <i>Coy Navarro, Energy for All</i> Transitioning from an EPC to a Micro-Utility <i>Anjal Niraula, Gham Power Nepal</i> Working Capital for Energy Access Companies <i>Ms. Madhavi Potay – OIKO Credit India</i>
10:30 a.m.–11 a.m.	Networking Break
11 a.m.–12:30 p.m.	SESSION 2: Scalable Clean Energy Business Models <p>Energy access companies are transitioning from the Retail Model to the Energy Service Company (ESCO) Model. Session 1 will showcase Pioneers from the mini-grid and clean cook stove space who made this transition successfully. Additionally, the panel will also draw best practices from ESCOs in the renewable energy and energy efficiency sectors that can be applied back to the energy access sector.</p> Moderator: <i>Suman Basnet, Energy for All</i>

Time	Activity
	<p>Bridging Incomes and Aspirations—A Journey from Lanterns to Microgrids <i>Mr. Rustam Sengupta, Boond</i></p> <p>A Vertically Integrated Clean Cook Stove Company <i>Mr. Willem Malherbe, 5-Star Cookstoves</i></p> <p>An Energy Trading Platform for Households <i>Mr. Sebastian Groh, SolShare</i></p> <p>Solar PV Micro-Utility Model for Industries <i>Mr. Kushagra Nandan, Sunsource</i></p> <p>Energy Service Model for Energy Efficiency <i>Mr. Thomas Dreessen, EPS Capital</i></p>
12:30 p.m.–2 p.m.	Lunch Break
2 p.m.–3:30 p.m.	<p>SESSION 3: Financing Products for Energy Access Companies</p> <p>Aside from supporting energy access companies, the Energy for All Program also works with various investors and financing institutions to divert commercial capital to the energy access sector. Session 2 presents case studies of how the Energy for All Program and its Partners deployed risk sharing mechanisms and credit enhancement schemes to de-risk energy access transactions.</p> <p>Moderator: <i>Mr. Sagar Gubbi, Energy for All</i></p> <p>Creating Investment Packages to Access Remittance Funding <i>Ms. Mai Anonuevo, Atikha</i></p> <p>New Sources of Capital and Financing Products for Solar PV <i>Ms. Andrea Griffin, SunFunder</i></p> <p>CTF Minigrid Fund <i>Ms. Saadia Hassan, ADB</i></p> <p>SPEED Program <i>Mr. Pariphan Uawithya, Rockefeller Foundation</i></p> <p>CTI-PFAN Global <i>Mr. Nagaraja Rao, CTI PFAN</i></p> <p>Facilitating Energy Access in the Asia Pacific Region <i>Mr. Thomas Jensen, UNDP (TBC)</i></p>
3:30 p.m.–4 p.m.	Networking Break
4 p.m.–5:45 p.m.	<p>SESSION 4: Business Plan Presentation</p> <p>The Energy for All Program conducts country-level workshops to identify investment-worthy energy access enterprises and connect them with venture capital funds, private equity investors, commercial banks and other financing institutions. In Session 3, the most promising companies in the Energy for All Partnership are invited to share their business models and make an investment pitch to regional investors.</p> <p>Moderator: <i>Ms. Fritzie Vergel, Energy for All (TBC)</i></p>

Time	Activity
4 p.m.–5:45 p.m.	<p>Onergy <i>Mr. Vinay Jaju, CEO</i></p> <p>Fourth Partner Energy <i>Mr. Vivek Subramanian</i></p> <p>Bermaco Energy Pvt. Ltd. <i>Ret. Col. Monish Ahuja</i></p> <p>NRG Solutions <i>Mr. Daniel Pacheco</i></p> <p>Powering Rural India with Smart Minigrids <i>Mr. Andreas Dahl-Jorgensen, OMC Power</i></p> <p>Kamworks <i>Mr. Jeroen Verschelling</i></p> <p>One Renewable Energy Enterprises <i>Mr. Erel Narida</i></p> <p>Judges: <i>Mr. MK Balaji, PFAN-Asia</i> <i>Mr. Hongpeng Liu, ESCAP (TBC)</i> <i>Ms. Saadia Hassan, ADB (TBC)</i></p>
5:45 p.m.–6 p.m.	Closing Remarks



Powering the Asian Tiger with Renewables

Multifunction Hall 3, New Atrium

7 June 2016, Tuesday, 9 am.–12:30 p.m.

Many Southeast Asian (SE Asia) countries are looking to diversify their energy supply due to energy security and economic concerns linked to their rising dependency on fossil fuels. In parallel there is increasing attention to the deployment of renewable energy technologies, including improving conditions for attracting private investment. Most countries have also adopted medium- and long-term targets for renewables.

However, similar to China and India, SE Asia is facing stiff competition between fossils and renewables, particularly in the power sector. Low fossil fuel prices support short-term thinking where the highly volatile nature of prices is forgotten as are the associated energy security and climate implications of a fossil-fuel based society. The vast renewable resources of SE Asia make renewable energy a strategic option at the local, national and regional level.

This workshop, co-organised by REN21 and WWF, will look at the growth of renewable energy and energy efficiency in South East Asia. It will present the current status of renewables as well as scenarios for the future of the power sector in the Greater Mekong Subregion (GMS). Participants will debate with panellists about the current and future of renewable and energy efficiency in the region. The workshop is designed around the newly released research from REN21, WWF and partners; it is interactive in nature.

The objective of this workshop is two-fold:

1. to illustrate how and where renewable energy technologies are being deployed in SE Asia;
2. to demonstrate and discuss renewables' potential for meeting a significant portion of the region's energy demand.

The workshop is divided into two segments. It will start by looking at the current status of renewables globally. Activity in the SE Asia renewables energy market, industry and policy landscape during 2015 will be highlighted. The segment will draw on the latest data documented in REN21's newly released Renewables 2016 Global Status Report which covers electricity, heating and cooling and transport sectors.

In the second segment participants will discuss how the region can move to substantially higher shares of renewables in the power sector. WWF's recently released Power Sector Vision will serve as the basis for discussion, as well as other scenarios from organisations such as the ADB. Interventions from the floor will provide examples of how specific renewable energy technologies are currently being deployed to meet power needs.

Schedule

Time	Activity
9 a.m.–9:05 a.m.	Welcome and introduction of speakers Moderator: <i>Gia Ibay</i> , WWF Philippines
9:05 a.m.–9:35 a.m.	Renewable Energy is Winning the Game: Global trends and figures <i>Hannah Murdock</i> , REN21 <ul style="list-style-type: none"> – Facts and figures on current status of renewable energy development – Challenges for transport, heating and cooling sectors – Spotlight on SE Asia
9:35 a.m.–9:45 a.m.	Renewables Rising: Use of renewables and energy efficiency in SE Asia <i>Hindun Mulaika</i> , Greenpeace Indonesia <ul style="list-style-type: none"> – Evolution of renewable energy in the region – Contribution of energy efficiency
9:45 a.m.–10:15 a.m.	Questions/debate Facilitated by <i>Gia Ibay</i> , WWF Philippines
10:15 a.m.–11:15 a.m. With short tea/coffee break	Envisioning the Future: Sustainable energy and the Greater Mekong region <i>Jean Philippe Denruyter</i> , WWF Greater Mekong <ul style="list-style-type: none"> – How Viet Nam, Thailand, Cambodia, Lao PDR, Myanmar can achieve 85%-100% share of renewables in their respective power sectors <i>Pradeep Tharakan</i> , ADB <ul style="list-style-type: none"> – Bringing Power: Power development scenarios for the Mekong Region
11:15 a.m.–11:35 a.m.	Interventions from the floor San Carlos City Government Other SE Asia experts <ul style="list-style-type: none"> – Commentary on feasibility of the presented scenarios; current barriers and opportunities for increasing the uptake of renewables nationally
11:35 a.m.–12:25 p.m.	Open questions/debate Facilitated by <i>Gia Ibay</i> , WWF Philippines
12:25–12:30	Summary and close <i>Gia Ibay</i> , WWF Philippines



California
Clean Energy Fund

NEW ENERGY
NEXUS

Scaling Clean technologies: What it Really Takes

Auditorium Zone B

7 June 2016, 2 p.m.–5:30 p.m.

Overview

Entrepreneurs and start-ups are critical to the global clean energy industry. They develop and provide the required technologies, business models, projects and services required to deploy and finance clean energy solutions at scale.

This workshop, organised by ADB, the California Clean Energy Fund (CalCEF), and New Energy Nexus, brings together more than 20 leading cleantech accelerators, incubators and early-stage investors from around the world. Together, they have helped nurture and scale more than a thousand new cleantech businesses that have raised several billions of dollars of financing.

Participants will share their practical experiences, success factors and challenges, to discuss what it really takes to grow entrepreneurial cleantech businesses. We will explore how entrepreneurs, accelerators, investors, industry, policy-makers and other stakeholders can work closely together to create stronger ecosystems to nurture a new generation of successful cleantech entrepreneurs in Asia.

Schedule

- 2 p.m.–2:15 p.m. **Introduction: Why Cleantech Entrepreneurs are so Important**
Welcome remarks by Yongping Zhai, Senior Advisor, ADB
Overview by Daniel Hersson, ADB Cleantech VC/PE Project, CTFC
- 2:15 p.m.–3:30 p.m. **Presentation S/Q&A: What It Takes to Scale Cleantech Businesses**
Leading accelerators and incubators will share their practical experiences via short presentations followed by a Q&A.
- Presenters:**
Ian Foraker, Executive Director at Cleantech Open (US/Global)
Ramsey Siegal, Head of Strategic Partnerships at Energy Excelerator (US)
Anil Paranjape, Venture Partner at Infuse Ventures (India)
Jana Malinska, Senior Project Officer at World Bank InfoDev's Climate Technology Program (Global)
Jing Xiao, Director at Tusstar Incubator (PRC)
- 3:30 p.m.–4 p.m. **Coffee Break + Networking**
- 4 p.m.–4:45 p.m. **Group Discussion: Supporting Cleantech Entrepreneurs**
Facilitated interactive small group discussions exploring the challenges facing cleantech entrepreneurs in Asia and how to best support them

4:45 p.m.–5:30 p.m. **Panel Discussion: From Talk to Action**
 Moderated by Danny Kennedy, MD of CalCEF and co-founder of Sungevity. A panel of entrepreneurs, investors, government, industry and academia will discuss how they can help build a cleantech ecosystem in Asia.

Panelists:

Yongping Zhai, Senior Advisor, ADB
 Dr. Bartosz Wojszczyk, CEO & Founder, Decision Point Global
 Pedro Maniego, Jr, Chairman, National Renewable Energy Board
 Kushagra Nandan, President & COO, SunSource Energy
 James Buskowitz, Chairman & CEO, BDI Capital

5:30 p.m. **Wrap-Up**
 Closing remarks by ADB and CalCEF

Till 7:30 p.m. **Cocktail Reception**
 Networking and launch of New Energy Nexus



Case Studies in Clean Energy Project Development: Lessons Learned in Southeast Asia

Auditorium Zone D

7 June 2016, Tuesday, 9 a.m.–10:30 a.m.

Overview

This Technical Seminar will deliver practitioner viewpoints on strategies needed to sustain, and indeed accelerate, growth in Southeast Asia's renewable energy market. A range of tools and resources are needed, including clear and transparent policy and regulatory frameworks, availability of pre-development funds, sustainable incentive policies, bankable contracts, and private sector capacity-building. The panelists will present real cases and examples from Thailand, Vietnam, Indonesia and other Southeast Asian countries, challenges and solutions encompassing the entire RE market development cycle in the context of Southeast Asia. This should pave the way for a vibrant discussion and exchange of views with audience members. Panel participants will include the Overseas Private Investment Corporation, U.S. Trade and Development Agency, U.S. Treasury, the U.S. Agency for International Development, and the Export-Import Bank.

Schedule

Time	Activity
9 a.m.– 9:05 a.m.	Opening <i>Milosz Mogilnicki, OTA</i>
9:05 a.m.– 9:15 a.m.	Development of Sustainable RE Incentive Schemes and Bankable Transactions in Sea. <i>Milosz Mogilnicki, OTA</i>
9:15 a.m.– 9:25 a.m.	Financing first-of-a-kind renewable projects in SEA and beyond. <i>Geoffrey Tan, OPIC</i>
9:25 a.m.– 9:35 a.m.	EXIM – U.S. Government Financing in Support of Renewable Projects in Asia <i>Richard Pearson</i>
9:35 a.m.– 9:45 a.m.	Laying the foundation for RE growth in SEA through sound project preparation <i>Mark Dunn, USTDA</i>
9:45 a.m.–9:55 a.m.	USAID Private Financing Advisory Network for Asia (PFAN-Asia): Bridging the Gap between Investment and Clean Energy Business <i>Sithisakdi Apichatthanapath, Program Development Specialist, USAID Regional Development Mission for Asia</i>
9:55 a.m.–10:30 a.m.	Panel Discussion and Q&A



Launch and Introduction of DigiCollect's multi-purpose Online Marketplace for Energy and Infrastructure

Auditorium Zone D

7 June 2016, Tuesday, 11 a.m.–12:30 p.m.

Overview

The global renewable energy market is continuously expanding and is today one of the major sectors attracting significant amounts of dedicated capital. DigiCollect seeks to acquire significant market share through the newly developed DigiCollect Marketplace platform whose visionary purpose is to aid and accelerate energy investments by providing the following for developers, investors, lenders and service providers through a highly intelligent platform:

1. An online platform with built in cloud services to host project data and provide technical analysis and superior analytics that help with project development
2. Crowd funding of projects for both private and non-profit sector
3. Tendering of projects to select contractors and service providers
4. Asset mapping of projects and various other resources with superior data intelligence
5. Renewable energy consulting services including geotechnical, topography and yield generation studies

The DigiCollect Marketplace accelerates project development at a lower cost, promoting economic growth in developing countries by creating a common online ecosystem that benefits everyone involved. Government entities will directly interact with companies in the market skipping layers that attribute unnecessary costs. By promoting Governments to use the marketplace to disseminate information for developers, investors and technology suppliers, rapid adaption towards renewable energy on a global scale can be achieved.

Schedule

Time	Activity
5 minutes	Opening Introduction on DigiCollect and Energy Marketplace Introduction on DigiCollect, background and the main objectives, the DigiCollect Marketplace which is aimed to aid renewable energy development and business on a global scale by opening up easy to use communication and sourcing channels.
5 minutes	Demo of the Marketplace Platform Live demo with a possible marketing video showing the platform and potential. DigiCollect plans to use this opportunity to exclusively launch the energy Marketplace platform.
10 minutes	Q&A Time to talk about the platform and relating questions.



How the HOMER[®] Pro Software Can Improve the Design and Development of Clean and Sustainable Energy Projects

Auditorium Zone D

7 June 2016, Tuesday, 2 p.m.–3:30 p.m.

Overview

The falling cost of solar photovoltaics over the last few years has made solar mini-grids more economical, but has also changed their least-cost design. Now that battery storage technology is also improving, further changes in design can be expected with additional improvements in their economics. This evolution in mini-grid design and economics will be illustrated with results from the HOMER software. The HOMER software is the global standard for techno-economic analysis of mini-grids and has been used to design thousands of mini-grids over the last 20 years. Results from HOMER analysis will be presented for mini-grids of various sizes. We will also demonstrate the impact of controllable loads, like water-pumping, and load diversity. These results will highlight the choices that system designers and developers have regarding renewable penetration, fuel savings, and tariff design.

Schedule

Time	Activity
2 p.m.–2:30 p.m.	Introduction to the HOMER software: What it is & what it is used for <i>Peter Lilienthal</i>
2:30 p.m.–3 p.m.	An example of a HOMER analysis in the Philippines <i>Silver Navarro</i>
3 p.m.–3:30 p.m.	Insights from HOMER modeling on the design and economics of hybrid microgrids <i>Peter Lilienthal</i>



Microgrid Energy Storage: Power Systems of the Future

Auditorium Zone D

7 June 2016, Tuesday, 4 p.m.–5:30 p.m.

Overview

Microgrids can play a pivotal role in solving the energy challenges of the future. Growing energy demand of communities – rural or urban – can be efficiently managed through smart microgrids in an island mode or in the existing grid. The electric grid that is undergoing major changes, becoming modern and innovative, in response both to technological advancements and the consumer demand. In addition to main grid, decentralized micro grids have gained importance, especially in rural areas, and energy storage is emerging as an option to stabilize both grid and to cater to the needs of 24x7 electricity supply in a flexible manner.

Renewable energy in the above scenario plays an important role not only because of its ever growing share in the main electric supply but also because of its utility value in micro grid options or distributed generation. Electricity services, especially to rural areas and peri-urban areas can be met through microgrids by way of distributed systems of local energy generation, transmission, and its use. Countries are struggling through their traditional rural electrification program because of lack of infrastructure and lack of paying capacity of the rural consumers. Urban areas on the other hand with high demand profile have electricity needs that are to be met through consistent power supply options. In all these scenarios, a combination of technological options such as microgrid, energy storage and smart grid can play a significant role in meeting varied energy demand.

Energy storage systems at the level of main grid or microgrid have the potential to improve grid reliability, efficiency, and capacity by managing the variability associated with widely distributed, small-scale renewables. In non-grid connected communities, energy storage and smart grid solutions can manage large-scale micro grids to smooth fluctuations of unpredictable peak loads and variable resources. Overall, energy storage can greatly contribute to a reliable, efficient, responsive smart grid that can manage rapidly evolving power needs.

Schedule

Time	Activity
	Moderator: Sohail Hasnie, ADB
4 p.m.–4:05 p.m.	Opening Remarks by: David Murchison, ADB Executive Director for Canada, Denmark, Finland, Ireland, The Netherlands, Norway, Sweden
4:05 p.m.–4:09 p.m.	Introduction of Speakers by Sohail Hasnie
4:09 p.m.–4:30 p.m.	Short Presentation/Statement from Speakers Mr. Jason Aspin, CEO, Aspin Kemp & Associates Inc. Mr. Alan Kneisz, Business Development Director, Hydrogenics Inc. Yu Chan, Senior Manager–Energy Group, Canadian Solar
4:30 p.m.–5:15 p.m.	Power Talks
5:20 p.m.–5:30 p.m.	Q & A

ASIA CLEAN ENERGY FORUM 2016

GEARING UP FOR THE POST-COP21 ERA OF IMPLEMENTATION

SHOWCASING CLEAN ENERGY INNOVATIONS

Manila, Philippines • 6–10 June 2016



8 June 2016

- Innovations in Energy Efficiency
- Innovations in Renewable Energy
- Increasing Energy Access
- Charting the Future of Clean Energy in Asia

Opening Plenary Part 1: Seizing the Challenge of COP21: The New Clean Energy Landscape

9 a.m.–10:30 a.m.

With the Paris Climate Agreement signed, attention is now shifting towards how the commitments of the Agreement signatory nations can be achieved, and what will be the requirements in terms of innovation and application in the areas of technology, policy and regulatory design; and financial mobilization. In the two-part opening plenary, speakers from different sectors will share their perspectives on the major challenges faced by nations in Asia and the Pacific, and their views of how players and institutions in the clean energy sector will need to mature and evolve in order to address the significant challenges.

Part 1 of the Opening Plenary Session will feature messages from the President of ADB and the US government (ACEF co-organizer), welcoming participants to this 11th edition of this important event for Asia's clean energy practitioners. In the first keynote address, Rachel Kyte, Chief Executive Officer of the Sustainable Energy for All (SE4All) Initiative, will share her views on the challenges and strategies for designing and implementing effective, sustainable, and equitable clean energy solutions that address the threat of climate change in a rapidly changing world.

Opening Video

Introduction

Ma. Carmela Locsin

Director General, Sustainable Development and Climate Change Department
Asian Development Bank

Welcoming Remarks

Takehiko Nakao

President
Asian Development Bank

Ambassador Philip Goldberg

Ambassador to the Philippines
Government of the United States of America

House Rules and Overview of Forum Schedule

Priyantha Wijayatunga

Principal Energy Specialist, Sector Advisory Service Division, Sustainable Development and Climate Change Department
Asian Development Bank

Keynote Address

Rachel Kyte

CEO and UN Secretary General's Special Representative
Sustainable Energy for All Initiative

Opening Plenary Part 2: Seizing the Challenge of COP21: The New Clean Energy Landscape

11 a.m.–12:30 p.m.

Part 2 of the Opening Plenary will feature a welcome message from the Korea Energy Agency (ACEF co-organizer), followed by keynote presentations from three speakers who will provide different perspectives on the way forward after the COP 21 climate agreement. These include a representative from Japan's New Energy and Industrial Technology Development Organization (NEDO); and two representatives from the private sector, who will describe the importance of developing and bringing to market sustainable energy solutions, as well as the need to identify, develop, finance, and introduce disruptive business models and clean energy solutions into the marketplace.

Welcoming Remarks

Tae Young Kim

Vice-President
Korea Energy Agency

Keynote Addresses

Makoto Watanabe

Executive Director
New Energy and Industrial Technology Development Organization

Barbara Kreissler

Director B2G Professional Lighting
Philips Lighting

Bartosz Wojszczyk

President & CEO
Decision Point Global

Thematic Track Sessions

Track 1: Innovations in Energy Efficiency

Track Chair: Mark Lister, Senior Advisor, Global Energy Efficiency Accelerator Platform, Copenhagen Center on Energy Efficiency

Session 1: Energy Efficiency in the Post-COP21 world: Meeting the Challenge

Auditorium Zone A

8 June, 2 p.m.–3:30 p.m.

Through the Addis Ababa agreement, the release of the Sustainable Development Goals and the broad consensus that was achieved at COP21, 2015 saw the realization of a new and far-reaching political commitment to the global uptake of energy efficiency. But what are the implementation structures that will now take this forward? This session introduces the energy efficiency track with some international perspectives and some reports on activity in the key Asian economies of India and the People's Republic of China.

Session Chair

Aiming Zhou

Senior Energy Specialist, Energy Division, South Asia Department
Asian Development Bank

Presenters

Mark Lister, Senior Advisor, Global Energy Efficiency Accelerator Platform
Copenhagen Center on Energy Efficiency

Overarching Presentation to Frame the Session

Ramit Malhotra, Senior Associate
ICF Consulting India Private Limited

Energy Efficiency roadmap for India—Post-COP21

The Bureau of Energy Efficiency (BEE) of India has played a vital role in contributing towards national energy reductions. This paper presents how the country's energy intensity will be reduced at a rate of 2% per year from 2010 to 2020 and 2.5% per year from 2020 to 2030. Various national level programs were mapped to compare their impact on different sectors and possible approach to develop NAMA strategy for India. There are four suggested national programs for climate change mitigation strategies in India through EE. These include national programs on lighting, room air conditioners, motors, and transport vehicles. For each program, the energy saving potential, achievable potential, and additional cost to save energy (ACSE) were estimated.

Barbara Kreissler, Director, B2G Professional Lighting
Philips Lighting

Turning Energy Efficiency into Economic Growth

Doubling the rate of energy efficiency improvement is a critical enabler for achieving the COP-21 targets and will stimulate demand and channel financing into innovative products and services. The inflow of investment for R&D to develop innovative products, manufacturing, supply, installation, and service of this new range of energy efficient products will result in significant economic and job growth. International finance institutions are ready to partner in private and public projects to leverage their funding. Philips has been a pioneer in developing lighting products that deliver more than 50% in energy savings, and are early adopters of "lighting as a service." In this presentation, Philips will share how this early adoption is stimulating demand and creating new revenue streams.

Pradeep Perera, Principal Energy Specialist, Energy Division, East Asia Department
Asian Development Bank
China's Energy Efficiency Policies

The Chinese government has taken concerted actions since 2006 to curb the growth in energy demand and to reduce the energy intensity of its economy. These included structural transformation of the overall economy to reduce the share of energy intensive economic activities and promoting energy efficiency in end users. Given the high share of industrial energy consumption, the government efforts to mainly focussed on improving industrial energy efficiency. The presentation focus on the government policies to promote energy efficiency investments by the industries, phasing out of obsolete equipment, state of the art energy efficient industrial practices in new industrial capacity and specific measures to support financing of energy investments by the banks. The presentation will also cover specific policy incentives to promote (i) waste heat recovery (ii) boiler efficiency improvement and (iii) energy service industry (ESCO) in China.

Tzu-Lung Tan, Senior Manager, District Cooling Division
Korea District Heating Corporation
The Characteristics of Supply and Demand of District Cooling Using Wasted Heat

This presentation will focus on the following topics on district cooling though the use of waste heat in Korea: (i) the supply mechanism of district cooling, including using hot water system and chilled water direct supply system, (ii) the status and tendency of the district cooling in Korea, (iii) the need for district cooling and cooling business in Korea, (iv) the introduction of a new desiccant cooling system.

Track 2: Innovations in Renewable Energy

Track Chair: Yong Chen, Regional Programme Officer (Asia and the Pacific), International Renewable Energy Agency (IRENA)

Session 2: Outlook for Renewable Energy Development in Asia: Regional and Country and Perspectives

Auditorium Zone B

8 June, 2 p.m.–3:30 p.m.

Asia is at a crossroads in how it will meet its growing energy demand. With the adoption of the Paris Agreement, what could be the emerging opportunities for low-carbon strategies, specifically renewable energy sources in Asia? This session will address the outlook for renewable energy development at both regional and country levels.

Session Chair

Yong Chen, Regional Programme Officer (Asia and the Pacific)
IRENA

Presenters

Hannah Murdock, Renewable Energy Analyst
Renewable Energy Policy Network for the 21st Century (REN21)
Status and outlooks for Renewable Energy Development in Asia: REN21 Renewables 2016 Global Status Report

Nicholas Wagner, Programme Officer, Renewable Energy Roadmaps
IRENA
REmap – IRENA's Roadmap for a Renewable Energy Future: A global perspective showing the rising importance of ASEAN countries

Iban Vendrell Armengol, Programme Leader Asia Pacific
Mott MacDonald
Outlook for Wind Energy Development in ASEAN: Lessons Learnt on Necessary Technical and Commercial Challenges to Overcome for Successful Project Deployment

Panelists

Vincent Choy, Secretary General
Asia Pacific Biogas Alliance

Akanksha Chaurey, CEO
IT Power Private Limited

Sufang Zhang, Professor
North China Electric Power University

Hannah Murdock, Renewable Energy Analyst
Renewable Energy Policy Network for the 21st Century (REN21)

Nicholas Wagner, Programme Officer, Renewable Energy Roadmaps
IRENA

Iban Vendrell Armengol, Programme Leader Asia Pacific
Mott MacDonald

Track 3: Increasing Energy Access

Track Chair: Davida Wood, Senior Associate and Project Manager, Electricity Governance Initiative,
World Resources Institute

Session 3: Integrated Resource Planning Revisited: Synergizing Energy Access Solutions in National Plans

Auditorium Zone C

8 June, 2 p.m. – 3:30 p.m.

The session will explore new approaches in energy planning at the national level, in order to effectively address energy access challenges in various countries. Discussions will focus on issues such how to effectively characterize energy access challenges; how to incorporate local inputs and alternate supply options; and how to ensure coherence between energy plans and national policies and programs, in order to enable better translation of developmental benefits to the energy poor.

Session Chair

Hongpeng Liu, Chief
United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)

Presenters

Ishrat Shabnam, Programme Manager
Practical Action Consulting Bangladesh
Integrating community energy access priorities into national planning processes: The Poor People's Energy Outlook 2016

Priorities of the energy-poor are paramount to achieving appropriate and sustainable energy access for all. These priorities of the poorest communities need to be integrated with resource planning to ensure the greatest impacts on access and their translation into development benefits. This presentation explores the findings from the upcoming Poor People's Energy Outlook 2016, a flagship publication which has continually set the agenda on energy access and poverty. This edition uses evidence from Bangladesh, Kenya, and Togo to explore how community-led energy planning can be reconciled with national plans, and how decentralized energy solutions can be used to provide the poorest communities with sufficient, appropriate energy access options. The session will be delivered jointly by Practical Action and SREDA, Bangladesh.

Amala Devi, Project Associate

World Resources Institute (WRI) India

Bottom-up planning to promote electricity access in India: A look at Integrated Resources Planning for two Indian states

India seeks to strengthen commitment to universal electricity access through ambitious policy targets for rural electrification and clean energy. Both initiatives share similar goals to improve electrification, but do not fully integrate national and sub-national electricity plans. Therefore, electricity plans rely on demand estimations using grid-connected consumer data, and leave out unmet demand. This study identifies the elements of an integrated, access-focused electricity plan in two Indian states using the LEAP energy modelling tool. Through a bottom-up approach, the work addresses lack of availability and reliability of electricity on the demand side and identifies disaggregated energy needs. Scenario-analysis is used to identify how policy goals for electrification and clean energy can affect the supply mix and long-term demand.

Amrul Hakim

INO Official

PPP-Based Approach for Energy Access under the 35-GW Power Program

The Government of Indonesia has launched a program to provide additional 35 GW capacity of power to support its target of increasing electrification to 97% by 2019 and the share of renewable energy to 23% by 2025. The presentation will describe implementation arrangements of the program using a PPP-based approach where a micro-utility system provides investment including operation and maintenance costs. The presentation shall also discuss the challenges encountered relating to technical, economics and financial aspects.

Astha Gupta, Research Associate

TERI

Enabling Policy Framework for Energy Access in India

The review of plans and policies in India revealed that the Government has a fragmented mandate towards provision of energy access to the population. Provision of electricity and non-electricity services to the population is considered in isolation and has led to initiation of multiple programs under various ministries in India. Planning gaps in energy access include: lack of bottom-up approach for energy planning and lack of coordination between central and state-level plans. Energy planning was done as part of the integrated rural energy program launched by Planning Commission of India in 1994, but was later discontinued due to similar planning gaps. Increasing energy access requires a national plan on energy access with integrated resource planning, appropriate need assessment, market creation and building coordination amongst diverse institutions.

Track 4: Charting the Future of Clean Energy in Asia

Track Chair: Dan Millision, Transcendery LLC

Session 4: The Utility of the Future in Asia: What are the Likely Models?

Auditorium Zone D

8 June, 2 p.m.–3:30 p.m.

The 100+-year-old electric utility model is being disrupted by a variety of forces: increasing penetration of renewable energy, including distributed generation and variable output solar and wind; rapid growth in demand, which stresses electricity grids; rapid decreases in the cost of solar, wind, and “smart grid” technologies; and the Paris climate change accord. How are traditional utilities and electricity regulators responding to these forces? Discussions will cover advanced grid technologies, electricity market evolution, and prospective contributions of carbon capture and storage.

Session Chair

Anthony Jude, Director, Energy Division, South Asia Department
Asian Development Bank

Presenters**Kamal Soundararajan**, Consultant

DNV GL

Drowning in the pool? Bring on the Multi-mart

The inflexibility of current electricity markets and renewables' impact on grid operations make the existing marketplace too complex for prosumers to realize business opportunities. A paradigm shift in designing electricity markets requires a more revolutionary mindset shift away from the existing rules and regulations around today's electricity markets. This presentation discusses the inadequacy of the power pool to cope with all sorts of trades. The concept of a Multi-mart is described, where many markets can coexist serving different types and sizes of players. Asia is the ideal region for demonstrating the Multi-mart as electricity markets are only now emerging in many countries. This, together with the increased proliferation of renewables, presents opportunities for leapfrogging legacy market structures.

Kamalanath Samarakoon, Senior Lecturer, Faculty of Engineering

University of Peradeniya

Demand side support in power system control allowing to accommodate more renewable energy sources

The intermittency and difficulties in controlling renewables urge operators to limit renewables connecting to the system. The Sri Lankan power system maintains frequency using small amounts of spinning reserve and under-frequency load shedding. Economic losses from shedding amount to more than 350 million USD annually. Tripping of thermal plants cause blackouts and increase losses. Therefore, the use of demand side management to balance the system in an emergency is proposed. A low cost controller manages loads based on the frequency deviations to connect and disconnect loads. The algorithm minimizes disturbances to consumers and helps the system ride through disturbances. Analysis shows the system can operate without load shedding and is economically viable and can accommodate more renewable energy.

Sulkhan Zumburidze, Manager Business Development International

Schweitzer Engineering Laboratories

Enhancing transmission utility system reliability through advanced power blackout mitigation measures: A Republic of Georgia case study

The Republic of Georgia experienced electrical blackouts for many years resulting in several million dollars lost. GSE, the Transmission Operator, applied smart grid technologies to address the electrical blackouts and implemented an inexpensive country-wide emergency control system through USAID. This technology successfully prevented power system total blackouts immediately after its implementation. The technological solution was first implemented on a 500kV transmission line which included the national power system's most critical locations and reduced blackouts to nearly zero. Returns on investments include millions of dollars saved for each blackout prevented. Georgia became an electrical power transit hub in the region given its new capabilities to prevent blackouts, and increased its national power grid stability, even during times of power generation shortages.

Carl Ulrich, VP Strategic Projects

CTC Global

How transmission conductor choices reduce GHG emissions

The use of high efficiency transmission conductors can reduce I²R losses by as much as 40% in congested transmission lines. This presentation will discuss how to calculate the impact that transmission conductor choices can make on the total greenhouse gas emissions in a system. This presentation will then discuss of how these results can be recognized as part of the clean energy objectives in the future.

Alice Gibson, Principal Manager for Capacity Development

Global Carbon Capture Institute (GCCI)

CCS - A Vital Technology to Help Achieve Our Goals

With the Paris Agreement identifying a long-term goal of keeping the increase in global average temperature to well below 2°C above pre-industrial levels, and aspiring for 1.5°C, what is the role of carbon capture and storage (CCS)? Given this context, this presentation will address key questions about CCS: Can CCS be scaled up to meet the challenge? Does it have non-climate change benefits? What are the expected cost reduction rates? How does CCS contribute to affordable and clean energy for all? Do enhanced oil recovery projects permanently store CO₂?

Knowledge Networking Session**8 June 2016, 4 p.m.–5:30 p.m.**

Plenary Session: From Commitment to Action: Implementing Successful Nationally Determined Contributions (NDCs) in Asia-Pacific

9 June 2016

9 a.m.–10:30 a.m.

2015 was a truly unprecedented year when a new agenda for sustainable development and a landmark agreement on climate change were adopted. In 2016, governments will be turning their attention toward implementing their national climate change action plans, officially called Nationally Determined Contributions (NDCs), and integrating these goals and commitments into national-level planning processes and policies. NDCs are important building blocks of the Paris climate agreement and will play a critical role in determining whether the world is able to avoid the worst effects of climate change. They are the outcome of unique socio-economic and climatic conditions of the countries and extensive domestic policy processes. This year, countries including those in the Asia Pacific will need to start thinking about implementation challenges and opportunities.

This plenary session will be an interactive dialogue between various government agencies and ministries in charge of climate change, from both developed and developing countries as well as representatives from international organizations including the ADB. The speakers will identify the gaps and barriers that stand in the way of countries successfully achieving NDCs, along with opportunities to (1) develop synergies, (2) strengthen cooperation to leverage the political momentum gained in 2015, and (3) capitalize on “early wins” to ensure the greatest impact.

Key questions to be addressed include:

- What are the top challenges and opportunities faced by countries in implementation of their NDCs?
- What are some of the technical and financial needs of Asia Pacific countries for effective implementation of their NDCs?
- What kind of support and a framework for donors (such as the US and Germany) could be provided to ensure successful implementation of NDCs; and specifically to ensure that NDCs become strategic reference points in planning and program/project implementation at national level?
- How can international organizations such as the ADB support countries in their implementation of NDCs?
- What are the likely implications of NDC implementation for clean energy frameworks in Asia-Pacific countries?

Opening Scen setter

Bambang Susantono

Vice-President, Knowledge Management and Sustainable Development
Asian Development Bank

Keynote Remarks

Manish Bapna

Executive Vice President and Managing Director
World Resources Institute (WRI)

Panel Discussion

Moderator

Yongping Zhai

Senior Advisor, Sustainable Development and Climate Change Department
Asian Development Bank

Panelists

Emmanuel de Guzman

Vice Chairperson
Philippine Climate Change Commission

Leena Srivastava, Vice-Chancellor
TERI University

Indonesian representative (invited)

Trigg Talley, Deputy Special Envoy for Climate Change
US Department of State

Mario Alexander Sander-von Torklus, Executive Director
Asian Development Bank

Manish Bapna, Executive Vice President and Managing Director
WRI

Preety Bhandari, Director, Climate Change and Disaster Risk Management Division, Sustainable Development and Climate Change Department
Asian Development Bank

Session 5: National Energy Efficiency Standards and Regulation, Building the Enabling and Supporting Environment

Auditorium Zone A

9 June, 11 a.m.–12:30 p.m.

Minimum standards for energy-using equipment and buildings have proved themselves time and again to be effective steps towards making country electricity markets more energy efficient. This session showcases examples of approaches for introducing improved efficiency standards across the key impact areas of lighting, appliances and equipment, industry, and buildings.

Session Chair

Mark Lister, Senior Advisor, Global Energy Efficiency Accelerator Platform
Copenhagen Center for Energy Efficiency

Presenters

Priyantha Bandara, Senior Lecturer
General Sir John Kotelawala Defence University, Sri Lanka

Promoting Building Energy Efficiency through Performance-based Standards: Is it a Challenge?

Buildings account for nearly 40% of the global energy consumption and 50% of annual carbon dioxide emissions. Buildings could last for decades and have a long lasting impact on future global energy consumption and emissions. The built environment is booming all over Asia with China constructing almost half of the world's new buildings. Great emphasis is made on optimizing the performance of buildings. The performance related to buildings mainly encompasses energy performance. Building standards principally govern energy performance of buildings. This presentation highlights the potential benefits of performance-based building standards over the widely used prescriptive standards for optimizing building energy performance and the challenges posed in establishing the same for promoting energy efficiency.

Joseph Deringer, Senior Technical and Policy Advisor
Winrock International

Vietnam Clean Energy Program (VCEP): Capacity-building to enable high performance green buildings

The VCEP program has been very innovative in raising capacity within Vietnam's building sector, to meet the VN energy code and to produce green, sustainable, high performance buildings that are 30% to 50% better than current practices. VCEP has produced 4 key practical application successes that can be replicated in Asia:

1. The first national buildings database for 15 buildings types in 3 climate regions

2. Technical assistance to produce low energy, high performance demonstration buildings. The first demonstration building reduced energy consumption by 50% with minimal cost increases
3. Training program on interactive building design to produce high performance, low energy buildings at low costs

Hands-on training program on energy simulation of buildings, to jump-start a simulation capability with Vietnam

Prasanna Maldeniya, Junior Professional (Engineering)

Sri Lanka Sustainable Energy Authority

Interventions in Energy Efficient Lighting in Sri Lanka

This presentation will discuss the national level interventions towards energy efficient lighting in Sri Lanka. Early 2010, the program launched a mandatory energy labelling program with a legislative ban on low energy performing CFLs. The CFL penetration of households increased from 68% to 84% within two years, while inefficient models were eliminated. Annual CFL imports have increased by 6 million while imports of incandescent lamps have declined. The energy labelling program was extended to include tubular fluorescent lamps and magnetic ballasts. A minimum energy performance label is being developed for LED lamps to expedite the program. The Regional Centre for Lighting, established under the Government, facilitates the program through product testing, quality enhancement, and manufacturer training.

Steve Kukoda, Vice President

International Copper Association

United For Efficiency: Regionally Harmonized Standards in Appliances and Industrial Equipment

United For Efficiency is a public-private partnership focused on market transformations towards efficient appliances and industrial equipment. The partnership aligns with UN's Sustainable Energy For All initiative and it is an official energy efficiency "accelerator" under SE4ALL. The program includes mandatory minimum energy performance standards (MEPS) in six product categories that account for a majority of global energy consumption by 2030. Through MEPS and associated policies, it is possible to make massive reductions in electricity consumption and CO2 emissions. Cultural change is required, primarily in the developing Asia, as a growing middle class will purchase hundreds of millions of appliances. Efficiency standards across Asia are either low or absent completely, making inefficient products the norm and intervention is thus needed.

Soumya Prasad Garnaik, Principal and Head, Energy Efficiency

ICF International

Perform, Achieve and Trade (PAT) Scheme of India - How much of a Step Forward

In March 2012, India announced a historic regulation to enhance energy efficiency in eight energy intensive industrial sectors. This regulation is empowered by the India Energy Conservation Act of 2001 and National Mission on Enhanced Energy Efficiency (NMEEE) under the National Action Plan on Climate Change (NAPCC). Different targets were assigned to different factories to be achieved in a three years. The PAT scheme in India was launched with much preparedness in legal, institutional, administrative and financial provisions. This presentation highlights the achievements of the PAT scheme, its present positioning, and challenges the Government of India overcame. Such results would be helpful for other countries who are proposing to initiate future schemes on market-based mechanisms in the near future.

Session 6: Scaling up Renewable Energy Deployment: From Grid Integration to Energy Planning

Auditorium Zone B

9 June, 11 a.m.-12:30 p.m.

With the rapid increase of variable renewable energy sources in a power system, it would be more cost-effective from a long-term perspective to address the grid integration challenges if a holistic approach could be applied in the energy planning process. This session will bring country and regional experiences on grid integration under the spotlight. Speakers will discuss different approaches to improve energy planning in the future.

Session Chair

Jennifer Leisch, Climate Change Mitigation Specialist

U.S. Agency for International Development

Presenters

Jaquelin Cochran, Senior Energy Analyst
National Renewable Energy Laboratory

As countries establish ambitious RE targets, power system planners will increasingly need to evaluate the impact of significant generation from wind and solar. This presentation reviews the different types of planning tools for grid integration and techniques for weaving together these efforts. By simulating the operation of a power system under different timeframes—long-term capacity expansion, short term power operations, and grid stability following a disturbance—a comprehensive analysis can inform stakeholders on the ability and needs of a power system to accommodate significant RE. Experience demonstrates that when power system operators are able to evaluate the requirements of power systems with high RE, they have been willing to develop new innovative approaches to meeting and exceeding RE targets.

Mohit Joshi, Deputy Manager, National Load Dispatch Center
Power System Operation Corporation Limited

Evaluating Indian power system with high RE; evaluation of scenarios, approach and modeling requirements.

The Government of India has established ambitious policies for renewable energy, including 60GW of wind and 100GW of solar capacity by 2022. Rigorous analysis is needed to identify grid stability issues, options for optimizing dispatch, and sources of potential flexibility. The Government of India, with USAID and the U.S. Department of Energy, is undertaking three grid integration studies to inform pathways for integrating large-scale variable RE to the grid. This analysis provides the foundational changes to system operations and infrastructure. The results will assist the Government of India in forming new RE policies and identifying the relative costs and benefits of integration strategies. This presentation will highlight the approach to creating stakeholder-driven grid integration studies and showcase preliminary results.

Werner Siemers, Energy System Analysis, Dr.-Ing
CUTEC Institute GmbH

Scenario development for a 100% renewable future

To achieve the minimization of global temperature rise by 1.5 °C, greenhouse gas emissions must be reduced substantially. Lower Saxony in Germany has taken the challenge to draft an energy scenario to rely solely on renewable energy sources and reduce total GHG emissions to a level below 20% compared to 1990. Based on a backcasting approach, the 100% renewable option was modelled for the year 2050. Only wind, PV, and biomass are available as sources, and the energy supply is electrified. This is valid for the heat and transport demand as well where major technologies such as heat pumps and electric cars are included. Non-energetic emissions from agriculture and industry would reduce GHG by 87.5% as well.

Liutong Zhang, Senior Manager
The Lantau Group

Renewables Curtailment in China - is there light at the end of the tunnel?

China's inconsistent planning, conflicting interests, and inefficient regulation have contributed to delays in building transmission capacity to accommodate the growing supply of renewable power. In provinces with adequate export infrastructure, power is not exported due to unexpected slowdown in demand growth. Curtailment of hydropower, wind and solar power has become a growing issue for the power developers/investors. Detailed studies assessed how power curtailment can evolve in China, ranging from hydro-power plants in Yunnan and Sichuan to solar plants in Gansu and wind plants in Jilin. The high curtailment situation has triggered distressed asset sales funded by private investors and may considerably slow down capacity additions. The causes of the high renewables curtailment will be discussed and how it will evolve.

Thamara Lathika Attanayaka and **Gayan Alahendra**
Ceylon Electricity Board

Integration of Non-Conventional Renewable Energy Based Generation in to Sri Lankan Grid

Sri Lanka has rich potential of non-conventional renewable energy (NCRE) resources and currently produces 10% of its electricity generation from them and is currently exploring means to increase this contribution. Increased penetration levels of NCRE based generation leads to various technical challenges. Impact of NCRE development has been investigated in this study through an energy and economic analysis. First, the development of wind, solar, mini-hydro, and biomass is estimated considering resource availability and project implementation. Second, the expansion of the generation system was optimized using a system planning model. Thereafter, using results of a short term operation simulation, system constraints and impacts on NCRE development were analyzed, including necessary curtailments subjected to the system constraints.

Session 7: Business Models for Access that Spur Innovation

Auditorium Zone C

9 June, 11 a.m.–12:30 p.m.

This session will highlight the various business models that have already been tried out in the field and are expected to facilitate the provision of energy access. The business models can be related to innovations on financial mechanisms, technical solutions, and institutional arrangements or modalities.

Session Chair

Nicola Armacost, Managing Director
Arc Finance, Ltd.

Presenters

Rakesh Jha, Director

Meghraj Capital Advisors Pvt Ltd

Role of Credit Risk Guarantee Facility in Result Based Incentive model for distributed generation projects

According to IEA, World Energy Outlook 2015, there are 237 million people in India without access to electricity. Government rural electrification initiatives through subsidies are not attracting private investors. New innovative business models for mini-grids to expand access today face bottlenecks of financing, scaling up, and lack of market surpluses. This presentation is the outcome of a DFIF-funded project, aimed to develop a viable model of electrification and consider interests of stakeholders, such as, ministries, project developers, finance institutions, and consumers. The model proposes higher government support; promote financing through credit risk guarantee facility, and establishment of a performance oriented support mechanism. Project related risks through grid arrival have been identified and mitigated to make investments in this sector viable.

Katarina Hasbani, Board Member

Alliance for Rural Electrification

Innovating business models for standalone PV systems

Off-grid systems are already mature, reliable and cost-effective for rural electrification. Their attractiveness will increase further as technological progress and costs decrease in the coming years. Therefore, innovation needs to follow to introduce business models that reflect these changes. This presentation will provide key trends in innovating business models for standalone PV systems and provide case studies from among ARE Members. Alliance for Rural Electrification is an international business association representing more than 90 members along the whole value chain for off-grid technologies. ARE's members are active in rural electrification in Africa, Asia and Latin America. ARE is a proud partner and the only business association of the United Nation Sustainable Energy for All (SE4All) initiative.

Randy Rakhmadi, Analyst

Climate Policy Initiative

From Ideas to Action: Driving Investment in Clean Energy through Innovative Finance Instruments

Driving access to electricity through clean energy is a priority for many developing countries in Asia, but requires significant investments. Private investors face specific barriers to scaling up finance in many of these countries, and would benefit from financial instruments that better match their needs. Two sister initiatives, the India Innovation Lab for Green Finance and the Global Innovation Lab for Climate Finance, identify, develop, and accelerate innovative finance instruments to drive large-scale investment to clean energy in India and other developing countries in Asia. In less than two years, the Global Lab's four instrument pilots have attracted over USD 500 million in initial funding and are poised to mobilize billions in additional private finance.

Usman Ahmad, CEO

Nizam Energy Pvt Limited

Powering Happiness

Affordability and limited financing availability is a major barrier for the poor to access renewable energy. Nizam Energy implemented a pilot project in Pakistan, supported by ADB Energy for All Program, that provided Solar Home Systems to rural villages. The pilot included a rent-to-own pay-as-you-go model with a platform that allows real-time monitoring and control of each system remotely,

as well as of a 36-month microloan. The project is a showcase solution for suppliers struggling to sell RE products to poor households due to customers' low affordability. Nizam Energy demonstrates that a supplier can boost sales through microcredits to poor customers and reduce affordability and financing gaps to customers. The plan is to scale-up the platform to cover other products.

Katrina Hergstrom, Consultant, Renewable Energy

SNV Netherlands Development Organisation

Ensuring gender equality of co-benefits from renewable energy projects in the Lower Mekong Region

Women are the primary domestic energy decision-makers and play a key role in supporting climate change mitigation in households and communities, but renewable energy initiatives often benefit men more than women. The ADB's Regional Technical Assistance Program "Harnessing Climate Change Mitigation Initiatives to Benefit Women" (RETA 7914) seeks to utilize gender-responsive renewable energy pilot projects and institutional interventions to inform national governments in Lower Mekong countries about the design of gender-inclusive mitigation projects, and to facilitate access to funds that now demand gender-inclusiveness. New mechanisms, solutions and institutional arrangements include a revolving fund managed by women addressing women's needs, inclusion of climate change mitigation in sectoral gender mainstreaming strategies, and gender sensitization of national climate change action plans.

Session 8: Implementation of Nationally Determined Contributions (NDCs): Opportunities and Challenges for the Energy Community

Auditorium Zone D

9 June, 11 a.m.–12:30 p.m.

At COP21 in Paris, countries across the globe committed to national determined contributions (NDCs) to mitigate the impacts of climate change. Rapid deployment of clean energy solutions will be critical for countries in Asia Pacific countries to meet these commitments. There are gaps and barriers that stand in the way of countries successfully achieving NDCs, and these will need to be overcome during implementation. This session will be a follow up the earlier plenary on NDCs, by focusing on how to effectively implement NDCs in

Asia-Pacific countries by translating the commitments into action on the ground.

Session Chair

Ashok Bhargava, Director, Energy Division, East Asia Department

Asian Development Bank

Presenters

Athena Ronquillo-Ballesteros, Director, Finance Center

World Resources Institute

Ashok Sarkar, Senior Energy Specialist, Energy & Extractives Global Practice

The World Bank

Varsha Joshi, Joint Secretary

Ministry of New and Renewable Energy, India

Lukita D. Tuwo, Secretary

Coordinating Ministry for Economic Affairs, Indonesia

Jorn Brommelhorster, Principal Climate Change Specialist, Energy Division, East Asia Department

Asian Development Bank

Marian Van Pelt, Vice-President

ICF International

Session 9: Cities as Key Decision Makers in Energy Efficiency: What it Takes

Auditorium Zone A

9 June, 2 p.m.–3:30 p.m.

With rapidly increasing urbanization across Asia and globally, cities have emerged as key players who can make decisions to invest more and realize the gains from energy efficiency. To date, much of the emphasis in terms of technical assistance has been placed at the national level; however, now municipal and sub-national governments also need to access finance and technical support. This session showcases some examples of cities that are taking action, and considers how municipalities can be empowered to go further and to share their successes.

Session Chair

Peter Du Pont, Co-Chair

Asia Clean Energy Forum

Presenters

Tabassam Raza, Associate Dean and Adviser CCA & DRM

U.P. Planning and Development Research Foundation, Inc.

Establishing Low Carbon Cities (LCC) into Planners' and Decision Makers' Agenda: A Framework towards Energy Efficiency, Quezon City, Philippines

Current research revealed that Low Carbon Cities (LCC) decouple economic growth from the use of fossil fuel resources by shifting society and economy toward EE, RE, and green transportation. In the Philippines, LCC establishment is still at its infancy stage and lacks carbon governance and a legal framework. This research originated a Low Carbon Cities Establishment Framework (LCCEF). Quezon City (QC) was selected as a pilot city to develop the LCCEF. Data was collected from QC Government officials through participatory process and key personnel interviews to develop the framework. Further, the greenhouse gas inventory of Quezon City public buildings and street lights were also considered in developing LCCEF. The framework is adjustable and could be tailored to other cities.

Noel Z. Hechanova, Department Head

Environment and Natural Resources Office

City Government of Iloilo

Leading by Example—Local Governments as First Movers in Energy Efficiency Initiatives

Emerging cities play a critical role in balancing economic growth and environmental sustainability. Iloilo City presents a good case of decisive action on EE through leadership-by-example and a multi-stakeholder approach to mobilizing investments. The City Government of Iloilo practiced low-carbon development by retrofitting its city hall with solar PV and efficient lighting. Through this example initiative, the city government nurtured partnerships and business and academic sectors supported EE programs. Local ordinance, incentives, technical support, and communications enabled the city government to promote businesses and schools to invest in EE. This resulted in rooftop solar PV, efficient lighting, and efficient cooling system retrofit of Robinson's Mall and JB Lacson College. More EE programs are coming into the pipeline.

Tom Dreessen, Team leader

ADB Pilot LED Municipal Street Lighting and PLN Substation Retrofit Project

A Tale of Two Indonesian Cities: Lessons Learned From Empowering Municipalities' Transition to Energy Efficient Street Lighting

The biggest challenges for cities looking to update their inefficient lighting systems are lack of information and finance. The savings may be indisputable, but cities still need to find the upfront investment, and the necessary technical assistance to ensure success. This presentation describes the process and lessons learned for energy efficient street lighting retrofit pilot programs in the cities of Batang and Semarang, Indonesia. The objectives are to develop replicable projects, while incorporating international best practices to achieve best-in-class efficiency, working directly with Indonesian municipalities to incorporate their input and specific needs, and preparing and developing appropriate financing frameworks and mechanisms, allowing interested and motivated municipalities to scale up retrofits.

Rahul Agnihotri, Senior Manager
Meghraj Capital Advisors Private Limited
Business models and Capacity Development for Energy Efficient City

Madhya Pradesh Urban Infrastructure Investment Program in India is implementing evidence-based energy savings projects in four municipal corporations. The program can save about 33% energy in street lights, water and sewerage pumping, and buildings. It is estimated that such implementation in 20 major cities in India will reduce 150 MW of load with a 3 year payback on investment. The presentation will provide insight on baseline energy consumption, energy saving and investment potential, and policy and institutional frameworks with capacity building of energy management. Furthermore, the presentation will provide details on a techno-commercial analysis for prioritizing implementation, service delivery options and demonstration of savings, and lessons for development financial institutes, local bodies and private enterprises.

Mikael Jakobsson, Chief Marketing Officer
Termoekonomi
District Cooling in the PRC—Status and Development Potential

National policies and guidelines pave the way for energy efficiency in China, and the recent 13th 5-year plan is the most ambitious in terms of EE. District Cooling has proven to be an efficient and flexible municipal energy supply system in many other countries, but in China however, district cooling is rare compared to the potential market and with consideration of successful penetration of district heating. ADB has implemented “District Cooling in the PRC – Status and Development Potential”, where the district cooling market in China is studied and measures for further development are identified. The presentation will describe present status including a case study from recently approved ADB financed project, and development potential of District Cooling in PRC.

Session 10: Renewable Energy Costs: Implications for Policy and Project Development

Auditorium Zone B

9 June, 2 p.m.–3:30 p.m.

Costs have been falling, sometimes dramatically, for solar photovoltaic (PV) systems, and onshore and offshore wind power. There remains significant cost reduction potential in the future, and this will have important implications for policy makers and project developers. Speakers in this session will present renewable energy technology cost reduction studies, and share their insights on likely future cost reduction trends.

Session Chair

Varsha Joshi, Joint Secretary
Ministry of New and Renewable Energy, India

Presenters

Vamdana Gombar, Editor - Global Policy
Bloomberg New Energy Finance
Renewable Energy Cost Trends

The presentation will look at the drivers of cost declines, policy interventions, that are making renewables competitive and the scope for future cost reductions. It will also look at what this means for investments in the region.

Iban Vendrell, Solar Programme Director, Asia Pacific
Mott MacDonald
Solar PV Generation Cost Trends and Variations across the ASEAN region, 2010-2020: Implications for Policy and Project Development

Since 2009, utility-scale solar photovoltaic (PV) plants have taken off in ASEAN, with over 2.5 GWp operating to date in Malaysia, the Philippines, and Thailand, and developing projects in Indonesia, Myanmar and Vietnam. Mott MacDonald has supported the majority of this new PV capacity, over 1.7 GWp of operating PV developments to date. This presentation

will provide an overview of cost trends, key changes observed as the regional PV industry has matured over the past 5 years, projected future changes, variations in generation costs across the region, and implications for future competitiveness and policy support. Analysis of lessons relevant to other countries in Asia supporting solar PV will be provided including for solar-diesel hybrid schemes for off-grid regions and islands.

Noah Kittner, Researcher
UC Berkeley – Renewable and Appropriate Energy Laboratory
Scaling up solar PV minigrids in Lao PDR

This work investigates the resource availability and cost for distributed solar PV based minigrids for rural electrification in Lao PDR. A spatial optimization tool was developed to evaluate LCOE for different mini-grid technologies compared to centralized grid extension. The results of the model highlight priority provinces and identify solar PV projects on the order of 0.05-0.07 USD/kWh for final LCOE. Aided by declining battery storage costs with strong biomass and mini-hydropower resources, the cost of delivering electricity services for rural electrification has achieved cost competitiveness with centralized grid extension. The spatial toolset utilizes MODIS remote sensing data, existing Power Development Plans, and UN FAO resource availability assessment to achieve recommendations. Policy mechanisms are proposed for Lao PDR, including lessons from Thailand's VSPP and SPP programs.

Mark Marollano, Senior Science Research Specialist
Department of Energy
Advancing Clean Energy in the Philippines: Using a Grid Integration Study to Identify Pathways

This presentation will highlight the approach and initial results of a RE grid integration study for the Philippines. Guided by a Technical Advisory Committee comprised of public and private power sector representatives, the study evaluates the costs and impacts of high penetrations of variable RE on the Philippines grid. Modeling experts from Philippines agencies, with assistance from USAID and the U.S. National Renewable Energy Laboratory, have collaborated to create and execute production cost models for current and future Philippine electric system operations. Results are intended to assist the government of the Philippines in forming new RE policies by demonstrating the operational impacts of several RE development scenarios, and identifying the relative costs and benefits of different integration strategies.

Theresa Cruz-Capellan, President
Philippine Solar Power Alliance
Getting to the End Line : Lessons & Policy Prescriptions for Solar Development in the Philippines

The Philippines began its solar development program 4 years ago by introducing a feed-in tariff program coupled by an installation target. Through a 50Mw installation target in 2013, the Contracting Round 2 in 2014 aggressively targeted 500MW in March 15, 2016. Projects that met the deadline got a tariff rate of USD\$0.18/kwh, and those that failed have to operate as merchant plants. The presentation will discuss the critical lessons learned from the second contracting round where the build-first policy rule was implemented. It will identify the push factor evident in successful projects, highlight the challenges confronted by projects with the objective of providing a better policy environment for the Philippines as it charts the 3rd contracting round for solar projects.

Session 11: Lessons from Renewable Energy Mini-grids for Energy Access

Auditorium Zone C

9 June, 2 p.m.–3:30 p.m.

Renewable energy mini-grids are a proven approach for energy access, providing reliable and adequate electricity to people in off-grid and isolated areas. However, there are also issues and challenges that are associated with their operation. Speakers in this session will share the lessons learned in implementing mini-grid projects, particularly relating to issues of technology, finance, organizational design, and sustainability.

Session Chair
Molly Ward, Clean Energy Advisor, Bureau of Energy Resources
U.S. State Department

Presenters

Anjal Niraula, Product Development Manager
Gham Power Nepal Pvt. Ltd.

Scaling Up Energy 'Access Through Productive End Use

Gham Power Nepal recently brought into operations its 70 kW solar microgrids at three villages in rural Nepal. This is a unique project in Nepal that has provided useful findings for carrying out similar projects not only in Nepal but also across Asia. One of the biggest lessons learned was the role of productive end use of solar in improving energy access to people. When PV systems are integrated with an appliance or a specific business, it helps to generate revenue for the entrepreneur. Thus, future projects can be replicated with little donor support.

Peter Lilienthal, CEO
HOMER Energy

Deriving Insights from the HOMER Software about Mini-grid Options for Energy Access

Falling costs of solar photovoltaics have made solar mini-grids more economical, but has also changed least-cost design. Through improvements in battery storage technology, further changes in design can be expected with additional economic improvements. This evolution in mini-grid design and economics will be illustrated with results from the HOMER software. The HOMER software is the global standard for techno-economic analysis of mini-grids and has been used to design thousands of mini-grids over the last 20 years. The analysis results will be presented for mini-grids of various sizes. The presentation will demonstrate the impact of controllable loads, like water-pumping, and load diversity. This will highlight the choices that system designers and developers have regarding renewable penetration, fuel savings, and tariff design.

Pariphan Uawithya, Associate Director
The Rockefeller Foundation

Lessons learned from 100 renewable mini-grids in India

Andrew Susanto, Senior Vice President
PT. Inovasi Dinamika Pratama

Distributed Generation for Energy Access in Support of National Energy Plan

Matching the community's requirements with the solution and long term sustainability of the system's operations are the two the highest points of failure for providing energy access in remote areas. This presentation will highlight some of the different community requirements, how to identify them, and designing an energy access infrastructure that addresses these requirements. Some of the more common technical and workmanship failures will be identified and several business models that promote long term sustainability will be presented. Finally, a common design guideline will be outlined that will allow access to energy in the rural areas to not only catch up with the rest of the population but even leapfrog the infrastructure to be ready for the future.

Pushkar Manandhar, Project Officer (Energy), Nepal Resident Mission
Asian Development Bank

Minigrid Development in Nepal: Approaches, Requirements and Key Challenges

Grid connected system no doubt a preferred option for rural electrification in many countries. However there are equal needs of decentralized for rural electrification through mini-grids due to inherent natures of rural setup. Similar is the case for Nepal where in many locations due to remote setup, decentralized energy system via Mini-grids is the only option to provide access to modern energy service. Nepal has produced many best practices in rural electrification through mini grid development. This presentation summarizes main approaches adapted by Nepal in mini-grid development, the requirements for successful implementation and key challenges to their development.

Aruna Kamduni Wanniachchi, Senior Energy Specialist

Energy Division, Southeast Asia Regional Department

Asian Development Bank

Energy Access to Poorest Communes in Remote and Mountainous Areas in Viet Nam

Providing sustainable energy to the last mile in remote populations is top priority in global development for eradicating extreme poverty. Last mile in access to energy is in remotely sparse populated areas where poorest of poor, deprived women and other marginally disadvantage population live. The power sector can reach and improve the lives through education, skills building, and create income generating opportunities with sustainable energy. The discussion will outline key features of a landmark ADB project, which supplied sustainable electricity to the poorest communes in remote Viet Nam through development of small hydropower plants with livelihood enhancement programs, and an output-based aid, a subsidy to assist the service connection cost and house wiring for poor, woman headed and other marginalized households.

Session 12: Smart Cities: Perspectives on the Clean Energy Transition

Auditorium Zone D

9 June, 2 p.m.–3:30 p.m.

The built environment—mainly urban areas—accounts for up to 75% of global resource consumption as well as conventional pollutant and GHG emissions. As the global center of economic gravity shifts to Asia, and in particular to Asia's cities, how can a sustainable future be ensured for billions of people? The concept of smart cities will provide the backdrop for a discussion of key policy and financing issues, with case studies from the Asia region.

Session Chair

Sam Tumiwa, Principal Energy Specialist, Energy Division, Central and West Asia Department

Asian Development Bank

Presenters

Shridhar Pandey, Director

Ramway Technology Co. Ltd.

“Smart Cities transition to Clean Energy” in the developing countries

Many developing countries have adopted the idea of creating smart cities. For instance, India is on the cusp of developing about 20 smart cities. After development, these cities are expected to produce benefits that include reduced electricity usage per capita, two-way communication between the electricity utility and the consumers and voluntary demand response instead of load-shedding or brownouts. Furthermore, smart cities offer easier access to comfortable and energy efficient public transport, web enabled public services, and transparency in functioning. The environment of smart cities offers promotion of public walkways. The technical challenge lies in collating the big-data.

Juergen Bender, Managing Director

Bender-IS Co., Ltd.

Leadership Through Innovation—Vision For Smart Grid Deployment to 2050

Governments are seeing smart grid and low-carbon technology as critical to the evolution of their manufacturing and knowledge economy. The broadening of the smart grid concept to intelligent cities has resulted in debates that have shifted from being a discussion on pure smart grids and electricity infrastructure to include intelligent infrastructure, whereby the sensing and control capabilities inherent in the smart grid are applied to multiple physical infrastructure layers within the urban environment. As a result, there is growth of a new breed of industry participants, such as consumer products, telecoms and retail companies, that are exploring their potential roles within the industry. As new entrants develop their understanding of the industry dynamics, disruptive business models are expected to emerge.

Jan Van der Ven, Asia Director
The Carbon Trust

Petaling Jaya: demonstrating a replicable approach to catalyse low carbon transformation in fast growing Asian cities

Local governments can use a structured and replicable framework to significantly reduce carbon emissions, build climate resilience, improve energy efficiency, and save costs. The Carbon Trust has completed a successful pilot with Petaling Jaya in Kuala Lumpur, Malaysia to refine this framework for Asia, building on experience from Europe and Latin America. Majlis Bandaraya Petaling Jaya announced its city-wide carbon and energy plan, committing to a 2030 target of reducing emissions by 30% against business-as-usual growth. This will create cumulative savings of RM1.4 billion and 36 MtCO₂e for businesses and residents, all using established policy channels and energy technologies. The Carbon Trust will share lessons learned and explore how a similar approach can be adopted in other cities in Asia.

Ashish Puntambekar, Head Strategic Planning (Innovations Group)
Reliance Industries Limited

Large Project Financing for Clean Energy In Smart Cities in India

India has stated its intention to reduce emissions intensity by 33-35% by 2030, compared to 2005 levels. The Government plans to add 175 gigawatts of renewable energy by 2022. Of this, 100 gigawatts is from solar and 60 gigawatts is from wind. Financing these large additions is a huge challenge. This presentation explores ways of raising US\$1.24 trillion for financing smart cities in India by 2025. This includes US\$90 billion for renewable energy projects by 2022 using the World Bank concept of urban equity withdrawal. Three urban equity withdrawal mechanisms are examined which include raising FSI's on PSU owned land in metros, land conversion at the periphery of cities, and rezoning urban land for development of financial centers.

Session 13: Data for Energy Efficiency: Realizing the Promise of Smart Grid and M&V Information Technologies

Auditorium Zone A

9 June, 4 p.m.–5:30 p.m.

Increasing implementation of energy efficiency means talking a language that financiers can understand. It also requires closer attention to measurement and monitoring of the likely impacts of investments. The session will examine some of the technology advancements that can improve both site-specific and utility-wide energy use and points to the ongoing importance of consistent monitoring and verification techniques.

Session Chair

Aurelia Micko, Deputy Director, Regional Environment Office
USAID Regional Development Mission for Asia

Presenters

Saman Halgamuge, Professor
University of Melbourne

Controlling the Grid or be controlled: Role of Storage management, integration of renewables and the prediction on the Demand side

The advent of smart grid technology is expected to enable optimal integration of energy at levels of generation, transmission, distribution and storage also exploiting innovations in data engineering. Control and optimization strategies, smart data analytics and communication infrastructure are critical to face uncertainties and changing dynamics in the system, which allows to manage and stabilize the network efficiently. We present an overview of ongoing work associated with three PhD projects: 1) Optimal operation of battery energy storage by developing forecasts for demand and generation while minimizing operational degradation; 2) Shallow geothermal and other opportunities for optimized heating and cooling buildings and 3) challenges and opportunities associated with grid integration.

Daniel Liang, Senior consultant
DNV GL

Smart data to increase the headroom of building's energy efficiency

Commercial buildings usually account for a large share in national total energy consumption (for example, up to 30% of total energy consumption in Singapore) so any steps taken towards better energy efficiency can play a significant role in reducing carbon emission. There have been some great achievements in the past decade in energy efficiency. The presentation will explore how best to make use of smart data analysis techniques to further improve efficiency based on existing metering data, with minimum capital investment. The proposed machine-learning based data analytics will study buildings historical and real-time metering data to identify the varying pattern of energy consumption, therefore turning the building from passive-reacting to proactive-preparing to allow for greater electricity savings in the future.

Mischa Steiner, CEO
Awesense Inc.

Using Big Data, IoT and Grid Analytics to Optimize Distribution Grids

Electric power utilities face relentless pressure on their financial performance and reducing distribution grid losses through optimization is the fastest, easiest way to meet their business goals. Combining IoT-enabled sensors and cloud-based data analytics, utilities now are able to find, quantify and reduce losses faster and with a smaller IT footprint. Solutions exist that use Internet-enabled sensors deployed temporarily at strategic locations within the distribution grid to measure actual line loads. Cloud-based data analytics use this data (combined with other available data) to create a risk model, to pinpoint high-risk grid segments and to systematically reduce losses.

Tom Dreessen, Chairman and CEO
EPS Capital

M&V - the Meter of Energy Efficiency

This presentation will discuss how and why the accurate Measurement & Verification of Energy Savings is the key to successfully scaling up the implementation of Energy Efficiency on a global basis. The presentation will also briefly describe and distribute a hard copy of EVO's new IPMVP Core Concept's document.

Session 14: Innovations: Technology, Policy, and Financing Schemes

Auditorium Zone B

9 June, 4 p.m. – 5:30 p.m.

The global transition towards a renewable energy power sector is well underway. To facilitate this transition, innovative technologies, business models, and policy and financing schemes must be embraced in the scheme of energy governance. This session will provide a platform to discuss a variety of innovations in technologies, policy design, and business models.

Session Chair

Cleo Kawawaki, Director, Energy Division, Central and West Asia Department
Asian Development Bank

Presenters

Apoorv Vishnoi, Manager – Energy Sales
Vaisala Company

Performance of Operational Wind Energy Projects in India Compared to Pre-Construction Estimate

A wind resource assessment is used by project developers to estimate the energy generation for the life time of wind energy projects. As wind is a non-dispatchable source of energy and given the complexities involved in wind power generation from wake losses, grid availability, machine availability, degradation that affect future wind turbines, there is often a significant variation in actual project performance when compared to the pre-construction estimate. 3Tier will showcase the gap between the pre-construction estimate and post-operation performance in the growing wind market in India. This will be referenced against similar comparisons in the mature wind market of USA. This presentation highlights incorrect assumptions, relevant loss factors and gives a guide to conduct better assessments.

Ronald Sastrawan, Senior Risk Analyst

Munich Re

Long-term risk-transfer solutions to support and enable project finance for PV parks

The risks in operating large solar parks are analyzed. While traditional insurance covers physical damage due to sudden loss, such as natural hazards, a large number of risks remain with the project developer and investor. The largest technology risks for the park's availability and performance are downtime of inverters and degradation of solar modules, respectively. Munich RE has developed a solution to cover these risks for up to 15 years. As lack of sun can be a factor, this is included. We mitigate the three key performance indicators of a solar park: availability, performance ratio, and irradiation. In addition to the loss of revenue part, our solution also includes replacement of the affected solar modules and inverters.

Sasank Goli, CEO

IPEX Cleantech Asia

IPEX Cleantech Asia – Accelerating the Transfer of Clean Technologies into Asia

IPEX is a technology matching, advisory and deal facilitation firm focused on the cross-border transfer of commercialized clean technologies into emerging Asian markets. IPEX was established with ADB RETA 8105 funding, to demonstrate that there is a commercially viable business model for a one-stop-shop cleantech marketplace. Technology transfer encompasses multiple stages of transactions ranging from incorporation of new products or technologies into projects for creating more efficient solutions; to transferring such product manufacturing or R&D knowhow into a developing country. It's a progression that standalone benefits the adopter country's economy, and the earlier activities are often a precursor to the latter. IPEX will showcase ongoing engagements in smart street lighting technology, solar inverters, and water technologies space, and results achieved.

Bhaskar Deol, CEO

Mynergy Renewables

Rooftop solar finance project aggregation: case studies from Indian SME sector

The presentation will discuss innovative finance mechanisms for investment in on-site renewable energy generation catering to small and medium enterprises in India. Mynergy Renewables will share real world examples and case studies of successful implementation of lease finance for rooftop assets for SME customers. The presentation will also stress upon insights gained from an innovative business model in grouping such rooftop installations from approximately 30kWp to 300-kWp range, for SME customers, into bundles of 1 to 5 MW size. Bundled or aggregated projects are sold to investors looking for long-term cash flows from the underlying standardised leases, thereby providing much needed access to finance to this otherwise underfunded sector.

Diala Hawila, Associate Programme Officer

IRENA

Renewable Energy Auctions: A Guide to Design

Until recently, renewable energy deployment had been mostly supported by policy instruments such as feed-in tariffs and quotas with tradable green certificates. In the past few years, auctions have become more and more popular, often being the preferred policy to advance renewable energy deployment. The number of countries that adopted renewable energy auctions increased from 6 in 2005 to more than 60 by early 2015. In response to policy makers' increasing interest in the auction scheme, IRENA developed 'Renewable Energy Auctions: A Guide to Design'. The guidebook analyses the design elements and tradeoffs when selecting auctions. The guidebook provides recommendations on how the different design elements can be combined and tailored to fulfil renewable energy deployment targets and broader policy goals.

Session 15: Lessons from Renewable Energy Mini-grids on Islands

Auditorium Zone C

9 June, 4 p.m.–5:30 p.m.

This session will build on the earlier session on mini-grids (Session 11) by focusing on the operational issues of mini-grids in an island setting. Speakers will present experience with projects employing different models, with a focusing on the experiences, results and latest development of successful mini-grid implementation on islands.

Session Chair

Jiwan Acharya, Senior Energy Specialist, Energy Division, South Asia Department
Asian Development Bank

Presenters

Mukhtor Khamudkhanov, Principal Energy Specialist, Energy Division, South Asia Department
Asian Development Bank

Practical Approach in Deploying Sustainable Hybrid Renewable Energy Systems in Small Isolated Islands

Innovative hybrid renewable energy (RE) systems, (wind, solar and efficient diesel generation coupled with energy storage (lithium-ion batteries)) are being implemented in isolated islands under Asian Development Bank financing. The RE systems hybridized for reliability with modern efficient diesel generators can provide electricity and be upgraded to meet a community's increasing energy demands. The following factors should be assessed when designing hybrid RE systems: i) required data collection and analysis, (ii) selection of a suitable business model, (iii) applying an optimal technical architecture and configuration, (iv) addressing capacity building of a local community, and (v) proper operation, maintenance and monitoring. Case studies from Sri Lanka and Maldives demonstrate the need for specific practical approach in conceptualizing, designing and implementing such systems.

Michael Price, Research Associate, The Smart Villages Initiative
University of Cambridge

Off-grid energy for remote island communities in Southeast Asia

Many people living on small remote islands in Southeast Asia are underserved in their energy needs. They face unique challenges due to their remoteness, and it is especially important to encourage distributed renewable energy access for them that can act as a catalyst to their community development. This presentation offers an overview of findings gathered from an intensive workshop held on a remote island in Indonesia. The workshop gathered together experts from across Southeast Asia and the Pacific, from the private sector, government, academia, and the non-profit sector. It will detail eight key recommendations for policy makers, covering themes such as community engagement, electricity pricing, pv-diesel hybrid minigrids, long-term project viability and productive uses of energy.

Dann Diez, Executive Director
Sustainable Energy and Enterprise Development for Communities

Collaborative Approach of Last Mile Community Based RE Systems

Project Enkindle is an initiative of the Energy Research Institute at Nanyang Technological University that demonstrates a collaborative approach to provide access to clean and renewable energy to island-based and mountain communities. This project was launched after typhoon Haiyan struck the Philippines in November 2013 to support affected areas mainly in Leyte and Samar. From this initiative, a sustainability scheme/strategy was developed through a partnership of local non-government organizations, academe, industry partners, local suppliers and community-based RE users. After its turn-over to SEED4COM, Project Enkindle is now in the scale of 50W to 5KW solar PV installation and management for communal and livelihood, prioritizing disaster-prone communities. As of today, Project Enkindle has benefited over 150 communities in the Philippines.

Ole Dubnov, Head of Strategy & Marketing Team
BJ Power

Solar Hybrid Project in Cobrador Island, Philippines

To help achieve the target of 90% household electrification in the Philippines by 2017, the Cobrador Island Solar Hybrid project was implemented. The solar hybrid technology was introduced to enhance the existing diesel power generation in the island. Since March 2016, the project has achieved 100% electrification, improving energy access from 110 to 244 households and supplying 24 hour electricity needs of residents. The demand has increased by 208%, most of it supplied by solar power. Aside from energy access, the project enhanced the delivery of social services, and created job opportunities while reducing dependence on fossil fuels. The project showcases the technical and economic impact of introducing hybrid systems in mini-grids, serving as a model for immediate replication.

Session 16: What Will ASEAN's Clean Energy Transition Look Like?

Auditorium Zone D

9 June, 4 p.m. – 5:30 p.m.

The ASEAN region presents a microcosm of the global challenges for a transition to a sustainable energy future. Despite the commitments to increased clean energy, and Asia's abundance of renewable energy resources, the capacity of fossil-fueled power plants is projected to grow rapidly in the region. Major changes in regulatory policy will be required to shift to a more sustainable trajectory. Speakers in this session will present legal and regulatory analyses, data on electricity pricing, and prospects for a new generation of biomass energy development.

Session Chair

Atsuko Hirose, Advisor, Office of the General Counsel
Asian Development Bank

Presenters

Sarah Fairhurst, Partner
The Lantau Group

Can Asia lead the way in efficient renewable network integration?

When renewables were expensive, policy makers used simplistic tools to encourage uptake. Netback pricing of solar, for example, was one of these ideas. However, the world has changed. The cost of renewables has fallen to a point where some are economic in their own right (wind in windy locations) and others soon will be (solar in sunny countries with daytime air-conditioning peaks, for example). Simple network pricing options are showing flaws. In the Philippines there are concerns about the requirements for additional ancillary services due to solar build out in some areas. The time has come for better grid connection and network pricing policies to enable renewables to operate on a level playing field. This paper will explore these issues.

Jason Waldie, Director
Douglas-Westwood

The Outlook for Asia's Transition to Clean Energy. What are the Drivers and Risks?

The energy mix landscape is quickly changing in Asian countries with the transition to cleaner energy. This presentation will first look at the macro-economic drivers enabling the transition, and second at Asian energy supply and demand outlook to 2035. Further in-depth discussion will cover key commercial trends, including cost trends in both wind and solar solutions, and how Singapore is becoming the center for Asian renewables finance. Key risks and mitigation to industry growth will be discussed along with regulatory and commercial frameworks. An overview and forecast of the clean energy onshore (solar and wind)/ offshore(wind) renewables markets in Asia will highlight the following countries: (1) India; (2) Thailand; (3) Philippines; (4) other Asian markets to 2035 and estimated investment in Asian markets to 2035.

Ger Groeneveld, CEO
Garado Green Energy

Co-generating local electricity producing environmental sustainable fuel for export

Fossil fuels like coal, oil and gas can have a devastating effect on the environment, as (1) we do not use coal very effectively; (2) the extra carbon is disrupting the balance of GHG in atmosphere and carbon in the seas. ASEAN is gifted with a large amount of biomass but fossil sources remain widely used. A transition to clean energy biomass can be made through exo-thermal processes (torrefaction, pyrolysis, gasification) to produce energy. At the same time a new commodity of bio-coal, bio-oils and bio-gas can be exported. Japan, Korea, and other countries with little fossil fuel reserves will purchase biomass products. ASEAN is uniquely positioned to become the world's leading bio-energy provider and distributor.

Bill Gallery, Clean Energy Consultant
Nexant

Effectiveness of Regulatory Frameworks Governing Energy and Water Sectors in ASEAN Countries

To implement clean energy initiatives, a legal and regulatory framework that enables such initiatives to succeed is crucial. Since the early 1990s, nations across the Asia and Pacific region have undertaken reform of their power and water sectors to varying degrees, but have had mixed results. ADB OGC's Law and Policy Reform (LPR) technical assistant project commissioned a study to look into the history of regulatory reform and the state of regulatory effectiveness in eight ASEAN countries (Cambodia, Viet Nam, Indonesia, Lao People's Democratic Republic, Thailand, Singapore, Philippines, and Malaysia), which sought to address the effectiveness of energy and water regulatory reform efforts and how could future reform efforts lead to more effective regulation. Regulatory effectiveness of each sector was measured through twenty-two indicators, which sought to determine such effectiveness through the governance aspect-related indicators as well as those related to substantive aspects.

Session 17: New Models for Investing in Energy Efficiency Projects and Businesses

Auditorium Zone A

10 June, 9 a.m. – 10:30 a.m.

Finance remains a key missing link in relation to scaled-up implementation of energy efficiency. Speakers in this session will present a range of different models that are being successfully deployed and that may be replicated to catalyze investment in energy efficiency projects and businesses.

Session Chair

Andrew Jeffries, Director, Energy Division, Southeast Asia Department
Asian Development Bank

Presenters

Ingo Puhl, Managing Director
South Pole Group (Thailand)

Energy Savings Guarantees as a means to allocate EE project performance risks to unlock EE investments at scale

South Pole Group is operating a 200 million CHF guarantee facility that allocates the performance risk of low carbon technology investments between an insurer, lenders, technology suppliers and project owners. The facility is backed by the Swiss Government. The presentation showcases the deployment of such a guarantee mechanism to unlock investments into industrial energy efficiency, using the Vietnamese cement industry as a case-study. The analysis finds that the use of such a mechanism could create more than 500 million USD in EE investments and reduce GHG emissions by 76 million tons in a 10 year period.

Normand Michaud, Director
Econoler

Etihad ESCO, the implementation of a Super ESCO in Dubai

The Super ESCO approach is seen as an interesting concept to help unlock the ESCO potential and promote energy efficiency (EE), but not many experiences exist at this time. The presentation will present the results of an ambitious Super ESCO experiment: the Etihad ESCO in Dubai. Etihad ESCO shows that the Super ESCO concept can work in both the public and private sectors. Etihad ESCO is expected to transform the EE market in Dubai from a relatively small market to one of the most significant in the world. Experience gained in the first projects implemented and key elements for the success of a Super ESCO will also be presented in order to demonstrate the replication possibility throughout Asia.

Rakesh Kumar Goyal, Managing Director

Tetra Tech

Learnings from Bangladesh Industrial Energy Efficiency Finance Program

The presentation shares the experience and learnings from the Bangladesh Industrial Energy Efficiency Finance Program implemented by Tetra Tech under technical assistance from Asian Development Bank. The program consisted of an energy audit of 120 industrial establishments in six high energy consuming sectors and three capacity building workshops for local financial institutions and banks. The audits suggested an investment of \$140 million to achieve a 30% saving in energy and calculated the payback of three years and IRR of 25%. In Bangladesh energy prices are low but future availability of energy is a serious concern. The presentation shares tangible and non-tangible impacts of the program on energy efficiency in Bangladesh. The paper concludes with recommendations for accelerating the financing of the energy efficiency projects.

Craig Morgan, Director

Northmore Gordon Pty Ltd

How Australia's Energy Efficiency Certificate Schemes have unlocked potential

Two Australian state governments have legislated Energy Efficiency Certificate Schemes that have successfully unlocked enormous energy efficiency activity. In 2016, the New South Wales annual certificate target is around 7% of electricity demand, and the Victorian target is 5.4 million certificates. Energy efficiency projects supporting this certificate creation have occurred in residential, commercial and industrial markets. Several key features have contributed to the scheme success including (i) a strong legislative framework with penalties for non-compliance, (ii) forward-creation of certificates for up to 10 years of energy savings, (iii) long term political support for an energy savings target, and (iv) a continued 'fine tuning' of approved methods for creating certificates. This presentation will provide an overview of the schemes.

Julio Retana, Officer-in-charge, ESCO Division

Synergy Efficiency Solutions

New energy efficiency financing models for ESCO companies: Examples from Thailand and Indonesia

Energy contracting models of ESCO companies are recognized as one of the solutions to unleash the EE potential in Southeast Asia. However, one of the main barriers for ESCO companies is access to finance. International Financing Institutions require a minimum investment size of USD10 million or up. This is a challenge for emerging ESCO markets as the average project size is around USD1 million. This presentation will provide two case studies: (1) The ESCO Fund of Thailand and (2) The Indonesian approach making use of Equity. In addition to preparing project pipelines and enabling frameworks, international support is crucial. The presentation opens up the discussion on how secondary markets and development banks can assist to unleash the ESCO market potential in the region.

Session 18: Innovative Business Models: Value Creation from Renewable Energy and Enabling Technologies

Auditorium Zone B

10 June, 9 a.m. – 10:30 a.m.

How can innovative technologies match market needs? And what value can be created from renewable energy and enabling technologies, such as energy storage? These are important questions to both policy makers, regulators, and project developers. Speakers in this session will share their ideas and experience with innovative business models that have demonstrated the value that renewable energy and enabling technologies can create in different contexts.

Session Chair

Danny Kennedy, Managing Director

California Clean Energy Fund

Presenters

Philippe Ulrich, General Manager and Sales Director Asia

Saft

Li-ion Energy Storage in islands and microgrids

Non-interconnected (island) grids and microgrids are increasingly relying on renewable energy sources, mainly wind and solar, which have become competitive over traditional power generation schemes. At the same time, these grids are particularly exposed to the destabilizing effects of variable generation. Energy storage can improve the integration of variable generation into the electricity grids and planning schemes of grid operators. Based on Saft's experience in more than 20 MW scale projects, this presentation will provide an overview on different functional requirements of storage systems, the resulting system layout and the value stream generated. It will provide insights on how to specify technically meaningful and economically feasible storage systems for islands and microgrids.

Sungwoo Kim, Regional Head

KPMG

Innovative Business Model for replication: Green Big Bang Model

The presentation will explore the case study of the second largest island in Korea transitioning from diesel to combined renewables of wind, solar, geothermal, and fuel cell. Based on this successful case study, the model is being deployed across 120 islands in Korea. Also, for the largest island in Korea (Jeju), a more innovative model is under consideration by adding smartgrid, electric car(V2G), and energy storage to the existing renewable mix to contribute to peak load control as well as making the island carbon neutral.

Ashish Verma, Analyst

AMP Solar India

Deployment of canal top and canal bank based solar project through market driven cost competitive business model in India

Solar plant installations require large areas, and there is potential to use roofs for roof top plants, barren and low vegetation land for ground mounted systems and building-integrated solar PV plants. There is also a great opportunity to tap the unutilized area of Canal tops and Canal banks for power generation through solar PV plants. The presentation discusses market driven business models such as public private partnership model, engineering procurement construction model, subsidy-based business model where project developers, various government entities/ stakeholders, renewable energy agencies participate to tap the solar potential of canal tops and the canal bank network in India. With new business models the government can bring down the cost by 10-15% through the creation of competition and subsidy-driven business models.

Thomas Chrometzka, Director, Renewable Energy

GIZ Thailand

Selling solar power: how 3rd party PPAs could boost solar market development in SEA

Despite support to solar energy projects in SEA (largely solar farms and solar home systems) regional governments still tend to underestimate the potential for solar rooftops. While they are hesitant to commit to stronger support, the private sector, however, is seizing opportunities. Companies are no longer asking for feed-in tariffs, they are concentrating instead on doing business. A crucial change is that companies are no longer selling solar systems, but solar power. In Thailand, non-subsidized private sector solar PPAs between commercial entities will come online in the market in 2016 and could bring disruptive change as solar energy can be procured cheaper than fossil grid electricity. This presentation will look at this trend and show how public players could benefit from this trend.

Michael Lochinvar Abundo, Director

OceanPixel Pte Ltd

Marine Renewable Energy for Island Micro-Grids in South East Asia

The penetration of renewable energy (RE) merits looking at modes of RE hybrid integration especially for island micro-grids—specifically in the Philippines and Indonesia. Marine RE resources such as tidal currents and waves bring another dimension in pro-active energy planning for off-grid scenarios and utilization. The presentation shares projects being planned for Singapore, Indonesia, and the Philippines in terms of marine renewables being part of the energy mix for island micro-grids. The baseline electricity cost of USD 0.5 /kWh (from diesel-based power) may potentially be reduced to USD 0.35-0.40 /kWh with a combination of solar, tidal, energy storage, and the existing diesel generators for power generation capacity scales of 2MW to 5 MW. Lessons from the project phase 1 in Indonesia will be presented.

Session 19: Adopting Clean Solutions for Cooking and Heating

Auditorium Zone C

10 June, 9 a.m.–10:30 a.m.

1.8 million people in Asia and the Pacific that are still dependent on traditional biomass fuels for cooking and heating. The enormity of these numbers underlines the need for the adoption of clean and efficient cooking and heating fuels. Speakers in this session will present information on different clean technology solutions for cooking and heating such as improved cookstoves, biogas systems, and LPG, and will discuss strategies for the dissemination and scale-up of these approaches.

Presenters

Manjushree Banerjee, Fellow
TERI

Dissemination Approach of Improved Biomass Stoves in Indian Himalayan Region

The dependence on biomass for cooking is prevalent rural zones of the Indian Himalayan Region (IHR). For the past three decades government and other development agencies have promoted improved biomass stoves primarily through subsidy or grant-driven models. However the focus of dissemination process of improved cookstoves is slowly shifting towards market-driven solutions. As a part of bigger project, advanced biomass stoves were promoted in one of the hill states in India through local level entrepreneurs. Based on the profile of buyers of improved cookstoves in one hill state, analysis suggests grant based dissemination models initially for the hill states with more of a poor population, low penetration of LPG and lesser proportion of female headed households.

Jonathan Lacayanga, Chairman, Research and Development Office - Abucay Campus
Bataan Peninsula State University

BPSU Priority Outreach Initiative: Case Study on the Promotion of Vertical-Fed Cookstove for Biomass Dependent Households in the Philippines

BPSU was able to reach biomass cookstove dependent households in the Philippines through different churches (Roman Catholic, Iglesia Filipina Independiente, United Methodist Church and United Church of Christ in the Philippines) and organizations (Alay Bayan, Inc. and AGHAM Central Luzon) covering 3 provinces in Region 1, 1 province in Region 2, 6 provinces in Region 3, 1 Province in Region 4B, 2 provinces in Region 6, 2 provinces in Region 8 and in the National Capital Region. The Vertical-Fed Biomass Cookstove was first developed in 2009 and for the past four years, it has reached many households in the country.

Muhammad Tayyab Safdar, Affiliated Lecturer
University of Cambridge

Systems thinking for Improved Cookstoves

There are 3 billion people who use biomass to meet their cooking and heating needs using inefficient and polluting cookstoves. Cookstoves and local cooking habits have a substantial impact on society and the issue of improved cookstoves is complex and multi-dimensional. Informed by an international workshop held in Myanmar in December 2015 brought together leading actors involved in cookstoves programs in South and Southeast Asia, this presentation highlights the importance of taking a systems approach when looking at projects aimed at mitigating adverse impacts of cooking using biomass and rudimentary cookstoves. The entire cooking system includes variables like the layout of the house, cooking habits and type of food being cooked. Cookstove dissemination programs have to ensure that they take on board the context specificity.

Session 20: Transport and Energy: Examples that Work and Directions for the Future

Auditorium Zone D

10 June, 9 a.m.–10:30 a.m.

The transport sector accounts for about 30% of total global energy use, and demand is projected to double during the next 15 years. Liquid renewable fuels are expected to play a limited role in meeting demand growth. Presentations in this session will include the potential contributions of renewable energy to electrified transport, the role of 21st century urban planning and the smart cities paradigm, and a case study of sustainable transport.

Session Chair

Martha Loleit, Business Development Manager
Nanyang Technological University, Singapore

Presenters

Lloyd Wright, Senior Transport Specialist, Sector Advisory Service Division, Sustainable Development and Climate Change Department
Asian Development Bank

ADB Sustainable Transport Project and its Energy Related Implications

The unmitigated growth of private vehicle usage in Asia and the Pacific is dominating increases in regional greenhouse gas emissions. ADB's Sustainable Transport Initiative (STI) seeks to focus the direction of transport investments toward increased investment of sustainable urban transport systems. The STI is predicated on the Avoid-Shift-Improve framework, which emphasizes an integrated approach that first emphasizes reducing travel demand and shifting mode choice to low-carbon options. By contrast, a singular focus on alternative fuels and propulsion systems for vehicles, without complementary investments in Avoid and Shift strategies, will have limited impact on emissions and likely worsen congestion and road safety. The presentation will feature examples of ADB's implemented projects in Lanzhou and Yichang (PRC), as well as the on-going sustainable urban transport initiatives in Vientiane (Lao PDR).

Thusitha Sugathapala, Senior Lecturer
University of Moratuwa

Development of Fuel Economy Standards for Light Duty Vehicles in Sri Lanka

The baseline for fuel economy of Light Duty Vehicles (LDVs) in Sri Lanka is established to develop relevant policies and to support global tracking towards the target set by Global Fuel Economy Initiative (GFEI). Sample of 16,000 cars were used to derive the techno-environmental characteristics. Results show that the annual average fuel economy and emissions of new internal combustion engine cars are about 6.6 l/100 km and 160 g CO₂/km, respectively, normalized to New European Driving Cycle. Inclusion of hybrid vehicles in the estimates shows that average fuel economy has improved by 18% in 2014, supporting the government fiscal interventions to promote them. Based on the results derived, a guideline for the development of fuel economy standards for LDVs is proposed.

John Gerald Fyfe, President & Country Manager
ABB, Inc.

Developing and Sustaining Smart Cities through Power & Automation

Urban growth will result in the majority of the world's population living in cities by 2050; much of this growth will occur in emerging countries. With cities already being considered as the driving force for economic output, accounting for 80% of the global GDP, cities need to effectively manage the challenges of growth, sustainability, and competition. Are there better ways to effectively decrease cities' energy consumption, given that cities account for 70% of global carbon emissions? How can cities continue to attract investment and workforce? ABB has decided to focus on six core areas—communications, electricity grids, water, transport, buildings, and heating—to effectively address these concerns. Intelligence and automation must be effectively combined with the correct regulations, business models, and stakeholder engagement to develop truly smart cities.

Nilmini Silva-Send, Assistant Director/Adjunct Professor, Energy Policy Initiatives Center
University of San Diego
*Cities as Leaders of the Clean Energy Transition: Case Study of the City of San Diego (California, USA),
and How Can it be Relevant to Asian Cities?*

One of the more impressive climate action plans (CAPs) in the US was adopted by the City of San Diego in December 2015, with an aggressive goal to achieve 100% renewable electricity by 2035. Other cities are copying this policy, creating bottom-up momentum to move towards a low carbon economy. Another ambitious goal in this CAP is to achieve large reductions in transportation emissions, through ample opportunities to switch away from singly-occupied vehicles, which is particularly difficult given existing land use sprawl. Based on experience in developing San Diego's CAP, its regulatory drivers, policy analysis, process and acceptance by multiple stakeholders will be presented as case study components relevant for Asian cities to also lead in the clean energy transition.

Session 21: Bridging the EE “Perception Gap”

Auditorium Zone A

10 June, 9 a.m.–10:30 a.m.

In order for greater investments in energy efficiency to occur, it is well accepted that partnerships will be required; governments cannot implement projects without the technology and expertise of the private sector, while companies and financiers rely on supportive policy frameworks. In order for fruitful collaborations and partnerships to emerge, it is important to understand the different perceptions that project proponents may have, and to ensure that projects are both socially and commercially attractive. Speakers in this session will examine the different roles played by each actor in successful projects, and how they have encouraged a better common understanding of the energy efficiency imperative.

Session Chair

Toru Kubo, Principal Climate Change Specialist, Energy Division, Southeast Asia Department
Asian Development Bank

Presenters

Jan Van der Ven, Asia Director
The Carbon Trust

Hunan Province: regional government taking a leading role in developing the low carbon economy

China's Hunan province has a large industrial base, with over 1,400 organisations responsible for more than 300 million tons of CO₂ a year. In October 2015 Hunan became the first Chinese province to establish a Low Carbon Technology Trade Centre and a dedicated public-private-partnership fund to support cross-border technology transfer deals. To support this The Carbon Trust has completed a project working with the Hunan Low Carbon Innovation Centre, building a roadmap for regional government action. This replicable roadmap provides practical policy options that stimulate growth whilst transitioning to a low carbon economy. The Carbon Trust will explore the lessons learned for improving energy efficiency and low carbon innovation in China, exploring how similar roadmaps can be used by other regional governments.

Pradeep Perera, Principal Energy Specialist, Energy Division, East Asia Regional Department
Asian Development Bank

Breaking the Energy Efficiency Financing Challenge

It is widely believed that mobilization of financing for energy efficiency investments is difficult due to number of reasons. These include Policy & institutional issues as well as financing barriers. This presentation describes how these barriers can be overcome in a systematic manner. It then focus on innovative financing mechanisms to address the financing barriers. These include dedicated energy efficiency funds, utility driven DSM funds, dedicated credit lines, risk sharing mechanisms with commercial banks and supporting specialized entities (ESCOs) to invest in energy efficiency improvement in third party premises. The lessons learnt from different financing mechanisms will be summarized at the end of the presentation.

Anoja Wickramasinghe, Emeritus Professor on Geography
University of Peradeniya
Investing in Grassroots Agency for Energy Efficiency

Energy efficiency is often placed in the supply and technology domains considering end users at the grassroots as passive consumers. The experience gained by implementing the ADB supported electricity access project in Sri Lanka and the findings of the follow up monitoring suggest that effective transitions can be made by developing the capacity of the grassroots. Several tools, including education, training, awareness raising, self-assessments and access to knowledge materials increased the capacity of grassroots communities enabling them to adopt energy efficiency measures in households and local businesses. The records on consumption maintained by the end users revealed that peak use dropped by around 40 to 45 percent showing the effectiveness of the grassroots capacity building as a successful and a replicable model.

Jonas Cortes, Mayor
City Government of Mandaue, Philippines
Transcending Local Government Structures and Private Sector Boundaries to Mainstream Green Building Policies

Mandaue City's rapid economic and urban growth underscore the city government's 2020 Vision of becoming the Philippines' primary manufacturing hub. The city government developed a set of policies that continue to support growth whilst aiming to keep its emission levels at a minimum. Before the launch of the National Green Building Code of the Philippines, the Mandaue city government had already started its own Green Building Code. In the process of formulating and implementing the code, the city government went through a deliberate process of consensus building within its own departments. The city government has finalized the Implementing Rules and Regulations of the code and has started its campaign to raise awareness to encourage the business sector to buy into energy efficiency and green building development.

Session 22: Renewable Energy in the Transport Sector

Auditorium Zone B

10 June, 9 a.m.–10:30 a.m.

Currently, 95% of transport fuel is oil-based, contributing to about one quarter of the global CO₂ emissions. What is the role that renewable energy could and should play in de-carbonizing the transport sector? Speakers in this session will share innovative approaches and outlooks of renewable energy development in the transport sector.

Session Chair
Olly Norojono, Director, Transport, Energy and Natural Resources Division, Pacific Department
Asian Development Bank

Presenters

Eliseo Casidsid, Consultant
Boracay Land Transport and Multi-Purpose Cooperative
Scaling Solar Powered Transportation in Eco-Tourism Sites and Small Island Economies

A transportation system fueled by renewable energy increases a small island economy's efficiency, resilience, and attractiveness. In 2013, USAID worked with the Boracay Land Transportation Multi-purpose Cooperative (BLTMPCI) to operationalize a 14-kilowatt off-grid solar charging station for electric tricycles. The Boracay Solar Charging Station serves as a sustainable transport system model that is well-suited for an eco-tourism site. In the same year, Boracay island was struck by typhoon Haiyan and experienced power outages. The system was used to charge electric vehicles and mobile phones allowing for continued operation of transportation and communication. The Solar Charging Station is a fitting pilot model of the convergence between mitigation and adaptation. It continues to charge 10 electric tricycles, providing transportation services equivalent to 500 kilometers of travel each day.

Nicholas Wagner, Associate Programme Officer, Renewable Energy Roadmaps
IRENA

REmap – IRENA's Roadmap for a Renewable Energy Future: the overlooked potential of renewables in transport

The transport sector accounts for a third of total global energy use and energy demand is rising rapidly. In ASEAN, the sector's energy demand is expected to double over the next 15 years. The International Renewable Energy Agency's (IRENA) REmap program highlights the potential to significantly scale up renewables in transport. The potential for renewables in the sector is greatly overlooked, and emerging technologies have the potential to play a transformative role in creating a more sustainable, clean transport system. While liquid biofuels will account for some of this potential, the electrification of transport modes will play an increasingly important role. In particular, battery electric two- and three- and four- wheelers and shifts to electrified mass transit will see significant growth in the region.

Jason Choi, CEO
JS Batterist LTD

Major power source for electric mobility in Southeast Asia (from Lead-acid to Lithium Ion Battery)

The presentation will explore the transition from motorbike to e-bike and e-scooter market in Southeast Asia, including a discussion on the evolution and recent developments in rechargeable batteries and market trends. The footprint and future of a rechargeable battery that is both eco-friendly and has high energy density is discussed. The raw material for a lithium ion battery is lithium—this is a limited resource and solutions are needed to save this resource. There is a pressing need to invest in recycling resources and to increase power-use efficiency. The e-mobility batteries as in e-bicycle, e-bike, e-scooter and Segway can be recycled as an ESS (Energy Storage System).

Session 23: Characterizing Energy Demand for Last Mile: New Approaches for Economic and Social Inclusion

Auditorium Zone C

10 June, 9 a.m. – 10:30 a.m.

The delivery of energy access services over the “last mile” is fraught with a range of challenges, each unique to its location. The focus of this session is on energy access approaches that concentrate on the last mile, serving the rural and the poor, and those at a distance from the grid, as well as cooking energy distribution systems. Speakers in this session will also address key attributes of energy access such as affordability and reliability, and will discuss the issues of poverty, gender and social inclusion.

Session Chair

Soma Dutta, Programme Coordinator, Women's Economic Empowerment Programme
ENERGIA, International Network on Gender and Sustainable Energy

Panelists

Simone Rolfe, Program Manager, Energy
EU Delegation to the Philippines

Bridging the gap: How Can Donors Support Investment for Last Mile Connectivity?

Last mile connectivity poses a series of challenges which will require strong partnership between government, private sector, donors, lending institutions, and local communities. Based on the example of the Philippines and the European Union's EUR 60 million Access to Sustainable Energy Programme (ASEP), this presentation argues that last mile connectivity requires measures that promote an enabling environment for investors, sustainable business models, and financing possibilities that address various market needs. A global supporter of SE4ALL, the European Union is applying a mix of supportive mechanisms and direct financing in more than 30 countries, and has allocated more than EUR 3.5 billion for a seven year-period, 2014–2020. The EU seeks to leverage this investment to EUR 15–30 billion in loans and equity, via Investment Funds and a new financing mechanism, ElectriFI. A first round of applications for ElectriFI launched in April has generated 265 applications for EUR 733 million to increase investments 17-fold in 52 countries. A next round of invitation can be expected for the last quarter of 2016.

Anjana Agarwal, Senior Project Associate
WRI and the SELCO Foundation

Mapping Bottom-Up Data for Improved Electricity Supply through Multiple Supply Options: A Case Study of Udaipur (co-authored with SELCO Foundation)

Providing electricity to all by 2030 will need integration of various supply options. In the Indian context where the grid is widely present but supplies irregular power and is yet to reach every household, the complementary role that distributed solutions can play becomes even more pertinent. This study looks at one “energy poor” district in Rajasthan, India. We examine present levels of grid access, availability, and reliability, particularly in remote hamlets within “electrified” villages. Simultaneously, we look at the prevalence of off-grid solutions and electricity demand for various end-uses. Data collected through primary surveys, the utility, and the census is then layered to help identify how different solutions can be leveraged to provide sufficient supply to all and satisfy various end-uses. Through such tools we initiate a dialogue around transparent, participatory planning around electricity access, and the link between higher tiers of electricity supply and income, health, and education levels.

Sergina Loncle, Communications Manager
Kopernik

Empowering Indonesian Women to Expand Clean Energy Access in Last Mile Communities

Energy access is a massive challenge for a nation as large and geographically-dispersed as Indonesia. While the Indonesian government is committed to expanding energy access, existing government policies do not explicitly take into account women’s role in achieving this. Energy poverty affects men and women differently and access to energy technologies and services is prioritised for men and women differently. Through five years of implementing women’s economic empowerment through energy access projects in Indonesia, Kopernik has gathered compelling stories and evidence to prove that empowering women to sell simple, affordable clean energy technologies in last mile communities is an effective way of expanding energy access. More than 400 women across Indonesia have participated in Kopernik’s Wonder Women program, connecting clean energy technologies with 68,000 people, reducing CO2 emissions by more than 7,000 tonnes. Kopernik then shares the success stories through the ‘Indonesian Women for Energy’ campaign to raise awareness of women’s role in expanding clean energy access in Indonesia.

Shantanu Dixit, Coordinator
Prayas (Energy Group)

Using Technology for Evidence-Based Feedback to Ensure Quality Electricity Access

Access is often measured in terms of electricity connections. But reliable electricity is a key to achieving socio-economic benefits of electricity access. In developing countries, very limited information is available regarding actual hours and quality of supply in access deficit areas. Prayas is currently implementing an innovative approach to independently monitor supply quality. Under this Electricity Supply Monitoring Initiative (ESMI), specially designed Electricity Supply Monitors (ESM) which record minute by minute voltage, are deployed at remote locations. ESMI website www.watchyourpower.org publishes this data, in near real time, in a user friendly manner. Visitors to website can easily monitor parameters such as number and duration of interruptions, evening hours of supply for each location. The entire process is automated. Currently ESMI is being implemented at 200 locations across India and presentation will share analysis of actual supply quality experienced at these locations.

Khim Kaing, Deputy Director General, Department of Fisheries Administration
Ministry of Agriculture, Fisheries and Forestry, Royal Government of Cambodia

Advocacy for Energy: Powerful New Leadership Role for Women’s Strategic Support Group

The Gender and Children’s Working Group (GCWG) is forging a bold new path to support rural Cambodian women’s energy access. With a higher-than-average proportion of female-headed households, rural communities are further impoverished by lack of access to electricity, and face the arduous collection of traditional fuels. This limits their productive capacity and thereby their children’s nutrition, health, education, and life opportunities. Recognizing that emerging climate finance mechanisms can help redress this deficit, the GCWG has prepared itself to vigorously pursue these new opportunities, redefining its horizons to secure the inclusion of women in gender-responsive project proposals with the potential to deliver valuable co-benefits in addition to GHG emission reductions. The acquisition of knowledge about climate science and how climate change mitigation projects can engage and empower women to access clean energy and participate in the new economy, provides a platform for the GCWG’s first Green Climate Fund project proposals.

Session 24: Food, Water, and Energy Nexus: Perspectives from Asia

Auditorium Zone D

10 June, 9 a.m. – 10:30 a.m.

The pursuit of sustainable energy at scale has taken place mainly in the traditional, utility-oriented business space. This approach can easily overlook the world's bottom billion, who do not have access to commercial energy, clean water and sanitation, and are at the greatest risk of food insecurity. The bottom billion are also highly vulnerable and least able to adapt to the risks of climate change. Speakers in this session will present case studies on successful approaches to the complex challenges associated with ensuring food and water security in parallel with more sustainable energy services.

Session Chair

Dan Millison, Manager
Transcendery L.L.C

Presenters

Muhammad Tayyab Safdar, Affiliated Lecturer
University of Cambridge
Smart Villages approach to the Water-Energy-Food (WEF) Nexus

There is increasing pressure on natural resources due to rapid economic growth, climate change and increasing population. These challenges call for a holistic approach to development, one which recognizes the inextricable link between water, energy and food. Through the water-energy-food (WEF) nexus lens, this presentation highlights the potential of Smart Villages in off-grid locations. Access to modern decentralized off-grid energy, coupled with appropriate enabling frameworks, can improve environmental sustainability, and enhance access to resources like water. This presentation shows that renewable energy solutions can mitigate some of the adverse impacts of climate change and extreme weather events. Technological solutions, like efficient solar pump sets, can improve groundwater access and help farmers' access high value agricultural chains from which they were previously excluded.

Salil K Sen, Applied Researcher
Waste-Water-Energy Ownership in the Asia Pacific Arena

This presentation highlights the climate-financed, disaster-resilient, community-centric energy architecture, that is greatly inter-dependent on water and waste. For a results-based dynamic performance monitoring of WWE_Own, a clear outline of a habitat's boundaries is needed. The habitat needs to span both urban and rural, to create 'rurbanized' pathways of energy, water, and waste flows. This 'rurbanization' pivots on energy and with a fulcrum on water and waste, can enable multiple clusters of sustainable development goals (SDGs). A review, both spatial and temporal, was made to illustrate local—regional—global needs. The presentation explores (i) future-charting energy as a link to regional integration, (ii) health and clean energy, (iii) stand-alone energy infrastructure (iv) energy entrepreneurship for agricultural and transport (mobility) and (v) energy empowering gender equity.

Kanagaratnam Ratneswaran, Chief Engineer (Distribution Planning)
Ceylon Electricity Board
Effective Demand Side Management for an Isolated Island Power System in Sri Lanka with Renewable Energy Sources

The presentation showcases demand side management for an isolated island power system on a small island in Sri Lanka. Electricity on this island had been previously supplied by a diesel generator for 2 hours in the morning and 4 ½ hours at night and the cost of electricity generation was five times higher than the mainland. The hybrid solution designed was a wind plant, battery storage and a hybrid control system. Four industrial loads, two water desalination plants to produce drinking water and two ice making plants were added to the system. By controlling industrial loads at the morning and evening peaks periods a flat load profile was obtained to optimize the use of all generators, loads and storage.

Satya Kumar DV, Managing Director
Shri Shakti Alternative Energy Ltd

Supporting the scale of solar pumping in India through remote performance monitoring

India has set an ambitious target of rolling out 3 million solar irrigation pumps by 2022, with an estimated cost of US\$ 30bn. This massive scale up draws on the success of an innovative scheme in Rajasthan State which combined the stand-alone federal and state government schemes, and offered a packaged solution for the livelihood of farmers. The 'Solar Water Pumping Program in Rajasthan' introduced a composite irrigation package through creation of water harvesting structures, recharging ground water, pumping with solar pumps and irrigating through drip. To support the scale-up of the solar pumping program, the "Remote Performance Monitoring and Outsourced Service Management of Solar Pumps and Off-grid Solar PV Plants" was developed. This was selected for funding by the India PACEsetter Fund.

Chih-Ting Lo, Principal
EELO Solutions

Sustainable Aquaculture - a case study on Atlantic salmon farming in Canada

Seafood consumption has grown more than 14 fold between 1980 and 2012 and is expected to continue growing especially in emerging markets with population increase. Global salmon production, where approximately 70% is farmed, was more than 2.8 million tons in 2013. As wild salmon stock stagnates, current and new demand will be met by farmed species. Currently, salmon farming around the world is done in open-nets in the ocean, where grid connected power is not available and this relies on diesel power generation. This presentation provides an overview of the industry and discusses best practices and policies in Canada regarding to salmon aquaculture that minimizes energy and environmental impacts in the entire lifecycle, as well as technologies and innovations that can transform the industry.

Closing Plenary Session: What's Next: Robust Solutions for Asia's Clean Energy Future

10 June, 2 p.m. – 3:30 p.m.

ADB Vice-President Stephen Groff will provide a wrap-up report from the discussions in the Thematic Track sessions over the past three days, with an emphasis on key issues and lessons learned, identified, and emerging trends and opportunities for Asia's clean energy practitioners. This will be followed by a discussion with a diverse panel of clean energy leaders covering the non-profit, development, and business sectors, moderated by VP Groff. Panelists will be asked to reflect on discussions during the week and to highlight some of the key short- and medium term opportunities they see going forward in the development of the energy sector, as we move into the intensive implementation and monitoring phase following the agreements made at COP 21.

Following the panel discussion, Prof. Ralph Sims, who delivered an engrossing message at last year's ACEF on the water-food-energy nexus will discuss the aftermath of the Paris Climate Agreement. While the agreement is a powerful driver for the world to move towards a low-carbon economy, every country will need to play its part in moving away from fossil fuels. Is achieving net zero emissions soon after mid-century actually achievable, or an impossible dream?

The Forum will conclude with closing remarks from two of the core CEF organizers, WRI and ADB.

Closing Panel Discussion

Moderator

Stephen Groff

Vice-President (Operations 2)
Asian Development Bank

Panelists

Athena Ronquillo-Ballesteros

Director, Finance Center
World Resources Institute

Aurelia Micko

Deputy Director, Regional Environment Office
USAID Regional Development Mission for Asia

Soma Dutta

Program Coordinator, Women's Economic Empowerment Program
ENERGIA, International Network on Gender and Sustainable Energy, India

Edwin Lerch

Head of System Dynamics
SIEMENS AG, Germany

Yongping Zhai

Senior Advisor
Asian Development Bank

Keynote Address

Ralph Sims

Professor of Sustainable Energy/ Director
Massey University / Centre for Energy Research
The World of Energy, Post-Paris

Raffle Draw for 10 iPads

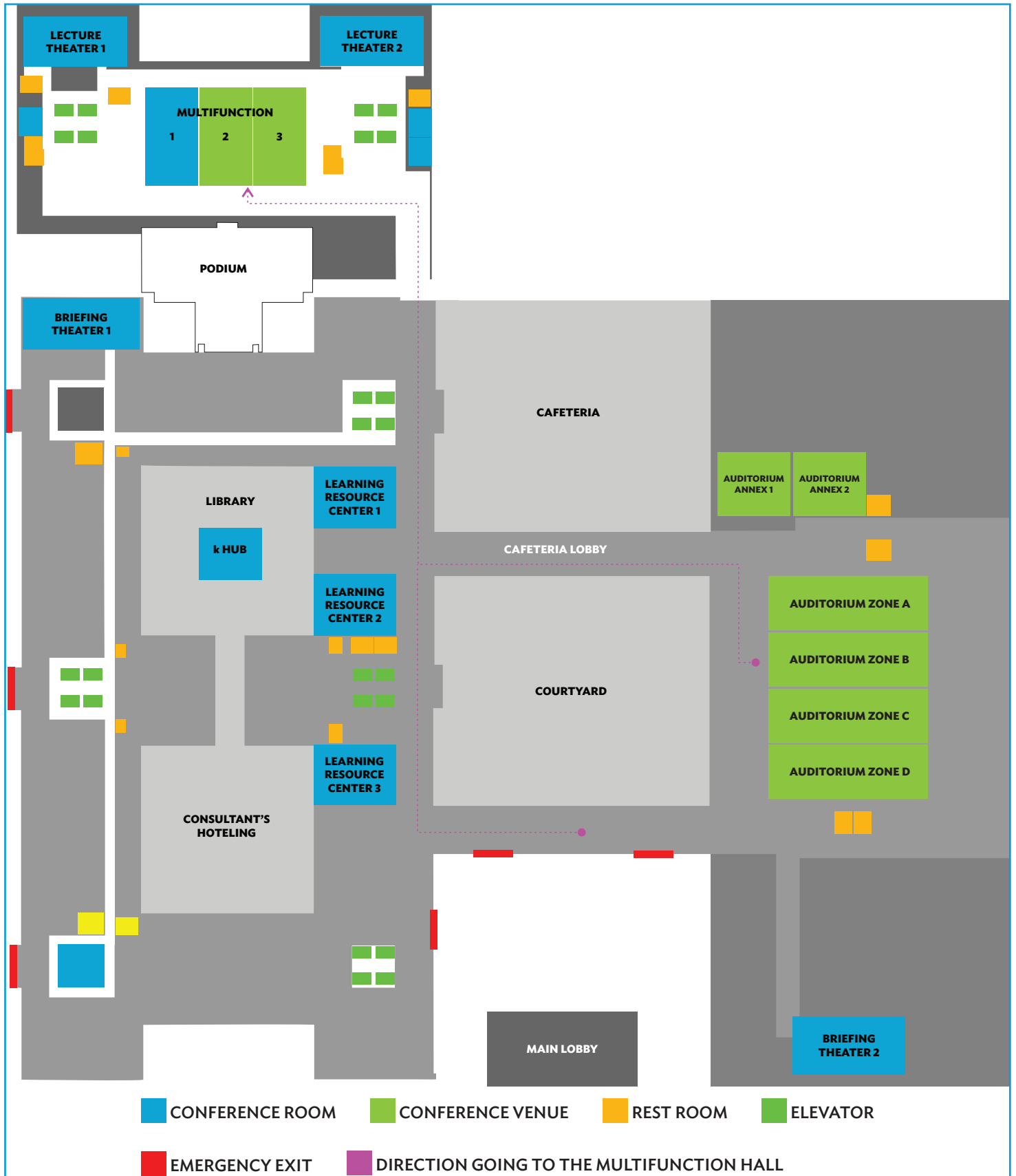
Closing Remarks

Manish Bapna

Executive Vice-President and Managing Director
World Resources Institute

Stephen Groff

Vice-President (Operations 2)
Asian Development Bank



About the Asia Clean Energy Forum

The Asia Clean Energy Forum is the region's premier knowledge-sharing event on clean energy. It attracts a diverse group of stakeholders including governments, national and multinational banks, carbon and clean energy investment funds, project developers and service providers, academics and civil society, and development partners and other international organizations. The forum provides a dynamic platform for crosscutting debates and discussions on clean energy development and financing, climate change, energy access and security, and governance in the energy sector.

About the Asian Development Bank

ADB's vision is an Asia and Pacific region free of poverty. Its mission is to help its developing member countries reduce poverty and improve the quality of life of their people. Despite the region's many successes, it remains home to the majority of the world's poor. ADB is committed to reducing poverty through inclusive economic growth, environmentally sustainable growth, and regional integration.

Based in Manila, ADB is owned by 67 members, including 48 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.

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For more information, please visit

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